

**The Cooper Union
The Albert Nerken School of Engineering**

LONGITUDINAL STUDENT TRACKING

Report on

**RETENTION, GRADUATION, AND DROP-OUT RATES FOR THE
1990, 1991, 1992, 1993, AND 1994 COHORTS**

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Retention, Graduation and Drop Out Rates for the 1990, 1991, 1992, 1993, and 1994 Cohorts

Introduction

The new ABET-2000 criteria requires the longitudinal tracking of students' performance. One of the tasks of the Gateway Coalition is to help member schools institute a tracking system. This is a preliminary report on the longitudinal tracking carried out at Cooper Union. The work on tracking started in the Spring of 1997 and will continue throughout the current academic year. This report includes information on retention, graduation, and drop out rates for students entering the school in 1990, 1991, 1992, 1993, and 1994. Further data on academic performance will be included in a subsequent report.

In establishing the tracking process, we have followed the main guidelines for longitudinal tracking provided by Gateway and ABET 2000, particularly criterion 3, which states that schools have to be able to *demonstrate that student outcomes important to the mission of the institution and the objectives of the program are being measured, demonstrate that ABET 2000 student outcomes are being measured, document results, and give evidence that results are applied to the further development and improvement of the program.* Documentation on data collection and analysis is the first necessary step to achieve these goals.

We have included in Appendix A a comprehensive plan of the process to be followed in planning longitudinal tracking at Cooper Union." Now in its beginnings, tracking needs to become a collective task if we want it to be effective. We need to decide upon additional data to be collected so that the institution's mission is clearly reflected in the process. *We need to devise a routine for feedback* so that tracking naturally becomes an assessment tool used to improve programs' qualities. Finally - and importantly - *we need to improve on the logistics of the process* by insisting on the extreme importance of electronically storing data and keeping it over time. **Our present efforts on data collection and analysis will not serve our future purposes unless we give tracking a strong institutional status.** Also included as Appendix B is a section on methodology and definitions, which will help clarify how to proceed in order to collect, code, and analyze the information supporting the main conclusions.

Cohort (longitudinal) tracking has never been done before at Cooper Union. The process is very time consuming due to lack of resources and proper electronically stored data. As a consequence, the process goes much slower than we wish. By implementing cohort tracking, we should be able to track students performance from the time of entry onwards, up to graduation and beyond. **Once cohort tracking is established as a common feature of the school's program, we will be able to use the information it will provide to improve the programs in accordance with the institutional vision and our students' needs.**

A final section ("Further Work and Recommendations") summarizes the task ahead.

SUMMARY OF CONCLUSIONS

As the analysis shows, both drop out rates and graduation rates at the Engineering School are higher than anecdotal evidence would lead one to believe. In the period analyzed, graduation rates have been relatively low (on the average, 60% graduate in four years) and drop out rates have been relatively high (on the average, 25% leave without graduating). This pattern is more accentuated for minority and female students. We need to know more about why this happens; longitudinal tracking will focus on close analysis of these processes. Of course, some of these figures compare favorably with national average figures. Yet Cooper ought not to be compared to national averages. According to the Chronicle of Higher Education (Oct. 3, 1997, p. 33), "in 1996 American College Testing reported that 20 percent of freshmen who enrolled in public colleges in Fall 1994 did not return as sophomores." In our case, the figure is 12%. An according to the Chronicle, "Among students who entered four-year colleges in academic 1991-92, 53.3 had graduated by the end of academic year 1995-96, a decrease of 4.2 points since 1983." Our figures show a rate of graduation in five years of 78% for the same cohort, but only 55% for graduating in four years.

Results for the cohorts from 1990 to 1994 have been aggregated on table 1 and graphically displayed on figures 1-6. They give a bird's eye view of the situation. The comparatively low rates of graduation in 4 and 5 years, particularly for the minority students and their higher drop out rate as well as that of female students, should be of concern.

A first-step should be an inventory of existing programs, support systems and activities available to these students in the School of Engineering. When a finer analysis of academic performance data becomes available, it may be possible to pinpoint program areas that need to be addressed to improve the situation.

Looking at trends for the successive cohorts from 1990 to 1994 (table 2) it will be observed that retention rates after the first year have remained steady since 1990. Between 88% and 91% of all entering students have returned for the second year in each of the cohorts considered. The rate of graduation in 4 years, which was 56% for the 1990 cohort, has increased noticeably: it was 68% for the 1993 cohort. The same trend is observable as regards graduation rates in 5 years, which went up from 71% in 1990 to 79% in 1992. However, given the expectations and the academic qualities of entering students, graduation rates are LOW. In the best of cases, only 2/3 of all entering students graduated in 4 years from the Engineering School in the period considered. Drop out rates do not exhibit a clear pattern: they went down at the beginning of the period considered, between 1990 and 1992 (from 28% to 20%), and went up between 1992 and 1994 (from 20% to 24%). Overall, one in four Cooper students leaves the school without graduating. An analysis by student groups (females, minorities, non-minorities, and males) gives us a closer view of these trends.

Female Students: Referring to table 3, it will be seen that the presence of female students has increased at Cooper Union since 1990. Females were 18% of all engineering students in 1990 and 30% in the 1994 cohort. Females' retention rates after the first year follow a two-way pattern: they went up to 1991 and then they went down. The peak of 1991 (97%) has never been reached since then. All in all, around 90% of all female students entering the school return the second year. Graduation rates in four years show a similar pattern: down from 1990 to 1991, and up again, but never as high as in 1990. Drop out rates have been improving, although there is no clear pattern. As a whole, most female who drop do so because they withdraw or because they resign, not because they are dismissed.

Male Students: (See table 4) Male presence has slightly gone down during the period: from 82% in 1990 to 70% in 1994. The most recent cohort, 1994, exhibits lower retention rates than previous cohorts. Graduation rates, on the contrary, have gone up. The rate of graduation in 4 years, which was 54% for the 1990 cohort, was 70% for the 1993 cohort; something similar is visible in the evolution of graduation rates in five years (from 71% in 1990 to 80% in 1992). Drop out rates show a low curve up to 1992; thereafter they go up. As in the case of female students, drop out rates improved noticeably in the first cohorts considered (up to the 1992 cohort), then worsened, although they never reached the lowest point of 1990. Males dropping out do so mainly because they withdraw and resign, except males in the 1990 cohort.

Minority Students: (See table 5) About 10% of all engineering students are minority (African and Caribbean American and Latino/Hispanic). Retention rates for this group have improved slightly, although no clear pattern is visible. Graduation rates in 4 years have also improved from a 28% in the 1991 cohort, but they remain very low: only 50% in the 1993 cohort. Graduation rates in 5 years show a similar pattern. Drop out rates improved in the 1991 and 1992 cohorts, but worsened in the 1993 cohort, reaching the level of 1990 (50%). Overall, the proportion of minority students who drop through dismissal between 1990 and 1994 is higher than for other groups.

Non-Minority Students: (See table 6) This is the largest student group at Cooper Union. Its evolution is expectably similar to the evolution of the entire student body during the period considered. Retention, and graduation rates have gone up since 1990, although graduation rates are relatively low, like for any other group and the entire student body. Drop out rates, went down in 1991 and 1993 and then up in 1993 (24%), almost reaching the highest rate of the period (25% in 1990). About 1/3 of all students dropping out were dismissed, and 2/3 withdrew and resigned.

For ease of comparison between student groups, the data on student groups has been reassembled by cohorts on tables 7 through 11 for each cohort from 1990 to 1994.

Further Work and Recommendations

- The work done on tracking cohorts has to be institutionalized so that it becomes routine every year.
- In collaboration with the alumni office, cohorts who graduated in the past should be surveyed, say every five years, through a simple questionnaire for measuring their "professional success level", however defined. Each year, a new cohort can be introduced.

As a suggestion, the tracking might span a period of 30 years, so that starting in 1997, the cohorts surveyed would be: 67, 72, 77, 82, 87, 92, (97).

The following year it would be 68, 73, 78, 83, 88, 93, (98).

Down to 71,76,81,86,91,96, (01)

Then return to 72, 77, 82, 87, 92, 97, (02)

Leaving out the oldest cohort graduated in 67. Since each cohort is approximately 100, the total mailing each year would be of the order of 500, not an exorbitant amount.

- The causes of the relatively low graduation rate in 4 years (60%) and the fact that one out of four students drops out before graduation have to be pinpointed, so have the causes for the relatively higher rates of drop out for women and minorities.
- The academic performance of students, individually and by group, has to be established for each cohort so that the point in the educational process where the slowdown resulting in a delayed graduation or the point where the drop outs occur, can be identified.
- The drop out portion of each cohort classified by gender, ethnicity and time spent in school before dropping has to be analyzed for their academic performance. Interviews pr questionnaires can be used to determine whether other factors in addition to academic performance were involved in their decision to drop. Previous analyses by the Admissions office will be helpful in this respect.
- An inventory of the programs and services available to students in general and particularly to women and minorities for improving their academic performance, helping their acceleration and enhancing their academic and life experiences in the school of engineering should be undertaken before any programmatic change be considered.

Tables and Figures

	MINORITY	NON-MINORITY	FEMALE	MALE
RETENTION AFTER FIRST YEAR	78.6%	89.8%	90%	88%
GRADUATION IN 4 YEARS	41.8%	61.9%	58.9%	60%
GRADUATION IN 5 YEARS	62.2%	73%	72.6%	76%
DISMISSED	16.9%	6.4%	6.9%	7.7%
WITHDREW+RESIGNED	20%	15.1%	20%	14%
TOTAL DROP OUTS	36.9%	21.5%	26.9%	21.7%

Table 1: AVERAGE PERCENTAGES FOR COHORTS FROM 1990 TO 1994

Fig. 1: RETENTION
Average % 1990-94

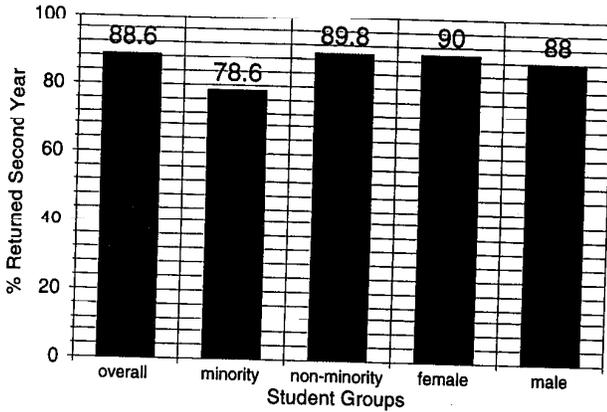


Fig. 2: GRADUATION IN 4 YEARS
Average % 1990-94

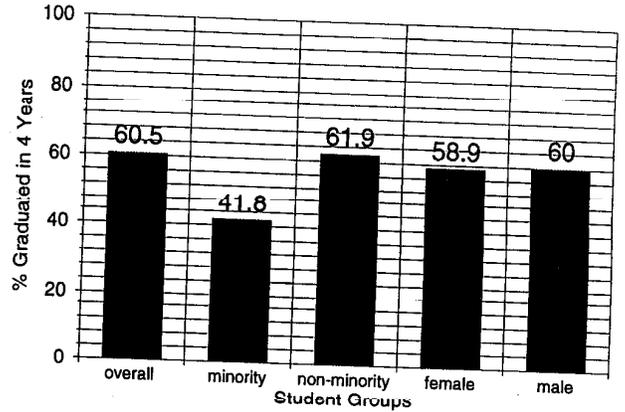


Fig. 3: GRADUATION IN 5 YEARS
Average % 1990-94

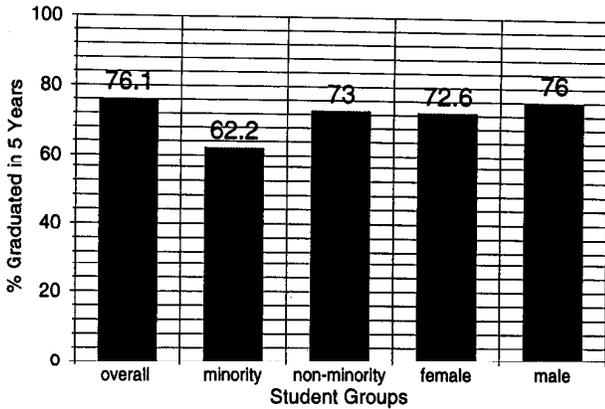


Fig. 4: DISMISSED
Average % 1990-94

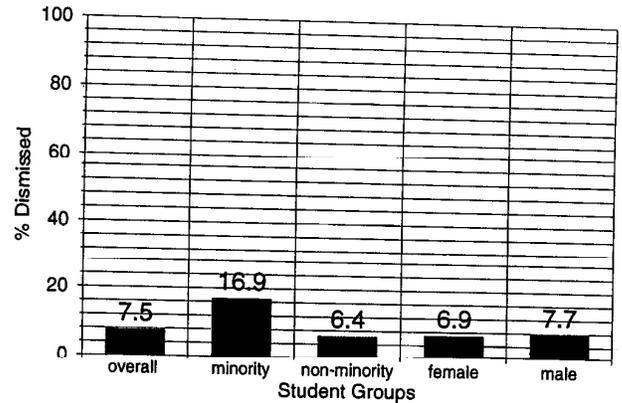


Fig. 5: WITHDREW and RESIGNED
Average % 1990-94

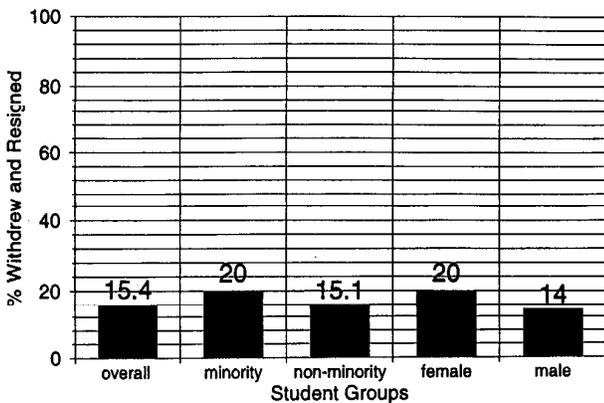
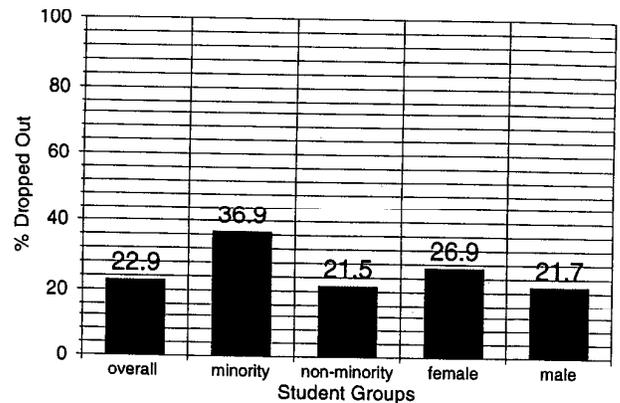


Fig. 6: TOTAL DROP OUTS
Average % 1990-94



	1990 Cohort	1991 Cohort	1992 Cohort	1993 Cohort	1994
Entering Cohort	130	145	140	120	118
Retention After 1st Year	118 91%	127 88%	125 88%	106 88%	103 88%
Graduating in 4 Years	73 56%	79 55%	90 64%	82 68%	N/A
Graduating in 5 years	92 71%	113 78%	111 79%	N/A	N/A
Graduating in 6 Years	0	2	0	0	N/A
Graduating in 7 Years	2	0	0	0	N/A
Still at School	0	7	8	10	N/A*
Drop Outs	37 28%	28 20%	29 20%	28 23%	28 24%

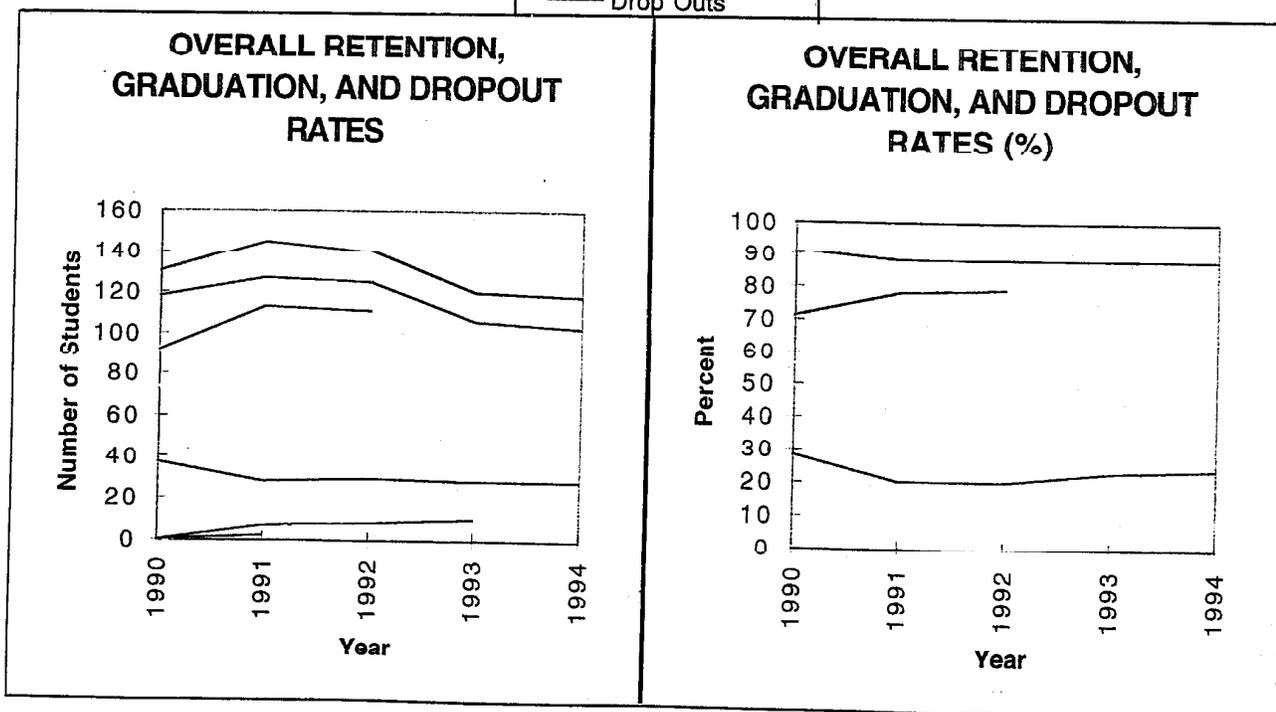
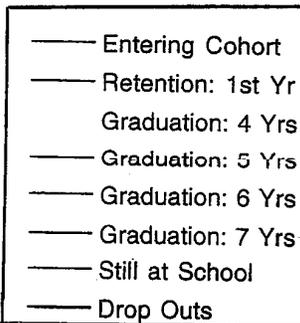
(All % calculated over entering cohorts)

*Obviously, most students from the 1994 cohort are still at school. However, our indicator "Still at School" aims at identifying students who should

have graduated but have not done so by Spring '97. In the case of the 1991 cohort, students "still at school" start their 6th year at school in Fall '97; in

the case of the 1992 cohort, these students start their 5th year, and so on. Students with severe performance problems (academic or otherwise) are thus identified.

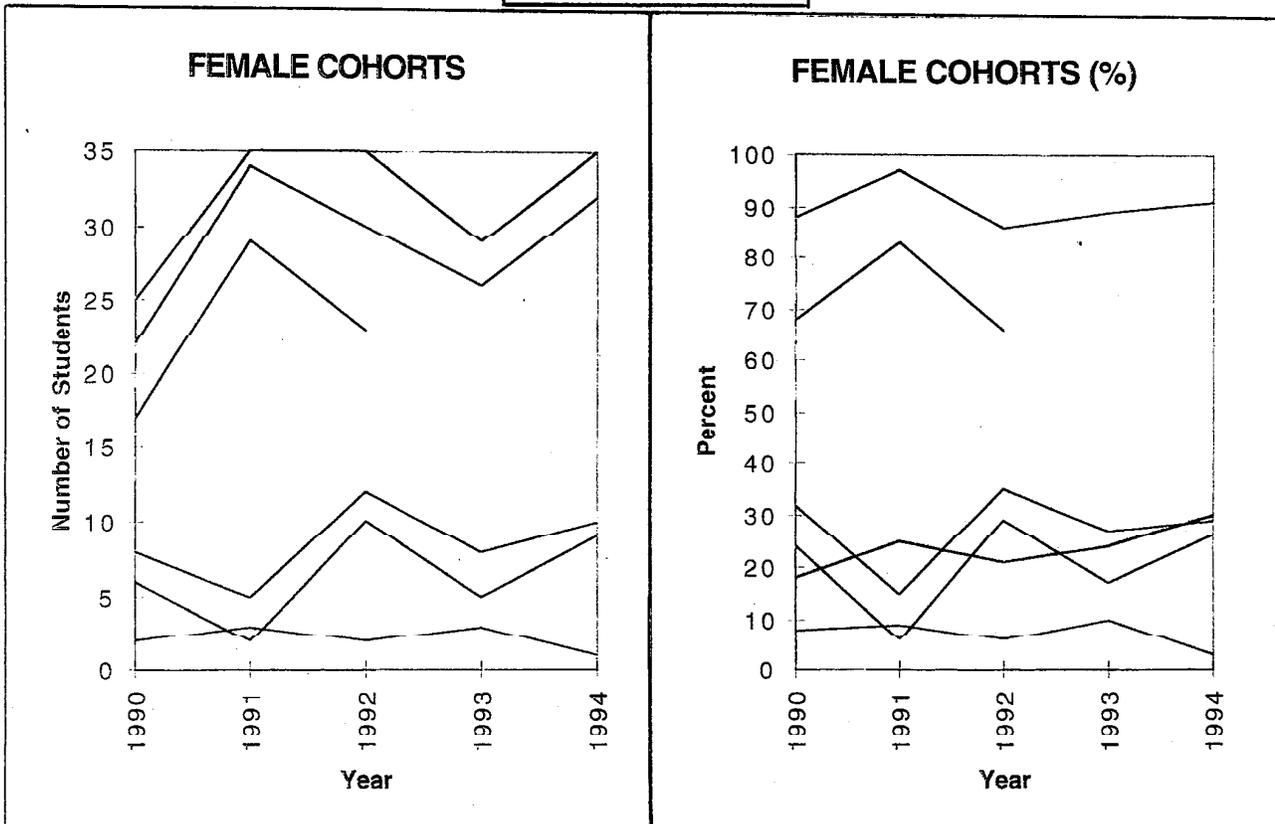
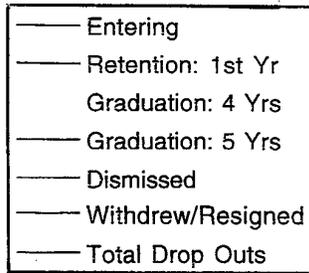
Table 2: COMPARING COHORTS ON OVERALL RETENTION, GRADUATION, AND DROP OUT RATES



FEMALE	1990	1991	1992	1993	1994
entering	25	35	35	29	35
%	18	25	21	24	30
retention after 1st year	22	34	30	26	32
%	88	97	86	89	91
graduation in 4 years	16	18	21	18	n/a
%	64	51	60	62	
graduation in 5 years	17	29	23	n/a	n/a
%	68	83	66		
dismissed	2	3	2	3	1
%	8	9	6	10	3
withdrew+resigned	6	2	10	5	9
%	24	6	29	17	26
total drop outs	8	5	12	8	10
%	32	15	35	27	29

(All % calculated over entering female cohort)

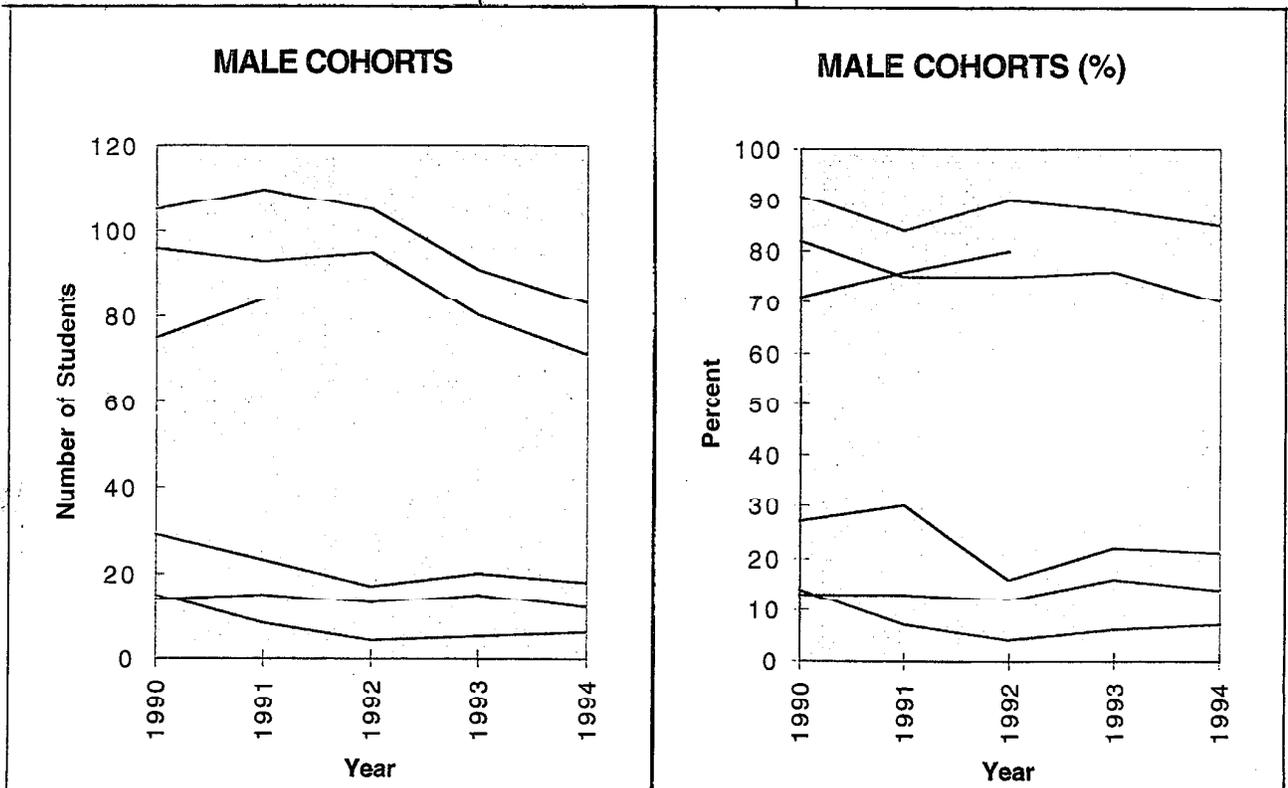
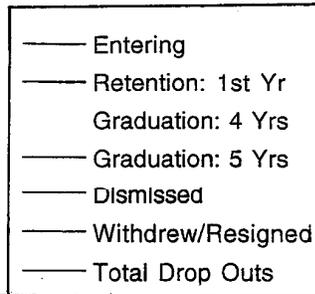
Table 3: RETENTION, GRADUATION AND DROP OUT RATES FOR FEMALE COHORTS 1990 TO 1994



MALE	1990	1991	1992	1993	1994
entering % of total cohort	105 82	110 75	105 75	91 76	83 70
retention after 1st year %	96 91	93 84	95 90	80 88	71 85
graduation in 4 years %	57 54	61 55	65 61	64 70	n/a
graduation in 5 years %	75 71	84 76	84 80	n/a	n/a
dismissed %	15 14	8 7	4 4	5 6	6 7
withdrew+ resigned %	14 13	15 13	13 12	15 16	12 14
total drop outs %	29 27	23 30	17 16	20 22	18 21

(All % calculated over entering male cohort)

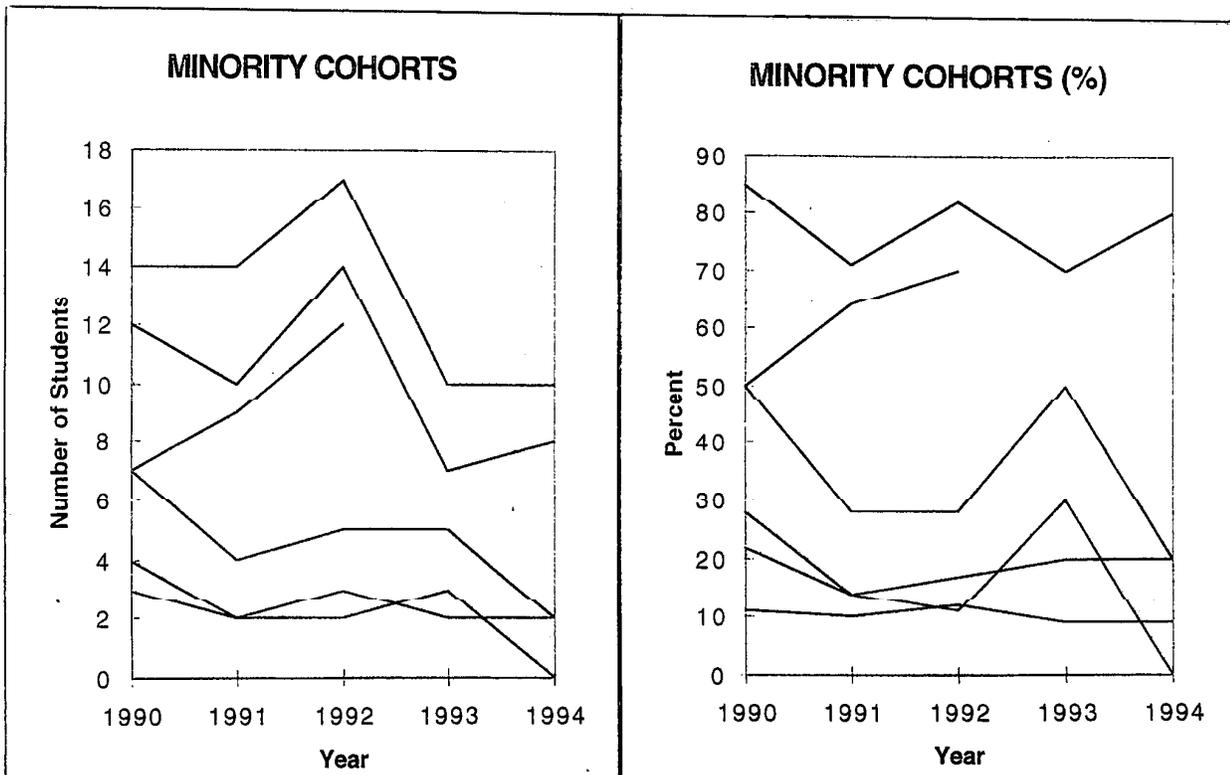
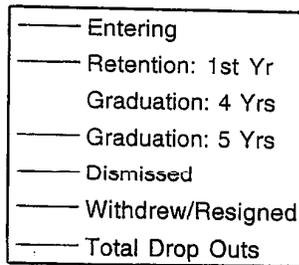
Table 4: RETENTION, GRADUATION AND DROP OUT RATES FOR MALE COHORTS 1990 TO 1994



MINORITY	1990	1991	1992	1993	1994
entering	14	14	17	10	10
% of total cohort	11	10	12	9	9
retention after 1st year	12	10	14	7	8
%	85	71	82	70	80
graduation in 4 years	6	4	8	5	n/a
%	43	28	47	50	
graduation in 5 years	7	9	12	n/a	n/a
%	50	64	70		
dismissed	4	2	2	3	0
%	28	14	11	30	
withdrew+resigned	3	2	3	2	2
%	22	14	17	20	20
total drop outs	7	4	5	5	2
%	50	28	28	50	20

(All % calculated over entering minority cohort)

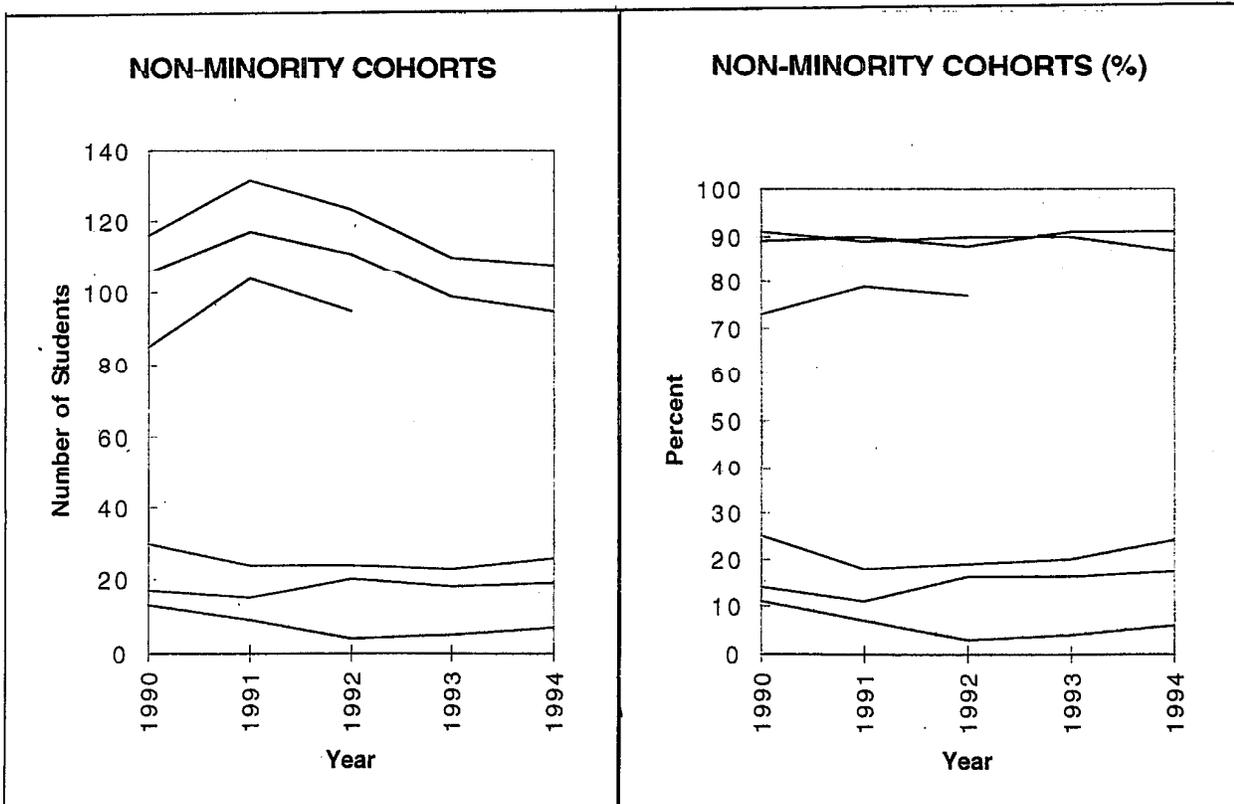
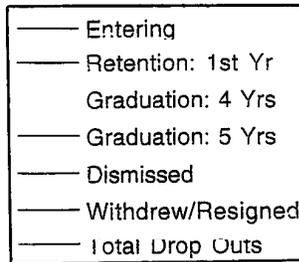
Table 5: RETENTION, GRADUATION AND DROP OUT RATE FOR MINORITY COHORT 1990 TO 1994



NON-MINORITY	1990	1991	1992	1993	1994
entering % of total cohort	116 89	131 90	123 88	110 91	108 91
retention after 1st year %	106 91	117 89	111 90	99 90	95 87
graduation in 4 years %	67 57	75 57	78 63	77 70	n/a
graduation in 5 years %	85 73	104 79	95 77	n/a	n/a
dismissed %	13 11	9 7	4 3	5 4	7 6
withdrew+resigned %	17 14	15 11	20 16	18 16	19 17
total drop outs %	30 25	24 18	24 19	23 20	26 24

(All % calculated over entering non-minority cohort)

Table 6: RETENTION, GRADUATION AND DROP OUT RATE FOR NON-MINORITY COHORTS 1990 TO 1994



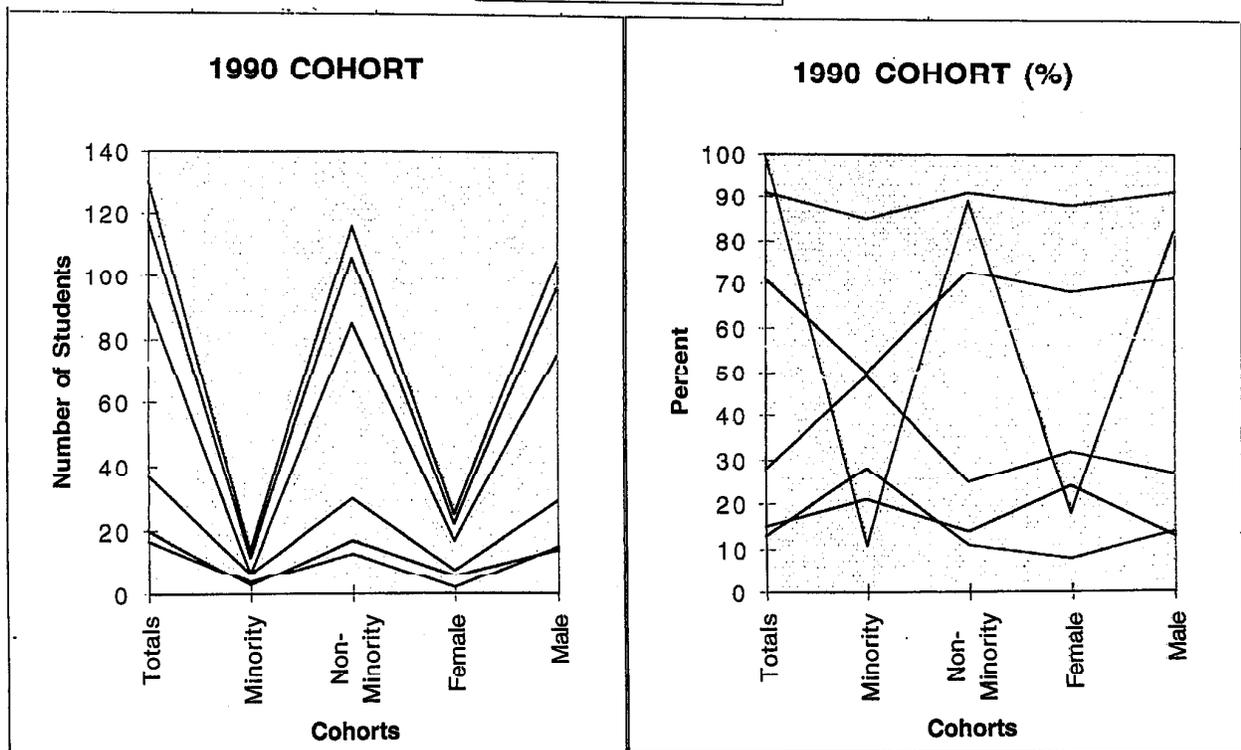
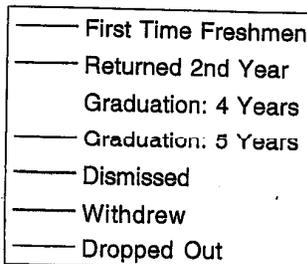
1990	TOTALS	MINORITY	NON-MINORITY	FEMALE	MALE
# FTF	130 100%	14 (11%)	116 (89%)	25 (18%)	105 (82%)
RETURNED 2ND YEAR	118 91%	12 85%	106 91%	22 88%	96 91%
GRADUATION RATE IN 4 YEARS	73 56%	6 43%	67 57%	16 64%	57 54%
GRADUATION RATE IN 5 YEARS	92 71%	7 50%	85 73%	17 68%	75 71%
DISMISSED	17 13%	4 28%	13 11%	2 8%	15 14%
WITHDREW	20 15%	3 21%	17 14%	6 24%	14 13%
DROPPED (diss. + withd.)	37 28%	7 49%	30 25%	8 32%	29 27%

(All % calculated from #FTF figures for each population group)

(All (%) calculated from "TOTALS" figures)

(Minority students: African/Caribbean American + Hispanic Students)

Table 7: 1990 COHORT, RETENTION, GRADUATION, AND DROP OUT FIGURES



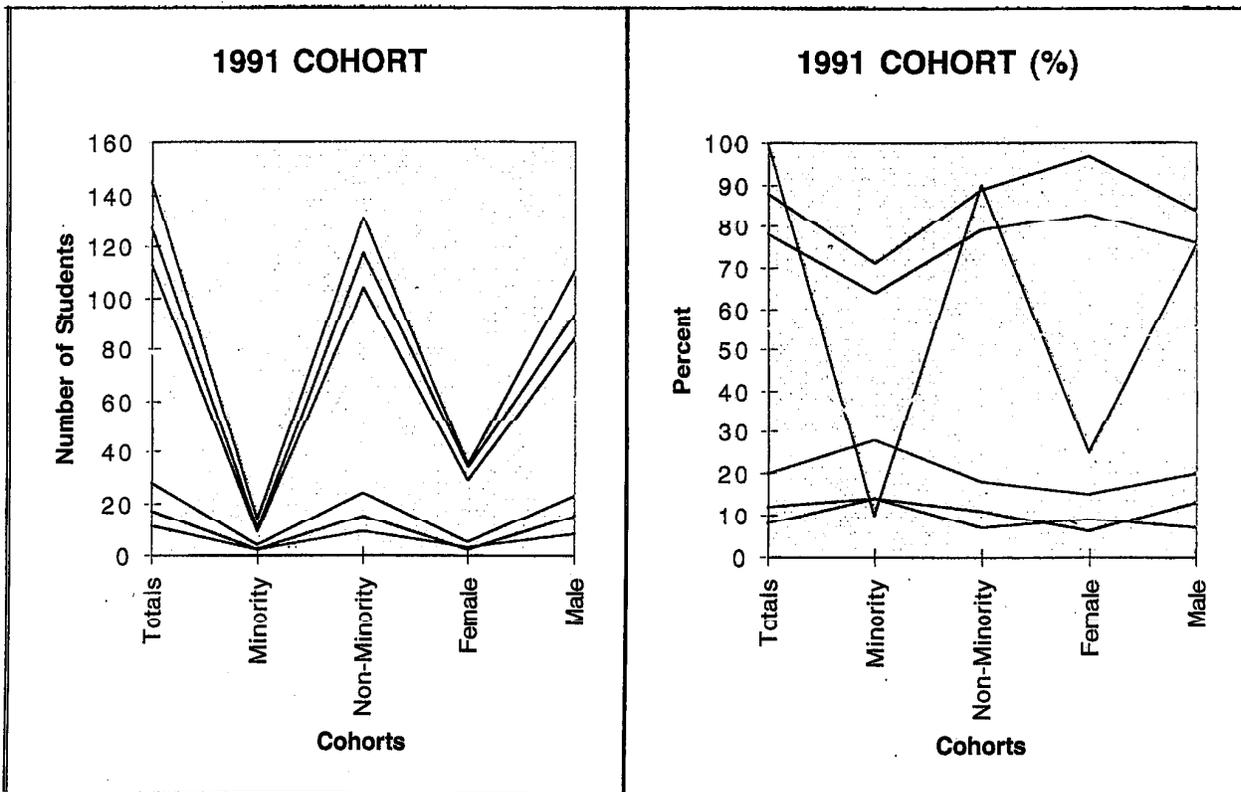
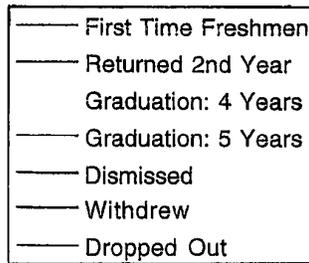
1991	TOTALS	MINORITY	NON-MINORITY	FEMALE	MALE
# FTF	145	14 (10%)	131 (90%)	35 (25%)	110 (75%)
RETURNED 2ND YEAR	127 88%	10 71%	117 89%	34 97%	93 84%
GRADUATION RATE IN 4 YEARS	79 55%	4 28%	75 57%	18 51%	61 55%
GRADUATION RATE IN 5 YEARS	113 78%	9 64%	104 79%	39 83%	84 76%
DISMISSED	11 8%	2 14%	9 7%	3 9%	8 7%
WITHDREW	17 12%	2 14%	15 11%	2 6%	15 13%
DROPPED (diss. + withd.)	28 20%	4 28%	24 18%	5 15%	23 20%

(All % calculated from #FTF figures for each population group)

(All (%) calculated from "TOTALS" figures)

(Minority students: African/Caribbean American + Hispanic Students)

Table 8: 1991 COHORT: RETENTION, GRADUATION, AND DROP OUT FIGURE



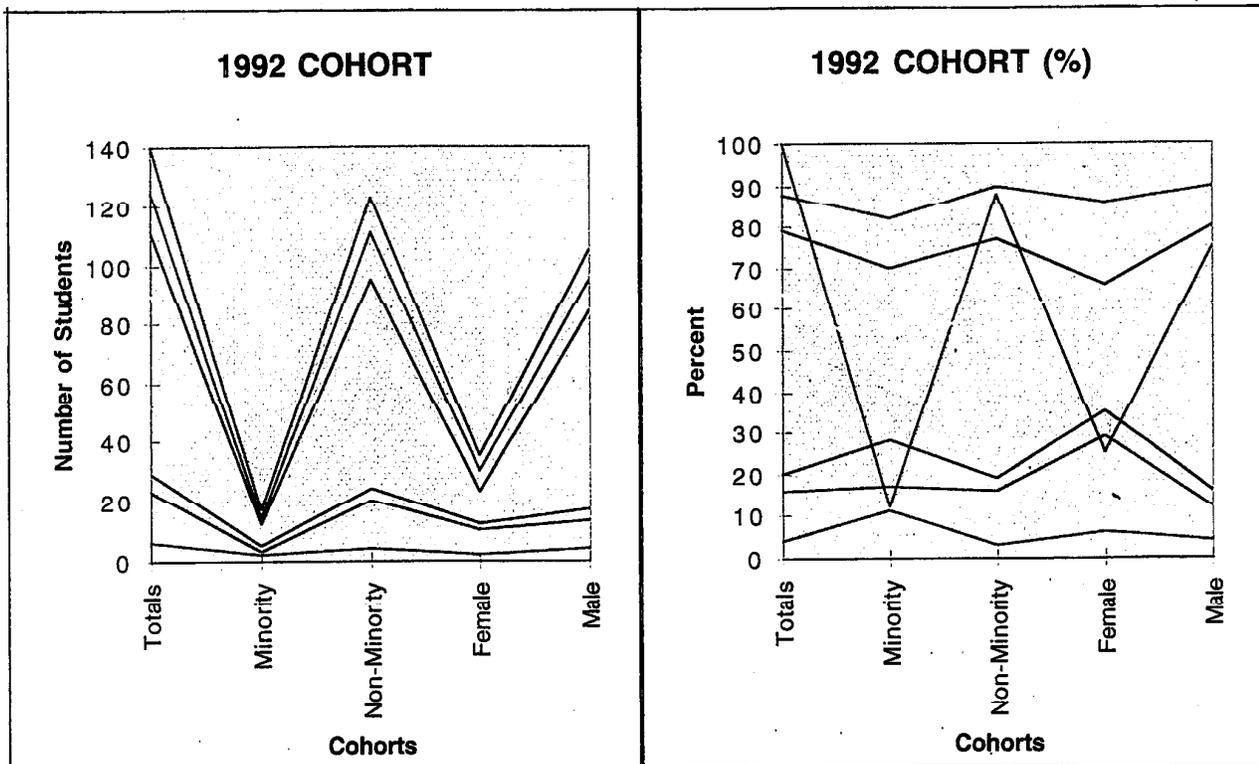
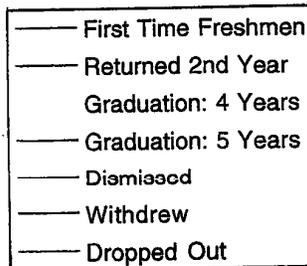
1992	TOTALS	MINORITY	NON-MINORITY	FEMALE	MALE
# FTF	140	17 (12%)	123 (88%)	35 (25%)	105 (75%)
RETURNED 2ND YEAR	125 88%	14 82%	111 90%	30 86%	95 90%
GRADUATION RATE IN 4 YEARS	90 64%	8 47%	78 63%	21 60%	65 61%
GRADUATION RATE IN 5 YEARS	111 79%	12 70%	95 77%	23 66%	84 80%
DISMISSED	6 4%	2 11%	4 3%	2 6%	4 4%
WITHDREW	23 16%	3 17%	20 16%	10 29%	13 12%
DROPPED (dism + withd.)	29 20%	5 28%	24 19%	12 35%	17 16%

(All % calculated from #FTF figures for each population group)

(All (%) calculated from "TOTALS" figures)

(Minority students: African/Caribbean American + Hispanic Students)

Table 9: 1992 COHORT, RETENTION, GRADUATION, AND DROP OUT FIGURES



1993	TOTALS	MINORITY	NON-MINORITY	FEMALE	MALE
# FTF	120	10 (9%)	110 (91%)	29 (24%)	91 (76%)
RETURNED 2ND YEAR	106 88%	7 70%	99 90%	26 89%	80 88%
GRADUATION RATE IN 4 YEARS	82 68%	5 50%	77 70%	18 62%	64 70%
GRADUATION RATE IN 5 YEARS	N/A	N/A	N/A	N/A	N/A
DISMISSED	8 6%	3 30%	5 4%	3 10%	5 6%
WITHDREW	20 17%	2 20%	18 16%	5 17%	15 16%
DROPPED (dissm. + withd.)	28 23%	5 50%	23 20%	8 27%	20 22%

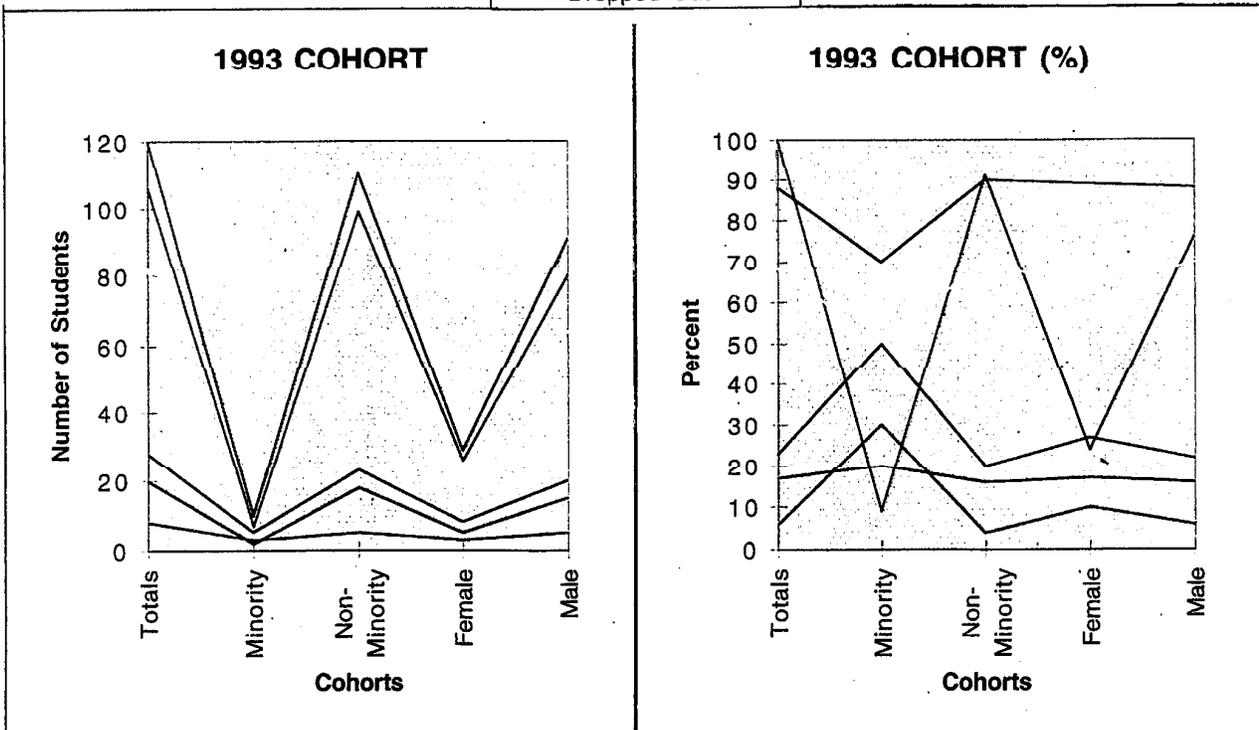
(All % calculated from #FTF figures for each population group)

(All (%) calculated from "TOTALS" figures)

(Minority students: African/Caribbean American + Hispanic Students)

Table 10: 1993 COHORT. RETENTION, GRADUATION, AND DROP OUT FIGURES

- First Time Freshmen
- Returned 2nd Year
- Graduation: 4 Years
- Graduation: 5 Years
- Dismissed
- Withdrew
- Dropped Out



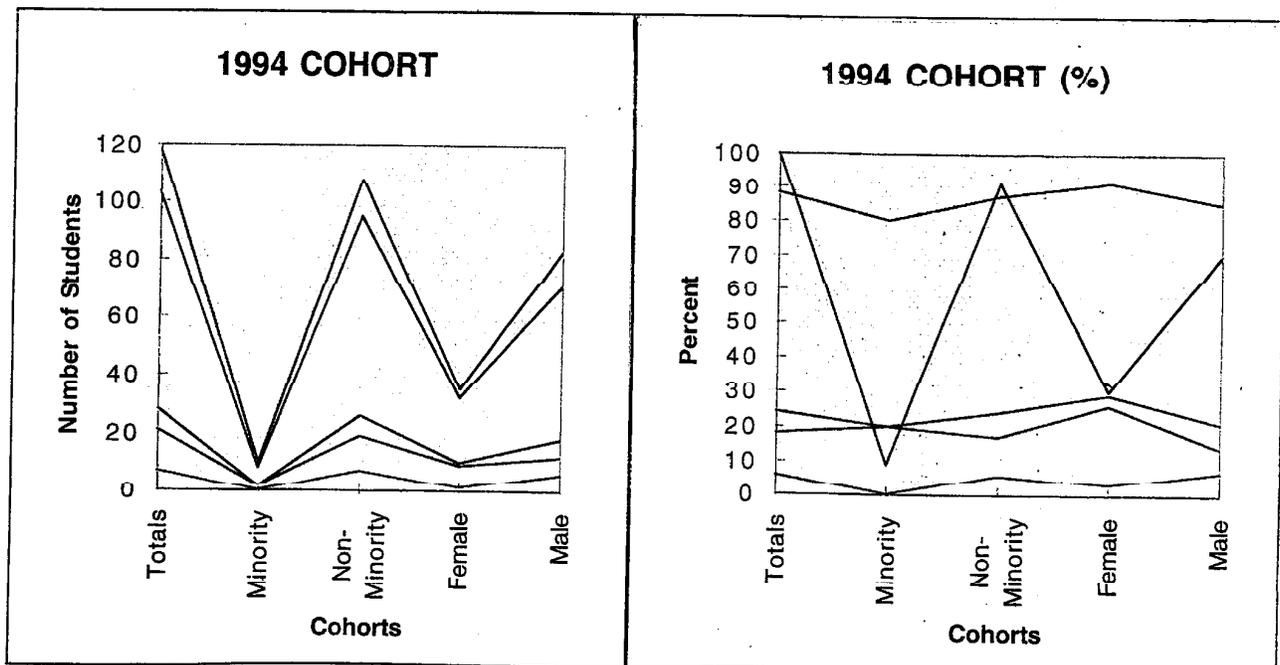
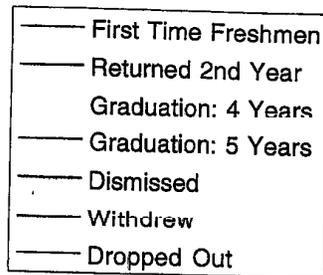
1994	TOTALS	MINORITY	NON-MINORITY	FEMALE	MALE
# FTF	118	10 (9%)	108 (91%)	35 (30%)	83 (70%)
RETURNED 2ND YEAR	103 88%	8 80%	95 87%	32 91%	71 85%
GRADUATION RATE IN 4 YEARS					
GRADUATION RATE IN 5 YEARS					
DISMISSED	7 6%	0	7 6%	1 3%	6 7%
WITHDREW	21 18%	2 20%	19 17%	9 26%	12 14%
DROPPED (dissm. + withd.)	28 24%	2 20%	26 24%	10 29%	18 21%

(All % calculated from #FTF figures for each population group)

(All (%) calculated from "TOTALS" figures)

(Minority students: African/Caribbean American + Hispanic Students)

Table 11: 1994 COHORT. RETENTION AND DROP OUT FIGURES



APPENDICES:

A. Planning Longitudinal Tracking at Cooper Union

1. Longitudinal Student Tracking (LST) and ABET 2000

Longitudinal Student Tracking exemplifies the type of ongoing evaluation system outlined in ABET Criterion 3 by enabling programs to:

- Demonstrate that student outcomes important to the mission of the institution and the objectives of the program are being measured;
- Demonstrate that ABET 2000 student outcomes are being measured;
- Document results;
- Give evidence that results are applied to the further development and improvement of the program.

2. Benefits of Longitudinal Student Tracking

- Provides information about program effectiveness in meeting student performance objectives (pre- and post-baccalaureate);
- Provides evidence that can be used to improve programs;
- Provides evidence about the impact of new and improved programs on student performance;
- Provides students with documentation about their performance and what they have gained by going through the program;
- Provides the public with information about what the program does and its effectiveness.

3. Three Types of LST

(a) Student Enrollment/Graduation Summary

- A snapshot of the performance of a cross-section of the student population at a specific point in time (already available from Admissions Office)

Advantages

- Data already collected on a systematic basis and stored electronically for reporting to university central administration and other agencies;
- Outcomes being assessed are easy to define and measure;
- Summary format easily understood by the public.

Disadvantages

- Statistics based on aggregates of unknown individuals;
- Does not permit in-depth analysis of student performance; details cannot be “teased” out

(b) Student File

- A collection of one individual’s records (needs to be electronically stored)

Advantages

- Contains a variety of data -quantitative and qualitative- useful for documenting achievement of the student outcomes to be assessed under ABET 2000;
- Data provide a holistic view of an individual student’s performance over the entire program; useful in case studies;
- Data already exist (transcripts, co-op internship evaluation report, student portfolio, student journal etc.);
- Data can be used in a student cohort tracking system.

Disadvantages

- Data focus only on one individual;
- Not useful for making programmatic decisions;
- Issues of confidentiality may limit access to the data.

c. Student Cohort Tracking (presently being developed)

- Tracking a group of students having a statistical factor in common.

The ideal format would be an electronic data base locally developed to store student performance data for each cohort being tracked. Data are added to the system based on the tracking plan design.

Advantages

- Provides a holistic view of a student cohort’s performance over the entire program from entrance into engineering to graduation and elsewhere;
- The only way to obtain an accurate accounting of students’ performance throughout the university career and beyond;
- Shows an outcome from an initial condition;
- Permits determination of trends and points of intervention;
- Has the capability of providing data needed to document achievement of student outcomes advocated under ABET 2000.

Disadvantages

- Generally requires consistent resource support;
- New cohort data bases will need to be developed;
- Time consuming cohort definition/selection procedures;

- Can't be done just before an ABET visit;
- Majority of data needed to realize the full potential of a cohort tracking system probably are not easily accessible in current data bases.

4. Steps for Developing a Cohort Tracking System

- a. Clarification of the institution's mission, goals and objectives with regard to students
- b. Identification of evaluation questions based on the program goals and objectives
- c. Identification of data needed to answer the evaluation questions:
 - Identify data already collected (most likely in electronic form) at the institution;
 - Identify "gaps" between what is available and what is needed;
 - Devise measures for obtaining data to fill in the gaps.
- d. Data Analysis Planning
 - Determine cohorts to be tracked;
 - Determine length of time cohorts will be tracked;
 - Determine frequency of data collection;
 - Design data analysis templates.
- e. Collection of data and Enter Electronically into Cohort Database
- f. Data Analysis
- g. Devise of Feedback Loop for Program Improvement

Appendix B: Methodology and Definitions

SOURCE OF DATA

Two types of data sources, both provided by the Admissions office, are used:

- Lists of Accepted Freshmen which the Admissions Office prepares every year. These lists contain data on graduation and drop out dates for each student. They also include the gender/ethnicity of each student. Each year's list includes, therefore, the cohort of "first time freshmen" (FTF), which is our unit of analysis for longitudinal tracking.
- Student records.

CONSTRAINTS TO DATA COLLECTION

1. While working with the lists of Accepted Freshmen is a straightforward process, dealing with student records is a very time-consuming task. Records are not classified by "cohort," simply because this unit of tracking has never been used before. They are classified alphabetically. Selecting students from the records files and gathering the information from the records for cohort analysis is a manual process.

2. In some cases, the information on students is not complete: usually, the gender/ethnicity of students always appears, but it is not so for the year of graduation/drop out. When such is the case, the procedure followed is to check the student's record. This procedure helps to complete information on some individual students who appeared in the lists with no information attached. On occasion, students included in the lists of Accepted Freshmen are not on the records, and vice-versa. These problems have not been completely resolved. For the sake of clarity in data tracking and accuracy in analysis, however, the number of "unknown" students are indicated in each cohort table. Although the accuracy of the data is not significantly affected by this situation (the cases are few), it highlights the difficulties of present tracking procedures. A tracking system that aims at being comprehensive and effective in providing feedback needs better data collection methods.

3. Confidentiality issues prevent the Admissions Office from allowing any mechanical reproduction of the records for external use. An electronic set of data with student grades is elaborated every semester in the Computer Center and released to the Admissions Office. The Admissions Office, in turn, generates paper stickers that are placed on each student record. Unfortunately, all this information is erased as soon as students graduate. Therefore, for the purpose of tracking cohorts since 1990 (current work) there does not appear to be an electronic set of data available. For analysis of future cohorts, however, a way to keep data for systematic tracking must be devised.

DEFINITIONS

1. Cohort. It is the basic unit of analysis in many longitudinal analyses of students in engineering schools, and it is also the unit of analysis for most of the information provided in this report. The term "cohort" groups together a number of students with a feature in common (this feature being generally of demographic nature). In the analysis that follows the term is used to refer to students entering the Albert Nerken School of Engineering in the same Fall semester of the same year. So we can talk, for example, of the cohort of 1992, that is, all students who entered the school during the Fall of 1992. The same applies for any group of students in any given year. It does not include transfer students. Transfer students should be tracked separately.

2. Minority Students. Unlike most definitions of "minority students" we are familiar with, Gateway-ABET does not include Asian students in this category. Therefore, all data provided in this report on minority students will refer to African and Caribbean American, and Hispanic/Latino students EXCLUSIVELY. Conversely, the category of "non-minority students" will group all other ethnic backgrounds. Ethnic categories follow the student's own description, reflected in the Office of Admissions' files.

3. Students Not Included in the Analysis. The cohorts that we will be analyzing will give us a fairly complete view of the students and the school's performance over time. Since we are dealing with all students entering the school as freshmen each year. There is, however, a group of students attending the Engineering School at Cooper not included in this process, namely transfer students. They will be tracked separately since they come in at different levels. Their tracking will be based on their year of entrance.

Students have been included in the cohorts irrespective of citizenship status.

4. Longitudinal Analysis. This report provides data suitable for longitudinal analysis, based on cohort analysis and on comparisons between cohorts. This type of analysis does not directly provides information on the school and the students' performance for a given academic year. In other words, the data for the cohort of a given year will not give us a picture of that given year's performance at the school. This is easy to see with an example. Let us suppose that we find that the number of students in the 1993 cohort graduating in four years (that is, in 1997) is 82 (as it is the case). This does not mean that the total number of students graduating from the School of Engineering in 1997 was 82. On the one hand, there may be -and there are- students graduating in 1997 who entered Cooper in 1992 or even 1991; and transfer students, some of which may have -and have- graduated from Cooper in 1997. In sum, cohort/longitudinal analysis is not a synchronic portrait of the school at a particular moment, but a historical account of each cohort's performance at Cooper Union, from the time of entry onwards.