

Report on the Status of Women

Georgia Institute of Technology

1993-1998



Members of the Georgia Tech InGEAR Management Team were primarily responsible for the research and writing of this report. They welcome any comments or suggestions pertaining to it. The Georgia Tech InGEAR Advisory Committee has met numerous times over the last five years and provided essential guidance for the project. All of the undersigned people on this and the following page fully endorse the findings and recommendations of the report.

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InGEAR
Georgia Institute of Technology**

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Executive Summary And Recommendations

Introduction

The following study, the Report on the Status of Women at Georgia Tech, was initiated in 1995 under the auspices of a multi-year grant from the National Sciences Foundation. The NSF selected the Georgia Institute of Technology as the lead institution in a consortium of Georgia schools seeking to provide leadership in creating models for scientific and technological education built on a commitment to enhancing gender equity in these fields. The statewide project, called InGEAR: Integrating Gender Equity and Reform, sought to encourage gender equity among faculty and students, fair teaching practices, and equal access to programs in science, engineering and mathematics.

At Georgia Tech, the scope of the InGEAR work subsequently expanded to address additional issues pertaining to the status of women in all settings throughout the institution. Over the past three years, more than 20 faculty and staff members have served on the InGEAR Advisory Committee, and gender equity issues have been found to be of serious concern to many people across the Institute. Consequently, this study has involved a broad range of participants, including representatives from A) The Deans' Offices of the Colleges of Engineering, Sciences and the Ivan Allen College; B) The Schools of Industrial and Systems Engineering, Chemical Engineering, Electrical and Computer Engineering, Earth and Atmospheric Sciences, Physics, Public Policy, Literature, Communications, and Culture, and History, Technology and Society; C) The Center for Education Integrating Science, Mathematics and Computing (CEISMC), Human Resources, Institutional Research and Planning, Admissions, Career Services, Counseling Center, and the Office of the Dean of Students.

The Report

The preliminary data findings and issues raised in this report represent a starting point for continued investigation and discussion. Ideally, this document will serve as a solid foundation for the development of specific institutional plans to address gender equity issues. The study is presented here in five main sections:

Section 1: Description of Report Sections and Research Projects

Section 2: Demographics

Section 3: Institutional Resources and the Campus Climate

Section 4: Summary Findings and Recommendations

Appendices

In essence, the Report on the Status of Women at Georgia Tech reveals that while the Institute has made important gains in increasing the number of female students and female faculty over the past decade, as well as in addressing issues regarding the overall "campus climate" for women, much remains to be done. Significantly, many of the more salient improvements regarding gender equity throughout the campus have come about through deliberate, systemic efforts: changes in the makeup of Student Services personnel, including the hiring of a director of Diversity Programs; the establishment of a Women's Resource Center, a series of Gender Equity Workshops (held during 1996-97 as part of the InGEAR effort), and a Women's Leadership Conference held in 1998. Furthermore, Georgia Tech has been successful in recruiting and retaining a high percentage

of female students as compared to its benchmark institutions. Such institution-wide efforts attest to Georgia Tech's commitment to diversify its student body to meet future workforce demands.

In addition, Georgia Tech has made an effort to hire more female faculty, especially in the Schools of Engineering. In this regard, the InGEAR investigators documented an interesting, and unsettling, finding: Georgia Tech compares favorably to its benchmark institutions in the number of women hired at the assistant professor rank, but it lags behind these same institutions in the number of female faculty at the associate and full professor ranks.

The Report identifies several institutional factors that contribute to the low retention and promotion rates of female faculty. For example:

- The tenure and promotion process does not currently recognize different career trajectories and different career rates of advancement. Both men and women perceive current institutional practices and processes as being unnecessarily political and arbitrary.
- The lack of attention to family-friendly policies, specifically in the areas of maternity leave and on-site day-care, have a significant impact on all faculty who aspire to balance family and career.

Thus, in spite of some important improvements, it is clear that there are challenges yet to be addressed. Both demographic data and survey and interview statements from women and men across the Institute document the existence of specific institutional barriers and difficulties for women at Georgia Tech. However, at present no institutional mechanism exists for tracking and responding to the concerns of women across Institute constituencies. Likewise, while there are legal procedures for addressing individual sexual harassment concerns, there are currently no procedures for addressing more typical and subtle forms of gender harassment that affect the overall campus climate: casual (as well as deliberate) sexist comments, personality-based performance evaluations, differential work loads, or male-focused performance expectations.

In order for Georgia Tech to continue fulfilling its mission to be a leader in engineering and technological education, it must have the vision to be a leader on issues of gender equity.

Accordingly, one of the key recommendations of this report addresses the need to establish a President's Commission on the Status of Women. Such a commission would serve in an advisory capacity to the President and would be charged with the responsibility of continually monitoring and reporting about gender equity related issues on campus. It is recommended that this commission include representatives from every constituency on campus: undergraduate students, graduate students, untenured faculty, tenured faculty, staff, administration, GTRI personnel, co-op students, and alumni. The appointment of such a group would be a significant step in improving the campus climate, not only for the female members of the Georgia Tech community, but for male Georgia Tech students, faculty and staff as well.

Recommendations

The following recommendations are discussed in the report and cover three areas.

New positions of leadership, mediation and administration

The InGEAR Advisory Committee recommends that the President

- establish a permanent Commission on the Status of Women;

- fund a full-time Women's Resource Center Director;
- hire a faculty ombudsperson charged with the responsibility of monitoring and hearing faculty concerns about sexual or gender harassment or other employment grievances; and
- form a Task Force to evaluate the Institute's Tenure and Promotion Policies and Procedures.

Policy

The InGEAR Advisory Committee recommends that Institute amend its policies to acknowledge the importance of balance in the lives of its employees. Specifically, Georgia Tech should

- establish a Family Leave Policy that provides 6 weeks of paid leave for either parent of a newborn or newly adopted child, or for responsibilities due to a family illness. Upon birth or adoption of a child, faculty assuming the role of primary caretaker should also be allowed to reassign teaching duties for the year (eliminating teaching duties for the affected semester). The Committee further recommends that employees should not be required to exhaust all accrued sick or vacation leave prior to taking this family leave.
- develop policies and procedures that allow faculty to delay tenure for up to 3 years for good cause. Good cause includes family care.

Sexual Harassment Prevention Training

The InGEAR Advisory Committee recommends that the Institute

- charge the appropriate unit with the responsibility to conduct Gender Equity workshops for graduate teaching assistants;
- charge the appropriate unit with the responsibility to assess current efforts to educate new faculty about the Institute's Sexual Harassment Policy and reporting procedures;
- educate all faculty about their legal and institutional responsibilities in hearing about or witnessing instances of sexual harassment or gender harassment; and
- re-examine its sexual harassment policy on a regular basis to assess its effectiveness, and implement an annual reporting and publication of reported cases that also describes the outcome of each case.

Conclusion

As stated earlier, it is hoped that this document will be viewed as a foundation for developing specific institutional plans to address gender equity concerns throughout the Institute. An important aspect of this plan is the constitution of the proposed Commission on the Status of Women, which would be vested with the institutional responsibility to continue the analytical and investigative efforts begun with this study, and to continue to monitor and recommend policy and procedural changes that positively impact the status of women at Georgia Tech.

INTRODUCTION

In 1995, the National Science Foundation awarded a research grant to a consortium of five institutions of higher education in the State of Georgia¹ to transform teacher education programs that prepare K-12 teachers in the areas of science, engineering and mathematics (SEM). The title of the NSF sponsored project, **InGEAR (“Integrating Gender Equity and Reform”)**, suggests its purpose:

To promote equal access to quality science and mathematics education for boys and girls across Georgia. Equal access includes encouragement to explore and discover, intellectual challenge, and success that is born out of these opportunities. Access also includes awareness of career opportunities associated with science, mathematics and related technical fields, such as engineering.²

The Georgia Institute of Technology was designated the lead institution in the consortium due to its reputation and service as the major educational institution in the state vested with the responsibility to educate and train students in the technical fields, and also because of the existence and track record of its Center for Education Integrating Science, Mathematics and Computing (CEISMC). Georgia Tech’s involvement in this project has been substantial, offering project management and coordination as well as providing a model for “colleges of science and technology across the state that are interested in promoting equal access and gender equity through systemic change.”³ From the beginning, it was understood that Georgia Tech had something important and unique to contribute to this project: leadership in providing models for scientific and technological education built on a commitment to gender equity among faculty and students, fair teaching practices, and equal access to programs in science, engineering, mathematics and technology.

Part of the requirement of the NSF grant was that each of the five participating universities conduct an extensive institutional self-evaluation of the status of female students and faculty on campus. This report documents the results of a five-year examination of student and faculty demographics, the educational and professional experiences of female students and faculty, and the campus climate at Georgia Tech. The broad objective of this investigation was to identify the fundamental issues that differentially affect the education and employment of female students and faculty at Georgia Tech.

This report is divided into five main sections:

Section 1: Description of Report Sections and Research Projects

Section 2: Demographics

Section 3: Institutional Resources and the Campus Climate

Section 4: Summary of Findings and Recommendations

Appendices

¹ Clark Atlanta Univ., Georgia Institute of Tech., Georgia Southern Univ., Georgia State Univ., The Univ. of Georgia

² InGEAR Project Evaluation, Year 1, page 1. HRD #9453106.

³ InGEAR Project Evaluation, Year 1, page 5. HRD #9453106.

Section 1: DESCRIPTION OF REPORT SECTIONS AND RESEARCH PROJECTS

There were three guiding objectives in designing the institutional evaluation of Georgia Tech:

- 1) to document current demographic information pertaining to the gender distribution of students and faculty and to document changes in demographic numbers over the past decade,
- 2) to present an empirical description of how students and faculty move and progress through Georgia Tech, and
- 3) to assess the more intangible qualities of campus climate and educational environment.

The rationale for the first objective was straightforward: to provide accurate demographic figures that would form a quantitative baseline against which the effectiveness of current and future attempts to increase the number of women enrolled and employed in scientific and engineering disciplines could be measured. But the objective of the Georgia Tech self-evaluation was broader than mere demographics--it was to document a more elusive quality of women's experience at Georgia Tech: that of the dynamic nature of progress or movement through the institution. The rationale for this objective was to provide an empirical description of what happens to women from the beginning of their application or association with Georgia Tech through to their graduation in the case of students, or through promotion and tenure, termination, or resignation in the case of faculty.

The InGEAR team conducted a number of quantitative studies utilizing data obtained from the Georgia Tech Fact Books, The Georgia Tech Provost's Office, the Student Information System, the Georgia Board of Regents, national data sources (such as NSF, U.S. Dept. of Education, and the National Center for Education Statistics), and university web pages.⁴ These included

- 1) a mapping of the gender distribution and high school academic credentials of all freshman applicants to Georgia Tech in 1997, and their subsequent acceptance, and enrollment rates--this is referred to as THE STUDENT PIPELINE STUDY;
- 2) a quantitative analysis of the frequency with which students who enrolled at Georgia Tech as freshmen in 1991 changed majors, and an analysis of which schools lost or gained the most male or female students--this is referred to as the CHANGE OF MAJOR STUDY⁵;
- 3) an analysis of the promotion and tenure progress for all female faculty hired during the period between 1986-1996--this is referred to as the PROMOTION AND TENURE STUDY; and
- 4) an analysis of the Georgia Tech grade point averages of all students enrolled at the institution in the fall of 1997, reported by gender, academic year, and major.

As stipulated by the conditions of the original NSF Grant, each university's institutional evaluation plan also included an assessment of the campus climate. As has been well documented, the level of satisfaction experienced by female faculty and students in their science and engineering education and job environment is dramatically affected by the general "climate" that exists within an

⁴ Details of these studies are available from the CEISMC office.

⁵ See Appendix B for full report

institution.⁶ The assessment designed by the InGEAR team attempted to document the more intangible aspects of life at Georgia Tech that pertain to attitudes and beliefs about gender held by students, faculty and administrators, as well as to institutional teaching practices, administrative policies, and resources. Based on “climate studies” conducted at other institutions, these “intangible aspects” have been shown to have a significant impact on the experience of female students and faculty. Data for the Georgia Tech Campus Climate Study was obtained through the following surveys and interview sets:

1) SENIOR WOMEN ENGINEERING SURVEY: A survey of all Georgia Tech senior engineering women students conducted in November 1993. Of the 410 surveys that were distributed, 70 were returned, representing a 17% response rate. The survey was conducted by the Dean's Office of the College of Engineering, and the School of Industrial and Systems Engineering. (See Appendix F for a summary of student suggestions drawn from the survey)

2) SUCCEED SURVEY: A survey of all women engineering majors at Georgia Tech and an equal number by class and major of men randomly chosen from all men of that class and major at Georgia Tech. The survey was conducted by SUCCEED (Southeastern University and College Coalition for Engineering Education), WEB (Women's Engineering Board), the Dean's Office of the College of Engineering and the School of Industrial and Systems Engineering in Winter/Spring 1995. Of the 2884 surveys that were distributed, 1199 were returned, representing a 42% response rate. (See Appendix E)

3) STUDENT SURVEY: A survey of all engineering undergraduate and graduate female students, conducted in the fall of 1997 by the Dean's Office of the College of Engineering. Approximately 1400 surveys were sent to undergraduate students, and 400 were sent to graduate students: 273 undergraduate surveys (19%) and 71 graduate surveys (18%) were returned.

4) INTERVIEWS WITH ADMINISTRATORS AND CHAIRS. Members of the InGEAR Team interviewed two Deans and nine School Chairs in science and engineering.

5) ENHANCING THE ENVIRONMENT FOR SUCCESS: REPORT FROM THE TASK FORCE FOR OPPORTUNITIES FOR WOMEN IN ENGINEERING. In March 1998, Dr. Jean-Lou Chameau, Dean of Georgia Tech's College of Engineering, appointed a task force whose mandate was to assess the participation of female students and faculty in the College. The task force was to focus on those elements of the academic and research environment that act as constraints and/or barriers for female faculty and students in their quest for professional success. With regard to female students, the task force focused on graduate (in particular, Ph.D.) students. The task force consisted of ten people (faculty, administrators, students, and alumnae) from across the College and was chaired by Drs. April Brown of Electrical and Computer Engineering, and Michael Meyer of Civil and Environmental Engineering. The final report will be posted shortly on the College web page. Until that time, one may contact either Chair of the task force for further information.

⁶ *The Classroom Climate: A Chilly One for Women?* . From the Project on the Status and Education of Women, Association of American Colleges. February 1982. *The Campus Climate Revisited: Chilly for Women Faculty, Administrators, and Graduate Students*. From the Project on the Status and Education of Women, Association of American Colleges. October 1986.

6) FOCUS GROUP MEETINGS: Eight focus group meetings were held from May 1994 through May 1995. The meetings were sponsored by the Dean's Office of College of Engineering and the School of Industrial and Systems Engineering. A total of 50 people participated in the focus groups--3 School Directors (all male), 15 faculty members (5 male and 10 female), 20 graduate students (10 male and 10 female), 11 undergraduate students (1 male and 10 female), and 1 female alumna. All participants were from the College of Engineering and the school chair from each group was always from a different school from the participating students and faculty (See Appendix G).

7) GEORGIA TECH INGEAR ADVISORY COMMITTEE MEETINGS FROM 1993-1998: Included over 25 male and female faculty, staff, and administrators from across campus units, including all signing members of this document. Campus units and organizations represented include A) The Deans' Offices of the Colleges of Engineering, Sciences and the Ivan Allen College; B) The Schools of Industrial and Systems Engineering, Chemical Engineering, Electrical and Computer Engineering, Earth and Atmospheric Sciences, Physics, Public Policy, Literature, Communications, and Culture, and History, Technology and Society; C) Human Resources, Institutional Research and Planning, Admissions, Career Services, Counseling Center, and the Office of the Dean of Students.

Section 2: DEMOGRAPHICS

A. STUDENTS

1. Admissions Process

a. Admission Formulas

Georgia Tech uses a formula established by the Board of Regents to evaluate and judge the application materials submitted by prospective students. This admission index is computed annually using a regression analysis that correlates the previous year's Georgia Tech freshman grade point averages with the corresponding students' high school GPA and SAT scores. Over the past decade, Georgia Tech has therefore utilized different variations of this admission index (See Appendix A). In 1992, the formula used by Georgia Tech weighted the math SAT score 9.5 times greater than the verbal SAT score. In 1994, the admission index weighted the math score on the SAT 3.8 times as much as the verbal score. In 1998 Georgia Tech implemented an expanded admission index, on an experimental basis, that included ratings of students' application essays and of their "leadership" abilities, as determined by their high school extracurricular activities.

During the period between 1994-1997, entering female students averaged 2.5 points higher than male students did on the verbal SAT, and 29 points lower on the math SAT. Women also entered with an average high school grade point average 0.15 points higher than did the men (3.73 vs. 3.59).

In 1998 the predicted freshman grades of incoming students were calculated using both the Board of Regents' Admission Index and the Georgia Tech Expanded Index. Using the Board of Regents index, incoming women had a predicted freshman GPA of 2.74 and men had a predicted GPA of 2.72. Using the new Expanded Index, women had a predicted GPA of 2.78 and men of 2.71.

Significance

The Board of Regents' Admission Index provides an objective prediction of how well a particular student will perform during his or her freshman year at Georgia Tech. Georgia Tech has historically valued math SAT scores more than verbal SAT scores because of the importance of mathematical ability as a foundation for engineering education. Such a differential weighting of the math portion of the SAT may subtly favor male applicants because male high school students score significantly higher, on average, on the math SAT than do female high school students. Further, the top scorers (those achieving a score of 800) are predominantly male. This effect has been noted and analyzed in the research regarding standardized testing during the past decade.

As indicated above, the Admission Index is reactive in that it is adjusted annually based on the actual first-year performance of all the freshmen students. In theory, this process should eliminate any bias for or against a particular group of students, objectively predicting which students can be successful at Georgia Tech. However, the formula is derived based on the performance of **all** students, 72% of whom are men, combined as one group. As is demonstrated below under "Academic Achievement," female students, on average, achieve higher grade point averages at Georgia Tech than do men. A reasonable conclusion from this is that the Board of Regents' Admission Index, as it is currently derived, under-predicts the academic success of female students at Georgia Tech (or, conversely,

over-predicts the academic success of the male students.) The new Georgia Tech Expanded Index predicts a higher GPA for women students than does the Board of Regents Admission Index. The Admissions Office has begun an extensive study to determine the differential predictive value of the two formulas. This study, and a constant monitoring of the formulas used for admission, will be of great value in helping to ensure that women candidates for admission are judged fairly.

b. Application Percentages

In 1996, 29% of the applicants for undergraduate admission to Georgia Tech were women. The percentage of female applicants, by College and School, is shown in Figures 1 - 4. (Data used to generate Figures 1 – 21 are contained in Appendix H.)

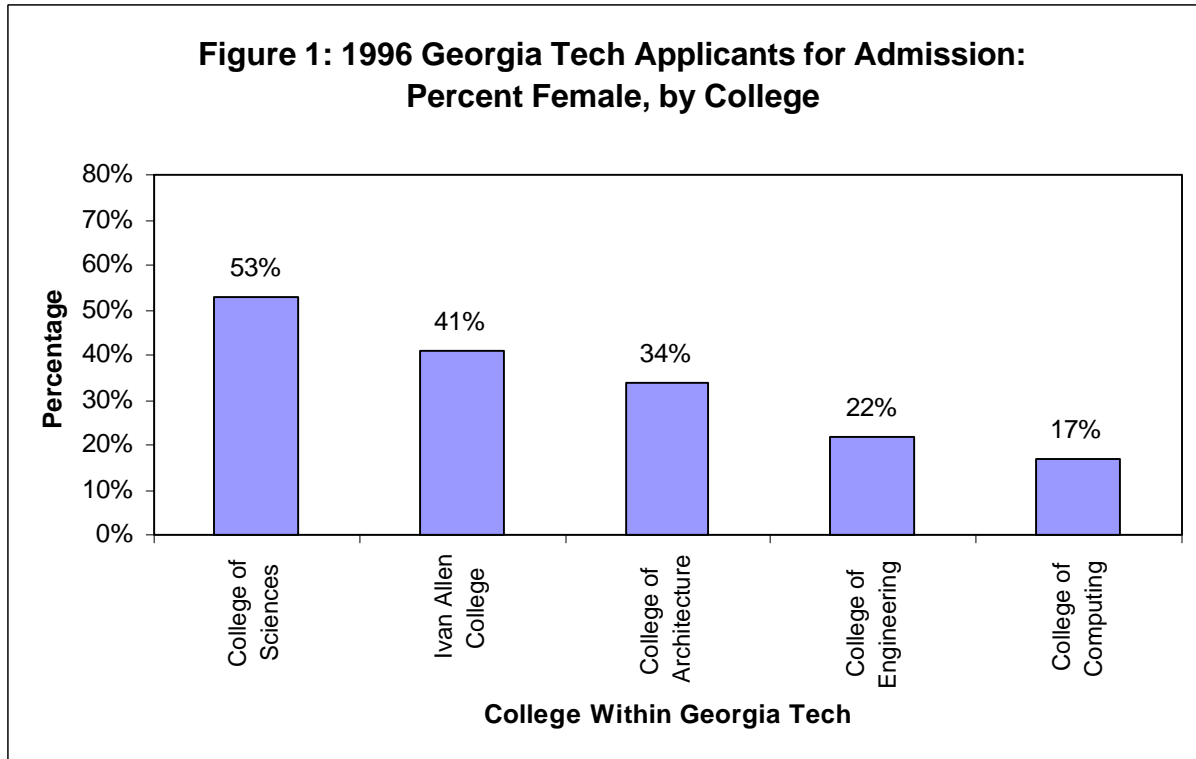
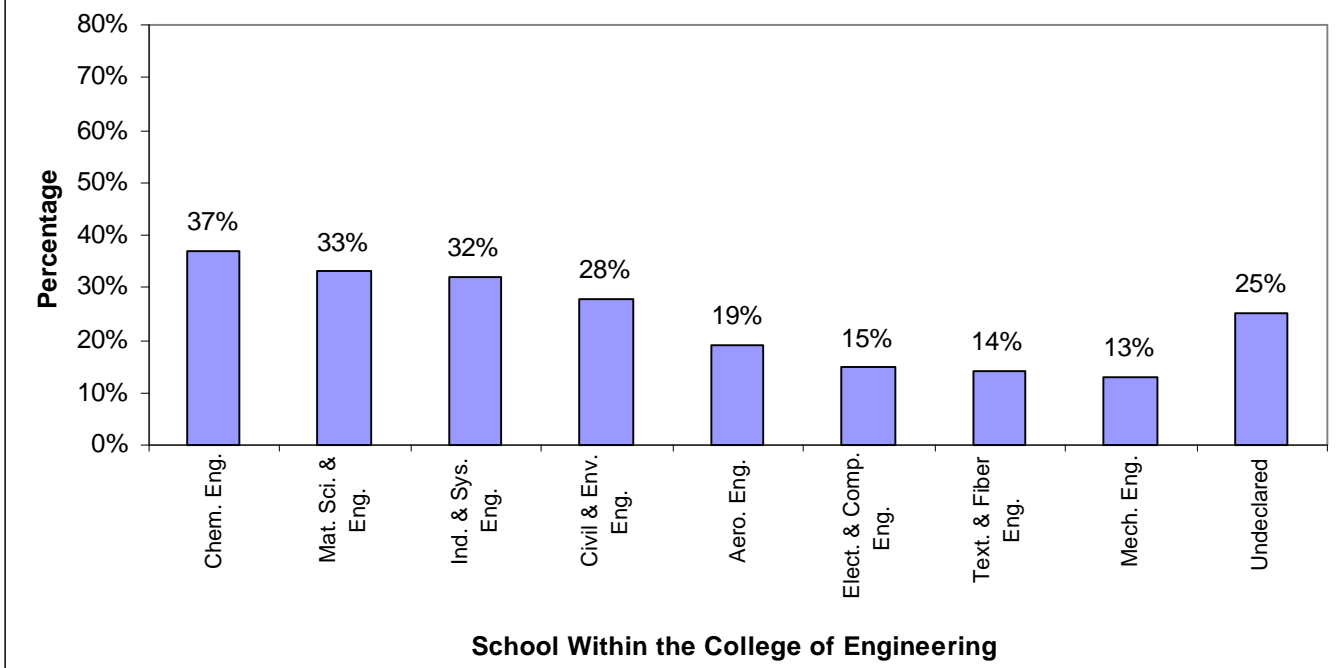
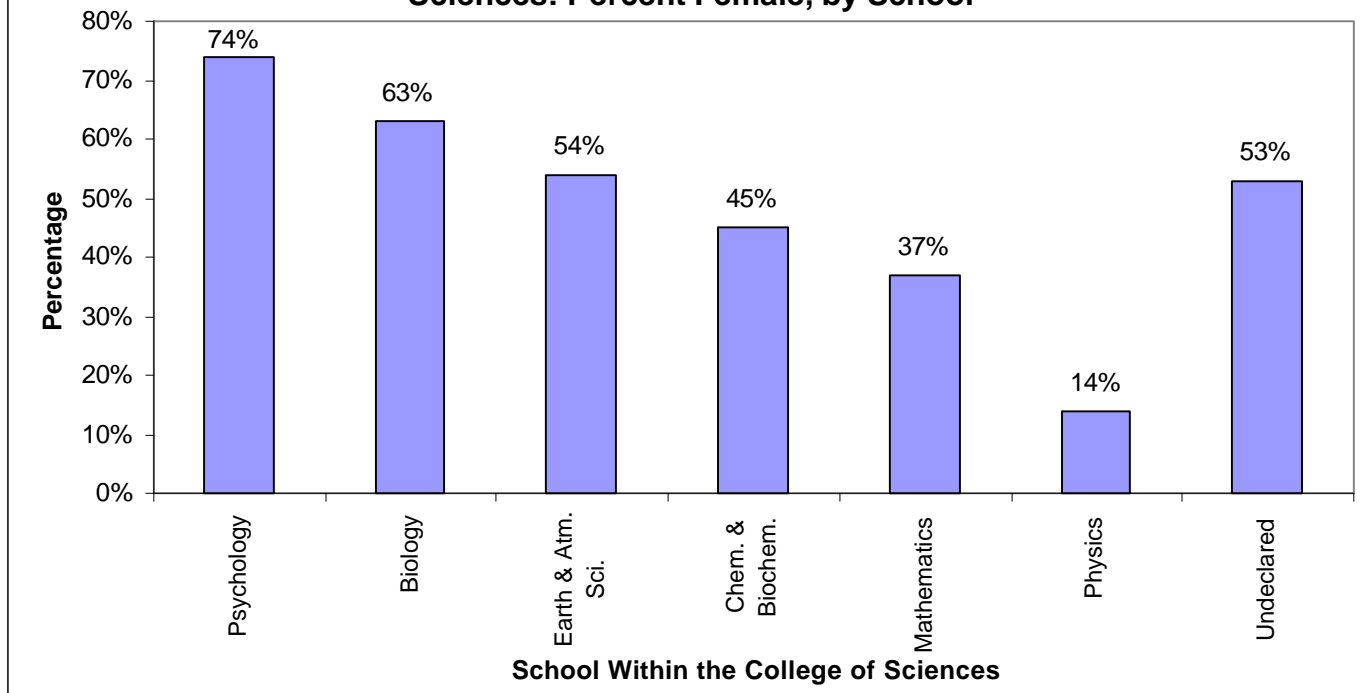


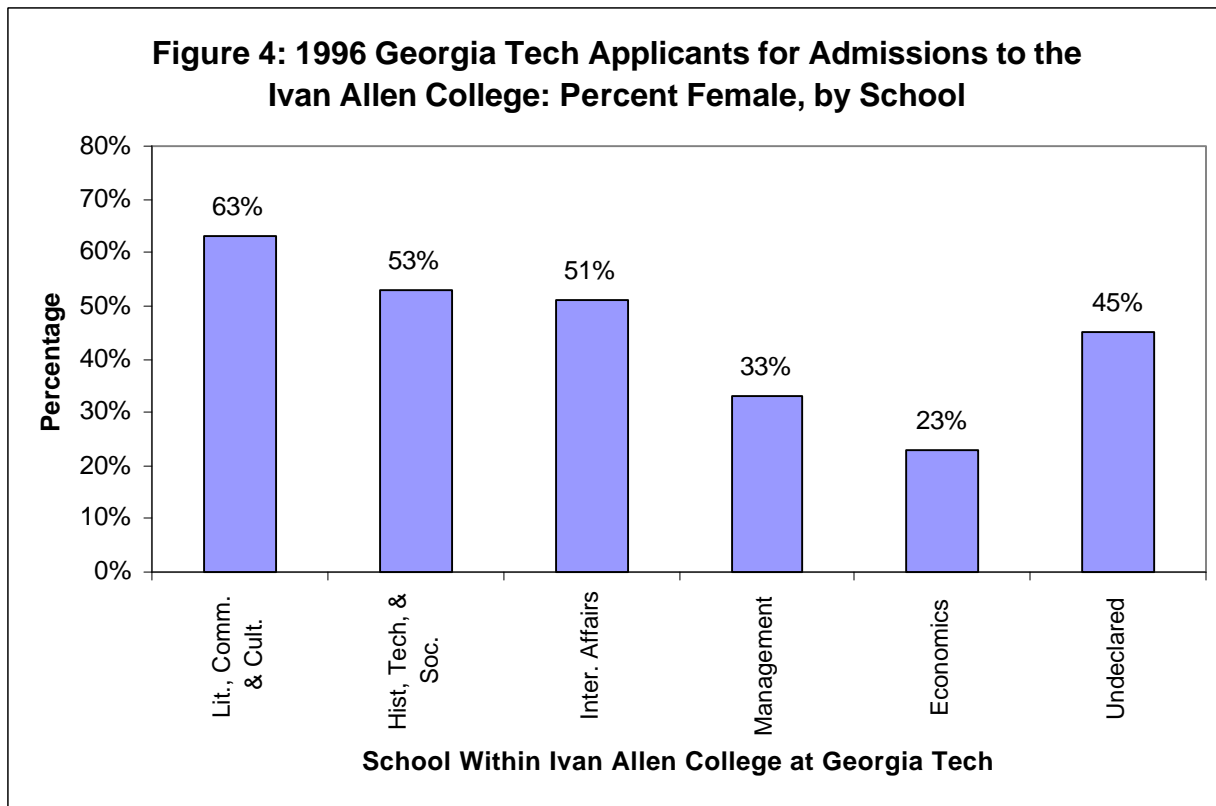
Figure 2: 1996 Georgia Tech Applicants for Admission to the College of Engineering: Percent Female, by School



The engineering schools with the largest numbers of female applicants in 1996 were: Chemical-207; Electrical and Computer-180; Civil and Environmental-98; and Mechanical-80.

Figure 3: 1996 Georgia Tech Applicants for Admission to the College of Sciences: Percent Female, by School





c. Acceptance Rates

The acceptance rates for male and female undergraduate students at Georgia Tech are essentially equal. In 1996, 55% of male applicants and 57% of female applicants were accepted. In 1997, 61% of male applicants and 62% of female applicants were accepted.

In 1996, the Colleges of Engineering and Sciences accepted essentially equal percentages of both sexes. The College of Engineering accepted 57.3% of male applicants and 57.8% of female applicants, while the College of Sciences accepted 60.7% of male applicants and 61.1% of female applicants.

Most Schools in the College of Engineering had less than a 5% difference in the acceptance rate for men and women, with two notable exceptions: Civil Engineering accepted women at a rate 16 percentage points **higher** than men (58% of women and 42% of men), while Electrical and Computer Engineering accepted women at a **lower** rate than men (36% of women accepted, 56% of men).

Within the College of Sciences most schools accepted men and women at approximately equivalent rates. However, Mathematics and Psychology accepted women at a **higher** rate than men, by a margin of 15% and 14% respectively (Mathematics—69% of women, 54% of men; Psychology—54% of women, 40% of men.)

The College of Computing accepted a **lower** percentage of women than men. In 1996, 57% of male applicants versus 39% of female applicants were accepted; in 1997, 62% of male applicants and 43% of female applicants were accepted.

In 1996, the College of Architecture and the Ivan Allen College accepted women at **higher** rates than men: Architecture: 34% of male applicants, 50% of female applicants; Ivan Allen: 47% of male applicants, 55% of female applicants.

d. Matriculation Rates

In 1996 men and women who had been accepted by Georgia Tech matriculated in essentially equal percentages in every college. Within the College of Engineering, more of the accepted women than men matriculated to Electrical Engineering (by a margin of 15%) and Aerospace Engineering (11%), whereas a higher rate of men matriculated into the Schools of Industrial and Systems Engineering (15%), Computer Engineering (11%), and Mechanical Engineering (10%).

Within the College of Sciences and the Ivan Allen College, the number of students matriculating directly into most majors is small, and within the larger Schools there is little or no difference between the matriculation rates for men and women.

e. Enrollment Rates

During the recent twelve-year period 1985-1997, female undergraduate student enrollment at Georgia Tech increased from 22.0% to 28.1%. During the same period, female graduate student enrollment increased from 18.8% to 24.1%. The percentage of women enrolled at Georgia Tech in 1997 by College and School is shown in Figures 5-9.

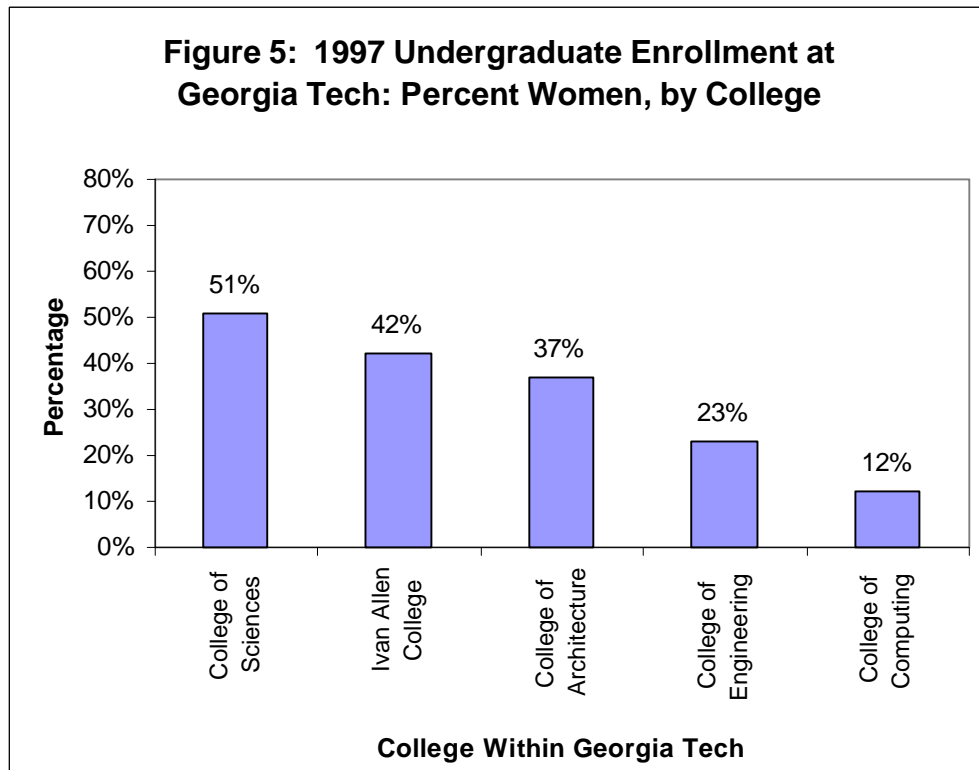


Figure 6: 1997 Graduate Student Enrollment at Georgia Tech: Percent Women, by College

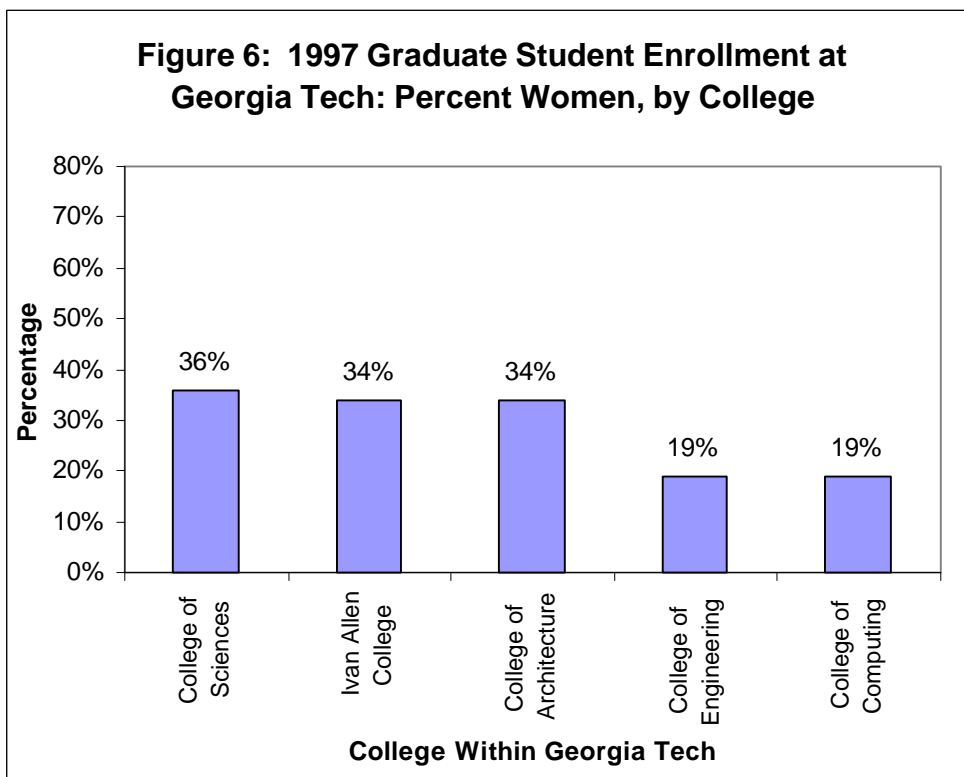


Figure 7: 1997 Georgia Tech College of Engineering Undergraduate Programs: Percent Women

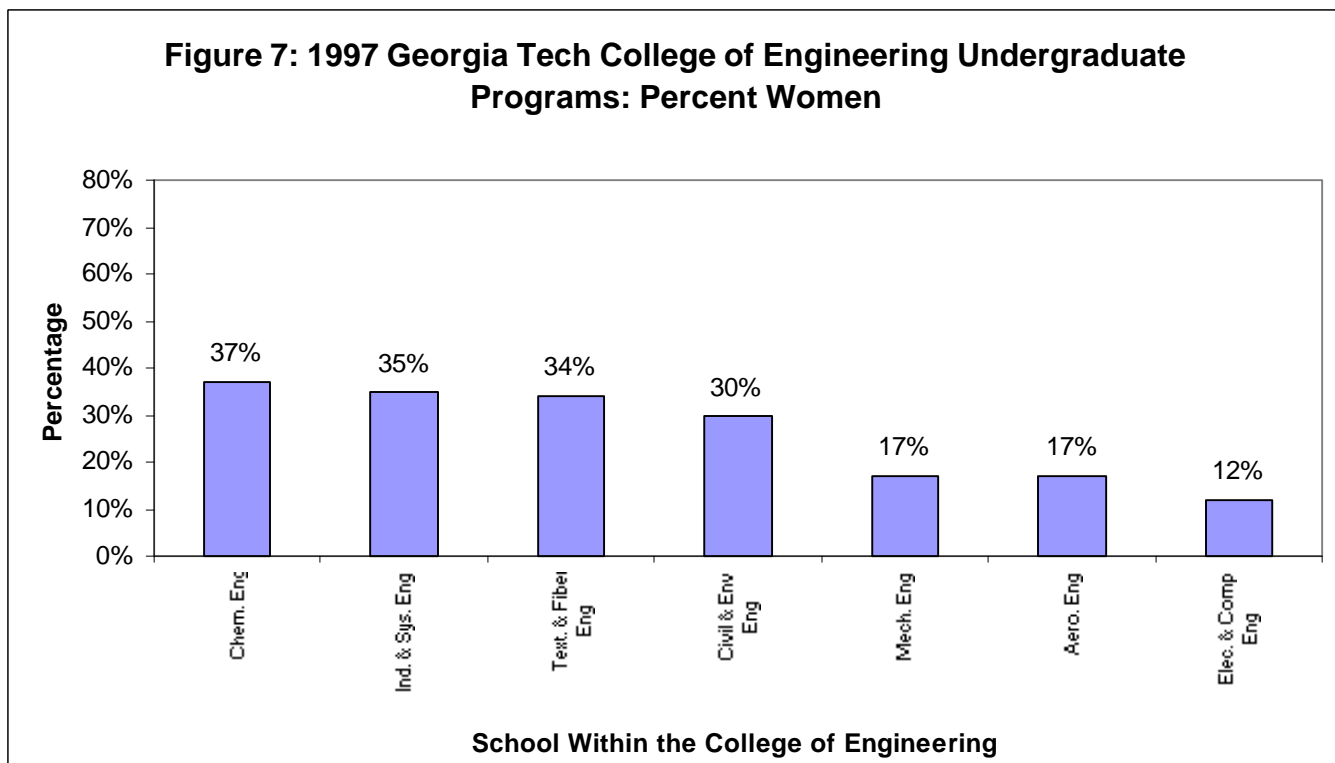


Figure 8: 1997 Georgia Tech College of Sciences Undergraduate Programs Enrollment: Percent Women

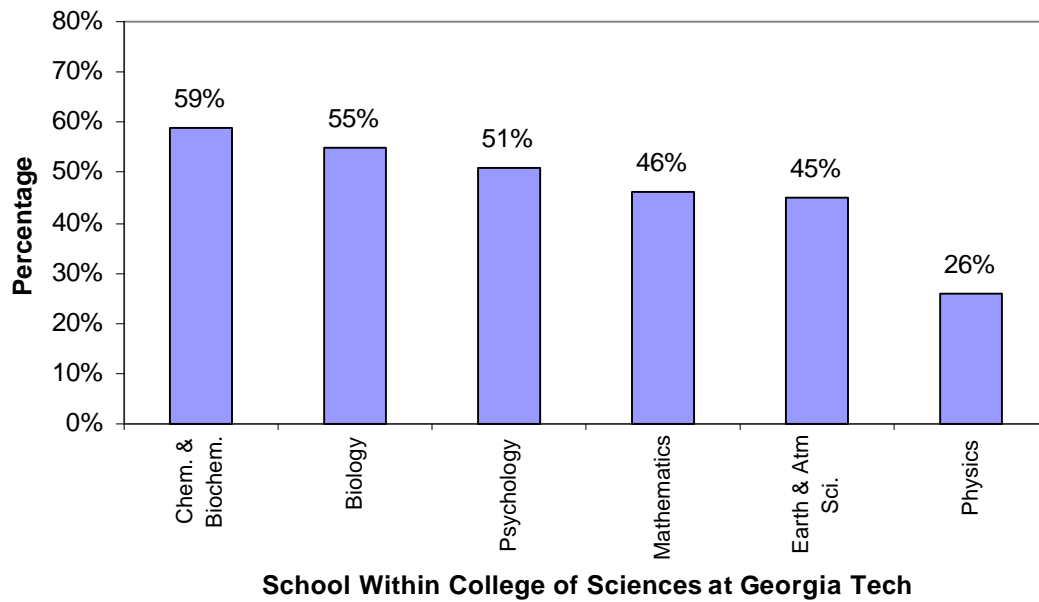
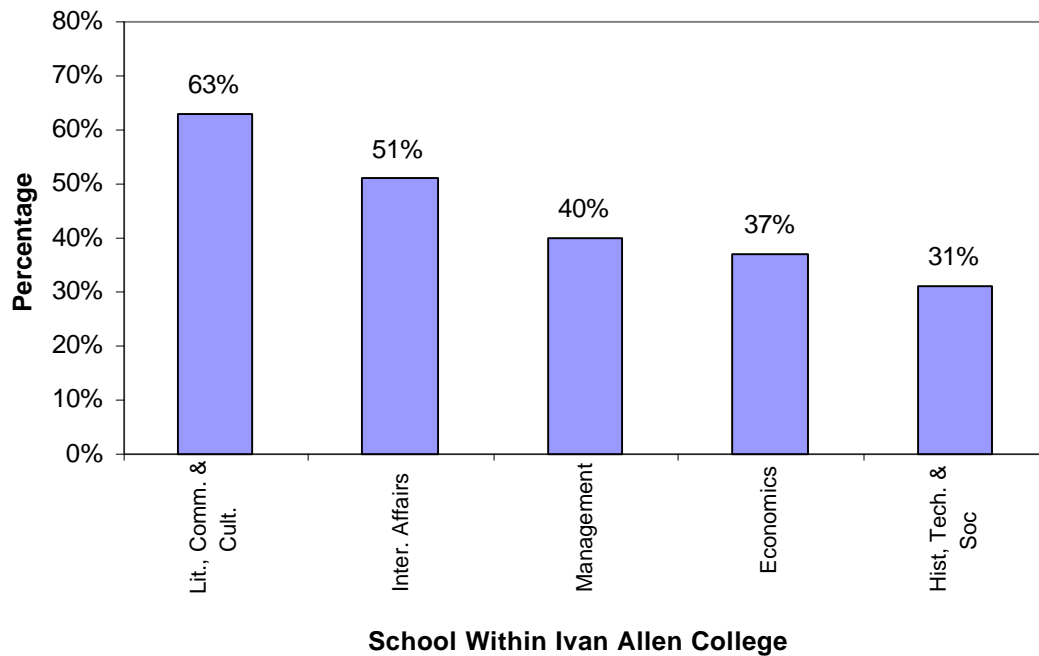


Figure 9: 1997 Georgia Tech Ivan Allen College Undergraduate Program Enrollment: Percent Women



Significance

Overall, the Student Pipeline Study revealed that Georgia Tech's rate of acceptance of male and female student applicants is essentially equal. Several schools stand out as anomalies, however, in that students of one gender are accepted at a substantially higher rate than those of the other gender. Since the Admissions Office accepts students by the same formula, regardless of which College or School they apply to, this difference appears to be a function of the applicant pool and is not the result of an admissions policy. Indeed, a closer examination of the records of all freshmen applicants to Georgia Tech in 1997 reveals a startling difference in the academic profile of students applying to different academic programs.

The programs in which female applicants are rejected disproportionately (Electrical Engineering, Computer Engineering, and the College of Computing) receive a large number of applications from women, primarily Hispanic and African-American, who simply do not have adequate academic qualifications for admission to Georgia Tech. 57 % of the female applicants to Electrical and Computer Engineering in 1997 were from non-Asian minority groups. This distribution is very different from the male applicant pool, which was only 27% non-Asian minority. Unfortunately, the non-Asian minority women had an average math SAT score of 532, well below that required for admission (as compared to Caucasian women, who had an average math SAT score of 702 -- the highest score of any sub-population applying to ECE). In contrast, 34% of the female applicants to Civil and Environmental Engineering were non-Asian minorities and 22% of the male applicants belonged to this group. Here, women had an average math SAT score of 588, compared with Caucasian women, who had an average score of 641.

It is important to determine why relatively large numbers of African-American and Hispanic women with below-average academic qualifications for Georgia Tech are specifically applying to some academic programs. The interest these women show in the technical fields should be encouraged, but more intervention may be needed during elementary and middle school to better communicate the academic requirements for entering these fields and what such careers entail. It is also worth noting that Electrical and Computer Engineering and the College of Computing are among the programs with the lowest percentage of women enrolled. While those programs may have made headway in attracting female applicants from the minority community, perhaps because of engineering and computer-based outreach and after-school enrichment programs targeted at the at-risk school systems, fewer than 3% of the applicants to Electrical and Computer Engineering in 1997 were Caucasian women. Obviously, girls and women from the white population still do not view these fields as viable career options. The reasons merit further study.

2. Retention Rates and Frequency of Change of Major

Retention Rates

Data collected since 1986 shows that the retention rate for female students has outpaced the rate for male students. From 1986 through 1989, the retention rate (defined as the percentage of students who have either graduated or are still enrolled at the institution after a 7-year period) for female students was 75.5%, while the average rate for male students was 68.5%.

Frequency of Change of Major

Female undergraduate students at Georgia Tech change their major more frequently than do male students (45.0% compared to 39.7% for the class cohort beginning in 1991). Of those women who entered with a declared major, 47.9% changed their major at least once before graduation. (Of those who entered with an undeclared major and later declared a major, only 36.2% later switched from that major.) (See Appendix B for full report.)

Within the College of Engineering, men most frequently change majors into Industrial Engineering, Mechanical Engineering, Civil Engineering, and Electrical Engineering (with the last two tied), whereas women transferring from one engineering major into another most frequently transfer into, in decreasing order: Industrial Engineering, Civil Engineering, and Mechanical Engineering (with a very large gap between the first two). While Industrial Engineering lost the lowest percentage of students (and gained the highest), Mechanical Engineering lost the fewest women. Aerospace Engineering lost both the highest percentage of its overall student majors, as well as the highest percentage of female students. Computer Engineering ranked close behind. Chemical Engineering and Electrical Engineering tied in the dubious distinction of losing the largest number of female majors.

Significance

The significance of these findings about frequency of change of major, taken in light of the retention rates of men and women, suggest that female students change majors as a coping strategy that allows them to continue their studies at Georgia Tech. It would be beneficial for each school in the College of Engineering to review the findings of the Change of Major Study.

3. Academic Achievement

The overall GPA for all women at Georgia Tech in 1997 was 0.06 grade points **higher** than for all men. The smallest difference was in the College of Sciences, where men had an average GPA 0.02 grade points higher than women. The largest differences were in the Ivan Allen College and the College of Computing, where women out-performed men by 0.21 in Ivan Allen (2.80 for women, 2.59 for men) and 0.17 in Computing (2.90 for women and 2.73 for men). In the College of Architecture and the College of Engineering, women out-performed men by 0.07 and 0.06 grade points, respectively.

Within the College of Engineering, women who were enrolled in 1997 earned an equivalent or higher GPA at Georgia Tech than their male classmates in every engineering major except Computer Engineering, where men outscored women by 0.15 grade points.

Lower-level (freshmen and sophomore) women out-performed their male classmates in every college except Architecture, where the average scores were essentially the same. In the fall of 1997, the largest gender difference between the average GPAs of lower-level men and women were in the College of Computing, where women had an average GPA of 2.93 and men had an average of 2.62.

Within the College of Sciences, lower-level women in schools that enrolled the largest percentage of women (Chemistry, Biology, and Psychology) achieved on a level comparable or slightly lower than

their male peers: in Chemistry, men out-performed women by 0.31 grade points; in Psychology men out-performed women by 0.18 grade points; and in Biology women out-performed men by 0.09 grade points.

In contrast, in Physics, Mathematics, and Earth and Atmospheric Science, lower-level women substantially out-performed their male peers: in Physics by 0.89 grade points, in Mathematics by 0.57 grade points, and in Earth and Atmospheric Science by 0.39 grade points.

By their junior and senior years, according to 1997 data, women and men in all sciences performed comparably. The largest differences were in Chemistry, where upper-level men out-performed upper-level women by 0.10 grade points, and in Mathematics, where upper-level women out-performed upper-level men by 0.10 grade points.⁷

In the Ivan Allen College, the largest major is in the School of Management. In that program, women out-performed men at both the lower and upper levels by 0.30 and 0.24 grades points respectively.

Significance

A difference of 0.06 in the grade point averages of two graduating seniors reflects approximately 12 credit hours of course work in which one student received a one-higher letter grade than the other. This is the amount, on average, by which the women enrolled at Georgia Tech were out-performing the men in the fall of 1997.

The lower-level grades in this study reflect primarily the freshman grades of the registered sophomores. For those students, a 0.10 difference in GPA represents approximately 5 credit hours with an earned letter grade either one higher or one lower. Therefore, during their freshman year in the College of Computing women out-performed their male colleagues by the equivalent of one letter grade in nearly 1/3 of their courses (in 15 of an average of 50 credit hours per year).

It would be useful to find a way to publicize these findings about women's academic achievement at Georgia Tech. If female students hear that women do well at Georgia Tech, and indeed, often out-perform male students, they might be encouraged to pursue their studies even when the work becomes exceedingly challenging. Reflecting back such a positive measure of women's achievement will likely have a subtle, but important, impact not only on students, but on faculty as well. Indeed, these findings support the recommendation to review an admissions formula that appears to under-predict women's success at Georgia Tech.

It is also interesting to note that women out-perform men to the greatest degree in fields where they are the most out-numbered. In fields such as biology, chemistry, and psychology, where female students are commonplace, it is acceptable for a woman to be merely average. However it appears only women with outstanding academic abilities choose to major in fields such as physics, or in many of the engineering disciplines.

⁷. These figures are based on small sample sizes. Only Biology and Chemistry enroll more than 100 majors in their programs.

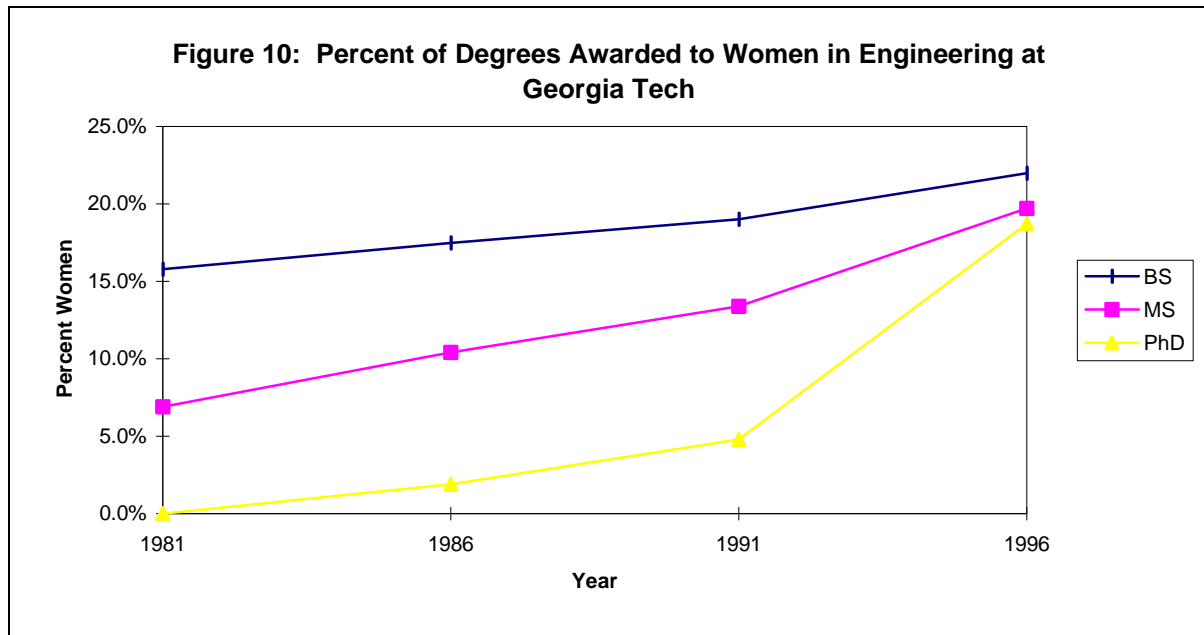
4. Engineering Degrees Conferred

Considering all degrees awarded since 1991 (1991-1997), Georgia Tech ranks first in the nation in total number of engineering degrees granted to women (B.S., M.A., and Ph.D.), second for B.S. degrees, fourth for M.S. degrees, and seventh for Ph.D. degrees.

Significance

This is an area where Georgia Tech is a national leader. However, constant vigilance is needed to ensure the continuation of this status. Between 1975 and 1981 the number of undergraduate women majoring in engineering at Georgia Tech nearly quadrupled—from 312 to 1119. Since then the number has essentially plateaued, with 1340 undergraduate women enrolled as engineering majors in 1997.

Figure 10 shows the percent of engineering degrees awarded to women at Georgia Tech since 1981. The plateau seen at the undergraduate level will soon become the limiting factor in determining the number of women eligible to enroll in engineering graduate programs. It is unlikely that Georgia Tech will be able to increase the percentage of women earning graduate degrees unless either the percentage of undergraduate degrees awarded to women at Georgia Tech and other institutions increases, or a larger percentage of women than men earning undergraduate engineering degrees choose to pursue graduate degrees.



B. FACULTY

1. Administrators and Faculty

Just as the percentage of female students enrolled and graduated at Georgia Tech has increased steadily in the past 15 years, so too has there been an increase in the percentage of female administrators and faculty employed during the same period. Still, the percentage of female administrators and faculty does not correspond to the percentages of female students.

In 1998, the highest administrative positions held by women included: 1) Dean of Libraries, 2) Dean of Students, 3) Associate VP for Auxiliary Services, 4) Associate VP for Enrollment Services and 5) four School Chairs or Department Heads within the Ivan Allen College. Among upper-level administrative positions, which include School Chairs and Department Heads, the gender distribution was 63 men and 14 women (or 19% women). A complete list of the people included as upper-level administrators is included in Appendix I.

In the decade from 1987 to 1997, the total percentage of women on the teaching faculty at Georgia Tech **doubled** from 7.6% in 1987 to 14.1% in 1997. In 1997, 12.9% of the tenure-track faculty were women. The percentages of tenure-track positions held by women at Georgia Tech by College and School are shown in Figures 11 - 14.

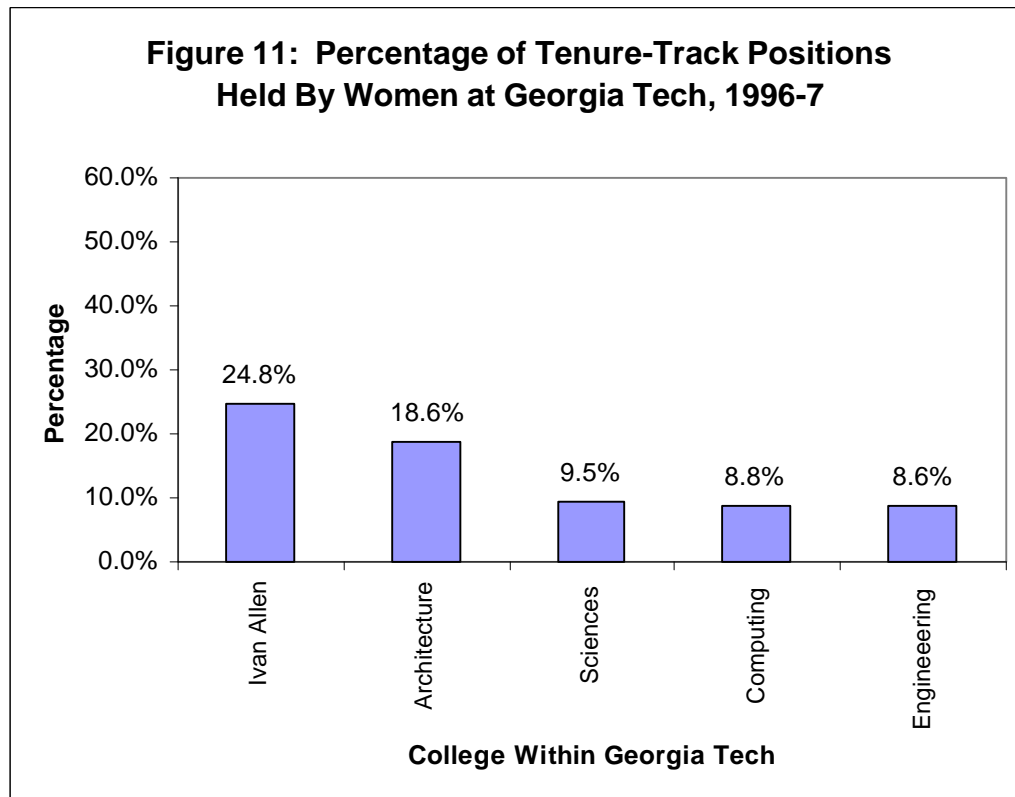


Figure 12: Percentage of Tenure-Track Positions Held By Women, College of Engineering, 1996-7

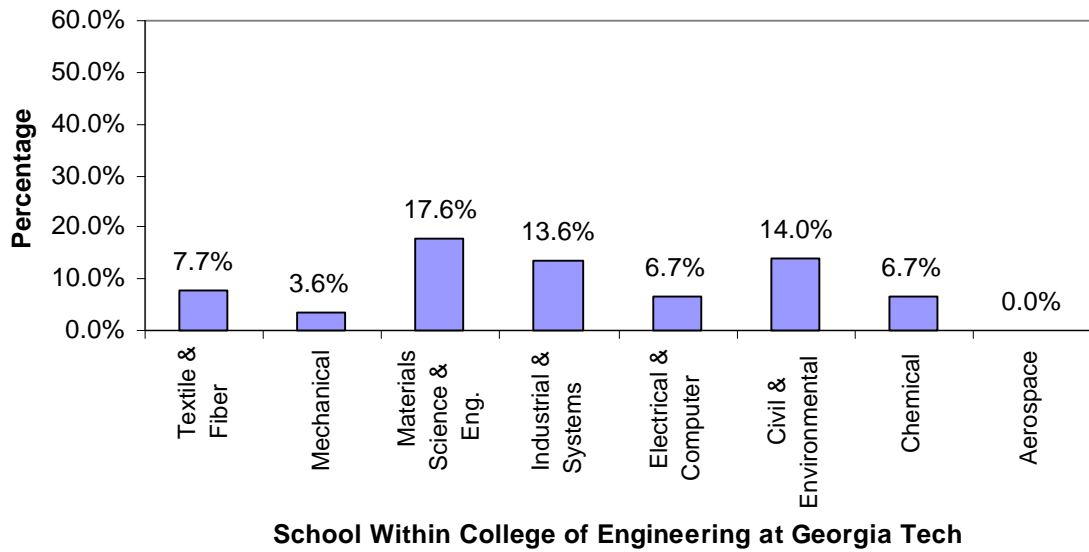
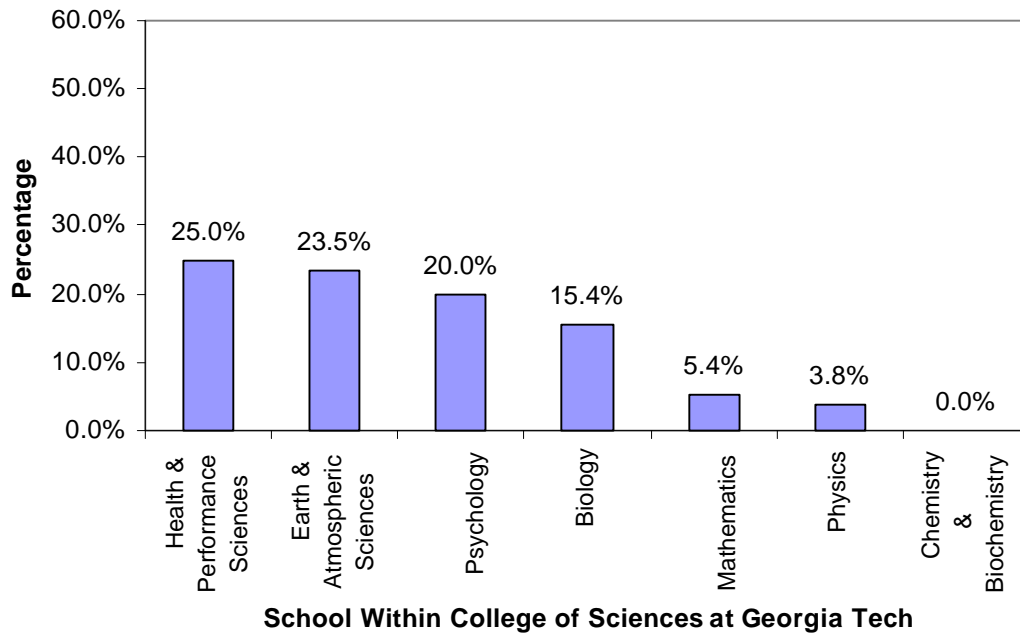
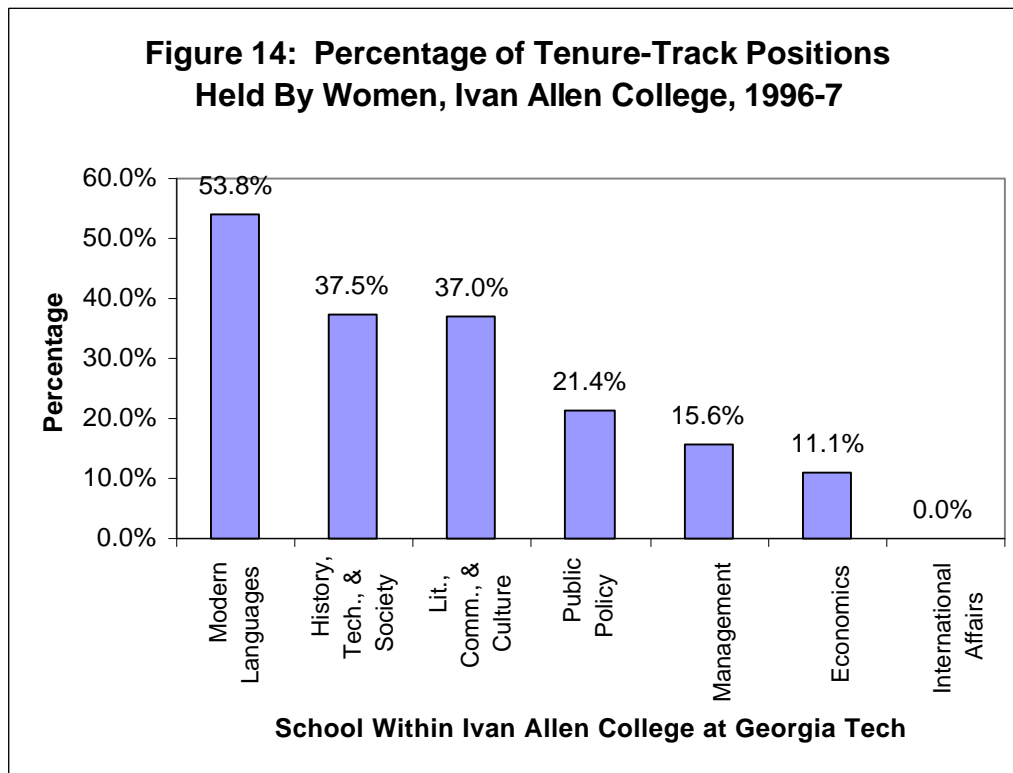


Figure 13: Percentage of Tenure-Track Positions Held By Women, College of Sciences, 1996-7





Significance

These figures describe a disciplinary distribution that is common in U.S. institutions of higher education where the greatest number of female faculty are concentrated in the humanities (LCC and Modern Languages) and social sciences (HTS, Public Policy, and Management), and most female administrators work in student services and non-academic units. The impact of this distribution at Georgia Tech is especially significant in the context of the changing demographics of female students at all levels.

In pragmatic terms, the relative lack of female faculty members at Georgia Tech manifests itself as a lack of female mentors for younger faculty and students. Moreover, with such low numbers, female faculty often end up shouldering additional committee responsibilities, student advising loads, and teaching loads precisely because of their “representational service” as female members of committees, task forces, and as liaisons for female student groups.

The relatively low numbers of high-ranking female administrators also suggests that there is a “glass ceiling” for women seeking institutional advancement at Georgia Tech. Female faculty and administrative perceptions of such a glass ceiling, whether accurate or not, may well be self-perpetuating, in effect creating a “brain drain” of female talent. Anecdotal evidence suggests that promising younger or lower-ranked women frequently choose to leave Georgia Tech and seek opportunities in less male-dominated institutions.

2. Distribution of Academic Rank

Differences in academic rank have many causes—some historical, and some continuing. Many full professors at Georgia Tech were initially hired in an era when very few women pursued academic careers, particularly in science and engineering. In 1997 female faculty are highly concentrated at the lower ranks in Schools and departments across the Institute, as indicated in Figures 15-17. However, Figures 18 - 19 reveal that women are still very rarely hired by Georgia Tech at a senior academic rank.

Figure 15: Rank of Female Teaching Faculty at Georgia Tech, 1996-7

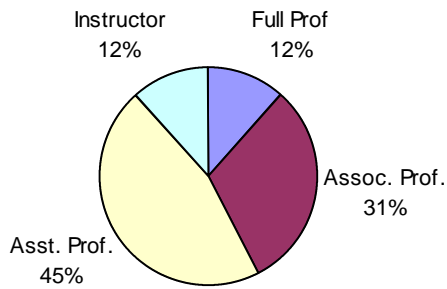


Figure 16: Rank of Male Teaching Faculty at Georgia Tech, 1996-7

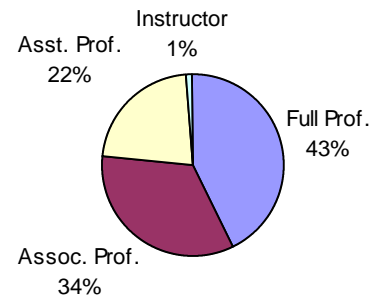
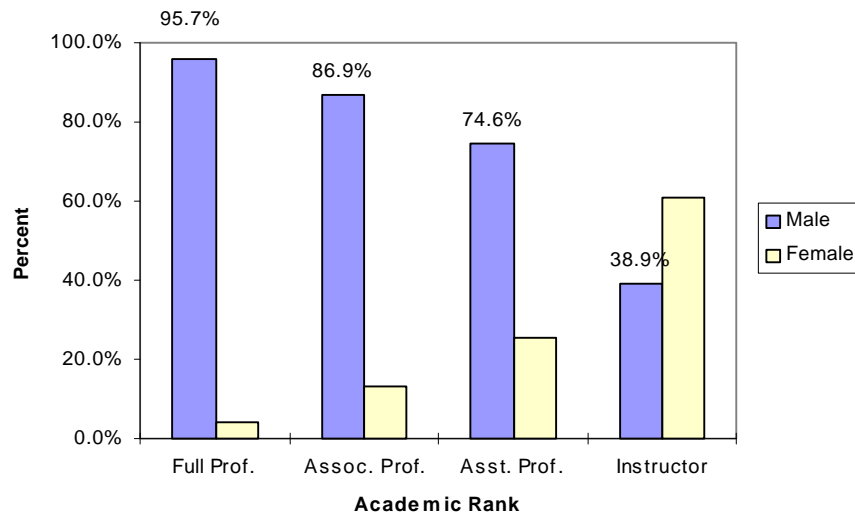
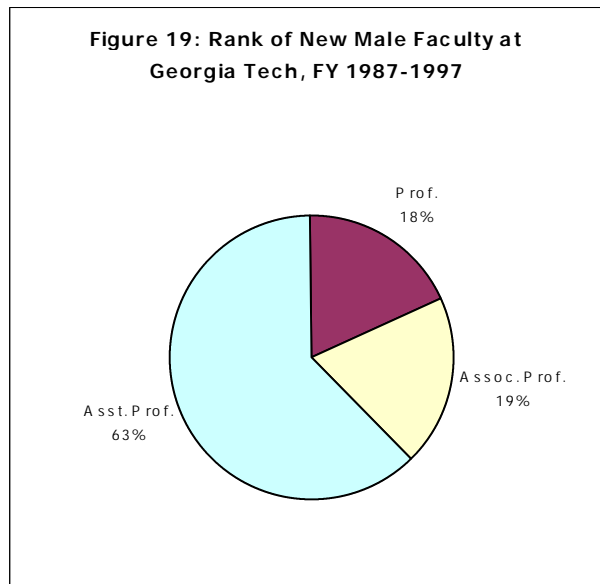
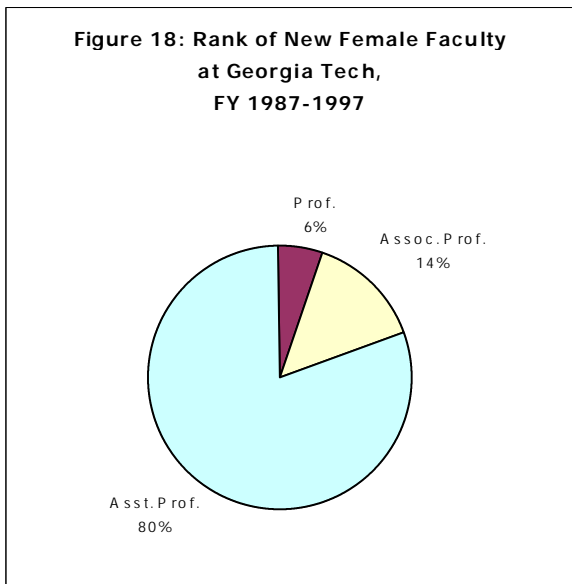


Figure 17: Georgia Tech Faculty Academic Rank: Percent by Gender, 1996-7





3. Promotion and Tenure Rates

Georgia Tech currently does not track promotion and tenure rates of different subgroups of faculty. However this rate can be inferred by analyzing the current academic rank of faculty hired during different periods of time. Figure 20 shows the current rank of faculty hired into the College of Engineering as assistant professors between 1986 and 1998, and suggests that female faculty are promoted more slowly than are their male colleagues. Even when the data is analyzed in 3-year windows, a greater percentage of the female faculty are currently at a lower rank than are their male colleagues (see Appendix C).

Further, analysis of these data shows that attrition among female engineering faculty is not evenly distributed between schools, as shown in Figure 21. (This graph shows the number of faculty hired during the period FY 1986 -1998, by gender, who left each School divided by the headcount during the same period, by gender, of that School.) It should be noted that the two Schools that have each lost female faculty (Industrial and Systems Engineering, and Mechanical Engineering) are exactly the Schools that were the pioneers in hiring female faculty. It will be interesting to continue to monitor this data now that eight of the Schools in the College of Engineering have female faculty.

Significance

Available faculty demographic data and the InGEAR Promotion and Tenure Study strongly suggest that women are promoted more slowly at Georgia Tech than are men. This conclusion is supported by data that compares Georgia Tech to other similar institutions. When compared to 21 benchmark institutions, Georgia Tech ranks 5th highest in the percentage of engineering assistant professors who are women. But it ranks 15th highest in the percentage of associate professors who are women, and 19th highest in the percentage of full professors who are women (see Appendix D).

Current Deans and School Chairs at Georgia Tech offer several explanations for these numbers. One explanation is that because Georgia Tech confers the largest number of engineering degrees on women of any engineering institute in the U.S., the Institute is actually at a disadvantage when it comes to hiring women with engineering degrees. According to this view, other universities are not producing enough female engineers to keep the business and academic markets stocked. One

assumption underlying this explanation is that Georgia Tech alumnae/i should rarely, if ever, be hired at their alma mater, an assumption that was not so rigorously applied to previous generations of scholars. Another explanation is that female faculty members leave positions at Georgia Tech in greater numbers because they are being hired to positions of higher rank elsewhere in the country. However, an informal phone survey to administrators within Colleges of Engineering at other benchmarks schools does not support this explanation. Indeed, all but one of the administrators surveyed said that it is the practice at their schools to “grow their own”--that is, to hire women at the assistant professor level and promote them into senior positions. All of the female full professors except one, at all departments surveyed, were originally hired as assistant professors into those departments.

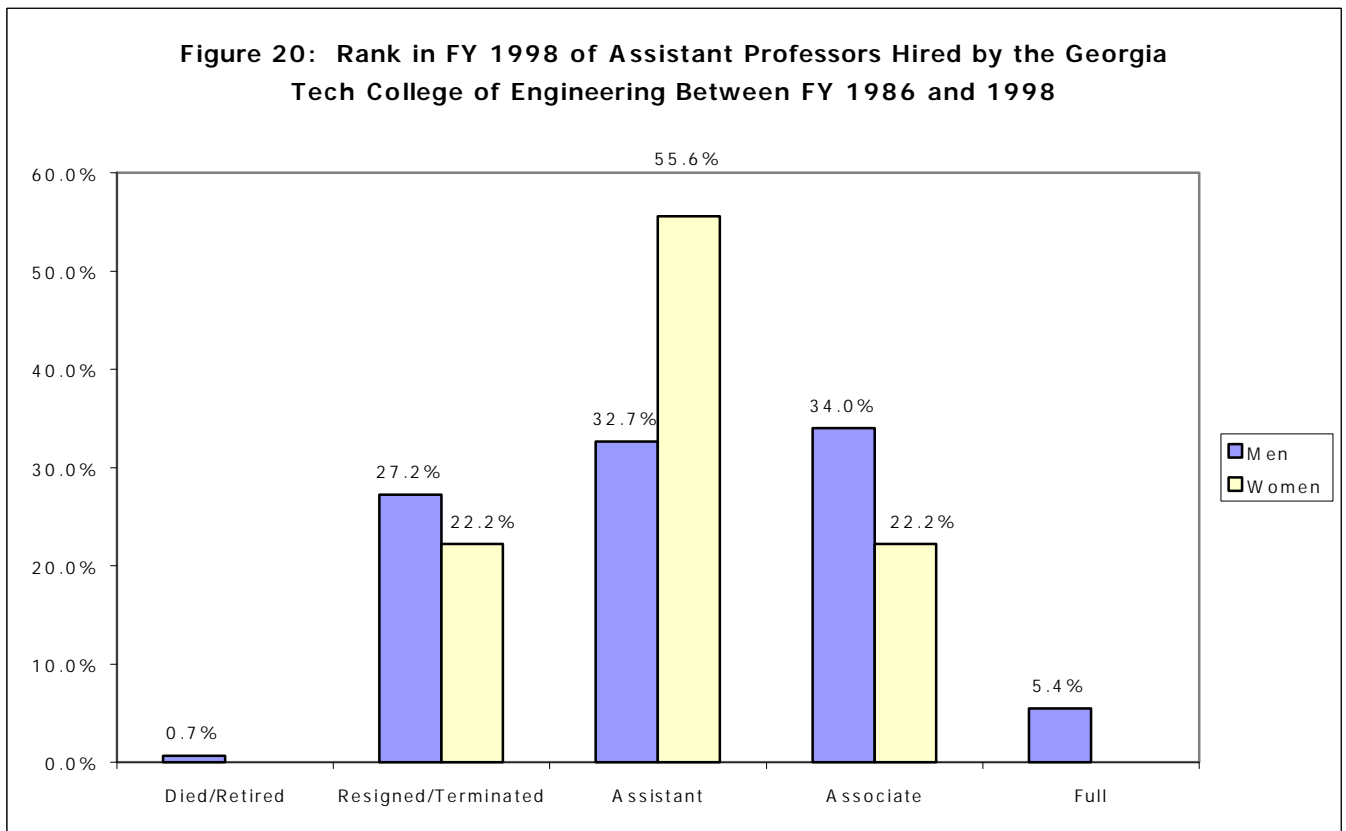
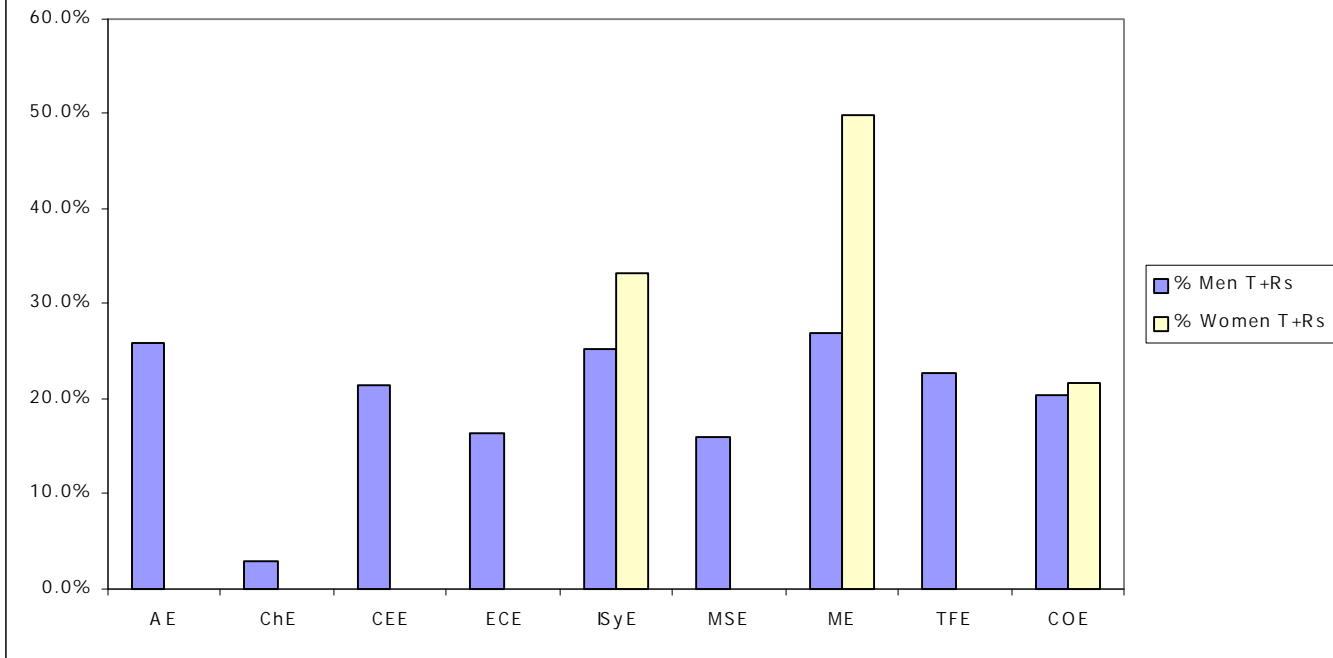


Figure 21: Percent of Faculty Hired in the Georgia Tech College of Engineering Between FY 1986 and 1998 who have Resigned or Been Terminated, by School and Gender



Section 3: INSTITUTIONAL RESOURCES AND THE CAMPUS CLIMATE

A. Institutional Issues that affect Female Faculty

1. Small Numbers of Female Faculty

Analytical Problems

There are several analytical difficulties posed by the relative lack of female faculty at Georgia Tech. Statistical descriptions of changes in numbers are difficult to interpret because the total size of the cohort is so small, rendering differences or trends “statistically insignificant.” Unfortunately, this “statistical” insignificance sometimes seems to translate into institutional insignificance as well.

When Chairs are asked, “Why do female faculty leave your department?” they often can list specific reasons why each individual woman has left the department in the past few years. As was discovered through a series of recent interviews with several Chairs in the Colleges of Engineering and Sciences, the reasons given are always highly personalized and individuated. The attrition is viewed as due to women’s individual decisions: the need to accommodate spouse employment, acquisition of a better job, or desire for a less stressful job.

Certainly, these personal reasons have validity—just as they do for men. However, keeping the focus on the individual woman’s situation effectively keeps the focus off the institutional reasons why she may be willing to leave Georgia Tech. This narrow, highly individualized focus makes it difficult to form generalizations about the climate or the forces that may operate to discourage female faculty in their careers at Georgia Tech. The evidence always seems anecdotal and intensely individual—all trees, no forest.

Undue Representational Service

Another, almost inevitable, consequence of the relative lack of female faculty is that they often end up performing more institutional service than their male peers. While it is positive that the Institute’s administration seeks women’s participation on various committees and task forces, female faculty often also serve more frequently as informal advisors and counselors for female students and staff—whether they want to or not. As any faculty member knows, such service can cut severely into research time.

2. Managerial Practices, Mediation, and Grievance Procedures

One of the key difficulties in assessing the effectiveness of Georgia Tech’s institutional structure in providing services for female faculty is related to the extent of the discretionary power given to individual School Chairs. Because School Chairs are given a great deal of latitude to arrange teaching schedules and appointments, a sympathetic Chair can make arrangements that are very beneficial for individual female faculty. An unsympathetic Chair can do the opposite.

At the institutional level there is no unit or person currently responsible for representing the interests of women on campus and for advising and monitoring Institute policies that affect women. Current processes to address faculty grievances are limited to the Faculty Senate Grievance Committee, which focuses on academic issues, or the Affirmative Action Office. There is no procedure for the mediation of other types of grievances that fall outside the purview of these offices. Although the Director of Human Resources serves a mediation function for Georgia Tech staff, very few faculty make use of his services, either because they don’t realize that his office also serves faculty interests, or because of reticence of some sort. Although the issues that concern female staff may be similar to those for female faculty, there are also other issues to consider when dealing with professionals in an academic field.

3. Hiring Practices and Strategies

Most hiring practices are determined at the discretion of individual School Chairs. Although most Schools of Engineering use search committees to review and evaluate faculty applications, final decisions regarding hiring are left to the discretion of the Chair. When asked specifically in formal interviews about recruiting and hiring strategies, Chairs in each school of the College of Engineering reported that there are few strategies specifically aimed at recruiting female faculty candidates. Two Chairs did report that they explicitly encourage their faculty search committees to place job advertisements in the professional journal *The Woman Engineer* and to make personal phone calls to try to locate outstanding female candidates for advertised positions.

Most Chairs report that it remains “extremely” difficult to recruit female faculty for tenure-track positions. Noting that there have been more female candidates in the past five years, one Chair estimated that only 10% of the positions advertised in his School during the past five years attracted any female candidates; another estimated that only 30% of the positions included female applicants in the applicant pool. At least two Chairs now insist that at least one female candidate be considered in every search. Several Chairs report that they use personal contacts with faculty at other institutions to identify qualified female applicants. One Chair goes so far as to monitor the progress of female Ph.D. candidates in programs elsewhere so that he can begin recruiting efforts at the earliest possible time. However, the Chairs of at least three Schools said that they don’t do anything special to recruit female candidates.

Female candidates are not only scarce, but also highly sought after by many other engineering schools around the country. Thus the paucity created by the “pipeline” problem is compounded by the demands of a competitive job market. When offers are made to female candidates, Chairs report that the female candidates are often also entertaining offers from Top 10 Engineering Schools such as MIT, Stanford, University of Illinois and Berkeley. Although one Chair indicated that he tries to allocate extra money for salary and hiring packages, apparently most of the Chairs who have made unsuccessful offers to female candidates find that the offers made by Georgia Tech are not competitive with those made by other such schools. As one Chair noted: “When the interview time comes, men must sell themselves to us. In contrast, we have to sell ourselves to the female candidate.”

Although many Chairs in the College of Engineering noted that previous Deans verbally encouraged the recruitment and hiring of female faculty, few Chairs thought that the encouragement made much difference in the long run. One Chair suggested that, in fact, the over-emphasis on hiring female faculty actually hurt the credibility of female candidates once hired: He felt that male faculty sometimes believed that newly hired female faculty were hired only because of gender.

4. Promotion and Tenure Process

The current Georgia Tech policy on tenure and promotion is outlined below.

For a faculty member to be considered for tenure, the individual's performance must be judged to be at or above the level appropriate to his or her professorial rank. That judgment should be based on the criteria set forth in the "Guidelines for Promotion at Georgia Tech." All dimensions of the performance must be considered, that is teaching, creativity, and service. In appraising a candidate's qualifications for tenure, the weightings of the three categories set forth above may vary with the individual case. It is recognized that the Institute has varied responsibilities and these responsibilities may best be met by a faculty whose members have a varied mix of strengths. Given an appropriate level of performance, the primary criterion for tenure is the compatibility of the individual's performance and interests with the objectives of the unit, the college and the Institute. Statements and supporting documentation from the applicant, the school director/department head and the dean should address this question.⁸

The Board of Regents’ policy on the timing of the tenure decision is as follows:

⁸ <http://www.academic.gatech.edu/handbook/Section3/Promote.html#Tenure>
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Tenure may be awarded, upon recommendation by the President and approval by the Board of Regents, upon completion of a probationary period of at least five years of full-time service at the rank of Assistant Professor or higher. The five year period must be continuous except that a maximum of two years interruption because of a leave of absence or part-time service may be permitted... (BR Minutes, 1983-84, p. 94)

The maximum time that may be served at the rank of Assistant Professor or above without the award of tenure shall be seven years, provided, however, that a terminal contract for an eighth year may be proffered if an institutional recommendation for tenure is not approved by the Board of Regents. The maximum time that may be served in any combination of full-time instructional appointments (Lecturer, Instructor, or professorial ranks) without the award of tenure shall be ten years, provided, however, that a terminal contract for an eleventh year may be proffered if an institutional recommendation for tenure is not approved by the Board of Regents. (BR Minutes, 1992-93, p. 188)

Interviews with female faculty, on both sides of tenure, and with male School Chairs, document that the timing of the tenure and promotion process for individual faculty is more flexible in some Schools than in others. The connection between faculty leaves of absence and the tenure clock is not well defined. As many respondents point out, a sympathetic Chair can make arrangements that allow faculty more time before the tenure review. Unsympathetic Chairs keep all faculty in lock step regardless of circumstance. This implies that the current Tenure and Promotion process is overly vulnerable to “political” influences. Indeed, the more “subjective” the process, the more it is open to discriminatory influences.

5. Maternity and Family Leave Policies

The current Georgia Tech maternity and family leave policy is as follows:

Disability due to pregnancy shall be considered as any other disability, and appropriate sick leave provisions shall apply (see Procedure 2.13).⁹

Sick leave may be granted at the discretion of the Institute and upon approval of the employee's immediate supervisor for any of the following reasons:

1. Illness or injury of the employee.
2. Medical and dental treatment or consultation.
3. Quarantine due to a contagious illness in the employee's household.
4. Illness, injury, or death in the employee's immediate family requiring the employee's presence.
5. Disability due to pregnancy.¹⁰

Bereavement (Death in the Family) Policy:

It is the Institute's policy to allow employees to take accumulated sick leave for bereavement (death in the immediate family) with supervisory approval.¹¹

Georgia Tech is also in compliance with the federal Family Leave Act since employees may take personal leave **without** pay for the birth of a child or a family illness. Arrangements for leave **with**

⁹ Georgia Tech Procedures Manual, <http://www.admin-fin.gatech.edu/business/human/attendance/021100.html>

¹⁰ Georgia Tech Procedures Manual <http://www.admin-fin.gatech.edu/business/human/attendance/021300.html>

¹¹ Georgia Tech Procedures Manual <http://www.admin-fin.gatech.edu/business/human/attendance/index.html>

pay can be arranged only by using accrued sick leave. Thus, the only options for women upon the birth of a child are either to spend their accrued sick leave or to take leave without pay.

While other institutions have addressed this issue through the use of short-term disability insurance, Georgia Tech currently does not offer such coverage.

6. Childcare Facilities

There have been at least two surveys assessing the extent of childcare needs among Georgia Tech constituents. To date, however, there has been no follow-up on these survey findings. People report that childcare has been an issue for at least a decade, but express confusion about the findings and consequences of previous surveys.

7. Significance

Mediation and Grievance Procedures Current mediation and grievance procedures are better suited to address the concerns of students and staff, and are of less help in addressing the concerns of female faculty. The Institute needs an Ombudsperson who is trained to mediate faculty concerns. Although there are distinct groups of women on campus who have unique concerns tied to their particular institutional status—as students, staff or faculty—it is also the case that there are significant issues shared by female faculty, staff and students. There is currently no person or unit at Georgia Tech vested with the responsibility of monitoring the status and treatment of women, with recommending and reviewing policy, or with designing and collecting regular reports on demographics and performance.

Hiring Practices and Strategies The most frequent explanation offered to account for the small number of female candidates suggest that it is a “supply problem”: that the available pool is very small. Although one faculty member suggested that “it has taken a long time to get women into Ph.D. programs,” he went on to say that it is his belief that “many women do not look at a life in academe as a good career.” There is also a perception on the part of some male faculty and administrators that academe is considered to be a “very high pressure environment” that is not desirable to female engineers. But rather than see the “high pressure environment” as a aspect to be changed or modulated, most people who expressed such insights suggest that it is a failing of women that they don’t seek out such employment. One administrator asserted that biological factors are the greatest impediment to women’s success in an academic career. As he explained, just when their research efforts should be intensifying (3-5 years after the initial appointment), female faculty members feel the need to have children—a decision that, according to this male administrator, interferes with the level and quality of research conducted, upon which tenure decisions will be made.

Promotion and Tenure Process The InGear Advisory Committee, after careful consideration of the results from a variety of surveys and interviews, concludes that:

- 1) The criteria for tenure and promotion are not clear.
- 2) The interpretation, implementation, and dissemination of these criteria vary widely among Schools and are subjective.

- 3) School Chairs are not required to provide an analysis of the reasons for a negative tenure decision nor are they required to provide an assessment of the School's responsibility for the decision.
- 4) Because of the paucity of female faculty, most tenure committees are comprised solely of male faculty members.
- 5) There is no guidance offered to untenured faculty about how to prepare tenure and promotion materials and about the various stages of the review process.
- 6) There is unevenness among School Chairs in their commitment to create a "fair P&T" committee.
- 7) There is no allowance for differences in pace and trajectory of academic research and scholarly careers.

The Tenure Clock Because the tenure process happens at the same time that most young professionals (male and female) are beginning to think about starting families, there are conflicting pressures exerted on untenured faculty. Because of limited financial support, it is simply not an option for most people to have children while in graduate school. With the first professional academic position comes the first professional-level salary that provides the financial security (and medical benefits) needed to start a family. Because most graduate students do not finish Ph.D. programs until they are in their late 20s or early 30s, their first professional position, with its requirements for research and teaching, comes at the same time as does the life-passage decision to begin a family. This overlap between the "tenure-clock" and the "family-clock" puts a greater burden on female faculty than it typically does on male faculty. Pregnancy is a physical condition that often necessitates specific health-care habits and eventual physical recuperation.

The ultimate value of a person's career as a teacher and scholar is built over many years and decades. An inflexible tenure clock overemphasizes the first six years of a person's career, differentially impacting men and women. The InGEAR team strongly recommends that the upper administration take the lead in establishing the right of all Georgia Tech employees to achieve a balance between career and family.

Maternity and Family Leave Policies By having to use their sick leave to compensate for unpaid maternity leave, female faculty are put in an unfair position due to having to bear the risk of an artificially depleted amount of "sick leave." When male faculty choose to have families they are not similarly put in the position of having to spend their long-term medical benefits on basic life choices. Moreover, there is a potential inequity in retirement benefits now that the State Retirement System increases the service calculation to compensate for unused sick leave upon retirement.

The lack of a paid maternity leave policy also ensures that individual Chairs have a great deal of power over the careers of female faculty. Some Chairs continue to be unsympathetic to the concerns of female faculty, especially in the realm of maternity policies. This situation often places undue responsibility on female faculty members to navigate interpersonal dynamics when negotiating institutional and personal responsibilities. Georgia Tech is not alone in giving such discretionary power to School Chairs. Other institutions are struggling to find creative, equitable ways to address this situation.¹²

¹² At the University of California at Davis, the Women's Resources and Research Center published a web page in April 1998 about the issues of maternity leave. It contains the personal accounts of 28 women faculty about their experiences with the leave policy at that institution. In addition, it clearly presents the policy that is guaranteed for all faculty, as well as the web link for the official handbook pages addressing the policy. One interesting suggestion made by a female faculty member represented in this web page is: "This experience makes me recommend in the strongest of terms that
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Balancing institutional and family responsibilities is not just a concern of women, but it remains pigeon-holed as a women's issue because women continue, in U.S. society, to bear the major responsibility for childcare and family care-taking. There is little doubt that the existence of family-friendly policies and services would be an effective tool to use in the recruitment and retention of both male and female faculty and administrators. Given that Georgia Tech and other universities compete directly with industry for talented personnel, it is instructive to consider one prominent corporation's statement about these issues:

Work/Life Programs

Significant changes in how we live, coupled with major demographic shifts, are changing the nature of the workforce. The demands of work versus the obligations of personal life has become a prominent business issue, linked to long-term competitiveness and the overall health of a business.

These new social conditions are forcing businesses to examine the business culture itself. At a time when more than half of all married couples in the U.S. are dual-income families, and many women, with children under the age of one, work outside the home, the separation of work from personal life is no longer feasible. Particularly when it's estimated that some 76 million "baby boomers" began turning 50 in 1996. Many of them have the dual responsibilities for taking care of both young children and aging family members.

Work/life policies and programs help attract and retain the best employees, while maximizing their contribution to the company. These programs bring both direct and indirect benefits by creating flexible work environments responsive to individual needs and responsibilities and by stimulating the development and expansion of community programs.

Research has shown that employees who are given greater flexibility -- in respect to their hours and conditions of work -- have reported more job satisfaction, increased job productivity, higher morale and motivation and greater loyalty to the company. What's more, people must not be made to feel that they are less committed to their careers when they use such programs.¹³

B. The Campus Climate

1. Faculty Mentors and Leadership

Because there are so few female faculty on campus, there are few women available to serve as role models and mentors for female students. Furthermore, few non-student women on campus occupy visible decision-making or key administrative positions.

2. Student Leadership

In contrast, female students hold a disproportionate number of student leadership positions at Georgia Tech. In the view of the InGEAR team, this fact should be seen as solid evidence that women can and do succeed at and positively contribute to Georgia Tech.

maternity leave policies be centralized with an administrator who works with pregnant faculty women and their Chairs to work out their maternity leaves. Without this 'check point' in the system, we are leaving junior women particularly in a vulnerable position." The web address for this material is <http://wrc.ucdavis.edu/wrc/babybook/default.html>.

¹³ <http://www.empl.ibm.com/diverse/worklife.htm>

3. Daily Life on Campus

The description here about daily life on campus is based on the collective experience, supported by interview and survey data, of the InGEAR Advisory Committee.

Students

Although there are a number of groups and services on campus established specifically for women, there is some measure of resistance among female students to joining such groups or in making use of these services. At the same time, reports received from current students suggest that the “PR of Georgia Tech doesn’t match the reality of Georgia Tech.” Students specifically cite the discrepancy between what is implicitly promised in Georgia Tech’s recruitment material in terms of a “female-friendly” environment and what is actually “delivered” when students arrive on campus.

In focus groups and surveys, Georgia Tech students have described the negative impact of the following classroom practices:

- Negative reactions from male classmates to questions asked by women.
- Faculty not calling on female students for answers and contributions.
- High reliance on individual competitive activities rather than group work.
- Very high level of competition for grades.
- “Curve Grading” to weed out students.
- Perceived impersonal and uncaring faculty.

While male students at Georgia Tech also report that the classroom climate is alienating and off-putting,¹⁴ women are more socialized to interpret negative comments and behaviors as a comment on their worth and capabilities. When women hear statements that express doubt about their abilities or aptitudes, their self-esteem is subtly, but effectively undermined.¹⁵

Faculty

It is common for female faculty to receive comments about their personal appearance on their teaching evaluations. They also report receiving frequent complaints about not being “friendly” enough. There is an expectation that female faculty should be more approachable and personable than male faculty. When female faculty depart from this expectation, students respond critically. In addition, female faculty and instructors report that male students frequently contest their authority in the classroom by disrupting class with inappropriate comments and aggressively challenging professional and scholarly expertise. Although female faculty hold formal institutional authority in the classroom, they can be made very uncomfortable by students who do not wish to recognize that authority¹⁶.

¹⁴ From the SUCCEED Survey of engineering majors—see Appendix E.

¹⁵ Subotnick, R. & Arnold, K.D. (1996). “Success and Sacrifice: The costs of talent fulfillment for women in science.” In K.D. Arnold, K. Noble, and R. Subotnick (Eds.), *Remarkable Women: Perspectives on Female Talent Development*.

¹⁶ From Engineering Task Force Final Report, and Georgia Tech InGEAR Advisory Committee Meetings. December, 1998

4. Sexual Harassment and the Production of a Hostile Environment

Among the most difficult situations for female faculty and students to negotiate are encounters with the attitudes held by male faculty and administrators about gender. One of the characteristics of the climate that exists at Georgia Tech is an understanding that jokes and snide remarks about women are a common mode of banter. New female faculty are advised that to survive at Georgia Tech, they must develop a good sense of humor and a thick skin. Gender harassment most often takes the form of subtle “put-downs” and patronizing comments. Occasionally the comments are more directly sexually demeaning or express some sort of sexual innuendo, thereby becoming part of the more serious problem of sexual harassment. Because there is no official annual report of the incident rate of sexual harassment complaints, female faculty (in particular) are often left with merely anecdotal reports of harassment.

There are several factors that discourage women from reporting offensive behaviors and comments:

- 1) There is no clear sense of protocol or process for contesting these behaviors. Even when other colleagues or students witness the behavior, because no one speaks out against it, such behaviors seem to be tolerated among male faculty and students.
- 2) The behaviors happen in informal settings or as off-hand comments where there are no witnesses or seemingly serious consequences.
- 3) There is a sense among female faculty, especially if they are untenured, that if they were to report the offending behavior they would risk retaliation and retribution from the offending person. This risk holds regardless of whether or not the offender holds formal institutional authority over the junior faculty. Senior male colleagues, especially if they are in the same field, hold professional and promotional authority over untenured faculty.
- 4) Because of the discretionary power granted to individual School Chairs, significant aspects of a female faculty’s work situation can be affected by a negative attitude on the part of the School Chair, or a committee appointed by the School Chair. Few women are in a career position that would insulate them from the consequences of retaliation or retribution by an unsympathetic Chair.

Significance

An important first step in addressing Campus Climate issues is to acknowledge that the institution bears some responsibility for the climate within which women work and study, and that the uncomfortable climate experienced by many women is not an “individual” problem or the result of personal “failing.” With respect to the experiences of female faculty, the upper administration sets the tone and takes the lead in identifying and redressing the structural and institutional reasons for women’s job dissatisfaction and eventual departure. The InGEAR Advisory Committee recommends that Georgia Tech make a concerted effort--across Schools and Colleges--to increase the number of female faculty and administrators at all ranks.

C. Institutional and structural support available for students

1. Groups, Services and Activities for Women

- Women's Resource Center
- Society of Women Engineers
- Women's Student Union
- Sororities
- Women's Athletics
- Women in Business professional group
- OMED's resources for minority women
- Counseling Center discussion groups
- Freshmen Experience women's groups
- Women's Leadership Conference
- Women's Awareness Week
- Mentor Tech program

2. Curricular Resources

Although there are no courses or curricular programs related to gender in the Colleges of Engineering, Sciences, Architecture, or Computing, the Ivan Allen College offers a minor in "Women, Science and Technology" that is jointly sponsored by the Schools of History, Technology and Society, and Literature, Communication and Culture. This minor includes several courses that explicitly address issues pertaining to the education and employment of women in scientific and technological fields. As of 1998, approximately 10 students have applied for the WST minor. On average, six WST courses are offered each year.

Course offerings include:

- SOC 2300: Women in Science and Engineering
- ENGL 4305: Science, Technology, and Gender
- SOC 3320: Sociology of Gender
- SOC 6510: Gender, Work, and Social Inequality

D. Recent Progress on improving the campus climate for women

1. Gender Equity Workshops

During the 1996-1997 academic year, 555 Georgia Tech faculty and staff attended one of 33 2.5-hour *Gender Equity In and Out of the Classroom* workshops facilitated by colleagues and designed to increase awareness of the issues of gender equity and provide strategies for creating a more gender-equitable campus environment.

The workshops were attended by 345 faculty and 210 staff. This represented 43% of the academic faculty, and an unknown percent of the eligible staff. Sixty three percent of the faculty from the College of Engineering attended, including over 90% from Chemical Engineering, Industrial and Systems Engineering, and Civil and Environmental Engineering. Between 25% and 30% of the

faculty from each of the Colleges of Science, Architecture, and Computing, and the Ivan Allen College attended a workshop.

Faculty attendance from the College of Engineering closely mirrored the number of female students enrolled in those schools--all engineering schools with over 25% female students (Chemical Engineering, Industrial and Systems Engineering, Civil and Environmental Engineering, and Textile and Fiber Engineering) had very high attendance (over 80%) at the workshops. Those schools with 10-20% female students (Electrical and Computer Engineering, Materials Science and Engineering, Aerospace Engineering, and Mechanical Engineering) were represented by 30-50% of their faculty.

2. Women's Resource Center

A recent improvement on Georgia Tech's campus has been the establishment of the Women's Resource Center¹⁷. The mission of the Center is:

- To address women's issues on campus, particularly the retention and recruitment of female students, by improving and enhancing the climate for all women on campus.
- To act as a resource for women seeking information about challenges specific to women, including health issues, career options, academic opportunities, and safety concerns.
- To provide a gathering place for the diverse needs and interests of women at Georgia Tech.
- To provide a forum for women and men to discuss gender equity and communication.

The Women's Resource Center Advisory Board is a select group of people who will have a positive impact on the campus climate for women. The addition of a full-time Women's Resource Center Director is necessary to coordinate efforts among the Advisory Board, Dean of Student personnel, and the various women's groups on campus.

3. Recent Changes in Student Services

The Office of Diversity Issues and Programs, established in March of 1997, is responsible for fostering a vision of diversity appreciation across campus. The hiring of a full time director, responsible for providing diversity training and coordinating the Diversity Forum, is a notable improvement to the Georgia Tech campus climate.

4. Student Recruitment

The Admissions Office has implemented several strategies to increase the number of women applying to Georgia Tech. These strategies include making phone calls and sending letters from admissions officers and alumnae to promising female candidates, and encouraging female and minority candidates to visit the Georgia Tech campus during "Connect with Tech."

¹⁷ <http://www.womenscenter.gatech.edu/>

Section 4: SUMMARY OF FINDINGS and RECOMMENDATIONS

The following recommendations are divided into three sections: 1) Recommendations about positions of leadership, mediation and administration, 2) Recommendations about specific policies, including family leave and tenure and promotion, and 3) Recommendations about sexual harassment prevention training.

1. RECOMMENDATIONS about NEW POSITIONS OF LEADERSHIP, MEDIATION AND ADMINISTRATION

RECOMMENDATION: The President shall establish a permanent Commission on the Status of Women. This Commission shall be administratively attached to the President's Office. The Commission shall assist the President and his cabinet in fulfilling the recommendations contained in this report. The function of the Commission will be to:

- Oversee and monitor campus activities that concern women across all Institute constituencies.
- Advise the President and recommend policy on issues that have an impact on women.
- Annually assess demographic information, tenure and promotion information, and general employment information about women on campus and at off-site locations.
- Work with the various campus units to coordinate efforts to improve the campus climate for women.
- Investigate additional issues affecting women and develop further recommendations based on such investigations.

Specific issues need to be addressed immediately by such a Commission. The Commission shall:

- Formulate options for on-site child-care.
- Assess options for the implementation of an Institute Family Leave Policy.
- Investigate the campus climate experiences of female graduate students.
- Investigate the campus climate experiences of female staff members.
- Investigate the experiences of female co-op students, especially with respect to sexual and gender harassment prevention processes.
- Monitor and assess the adequacy of current Sexual Harassment Prevention Training efforts and communication practices.
- Review the academic hiring process and recommend practices to educate faculty about legal issues pertaining to faculty hiring.

Other issues for future consideration include:

- Reviewing the effectiveness of the Admission Formula.
- Assisting Schools in their pro-active search for qualified minority candidates.
- Developing strategies to accommodate spousal hiring.
- Exploring the Sloan Foundation Pre-tenure Leave Fellowship Program.¹⁸

A consistent findings in the various studies conducted as part of the InGEAR Institutional Self-Evaluation is the need for an Institutional unit to coordinate and monitor the diverse efforts to address women's issues across campus units. Several studies and task forces over the past decade have suggested the need for an Institute-wide coordinating body to monitor the status of women across campus and to advise the President on matters of policy and procedure. Often these studies and task forces had no clear follow-up on recommendations and findings.

RECOMMENDATION: The President shall fund a full-time Women's Resource Center Director.

The Women's Resource Center is an important recent development in the improvement of the campus climate for female students. The Women's Resource Center Advisory Board is taking the lead in promoting important changes on campus that will positively affect women across the Georgia Tech campus. These include:

- Providing information regarding women's programming, initiatives, and curricula.
- Referring students to Counseling, Wellness, or other departments as necessary.
- Creating a comfortable, informal environment for individuals.
- Assisting student groups in building programs that enhance participation of women.
- Providing programs to support leadership development.
- Encouraging networks to form among interest groups.
- Advocating on behalf of women's policies.

Among the additional recommendations to be submitted to the Women's Resource Center Advisory Board and to the new Women's Resource Center Director are the following:

- Conduct an audit of campus monuments to prominent women.
- Conduct exit interviews with female students who leave Georgia Tech.
- Host an annual reception for incoming female faculty so that they may meet current female faculty.

¹⁸ <http://www.sloan.org/education/women/Pretenure.html>.”

RECOMMENDATION: The President shall hire a faculty ombudsperson who is charged with the responsibility of monitoring and hearing faculty concerns about sexual or gender harassment or other employment grievances.

Currently the Institute does not have a faculty mediator who can hear complaints about faculty-to-faculty interactions or complaints about possible sexual or gender harassment either by another faculty member or by a student. While the Affirmative Action Office is an appropriate place to register sexual and/or gender harassment complaints, few faculty know that this office exists for that purpose, or feel comfortable making use of this office's mediation services. Indeed, because of the nature of the academic profession, where faculty who don't hold official supervisory responsibilities over other faculty can still damage or sabotage a colleague's professional reputation, traditional mediation techniques are not always effective. The InGEAR Advisory Committee recommends that the Institute hire as an ombudsperson someone who understands and can mediate the differences that arise among colleagues of different or the same rank, especially with regard to sexual harassment, academic freedom, and administrative supervision.

RECOMMENDATION: The President shall form a Task Force to evaluate the Institute's Tenure and Promotion Policies and Procedures.

The Task Force shall be charged with the following activities:

- Compare the Tenure and Promotion rates of men and women across academic units.
- Oversee the development of a central database on the Tenure and Promotion rates of women.
- Clarify the range of options governing the "tenure-clock."
- Evaluate for a hidden "male-bias" in tenure and promotion standards.
- Develop a "Tool-Kit" for School Chairs that identifies institutional options for managing the tenure and promotion process for individual faculty.
- Recommend revisions to current tenure and promotion practices such as the appointment of a "tenure advocate" or the inclusion of a personal interview with the tenure candidate as part of the review process.

Although Georgia Tech continues to hire women into assistant professor positions in rates comparable to or higher than benchmark schools, the number of women who hold advanced rank continues to be disturbingly low. One of the many reasons given for the attrition of female faculty is the nature and timing of the tenure and promotion process. Many women find the tenure process unnecessarily opaque and adversarial. An additional concern is the lack of alternatives to the current 6-year tenure clock. For most women, the tenure time line overlaps with their childbearing time line. This overlap places differential constraints on women who wish to have families. The InGEAR Advisory Committee recommends that the Tenure Clock be re-engineered to accommodate faculty commitments to family and childbearing in order to prevent Georgia Tech from losing many talented faculty members to jobs in industry that better accommodate these commitments.

2. RECOMMENDATIONS about POLICY

RECOMMENDATION: The Institute shall acknowledge the importance of balance in the lives of its employees. This includes respect for the importance of family and community, as well as for professional and paid employment.

RECOMMENDATION: The Institute shall establish a Family Leave Policy that provides 6 weeks of paid leave for either parent of a newborn or newly adopted child, or for responsibilities due to a family illness. Minimal compliance with the Family Medical Leave Act shall not be considered sufficient. Upon birth or adoption of a child, faculty assuming the role of primary caretaker should be allowed to reassign teaching duties for the year (eliminating teaching duties for the affected semester) to allow for a longer leave from teaching in combination with the 6 weeks of paid leave from all duties.

RECOMMENDATION: The Institute shall not require that employees exhaust all accrued sick or vacation leave prior to taking family leave as specified above.

The lack of a policy that ensures paid leave for family care-taking needs is one of the most widely cited reasons for female faculty discontent. The current policy that requires women to use accrued sick leave to effect a paid maternity leave differentially disadvantages female employees. Because they have to deplete personal sick leave time, women incur a greater health risk than men do. Moreover, there is a potential inequity in retirement benefits now that the State Retirement System increases the service calculation to compensate for unused sick leave upon retirement.

RECOMMENDATION: The Institute shall develop policies and procedures that allow faculty to delay tenure for up to 3 years for good cause. Good cause includes family care.

A policy and a set of procedures that would allow a faculty member to delay the evaluation of tenure for 1 to 3 years after the initial 6-year period of time in a tenure-track position would be an effective way to address the situation of women who choose to have children before tenure.

3. RECOMMENDATIONS about SEXUAL HARASSMENT PREVENTION TRAINING

RECOMMENDATION: The Institute shall charge the appropriate unit with the responsibility to conduct Gender Equity workshops for graduate teaching assistants.

RECOMMENDATION: The Institute shall charge the appropriate unit with the responsibility to assess current efforts to educate new faculty about the Institute's Sexual Harassment Policy and reporting procedures.

RECOMMENDATION: The Institute shall educate all faculty about their legal and institutional responsibilities in hearing about or witnessing instances of sexual harassment or gender harassment.

RECOMMENDATION: The Institute shall re-examine its sexual harassment policy on a regular basis to assess its effectiveness, and implement an annual reporting and publication of reported cases that also describes the outcome of each case.

While the Institute does have a Sexual Harassment Policy in place, communication about this policy is not as effective as it needs to be. Many students and faculty indicated that they didn't know the policy, and more seriously, didn't understand the procedures for reporting harassment experiences. Moreover, there is a lack of clarity on the part of faculty and academic administrators about their responsibilities and liabilities with respect to reporting harassment complaints that they hear from students and other faculty. To demonstrate that the Institute does not tolerate sexual and gender harassment, and that it does discipline those who are found in violation of such policies, an annual report should circulate that documents annual number of cases and complaints and the outcomes of each case.

Conclusion

Although this study was begun under the auspices of the National Science Foundation sponsored InGEAR project, its scope subsequently expanded to address additional issues pertaining to the status of women at Georgia Tech. These issues are of serious concern to many people across the Institute. Consequently this study has involved a broad range of participants including representatives from A) The Deans' Offices of the Colleges of Engineering, Sciences and the Ivan Allen College; B) The Schools of Industrial and Systems Engineering, Chemical Engineering, Electrical and Computer Engineering, Earth and Atmospheric Sciences, Physics, Public Policy, Literature, Communications, and Culture, and History, Technology and Society; C) The Center for Education Integrating Science, Mathematics and Computing (CEISM), Human Resources, Institutional Research and Planning, Admissions, Career Services, Counseling Center, and the Office of the Dean of Students.

The issues raised in this report and the preliminary data findings represent a starting point for continued investigation and discussion. The report is intended to serve as a foundation for the development of a specific institutional plan to address these issues. An important aspect of this plan is the constitution of a Commission on the Status of Women that would be vested with the institutional responsibility to continue the analytical and investigative efforts begun with this study and to continue to monitor and recommend policy and procedures that positively impact the status of women at Georgia Tech.

The leadership and coordination throughout this project provided by CEISM cannot be underestimated. The support of Georgia Tech administrators such as Narl Davidson, Andy Smith, and Greg Nobles was essential to the successful completion of this project. Ongoing encouragement from members of Georgia Tech's upper administration augmented the sense that the aims of this study were supported and that its findings and recommendations would be taken seriously.