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SOUTH CAROLINA[®]
A I K E N

USCA Academic Tracking Report 1
First-Year Student Retention Fall '02 to Spring '03
Conducted in Fall 2003

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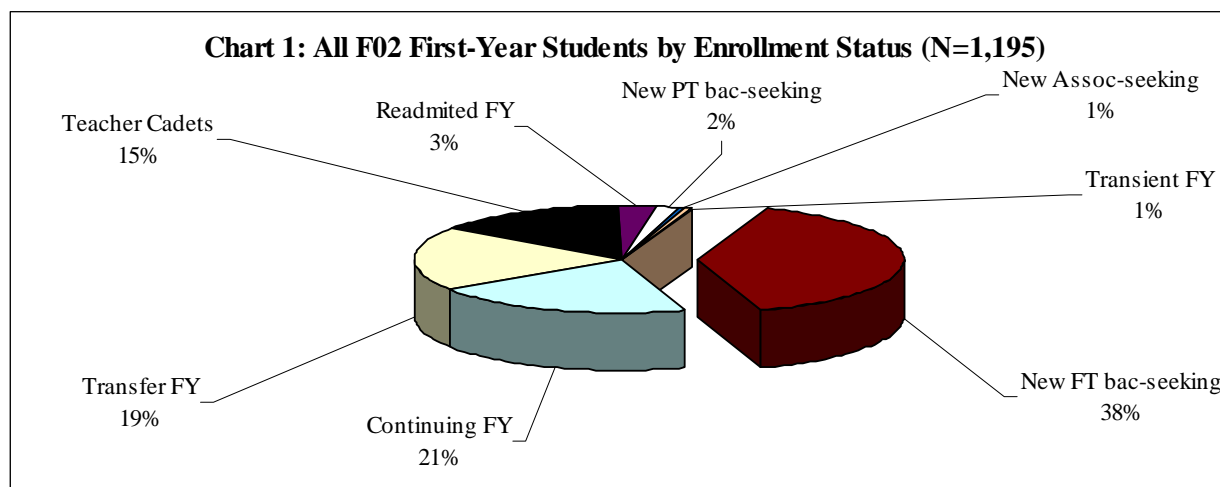
Overview

The new series *USCA Academic Tracking Reports* is a set of studies that provide in-depth analysis of specific groups and populations as they progress in their academic careers at USCA. This first installment examines retention, persistence, and academic success of the cohort of full-time freshmen entering in Fall 2002 into the Spring 2003 term. The genesis of this particular report lies in information needs expressed by the Committee for Foundations of Excellence in the First Year Experience as well as initial forecasted needs of the Enrollment Planning Team at USCA. Other faculty and staff in a variety of offices will also likely find these reports useful and germane to their respective offices. Related reports will be generated following a prioritized list of information needs.

- Of the 498 full-time students in the Fall 2002 entering freshman class, 54 (10.8%) of them did not return for the Spring 2003 semester. Only three of these 54 enrolled in the Fall 2003 semester, suggesting that once most entering freshmen leave USCA, they do not return.
- Men in the Fall 2002 first year cohort did not return to USCA at a disproportionately high rate for Spring 2003; students' reported race or ethnicity did not appear to be a factor in Fall to Spring retention of freshmen.
- Among previous academic factors examined, while SAT/ACT scores did not predict students' persistence from Fall to Spring, the mean high school class rank among non-returning students (top half of their class) was lower than the mean class rank of those who returned (top third of their class).
- A strong correlation was observed between attrition in the cohort and low levels of academic success (GPA < 2.0). For the 54 non-returning students, the mean Fall GPA was 1.08 for 14.3 credits; 76% of this group earned a GPA below 2.0. This correlation should not be confused with causality; poor academic performance may be a symptom rather than a cause of attrition.
- Almost one third (150 students) of the entering class earned a GPA of below 2.0 in Fall 2002 semester. Of the students in this group, only 62 were placed on academic probation, leaving 88 students (18% of the class) who were not sanctioned or notified of their unsatisfactory academic performance.
- Enrollments in ASUP 101 were disproportionately low among the group of non-returning students, although enrolling in ASUP 101 did not result in a measurably higher or lower semester GPA than those who did not take the class.

Methodology and Population for Analysis

Students included in this analysis were full-time, first-year, degree-seeking freshmen; this is the population (minus the 17 who entered seeking associate's degrees) about which first-year retention and graduation rates must be reported to federal and state agencies as well as national publications such as *U.S. News and World Report*, although it represents only 38% of the 1195 students who were classified as freshmen in Fall 2002 (see the highlighted segment in Chart 1). For the purposes of this report, phrases such as entering freshmen, first-year students, incoming cohort, etc. all refer to this population of students.



To select this population from the E02AIKN data file on the mainframe, students with specific characteristics were included in the analysis. The study population included only students who were coded as one of the following Basis Types:

Basis Code	Descriptor 1	Descriptor 2	N = 498
CA	High School Certificate	Associate Program	0
CB	High School Certificate	Bachelor Program	0
CX	High School Certificate	Mature Student	0
FB	Foreign	Bachelor	12
HA	High School Graduate	Associate Program	15
HB	High School Graduate	Bachelor Program	465
HX	High School Graduate	Mature Student	6

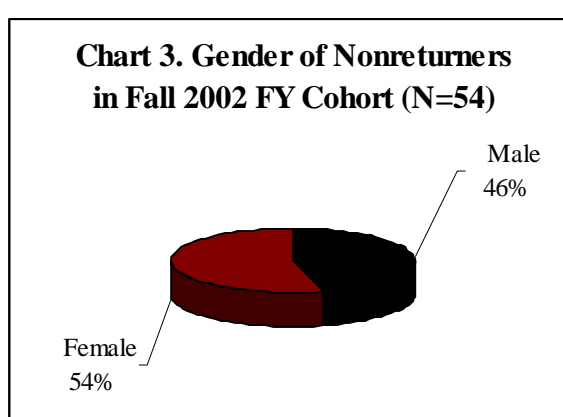
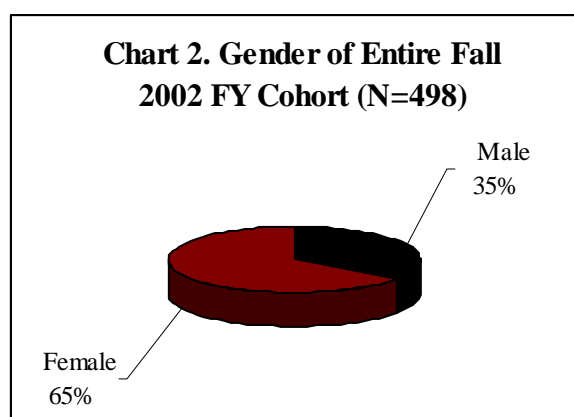
These students may have applied for admission for the Summer 1, Summer 2, or Fall 2002 terms. Additionally, for students in this incoming cohort, the Record New Student Indicator (variable name RECNSI) is set at 1 for the Fall 2002 term, indicating that the students were new students. To be included in the analysis students must have been registered for the Fall 2002 term on the October 26 data "freeze" date.

Demographic Profile

The entering class in Fall 2002 was about two-thirds female (65%) and one third male (35%). Almost half (46%) of non-returning students were men, indicating that male students did not return to USCA in the Spring of 2003 at a disproportionately high rate. As a point of comparison, results of the Fall 2003 CIRP survey indicate that 33.9% of men in the entering class of 2003-04 think it is very likely they will transfer to another institution, while only 20.2% of women think it is very likely they will transfer. While the CIRP study was conducted on the Fall 2003 cohort rather than the Fall 2002 cohort, it is likely that students in the earlier cohort exhibit similar intentions.¹

Most students in the Fall 2002 cohort were white, non-Hispanic (70%), while almost a quarter of the class (22%) was black or African-American, non-Hispanic. Other races or ethnicities comprised 3% of the class. Race was not a substantial predictor of persistence; indeed the subpopulation of students who did not return, mirrors the racial/ethnic composition of the entering class.

	Entire Fall 2002 FY Cohort (N = 498)		Nonreturners in Spring 2003 (N = 54)	
	Pct	N	Pct	N
Gender:				
Male	35%	175	46%	25
Female	65%	323	54%	29
Race/Ethnicity:				
White, Non-Hispanic	70%	350	72%	39
Black or African American, Non-Hispanic	22%	107	19%	10
All others	3%	15	2%	1
No Response	5%	26	7%	4



¹ See "USCA Cooperative Institutional Research Program (CIRP) Survey Results and Analysis," (Office of Institutional Effectiveness, Univ. of South Carolina Aiken, 2004), Appendix 2, 17. Available online at <http://assess.usca.sc.edu/ira/surveys/cirp2003.pdf>.

Entering Academic Profile

Test Scores and High School Performance

The entering academic profile of students in the Fall 2002 incoming cohort does not exhibit substantial differences in SAT/ACT scores between students who persisted into Spring 2003 and those who did not. The mean high school class rank of the cohort as a whole was in the top third of their class (66th percentile). As a group, nonreturners had a lower mean high school class rank, placing on average in about the top half of their class (55th percentile), than those who persisted into Spring 2003 (68th percentile). This characteristic accounts for the predicted GPA of nonreturners (2.52) being slightly lower than the predicted GPA for the entire cohort (2.70), although well within the standard deviation of 0.42. The standard deviations for all of these indicators, however, suggest that predicting academic success based upon these factors for an individual student would be extremely difficult (see Table 2).

Table 2. Academic Profile of Fall 2002 FY Cohort

	Entire Fall 2002 FY Cohort		Nonreturners in Spring 2003	
	Mean	St. Dev.	Mean	St. Dev.
SAT Verbal Score	492²	80	488	70
SAT Math Score	499¹	79	496	71
SAT Combined Score	991¹	142	984	126
ACT Composite Score	18.6¹	3.2	18.2	3.4
HS Class Size	209	113	203	124
HS Class Rank	66%ile	22	55%ile	21%
Predicted GPA ³	2.70	0.42	2.52	0.33

Chart 4. Comparison of Mean Admission Test Scores

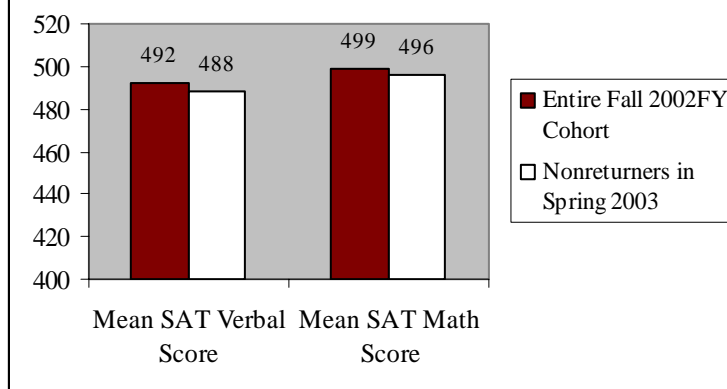
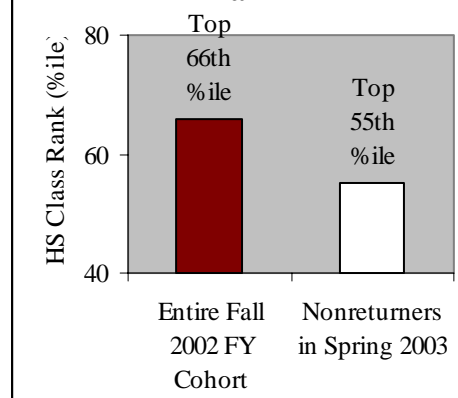


Chart 5. Comparison of Mean High School Class Rank



² Because ACT Composite scores are converted into SAT scores when USC generates official reports, official scores for the Fall 2002 entering full-time freshman class are reported as SAT Math: 508, SAT Verbal: 499, SAT Combined: 1007 and ACT Composite: 19.

³ Excludes predicted GPA based on Composite ACT scores.

Intended Majors of First-Year Students

The intended major of entering first-year students did not predict persistence from fall to spring, except perhaps in the case of engineering. In fact, while it might be hypothesized that students entering without a declared major would feel less of a connection to their classes and the institution and therefore be less likely to persist, the proportion of non-returning students who had not declared a major almost exactly reflected that of the general population of entering freshmen.⁴ The higher rate of attrition among declared engineering majors is likely a function of the necessity to transfer from USCA in order to complete this degree. To complete this major, these students do not decide if they should transfer but rather when they should transfer.

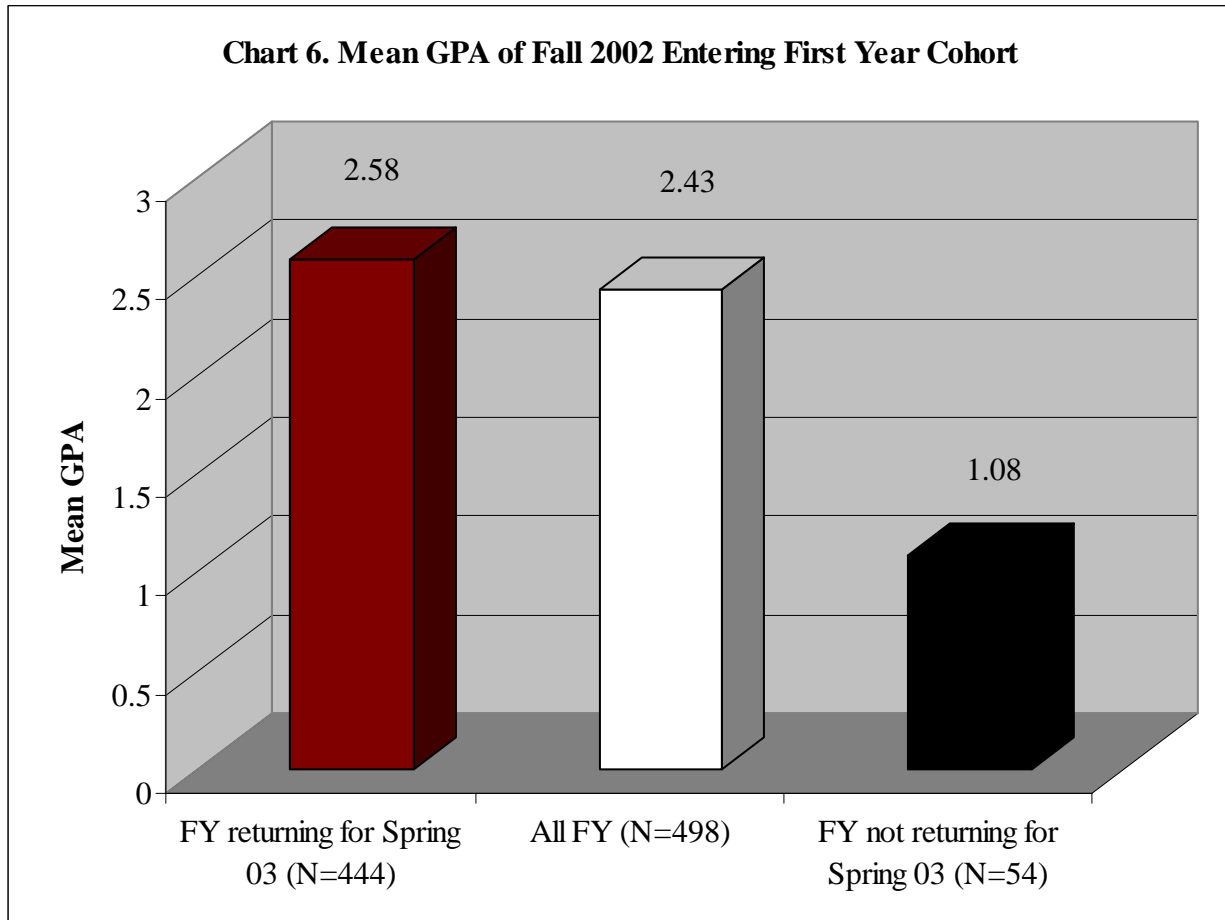
<i>Intended Majors</i>	Entire Fall 2002 FY Cohort		Nonreturners in Spring 2003	
Undecided - No Major	18%	90	19%	10
Business Administration	15%	75	13%	7
Nursing (BSN Generic)	11%	53	15%	8
Biology	9%	47	7%	4
Elementary Education	7%	36	4%	2
Lower Division Engineering	5%	27	11%	6
Secondary Education	5%	26	4%	2
Psychology	4%	20	4%	2
Early Childhood Education	4%	20	2%	1
Exercise and Sports Science	3%	17	4%	2
Communications	3%	15	2%	1
Math and Computer Science	3%	14	4%	2
Fine Arts	3%	13	6%	3
Sociology	3%	13	2%	1
Political Science	2%	8	0%	0
Nursing (2Yr)	2%	8	0%	0
Pre-Pharmacy	1%	5	0%	0
English	1%	4	2%	1
History	1%	4	2%	1
Chemistry	0%	2	2%	1
Special Education	0%	1	0%	0

Indeed, if intended major and students' academic experiences in that subject were a factor in first to second semester persistence, then attrition rates for professional schools (business, education, and nursing) would be expected to be higher than observed. Fewer than 20 first year students in the Fall 2002 entering cohort took courses in the disciplines of business, education, or nursing (see Table 6). Students planning to major in one of these professional fields would have been taking general education courses and pre-requisite courses (e.g. ABIO 232 Anatomy for the nursing majors), but since their attrition rates were similar to those of students intending to pursue liberal arts and science majors, a mismatch between their interests and their first semester course content is likely not a significant factor in their persistence from Fall to Spring.

⁴ Alexander, W. Astin, "Student Involvement: A Developmental Theory for Higher Education," *Journal of College Personnel*, 25(4), 297-308 promotes the theory that college persistence is a function of the connection felt by students to the institution. Declaring a major is in part indicative of this connection.

Academic Performance in the First College Semester

While students in the non-returning group enrolled in about the same number of credits (14.3 credits) as their peers in the rest of the class (14.0 credits), their level of academic success at the end of the Fall 2002 semester was substantially lower than those who did persist to the Spring 2003 semester. The mean grade point average (GPA) for the class was 2.43; for students who returned in Spring, the mean GPA was 2.58; and for students who did not return, the mean GPA was 1.08. This difference in academic performance between groups is significant.



Further, the distribution of GPAs among the non-returning group reveals that only just under a quarter (24%) of them maintained a “C” (2.0) or better. Of the remaining 76% whose semester GPA was less than 2.0, 14 students earned a GPA of 0.0 (all grades of “F”); another 14 earned a GPA of more than 0.0 but less than 1.0; 21 students earned a GPA of 1.0 but less than 2.0; and 5 students withdrew completely from all of their classes (all grades of “W” – since these grades carry no quality points, they were not averaged into calculations of aggregate GPAs for the cohort).

Table 4. Academic Performance of Fall 2002 FY Cohort

	Entire Fall 2002 FY Cohort		Nonreturners in Spring 2003	
	Mean	St. Dev.	Mean	St. Dev.
Fall 2002 Credits Enrolled	14.0	2.2	14.3	1.4
Fall 2002 GPA	2.43	1.01	1.08	1.06
	Pct	N	Pct	N
GPA < 2.0	30%	150	76%	41
GPA ≥ 2.0 and < 3.0	36%	177	7%	4
GPA ≥ 3.0 and ≤ 4.0	33%	166	7%	4
Complete Withdrawals	1%	5	9%	5
<i>Academic Probation following Fall 2002 Term⁵</i>				
0-14 GPA Hours, GPA < 1.2	9%	43	24%	13
15-30 GPA Hours, GPA < 1.4	4%	18	31%	17
31-45 GPA Hours, GPA < 1.6	0%	1	0%	1
Probation Total	12%	62	57%	31
<i>Registration in Key Courses</i>				
AEGL 101 Composition	85%	425	93%	50
AMTH 108 Applied College Algebra	49%	245	65%	35
ASUP 101 Strategies for Academic Achievement	17%	87	11%	6

The strong correlation between academic performance and persistence should not be confused with causality. That is, it is not necessarily the case that students chose not to return because their academic performance was unsatisfactory. Indeed, especially in instances where students earned all or mostly grades of “F,” it is possible, if not likely, that their decision not to return to USCA for whatever reason was made before the end of the Fall term, and the students simply stopped turning in work, going to class, or taking exams.

Academic Probation, Academic Performance, and Persistence

Findings about academic performance and academic probation suggest that a surprising number of low academic performers were not placed on academic probation as a matter of policy. In these cases of poor performance, no intervention occurred even though the students could be deemed to be at-risk of not meeting requirements for a degree. Indeed, while 31 students who performed very poorly in the non-returning group would have received letters about academic probation (57%), only 62 freshman in the entire cohort (12%) fell below the threshold for academic probation and would have received official notifications of their unsatisfactory academic performance. Almost a third of the freshman class (30%) or 150 students earned a semester GPA of less than 2.0 in their first semester, which means that 88 of these students received no official communication or intervention from the university because of their performance, even though continued performance at such levels would not allow for graduation and likely places them at higher risk to drop out than those with GPAs above the 2.0 threshold. This level of intervention may be inadequate, especially given the findings that correlate academic performance with persistence.

⁵ Because of the sliding scale related to collegiate hours earned, the figures in these columns represent estimated minimum numbers on probation.

Registration and Performance in Key Courses

Registration in neither AEGL 101 Composition nor AMTH 108 Applied College Algebra was predictive of persistence. Indeed, among the group of non-returning students, the percentages of students who enrolled in introductory composition (95%) and algebra (65%) were higher than the percentages among the entire freshman cohort (85% and 49% respectively). In light of the slightly lower mean class rank among non-returning students, it is possible that the group of nonreturners included a lower percentage of students who placed out of introductory courses. The relatively high percentages of non-returning students enrolled in these classes, however, would suggest that low-performing, non-returning students at least had the opportunity to acquire foundational writing and mathematics skills in their first semester (unless these courses were also too advanced for their entering skill level).

Enrollment in ASUP 101 Strategies for Academic Achievement may play some factor in persistence from Fall to Spring semesters. For the entire freshman cohort, only 87 students or 17% of the class took ASUP 101 in Fall 2002; the average grade for the course was 3.3 or a low “B+.” Among students who did not return for Spring 2003, only 6 students or 11% of nonreturners took ASUP 101. Placed in context of the overall attrition rate of 10.8% of the cohort from fall to spring, these results indicate that the rate of attrition among those students who took ASUP 101 was lower than among their peers – the attrition rate from fall to spring for those enrolled in ASUP 101 was only 6.8%.

Enrollment in ASUP 101 did not, however, correlate with a higher fall semester GPA. For all 87 freshmen enrolled in ASUP 101, the mean GPA was 2.48 (2.40 when adjusted) whereas the mean GPA for the entire cohort was 2.43.⁶ These differences do not rise to the level of statistical validity. Nevertheless, without a solid control group, these findings should not be taken to suggest that ASUP 101 does not improve academic performance. It is possible that students who took ASUP 101 would have performed worse than they did had they not taken it. It is also possible that their academic performance may improve over time.

In terms of nonreturners’ course performance, an analysis of Pearson Product Moment Coefficients indicates that very strong correlations exist among performance in ASUP 101 and other courses, especially AEGL 101 ($p=0.97$), but such correlations merely indicate that students who do well in one class typically do well in others and these correspondences are observed among all students.

	<i>ASUP101 grade</i>	<i>AENGL101 grade</i>	<i>AMTH108 grade</i>	<i>GPA</i>	<i>SATV</i>	<i>SATM</i>
ASUP101 grade	1					
AENGL101 grade	0.970725	1				
AMTH108 grade	0.539121	0.695291	1			
GPA	0.864868	0.858509	0.858304	1		
SATV	0.391392	0.003867	0.34992	0.125677	1	
SATM	-0.4835	0.091519	0.253599	0.03775	0.6109	1

⁶ The average grade for the 1 credit ASUP 101 is 3.3, which is substantially higher than grades in the rest of the freshman curriculum. To prevent the grade from ASUP 101 artificially inflating semester GPA, the adjusted GPA was calculated by discounting the quality points earned and calculating these students’ semester GPAs as if they did not take ASUP 101.

Course Selection and Courses Most Enrolled by Entering Students

The menu of courses taken by USCA first-year students suggests that many entering students take several common classes. The class most shared among entering students was AEGL 101 Composition, with about five-sixths (85%) of the freshman class enrolling in this writing course in their fall term. About half of the first-year class also took AMTH 108 Applied College Algebra (49%) and APSY 101 Introductory Psychology (48%); just under a third (32%) took ASCY 101. About one-sixth (17%) of entering freshmen enrolled in ASUP 101.

Table 6. Top Fall Semester Classes By FY Entering Cohort Enrollment (2002)

Rank	Course	Course Number	# FY Enrolled	% FY Cohort (N=498)	Avg. Course Grade	Avg. Course SATV	Avg. Course SATM	Avg. Course ACT
1	AEGL	101	425	85%	2.4	489	498	18.4
2	AMTH	108	245	49%	2.4	469	468	17.6
3	APSY	101	239	48%	2.1	487	492	18.6
4	ASCY	101	160	32%	2.3	489	492	18.6
5	ASUP	101	87	17%	3.3	489	496	18.3
6	ATHE	161	83	17%	2.6	481	478	18.3
7	AHST	101	75	15%	2.0	497	500	19.0
8	AMUS	173	61	12%	3.0	474	496	18.2
9	ABIO	102	44	9%	2.0	480	500	18.0
10	ASUP	110	43	9%	3.3	488	483	17.8
11	ACHM	101	41	8%	2.4	467	490	17.1
12	ACHM	111	40	8%	2.6	546	583	22.8
12	APLS	201	40	8%	2.3	491	506	17.2
14	ASPA	121	39	8%	2.8	498	490	19.7
15	AGLY	201	36	7%	2.9	469	483	18.0
16	ABIO	101	31	6%	2.5	509	517	20.1
17	AGRY	101	26	5%	1.9	488	498	19.7
18	AEGL	102	25	5%	2.8	509	485	19.5
18	AMTH	141	25	5%	2.6	546	571	21.0
20	ABIO	232	24	5%	1.7	461	482	18.0
20	AGRY	103	24	5%	1.3	496	508	17.6
20	AHST	102	24	5%	2.7	491	481	19.9
23	APLS	101	23	5%	2.9	503	486	18.4
24	AHST	202	21	4%	2.4	502	483	
25	AANP	101	19	4%	2.1	519	497	18.7

The high enrollment of entering students in the top 10 or 12 courses (those with 40 or more first year students), suggests that further study and tracking of these courses be extended over time and in greater depth. This study should minimally include an analysis of class size in these selected courses and persistence.

It is worth noting that in three of the courses in the top 20 (ABIO 232, AGRY 101, and AGRY 103), the mean freshman grade for the course was under 2.0. Although this mean falls within the standard deviation for grades earned by freshmen in their Fall 2002 courses (mean grade = 2.4, standard deviation = 1.2), some examination of these courses may be warranted in order to determine why freshmen fare poorly in them.

During the Spring 2003 semester freshmen enrolled in a broader range of courses, an effect which is to be expected as students pursue specific interests. Enrollments in the second course in the freshman composition sequence are quite high, with over two-thirds of those remaining in the cohort taking AEGL 102 Composition and Literature in their second semester. Since 85% of these students took AEGL 101 in the Fall, the year-long composition sequence likely represents a common freshman year experience for at least half of the incoming class.

AMTH 108 again was second among classes with the highest level of freshman enrollment. The markedly higher mean SAT for students taking AMTH 108 in the Spring suggests that this group of 94 students does not include a substantial number of students who failed the course in the Fall. If this is true, then AMTH 108 also represents a common freshman experience for more than half of the incoming class. (This is likely not the case for students taking AEGL 101 in the Spring).

Table 7. Top Spring Semester Classes By FY Entering Cohort Enrollment (2002)

Rank	Course	Course Number	# FY Enrolled	% FY Cohort (N=444)	Avg. Course Grade	Avg. Course SATV	Avg. Course SATM	Avg. Course ACT
1	AEGL	102	307	69%	2.4	498	505	19.0
2	AMTH	108	94	21%	2.1	486	481	19.0
3	APLS	201	89	20%	2.3	471	473	18.8
3	ASCY	101	89	20%	2.3	485	478	18.5
5	AHST	102	80	18%	2.5	484	498	18.7
6	ATHE	161	76	17%	2.7	480	490	19.6
7	APSY	101	73	16%	2.2	494	493	17.6
8	AEGL	101	70	16%	1.9	461	480	
9	AMUS	173	58	13%	3.1	496	501	18.5
10	ABIO	102	56	13%	1.8	496	492	18.4
11	AMTH	111	44	10%	2.2	480	490	18.2
12	ACHM	105	36	8%	2.9	453	487	17.6
12	AGLY	101	36	8%	2.2	492	501	19.4
14	AHST	202	34	8%	2.6	505	502	18.3
15	AMTH	170	33	7%	2.3	481	511	17.2
16	ABIO	101	30	7%	2.4	500	494	19.0
16	AMTH	221	30	7%	2.8	479	472	19.7
16	ASPA	122	30	7%	2.4	511	499	19.6
19	ABIO	232	29	7%	2.0	480	482	
19	AGRY	102	29	7%	2.0	484	491	18.6
19	AHST	201	29	7%	2.0	501	501	19.2
22	ACHM	112	27	6%	2.9	558	595	
23	AEXS	203	26	6%	3.6	510	500	
23	AMTH	122	26	6%	2.7	489	522	21.2
25	AMUS	175	25	6%	3.1	500	497	20.5
25	ASTA	201	25	6%	2.3	490	504	17.7
27	AEDP	330	22	5%	3.2	466	490	16.9
28	ACHM	111	21	5%	1.9	482	526	
29	AHST	101	20	5%	2.9	498	462	20.1

Conclusions

While further analysis of first year students' academic performance is necessary, some initial tentative conclusions may be advanced:

1. Poor academic performance (GPA < 2.0) during the Fall semester is a common characteristic of three fourths of nonreturners, although it is important to observe that this level of academic performance may only be a symptom rather than a cause of attrition. Improved early detection of low levels of academic performance, perhaps even earlier than midterm, may help to identify students at risk of leaving USCA, and appropriate intervention could be implemented.
2. About one-third of the entering class earned a GPA of less than 2.0 in the Fall semester, and this level of academic performance among such a high proportion of the class may be a predictor of attrition in future semesters. Further, since more than half (88 out of 150) of these students received no warning or notice of probation, intervention measures may need to be developed to address their academic progress or to identify other causes of their performance.
3. AEGL 101 Composition represents a common experience already in place for five sixths of the entering class; two thirds of the class take AEGL 102 Composition and Literature.
4. While more research is necessary to produce a larger sample, for the Fall 2002 cohort, students who enrolled in ASUP 101 had a 37% lower attrition rate from Fall to Spring than students who did not. Broadening the scope of this course to cover more of the entering class may improve overall retention, although it could be important to consider how requiring the course might affect particularly strong students who might resent an additional requirement.
5. Further research projects of this nature should be conducted to discover trends and confirm or refute findings of this initial study. In rough order of initial planned completion these projects should include:
 - a. A study of the Fall 2002 cohort's persistence from Spring 2003 to Fall 2003 (the overall Fall to Fall retention rate of this cohort was lower than previous years: 68.2% remained at USCA, and 72.2% remained within the USC system).
 - b. A study similar to the present one of the Fall 2003 cohort's persistence to Spring 2004.
 - c. A study of average class size among the 10-12 courses with highest freshman enrollments. This study should be longitudinal in scope and compared to the freshman retention rate at least as far back as 1997 (a first year cohort that exhibited a remarkably high retention rate).