Year-End Report for

ADVANCE Institutional Transformation Project

University of Michigan

Year 3: December 2004

FOR PUBLIC RELEASE*

* Data are reported only aggregated by college (Engineering, LSA and Medicine) or across the six smaller schools/divisions (Dentistry, Information, Kinesiology, Natural Resources and Environment, Pharmacy and Public Health), in this version for public release, in order to protect individual identities.

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SECTION I: PERSONNEL AND FINANCIAL REPORT

A. BUDGET EXPLANATIONS BY AREAS AND MAJOR FUNCTIONS

(for the reporting year and the next year)

SENIOR PERSONNEL

Dr. Abigail J. Stewart, the principal investigator, is responsible for ADVANCE project oversight. In the third project year, 50% of Dr. Stewart's salary was cost shared. Her work has included the management and oversight of the project implementation and evaluation advisory and steering committees and the facilitation of departmental initiative implementations. Half of Dr. Stewart's salary will continue to be cost shared in the fourth project year during the time period in which Dr. Stewart serves as principal investigator.

Dr. Pamela Raymond will serve as principal investigator while Dr. Stewart is on sabbatical in the Winter 2005 semester. Half of Dr. Raymond's salary will be cost shared during this time period.

Salary is cost shared in this third project year at 5% for each of the four co-PIs (the Deans of Engineering, Medicine, LSA and a representative of the Provost's Office), and this cost sharing will continue in the fourth project year. The co-PIs facilitate project activities within their home schools and campus-wide. They serve on the project's Steering Committee, which makes decisions about program initiatives, and the three deans chair the Gender, Science and Engineering (GSE) subcommittees.

OTHER PROFESSIONALS

Dr. Janet Malley, Deputy Director of the Institute for Research on Women and Gender, has served as evaluation manager for the project and has provided oversight of the quantitative research evaluation effort (data collection, analysis and reporting) of the initiative (survey and inventory) at 30% effort. Dr. Malley will continue this work in the fourth project year at 30% effort.

Carol Hollenshead, Director of the Center for the Education of Women (CEW), allocated 10% effort to the ADVANCE project in the third year (includes 5% cost share). She will continue her work on the project at 10% effort (includes 5% cost share) in the fourth project year. Jean Waltman, a Research Associate at CEW, also assisted the project and will continue this work at 25% effort in the fourth project year.

Dr. Cinda Sue Davis, Director of the Women in Science and Engineering (WISE) program, was provided with release time ($10,609) to develop and offer discipline-specific data-based workshops in the third project year. We expect this work to continue in the fourth year, and the associated release time expense incorporates a 3% increase.

Dr. Jane Hassinger, Director of the Interdisciplinary Program in Feminist Practice, developed and facilitated the *Women Talking Science and Engineering* (WTSE) program and was provided with release time for this work ($10,609). Dr. Hassinger will continue in this role in the fourth project year, and a 3% increase is incorporated into the release time expense.

Senior faculty served on the *Science and Technology Recruiting to Improve Diversity and Excellence* (STRIDE) Committee and assisted the project this year by providing consultation with individual departments on recruitment and on hiring and retention practices. Each committee member received $20,000 in release time for this work, and funds in the amount of $180,000 were allocated for this purpose in the third year (includes $100,000 cost share). Committee members will continue to assist the project in the fourth year.

GRADUATE STUDENTS

This year research assistants worked on the project by assisting with evaluation data collection and analysis and with programming activity. Research assistants will continue to perform similar duties in the fourth project year.

Funds were provided for one graduate student assistant (25% effort) to assist the WISE director in year three; this arrangement will continue in the fourth project year.

OTHER PERSONNEL

Robin Stephenson served as Program Manager for the project (100% effort) until October 2004. Ms. Stephenson provided staff support for data collection efforts, all project initiatives, advisory, steering and selection committees, and production and dissemination of reports and presentations. She also served as the focus group facilitator and organized and trained interviewers.

Cynthia Hudgins assumed the responsibilities of Program Manager in October 2004 (80% effort). She will continue in this role in the fourth project year. Ms. Hudgins' salary is paid partially by cost shared funds.

Dr. Ching-Yune Sylvester served as Program Evaluation Manger (100% effort) until September 2004. Dr. Sylvester provided staff support for data analyses and evaluation.

Keith Rainwater assumed the responsibilities of Program Evaluation Manager (100% effort) in October 2004 and will continue in this role in the fourth project year. Mr. Rainwater's salary is paid partially by cost shared funds.

Lisa Parker, research administrator at the Institute for Research on Women and Gender, allocates 10% of her time to manage the budget for the ADVANCE grant (including all sub-accounts) and process financial and administrative paperwork. She will continue this work in the fourth year.

Salary funds for transcription of interviews and focus group meetings were expected to total $2,400 in the third project year. Because of the confidential nature of many of the interviews to date, transcribing has not been completed. Evaluation interviews are being transcribed, however, and these funds will be used for that purpose. Transcription costs are expected to total $2,550 in year four.

FRINGE BENEFITS

Fringe benefit expenses are calculated at 30% for all faculty, professional and administrative staff and at 8% for all students, facilitators and transcribers.

TRAVEL/DOMESTIC
Travel expenses in year three have totaled $6,000 for advisory meetings and University of Michigan Women Scientist Network event speakers. These costs will remain the same for the fourth project year.

OTHER DIRECT COSTS – MATERIALS AND SUPPLIES
In year three, funds in the amount of $2,700 were used for program and event publicity as well as consumable supplies and duplication. In year four, $2,650 is allocated for this purpose.

OTHER DIRECT COSTS – CONSULTANT SERVICES
Consultants provided information about and presentations at data-based workshops this year and consulted with project personnel and gender equity advisors about best practices. Total consultant costs in year three were $7,200 and this amount is also allocated for similar services in the fourth project year.

OTHER DIRECT COSTS – OTHER
Funds in the amount of $24,500 were allocated in year three to the Center for Research on Learning and Teaching's (CRLT) Climate Theater to fund fifteen performances of scripts developed by CRLT that are of specific relevance to the ADVANCE project. In the fourth project year, funds in the amount of $25,000 will be allocated to CRLT to continue this work.

In the third and fourth project years, funds in the amount of $17,800 per year will be used by the UM Network of Women Scientists to support events, including visiting speakers. Expenses in the third year included a speaker series, a leadership retreat, and social events.

The Elizabeth Crosby Research Fund (formerly the Gender Equity Resource Fund) is budgeted at $100,000 each year (includes $10,000 cost share) to provide awards of $20,000 each to five applicants. This fund is used to support women faculty in ways best suited to their particular needs (special laboratory equipment, graduate student or post-doctoral support, conference travel, support for a visiting scientist, release time, etc.). Funds are awarded as a result of a call for applications and a selection process. Beginning in the second project year, the University of Michigan cost shared additional funds in the amount of $240,000 to increase the number of awards throughout the project period. This year, nineteen awards were made in the total amount of $303,285 ($103,650 direct cost, $199,635 cost share).

In the third project year, the University of Michigan provided additional funds in the amount of $40,000 to continue the Lydia Adams DeWitt Research Fund for those who hold research scientist titles at the University. This research fund was established as the result of research scientists' strong interest in the work of ADVANCE and the University's desire to provide support for this group similar to support provided to instructional track faculty by the ADVANCE project. Two awards were made to research scientists this year. The University of Michigan will continue to contribute these additional funds ($40,000 per year) for the remainder of the project.

The allocation of funds to support the Departmental Transformation Grants continued in year three. Eleven awards to departments have been distributed (selected through a review process) to carry out specific activities aimed at producing significant transformation of the climate for women faculty and six more have been allocated. The University of Michigan has allocated additional funding, in the amount of $300,000, to increase the overall funding available for Departmental Transformation Grants. In total, $951,000 ($611,000 direct cost, $340,000 cost share and additional funds) will be

allocated to departments over the entire project period. To date, $786,500 has been allocated to specific departments, and the remaining funds will continue to be assigned in the fourth project year.

INDIRECT COSTS
Indirect costs are calculated at 51%.

COST SHARING
In the original project budget, cost sharing was committed in the amount of $214,175 for the third project year and in the amount of $219,700 for the fourth project year. The percentage of Dr. Abigail Stewart's salary to be cost shared, however, increased from 15% to 50%. As a result, the cost sharing commitment has increased to $285,839 in the third project year and $288,644 in the fourth project year.

B. ESTIMATED UNOBLIGATED FUNDS

(at the end of the third project year)

We anticipate no unobligated funds at the end of the period (January 1, 2003 – December 31, 2004) for which NSF currently is providing support to Abigail J. Stewart's NSF grant SBE 0123571, "ADVANCE Institutional Transformation Award." The budget allocation for the third project year was $749,034 ($496,049 direct costs; $252,985 indirect costs). While a balance of direct cost funding will remain at the end of the third project period, all of these funds have been assigned to specific allocations or have been otherwise committed.

Direct costs in the amount of $1,086,592 have been expended as of November 30, 2004 (the most recent monthly account statement available to us). It is anticipated that an additional $29,466 in direct cost expenses (including on-going expenses such as salary costs as well as outstanding year three expenses that have been charged to this project), will be committed by December 31, 2004.

In total, direct costs in the amount of $1,047,237 have been allocated in the first three project years to various departments and colleges at the University of Michigan in the form of sub-accounts that house funds provided to Crosby (Gender Equity Resource Fund) award recipients, senior faculty gender-equity advisors (STRIDE committee members) and Departmental Transformation Grant projects. All sub-accounts are established and active (expenditures to date are included in the expended direct cost amount listed above), but the rate of expenditure of funds varies. It is anticipated that a portion of the funds in several of these sub-accounts will not be expended by December 31, 2004. However, all of these funds have been committed for use by the recipients as proposed in the original budget and it is expected that the funds will be used as planned.

As a result of the expenditures and funding allocations described above, we expect the ADVANCE project to make use of $1,489,334 in direct costs, the total direct cost amount awarded, in the first three project years. A total of $749,943 ($496,651 direct costs; $253,292 indirect costs) is requested to fund the fourth project year (January 1-December 31, 2005).

COST SHARING STATUS AT THE END OF THE SECOND PROJECT YEAR
The University of Michigan has committed $288,644 in cost sharing for this third 12-month project period. A cost sharing report will be provided, in hard copy form, to NSF from the University of Michigan's Office of Financial Operations. Financial Operations is unable to produce an accurate

cost sharing report for the first three years of this project until the close of December business occurs in early January. The University will submit this report as soon as possible after December 31, 2004.

C. PROPOSED BUDGET FOR THE FOURTH PROJECT YEAR

(in accordance with NSF form 1030)

Year Four (NSF - ADVANCE)	**NSF**	**UM Cost Share**
A. Senior Personnel		
PI – Stewart		75,763
co-PI LSA		14,941
co-PI Engineering		15,350
co-PI Medicine		18,096
co-PI Senior Counselor to the Provost		10,668
TOTAL SENIOR PERSONNEL	0	134,818
B. Other Personnel		
B.2 Other Professionals	108,999	64,109
B.3 Graduate Students	25,496	
B.6 Other	27,828	
TOTAL OTHER PERSONNEL	162,323	64,109
TOTAL SALARIES AND WAGES	162,323	198,927
C. Fringe Benefits	42,528	59,717
TOTAL FRINGE BENEFITS	42,528	59,717
TOTAL SALARIES, WAGES AND FRINGE BENEFITS	204,851	258,644
E. Travel/domestic	6,000	
TOTAL TRAVEL/DOMESTIC	6,000	
G. Other Direct Costs		
G.1 Other Dir. Costs - Materials & Supp	3,800	
G.3 Consultant Services	7,200	
G.6 Other	274,800	30,000
TOTAL OTHER DIRECT COSTS	285,800	30,000
H. TOTAL DIRECT COSTS year 4	496,651	288,644
I. Total Indirect Costs Rate: 51%	253,292	
J. Total Direct and Indirect Costs	749,943	
L. Amount of This Request	**749,943**	
M. Cost Sharing	288,644	

D. CURRENT OTHER SUPPORT INFORMATION FOR KEY PERSONNEL

Stewart, Abigail
(Current)

Principal Investigator:	Timothy Johnson
Title:	*BIRCWH Career Development*
Sponsor:	NIH/BIRCWH (Building Interdisciplinary Research Careers in Women's Health) Career Development Program
Amount of Award:	$2,434,083
Duration of Award:	09/01/00 – 07/31/05
Time Devoted to Project:	3% as advisory board member

Principal Investigator:	Abigail Stewart
Title:	*Narratives and Numbers: Integrating Quantitative and Qualitative Methods in the Study of Gender*
Sponsor:	University of Michigan/Rackham Graduate School
Amount of Award:	$32,000
Duration of Award:	09/01/00 – 12/31/05
Time Devoted to Project:	1%

Principal Investigator:	Pamela Trotman Reid
Co-PI:	Abigail Stewart
Title:	*Girls Exploring Mathematics Through Social Science (GEMS)*
Sponsor:	National Science Foundation
Amount of Award:	$842,877
Duration of Award:	09/01/01 – 08/31/05
Time Devoted to Project:	5% and one month of summer salary

Principal Investigator:	Abigail Stewart
Co-PI:	Stephen Director, Allen Lichter, Terrence McDonald, Pamela Raymond
Title:	*ADVANCE Institutional Transformation Award*
Sponsor:	National Science Foundation
Amount of Award:	$3,748,785
Duration of Award:	01/01/02 – 12/31/06
Time Devoted to Project:	50% of academic appointment (cost shared)

Principal Investigator:	Abigail Stewart
Title:	*Global Feminisms: Comparative Case Studies of Women's Activism and Scholarship*
Sponsor:	University of Michigan/Rackham Graduate School
Amount of Award:	$250,000
Duration of Award:	07/1/02 – 06/30/05
Time Devoted to Project:	5%

Director, Stephen
(Current)

Principal Investigator:	Abigail Stewart
Co-PI:	Stephen Director, Allen Lichter, Terrence McDonald, Pamela Raymond
Title:	*ADVANCE Institutional Transformation Award*
Sponsor:	National Science Foundation
Amount of Award:	$3,748,785
Duration of Award:	01/01/02 - 12/31/06
Time Devoted to Project:	5% of academic appointment (cost shared)

Lichter, Allen
(Current)

Principal Investigator:	Abigail Stewart
Co-PI:	Stephen Director, Allen Lichter, Terrence McDonald, Pamela Raymond
Title:	*ADVANCE Institutional Transformation Award*
Sponsor:	National Science Foundation
Amount of Award:	$3,748,785
Duration of Award:	01/01/02 - 12/31/06
Time Devoted to Project:	5% of academic appointment (cost shared)

Malley, Janet
(Current)

Principal Investigator:	Abigail Stewart
Co-PI:	Stephen Director, Allen Lichter, Terrence McDonald, Pamela Raymond
Title:	*ADVANCE Institutional Transformation Award*
Sponsor:	National Science Foundation
Amount of Award:	$3,748,785
Duration of Award:	01/01/02 - 12/31/06
Time Devoted to Project:	30% of 12-month appointment (Year 2-5-directs)

McDonald, Terrence

Principal Investigator:	Abigail Stewart
Co-PI:	Stephen Director, Allen Lichter, Terrence McDonald, Pamela Raymond
Title:	*ADVANCE Institutional Transformation Award*
Sponsor:	National Science Foundation
Amount of Award:	$3,748,785
Duration of Award:	01/01/02 - 12/31/06
Time Devoted to Project:	5% of academic appointment (cost shared)

Raymond, Pamela
(Current)

Principal Investigator:	Abigail Stewart
Co-PI:	Stephen Director, Allen Lichter, Terrence McDonald, Pamela Raymond
Title:	*ADVANCE Institutional Transformation Award*
Sponsor:	National Science Foundation
Amount of Award:	$3,748,785
Duration of Award:	01/01/02 - 12/31/06
Time Devoted to Project:	5% of academic year appointment (cost shared)

Principal Investigator:	E. Keller
Co-PI:	Pamela Raymond
Title:	*Development of Mature Zebrafish as an Animal Model*
Sponsor:	NIH
Amount of Award:	$1,853,350
Duration of Award:	05/01/02 – 04/30/07
Time Devoted to Project:	5%

Principal Investigator:	B. Hughes
Title:	*Core Center for Vision Research*
Sponsor:	NIH
Amount of Award:	$3,019,879
Duration of Award:	05/01/02 – 04/30/07

Principal Investigator:	D. Goldman
Co-PI:	Pamela Raymond
Title:	*A Genetic Screen for Mutations affecting CNS Development and Regeneration*
Sponsor:	State of Michigan
Amount of Award:	$1,019,688
Duration of Award:	08/01/02 – 07/31/05

Principal Investigator:	Pamela Raymond
Title:	*New Neurons in the Retina*
Sponsor:	NIH
Amount of Award:	$225,000 (direct costs current year)
Duration of Award:	07/01/03 – 06/30/08
Time Devoted to Project:	37.5%

Principal Investigator:	Pamela Raymond
Title:	*Genetic Analysis of Cone Photoreceptor Determination*
Sponsor:	NIH
Proposed Amount of Award:	$923,709
Proposed Duration of Award:	10/01/04 – 11/30/07
Time Devoted to Project:	40%

SECTION II: SUMMARY OF PROJECT ACTIVITIES, JANUARY-DECEMBER 2004

A. SUMMARY OVERVIEW

The ADVANCE project at the University of Michigan has continued to make efforts to engage discussion, stimulate new efforts and create real change throughout the campus. This year a particularly important activity was preparation for the site visit by a team of visitors, as well as the process of stock-taking and resetting of goals that visit stimulated. The visit provided us with critical feedback, encouragement and advice about our successes and areas that deserve further attention. Both the Steering Committee and the Gender in Science and Engineering Committee chaired by the President and Provost have discussed how best to work during the second half of this collaborative agreement to meet the objectives we jointly set out with NSF. The following points, outlined in last year's report, remain true: "The importance to our campus of the NSF ADVANCE Institutional Transformation grant lies in several areas:

> (1) It ensures that there is consistent institutional support for a process that is inevitably slow and difficult. The consistency of the support guarantees that efforts will not flag or reverse.
>
> (2) It provides national-level validation and confirmation that it is important to address the issue of the climate for women faculty in science and engineering. This helps counter any sense that the problem is uniquely local (which can produce a counterproductive sense of local responsibility or guilt) or (worse) imaginary.
>
> (3) It provides crucial resources to compensate a group of individuals' ongoing efforts to improve the climate for women faculty in science and engineering at the University.
>
> (4) It provides crucial direct support to both women scientists and departments that make it more possible for women science and engineering faculty to thrive."

At the end of our third full year of activity (and halfway through our third full academic year, since we publicly launched our project in September 2002), we believe that campus awareness about the importance of the climate for recruitment and retention of women faculty in the sciences and engineering has increased and remains high. This belief is supported by evidence collected in interviews with deans and science and engineering department chairs conducted during Summer 2004 by an external project consultant. At the same time, these interviews also identified a need for more and better communication about ADVANCE resources to chairs and deans. As a result, we have planned an information packet that will be circulated to deans and chairs in January 2005. We view this as an important result of our process of review and renewal of effort; we believe that a focused and explicit listing of available resources, with a specific offer of support and help, will help us to collaborate more effectively with the department chairs who are so crucial to this effort.

In a similar vein, this year we have begun to work more deliberately to map out a strategic plan with individual deans, outlining goals for the year, and specific actions to take within a particular college to achieve those goals. So far efforts along these lines are underway with two deans; we will schedule meetings in early 2005 to discuss this approach with other interested deans.

Though overall indicators of the status of women in science and engineering show very modest gains, a total of 12 new women science and engineering faculty were recruited into basic natural

science and engineering departments and schools during academic year 2003-2004. This is the second year of a previously-unprecedented rate of success in hiring women scientists and engineers in these schools and for the University as a whole. We are encouraged by this success, but also concerned about the slowness of overall demographic change. We are holding discussions with key constituents, beginning with the Steering Committee, about how to report and discuss data campus-wide. We have been working on alternate ways to attain a relatively dynamic and integrated picture of the status of women in science and engineering—a picture that captures both our increased success and the slow pace of change. We believe we have identified some ways to represent the data that enable us to highlight both at the same time; this process is critical to maintaining progress, since only by monitoring all of the pertinent processes can we hope to make a real difference.

One of the most important activities of 2003-2004 took place around the establishment by the President and Provost of three subcommittees of the Gender in Science and Engineering to review University and College policies and practices for disparate impact on women scientists and engineers. The three subcommittee reports were completed by the end of March 2004, and in April they were discussed in the GSE Committee. They have been widely distributed, and colleges have been encouraged to undertake review of the recommendations that can be adopted at College levels. In addition, systematic review of University-level policies and practices has been undertaken, and a new committee has been charged to make a recommendation about adoption of a more flexible tenure clock. Other recommendations are also under review.

An important priority for the academic year 2004-2005 was development and distribution of a new handbook on *Giving and getting career advice: A guide for junior and senior faculty,* along with rollout of a new sketch by the CRLT Players on Faculty Advising Faculty. In LSA these two activities were coordinated with discussions with chairs about mentoring (both across all fields and by division), as well as a workshop on developing a departmental mentoring plan.

This year the *Science and Technology Recruiting to Improve Diversity and Excellence* (STRIDE) Committee was asked by the deans of LSA, Engineering and Medicine to develop an expanded workshop to present to all chairs of search committees. The deans asked all such chairs to attend and there was excellent participation in three separate workshops involving faculty from all three schools. Both informal and formal feedback indicates that these workshops were even more successful than the shorter presentations made in departments in the past.

Women are continuing to be appointed to leadership positions in science and engineering departments. A woman scientist was appointed to serve as associate dean for the natural sciences and as chair of the Chemistry Department in LSA; a woman engineer was appointed as division director for the first time in Engineering; a woman acting chair was appointed in a School of Public Health science department; a woman was appointed chair of the Neurosurgery and the Human Genetics Departments in the Medical School; and a woman was appointed Assistant Dean for Clinical Faculty in the Office of Faculty Affairs also in the Medical School.

Below, in detail, is a full accounting of activities of UM ADVANCE in 2004.

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B. PARTICIPANTS

PROJECT STAFF

Abigail Stewart, Principal Investigator, is responsible for ADVANCE project oversight. She represents the project to the larger University of Michigan community, offering presentations about the program, and consultation on mentoring, recruitment and retention strategies to units and administrators across campus and in other settings. She directs all project interventions and consults on all ADVANCE-related activities involving the project's collaborators.

Pamela Raymond, ADVANCE Co-PI, returns from sabbatical and assumes the leadership as PI in January 2005 during Abigail Stewart's sabbatical. Beginning in January, Pamela will be responsible for ADVANCE project oversight. She will represent the project to the larger University of Michigan community, offering presentations about the program, and consultation on mentoring, recruitment and retention strategies to units and administrators across campus and in other settings. She will direct all project interventions and consult on all ADVANCE-related activities involving the project's collaborators.

Janet Malley directs all project evaluations. She directs the ongoing collection of data to be used to evaluate the project's progress in nine different UM colleges. She designs and administers web surveys to evaluate the effectiveness of the activities and initiatives of ADVANCE and prepares reports. She supervised the analyses and drafted the report on the climate survey results regarding faculty of color.

Robin Stephenson left the project in September 2004. Until that time, she managed and coordinated the project's activities, including committee meetings, presentations, and intervention activities. She developed draft reports and publications, including materials for University publications, and implemented the ADVANCE speaker series and workshops. She provided staff support for the STRIDE committee. She maintained the website, mailing lists, and individual contacts with ADVANCE constituencies.

Cynthia Hudgins began working for the project in October 2004. Since that time, she has managed and coordinated activities including committee meetings, presentations, and intervention activities. She develops draft reports and publications, including materials for University publications. She coordinates plans for activities for the 2004-2005 academic year. She provides administrative support to the STRIDE recruitment committee and other project committees and collaborators (e.g., CRLT). She maintains the mailing lists and individual contacts with ADVANCE constituencies.

Ching-Yune Sylvester left the project in August 2004. Until that time, she managed and coordinated ongoing project evaluation and data collection activities under the supervision of Janet Malley. She collected, cleaned and analyzed data used in evaluating the project's initiatives. She developed instruments for collecting college-level data, ensured the accuracy of the data, and interpreted results into charts and graphs designed to illustrate change over time. She provided liaison with the nine target schools and colleges within the university to collect data and information. She designed web surveys and wrote draft reports on ADVANCE activities and initiatives.

Keith Rainwater began working for the project in September 2004. Since that time, he has managed and coordinated ongoing project evaluation and data collection activities under the supervision of

Janet Malley. He collects, cleans and analyzes data used in evaluating the project's initiatives. He develops instruments for collecting college-level data, ensures the accuracy of the data, and interprets results into charts and graphs designed to illustrate change over time. He provides liaison with the nine target schools and colleges within the university to collect data and information. He designs web surveys and writes draft reports on ADVANCE activities and initiatives. He maintains the project website.

Lisa Parker keeps financial records, writes budget reports, and manages ongoing account activities for the ADVANCE grant.

Patricia Smith reviews ADVANCE account activities and, along with Lisa Parker, negotiates with administrators in units cooperating with the Institute for Research on Women and Gender in administering the grant.

Adrienne Malley assists with maintaining the website, developing promotional materials to advertise intervention programs, and redesigning the ADVANCE brochure. She also assists with developing and maintaining contact and e-mail lists.

Laura Reese contributed to updating the website and producing promotional materials to advertise the project's intervention programs. She also contributed to checking and formatting data.

Jennifer Churchwell assisted in the design and implementation of a campus-wide graduate student survey. She coordinated focus groups with graduate student consultants on the survey.

By special arrangement, Elizabeth Coe (a permanent staff member at IRWG) served on a temporary basis as staff support to the STRIDE committee during the transition between Robin Stephenson and Cynthia Hudgins. She provided research assistance, managed arrangements for food, audiovisual technology, and development of materials for three new workshops for search committee chairs in the Colleges of Engineering and LSA, as well as the Medical School.

Ellen Meader, a research associate in the dean's office of the College of Literature, Science and the Arts, was hired in part to institutionalize data collection and organization of indicators for NSF and ADVANCE, as well as for internal LSA institutional research. She participates in ADVANCE staff meetings to ensure effective coordination between LSA and the project; as a result, she also participates in many ADVANCE activities.

PARTNERS

Jean Waltman and Carol Hollenshead from the Center for the Education of Women (CEW) are conducting qualitative evaluations of the departments with substantial Departmental Transformation Grants, as well as comparison departments (a total of five). They are also conducting exit interviews with faculty who have left those departments during this period and in recent years past.

Jeffrey Steiger, Devon Seybert, and other staff at the Center for Research on Learning and Teaching (CRLT), directed by Connie Cook, have developed three interactive theater sketches for ADVANCE. The first, called the "Faculty Meeting Sketch," illustrates experiences of female faculty and the negative climate issues that sometimes emerge in the context of faculty recruitment.

Fourteen performances of this sketch were presented to the following audiences (348 people attended) during the past year: LSA science faculty; faculty across disciplines at UM-Dearborn; LSA Chairs and Directors; ISR faculty and staff; Senior Officers, Deans, and Department Chairs at UM- Dearborn; full and assistant professors in the College of Engineering; Business School Area Chairs; NSF Site Visit; LSA science assistant professors; faculty and alumni in Architecture and Urban Planning; and Astronomy faculty and graduate student interns. The second, "Faculty Advising Faculty Sketch," illustrates some good and additional poor mentoring techniques. This sketch was previewed at the Network for Women in Science and Engineering Dinner and for members of the University's council of deans. Two performances were also presented to LSA chairs and senior faculty. In total, 178 people have seen this sketch performed. The third sketch, focused on a tenure committee discussion of a candidate, has been developed and is being previewed now and in the first weeks of the new year.

Jane Hassinger, director of the Interdisciplinary Program in Feminist Practice, conducts a Women Talking Science and Engineering (WTS&E) seminar. Planning has begun for a WTS&E seminar in May 2005. She is also planning a workshop on career-mapping/life-planning for January 2005.

Cinda-Sue Davis, director of Women in Science and Engineering (WISE), has developed templates documenting the status of women in various engineering departments. These documents show the percentage of women students, both undergraduate and graduate, in a given engineering department at Michigan compared to other departments; the number of women faculty in various departments; and the number of women working nationally in a given engineering discipline compared to other disciplines. International data, if available for a given discipline, are also provided. The data are presented in graphical form, making it easy to compare and contrast data. Preliminary versions of this handout were shared with faculty who hosted a WISE sponsored women seminar speakers this year. These faculty members critiqued the handouts and final versions are currently being created. She is redesigning her data-based workshops. Dr. Davis will meet individually with each College of Engineering department chair to share their data with them. Comparable data for the status of women in science and mathematics departments within the College of Literature, Science and the Arts is currently being collected and similar handouts will be developed. Dr. Davis has also helped facilitate project outreach to female graduate students and postdoctoral fellows, using her pre-existing networks to help schedule presentations and seminars for them.

OTHER COLLABORATORS OR CONTACTS

The Science and Technology Recruiting to Increase Diversity and Excellence (STRIDE) Committee was formed in 2002 and provides information and advice about practices that will maximize the likelihood that well-qualified female and minority candidates for faculty positions will be identified, and, if selected for offers, recruited, retained, and promoted at the University of Michigan. The committee works with departments by meeting with chairs, faculty search committees, and other departmental leaders involved with recruitment and retention. They advise chairs on search committee composition and search practices, work with search committees throughout the search process, and offer recruitment presentations to departments, search committees, and other groups. The membership is comprised of senior faculty in sciences and engineering and is chaired by Abby Stewart. Members are: Anthony England, Associate Dean for Academic Affairs, College of Engineering; Carol Fierke, Chemistry; Melvin Hochster, Mathematics; Gary Huffnagle, Internal Medicine*; Wayne Jones, Materials Science and Engineering*; Samuel Mukasa, Geological Sciences; Martha Pollack, Electrical Engineering and Computer Science; Pamela Raymond, Senior Counselor to the Provost, Cell and Developmental Biology; and John Vandermeer, Ecology and Evolutionary Biology (* denotes new member since December 2003). This year the committee

developed and offered 2 and ½ hour workshops to all search committee chairs in Engineering, LSA and Medicine during Fall 2004. This new, expanded workshop format was evaluated in terms of participant ratings (see Appendix A); it will, of course, also be evaluated in terms of the success of this year's recruitment efforts.

Pamela Smock, Associate Director of ISR and Associate Professor of Sociology and of Women's Studies, has provided expert consultation about mentoring to junior female faculty in the natural sciences in the Colleges of Literature, Science, and the Arts and Engineering. Based on this experience, Pamela, along with Robin Stephenson, developed a draft handbook on *Giving and getting career advice: A guide for junior and senior faculty*, as well as department chairs. The handbook is being distributed to a wide range of faculty during this academic year (see Appendix B).

Lorna Hurl, Staff Counselor at UM's Faculty & Staff Assistance Program (FASAP), developed a series of programs with her staff, the Office of Institutional Equity (OIE), and the Human Resource Development (HRD) office to offer coaching sessions about topics identified by the Network of Women Scientists and Engineers: work/family balance and time management. Carol Kaufman-Scarborough presented a session entitled "Making the Most of Your Time" and "Women, Time, and Role Overload: Challenges and Prospects in the New Time/Space Environment." Approximately 23 women (both faculty and graduate students) attended the first lunch/presentation. The session included a PowerPoint presentation and two opportunities for significant audience participation. One graduate student in Engineering attended the second presentation. Results from an evaluation of this event are summarized in Section III (see Appendix C for the full-length report).

Janet Weiss, Associate Provost for Academic Affairs, manages several programs involving faculty, including awards, hiring, professional development, and the procedures for appointments, promotions and the tenure process. Weiss also oversees the Center for the Education of Women and the Life Sciences, Values, and Society Program. She provides expert consultation to the UM ADVANCE project about implementation of programs that intersect with these activities. Abby Stewart meets regularly with Dr. Weiss.

The ADVANCE Leaders in Science Seminar Series (ALISSS) developed a speaker series presenting outstanding women in science. Each speaker presents her current research and meets with interested faculty to discuss mentoring and faculty development to help transform the environment of women faculty in the biomedical sciences at the University of Michigan. Presentations during the past year have included: Florence Haseltine, NIH; Nancy Craig, Johns Hopkins University; Nancy Hopkins, MIT; Jennifer Doudna, University of California, Berkeley; Beatrice Hahn, University of Alabama, Birmingham; Judith Kimble, University of Wisconsin, Madison; and Katherine Jones, Salk Institute. Joan Brugge, Harvard University, will present in January 2005.

One of the Crosby Award recipients, Smadar Karni, Professor of Mathematics, continues her speaker series celebrating the achievements of women in applied mathematics. The following speakers gave presentations to the math department and discussed their careers in applied mathematics: Cathleen Morawetz, New York University; Linda Petzold, UCSB, Konstantina Trivisa, University of Maryland, Suzanne Lenhart, University of Tennessee; and Irene Gamba, University of Texas at Austin.

Bendek Hansen (Statistics) is assessing the value of various matching strategies in analyzing

space and salary data. Dr. Hansen and Stephanie Olsen Klopfer have written a paper, entitled *Optimal full matching and related designs via network flows*, which is under consideration for publication. This paper describes an algorithm for producing matched sets, using an analysis of ADVANCE data as an illustration. Dr. Hansen also co-taught a workshop at the UM Center for Statistical Consultation and Research (CSCAR) where he employed ADVANCE as an example to demonstrate statistical methods.

C. ACTIVITIES AND FINDINGS

RESEARCH AND EVALUATION ACTIVITIES

Section III reports on NSF indicators and program evaluation. The following section reports on additional research activities.

Gender in Science and Engineering Committee. The Gender in Science and Engineering Committee charged three subcommittees of senior faculty to "examine and evaluate institutional practices and policies that might differentially impact the progress of UM women faculty in science and engineering, and to recommend specific goals for improvement and outcome measures to ensure accountability." Three subcommittees of senior faculty were charged to review policies in the areas of **Recruitment, Retention and Leadership** (chaired by Stephen Director, Dean of the College of Engineering), **Family Friendly Policies and Faculty Tracks** (chaired by Allen Lichter, Dean of the Medical School), and **Faculty Evaluation and Development** (chaired by Terrence McDonald, Dean of the College of Literature, Science and the Arts). Abby Stewart and Pamela Raymond serve on and advise these subcommittees. The detailed recommendations for possible policy changes were reported in March 2004. These recommendations were appended in the June Report to NSF. The recommendations made by the three subcommittees have generated a campus-wide dialogue about the impact of UM policies on women faculty in science and engineering. The Provost has charged a committee co-chaired by Dean Terrence McDonald and Associate Provost Janet Weiss; this committee's mandate is to consider adoption of a more flexible tenure clock at Michigan. During 2004-2005 the recommendations will be reviewed and discussed by a variety of offices and committees on campus.

Climate Reports and Focus Groups. ADVANCE staff completed the report "Assessing the Academic Work Environment for Faculty of Color in Science and Engineering" based on the data collected from the original climate survey. The report was widely disseminated throughout the University and discussed at presentations to dean's groups. The President asked the deans and chairs to distribute the report to all faculty. The STRIDE Committee is developing additional educational tools and PowerPoint slides to address the issues pertaining to discrimination raised by the report.

Graduate Student Experience. A campus-wide, confidential, on-line survey about graduate school was developed, funded by the Rackham Graduate School and the Office of the Provost and Executive Vice President for Academic Affairs. The survey was designed to identify aspects of the graduate school experience students find problematic and those that contribute to satisfaction and success. Some measures were designed to be parallel to the faculty climate survey, and others were specially designed to assess graduate school issues. Data from doctoral students in science, social science and humanities fields were collected via a web survey; they are currently being analyzed. After the data have been analyzed (next semester), we will draft and release a public report with

special attention to students in science and engineering. We will also discuss the findings with the Rackham staff, with a special focus on any policy or practice implications. A search for a new dean of the Graduate School is currently underway; we hope to use these findings to draw attention to areas needing intervention in graduate education.

In June, **Susan Sturm**, George M. Jaffin Professor of Law and Social Responsibility at Columbia Law School, spent three days on campus interviewing faculty and administrators involved with the ADVANCE project, and in the administration. She is using the UM Advance project as an example of an institutional change effort that helps her develop hypotheses about how those work. Dr. Sturm will be on campus in February 2005 to present a paper to the UM Law School entitled "Public Problem Solving and the Architecture of Learning, Mobilization, and Accountability: Lessons from Gender Equity Regimes." A second paper entitled "Building Gender Equity Regimes" will be presented to an audience of those most involved with the ADVANCE project.

NSF Site Visit. On September 20-21, 2004, NSF conducted a site visit of the UM ADVANCE Project. Interviews were conducted with informants, including central administrators, ADVANCE program team members and collaborators, and many faculty in the natural sciences and engineering. The site visit report was released on our website in October 2004; we have had discussions in STRIDE, with some of our collaborators, and with central administrators about the findings and implications of the site visit. We viewed the occasion of the visit as an opportunity for stock-taking, resulting in our "midpoint report." We found the site visit process itself enormously valuable, as it identified successful activities and strategies, as well as areas for further development (particularly institutionalization).

MAJOR FINDINGS RESULTING FROM THESE ACTIVITIES

The results of the analyses of the climate survey in terms of race and ethnicity were released to the campus in January 2004. The results suggested that there are many parallel issues for women in general and faculty of color, and that the problems are especially serious for women of color. *Assessing the academic work environment for faculty of color in science and engineering* was included in the June report and is included on our project website at: http://www.umich.edu/~advproj/

OPPORTUNITIES FOR TRAINING AND DEVELOPMENT

The Committee for Science and Technology Recruiting to Improve Diversity and Excellence (STRIDE) conducted formal presentations during the past year to groups across campus to educate them about bias and disadvantage. Participating departments included the Associate Provosts and Associate Deans' Group; the deans of the schools of Public Health, Natural Resources, Pharmacy, Information, and Dentistry; Dental School faculty; the Biomedical Scholars at the Medical School; School of Public Health faculty; Environmental Health Sciences Chair Search Committee; Environmental Health Sciences junior faculty search committee; and Microbiology and Immunology. Approximately 160 people attended in total. Additionally, STRIDE held three two-hour recruitment workshops for search committee chairs in the College of Engineering, College of Literature, Science, and the Arts, and the Medical School. Sixty-one people attended these sessions. Committee members also met informally with Madeleine Jacobs, Executive Director of the American Chemical Society, for a discussion about trends in academia and business and information sharing. Members of the STRIDE Committee have been working with Abby Stewart to draft a proposal toward institutionalizing STRIDE with a role throughout the University.

Barbara Butterfield (formerly Chief Human Resource Officer for Academic and Staff Human

Resources and Affirmative Action at the University of Michigan) and Jane Tucker (Senior Manager, SAP – Administration Systems Management Group at Duke University) have developed an advanced version of their Negotiation Workshop for women who would like to improve their negotiation skills. This will be offered to the Network of Women Scientists and Engineers in winter term, 2005.

A Leadership Workshop was conducted for the Network by Sandra Shullman, Executive Development Group, Columbus, OH, to identify/develop areas for skill enhancement. The program involved a variety of instructional approaches, including presentation, small group discussion and experiential learning.

A session on work-life balance was conducted for the Network, research scientists, post-doctoral students, and graduate students to address the emotional dimensions for women scientists in managing multiple work/life roles. This session was organized by the UM Faculty & Staff Assistance Program (FASAP), with support from the Office of Institutional Equity, and Human Resource Development.

OUTREACH ACTIVITIES

Co-PIs Abby Stewart and Pamela Raymond organized the presentation of the findings of the Gender and Science Sub-Committees to the Deans, Provost and President in April and are monitoring the implementation efforts in the institutional policy changes the report recommends. The three faculty subcommittees comprised of deans and faculty explored policy changes in: 1) Faculty Tracks and Work/Family Integration, 2) Evaluation and Promotion of Faculty, and 3) Recruitment, Retention and Leadership. Upon careful study and debate they made sweeping recommendations on policies in: Hiring, Dual Career, Mentoring, Leadership, Retention, Flexible Tenure Clock, Third Year Reviews, Faculty Annual Reviews, Faculty Development, Faculty Tracks, Modified Duties, and Day Care. The recommendations were presented to the parent Committee on Gender in Science and Engineering (including the President and Provost), as well as to the Academic Program Group (all deans, chaired by the Provost) in April 2004. Abby Stewart and Pamela Raymond met with the Provost to assess items for approval and implementation toward the ultimate goal of developing a detailed plan for implementation in the next academic year.

Abby Stewart consulted at the University of Illinois in February about mentoring, based on her experiences with ADVANCE and its initiatives.

Abby Stewart and Jan Malley presented talks about ADVANCE in February at the AAAS/Mini ADVANCE PI meeting in Seattle. Jan Malley presented information on "Leadership Development and Best Practices." Abby Stewart spoke about "Impact on Policy Transformation."

In April, Mel Hochster, Professor of Mathematics, presented the UM annual Sokol lecture to a public audience entitled: "Women in Mathematics: We've Come a Long Way, Or Have We?" The situation of women mathematicians and other women scientists was discussed, partly from a historical perspective, and partly in terms of problems that exist today in evidence of gender bias coupled with the accumulation of disadvantage.

In April Abby Stewart, along with President Coleman and Deans McDonald (LSA) and Director (Engineering), attended the Washington DC conference of the nine Universities originally convened by MIT. All four presented UM ADVANCE materials.

Abby Stewart, Jan Malley, Ching-Yune Sylvester and Robin Stephenson attended the Georgia Tech ADVANCE conference in Atlanta in April. Jan Malley spoke about "ADVANCE Institutional Data," and Abby served as session coordinator and presenter for "Assessment and Evaluation of Impact." Abby Stewart also spoke on "Mentoring and Faculty Development."

The CRLT Players presented their sketch "ADVANCE Faculty Meeting" twelve times at faculty events hosted by the Colleges of Engineering and of Literature, Science and the Arts, a special session for graduate students, the UM Dearborn Humanities faculty, UM Dearborn Senior Officers, Deans, and Department Chairs, the Institute for Social Research administrators and staff, and the Business School Deans and Chairs. These performances were attended by approximately 220 faculty/staff members and 60 graduate students. The CRLT Players presented their mentoring sketch throughout the fall term.

ADVANCE staff met with Dr. Nancy Hopkins, Amgen Professor of Biology, Biology Department and Center for Cancer Research, Massachusetts Institute of Technology, regarding MIT's response to a "Study on the Status of Women Faculty in Science" in May.

UM ADVANCE sponsored lunch networking meetings in June, August and December with the five UM women who served as department chairs in science and engineering departments this past year.

Abby Stewart met with a number of individual women in private consultation about counter-offers, accepting committee assignments, appointments to be chairs, and other related issues.

Abby Stewart is serving on the Flexible Tenure Committee. This Committee is co-chaired by Terrence J. McDonald, Dean of the College of Literature, Science and the Arts and Janet A. Weiss, Associate Provost for Academic Affairs. The Committee includes the following members:

Kenneth M. Adams, Professor of Psychiatry and Psychology, Department of Psychiatry, Medical School;

Stephen W. Director, Dean, College of Engineering and Professor of Electrical Engineering and Computer Science;

Richard A. Gull, Professor of Philosophy and Adjunct Lecturer in Extension and Continuing Education, College of Arts and Sciences, U of M – Flint;

Margaret R. Gyetko, Associate Professor of Internal Medicine and Associate Chair, Department of Internal Medicine, Medical School;

James S. Jackson, Daniel Katz Distinguished University Professor of Psychiatry and Director, CAAS, College of Literature, Science and the Arts, Professor of Health Behavior & Health Education, School of Public Health; Director and Senior Research Scientist, Center for Group Dynamics, ISR, Faculty Associate, Institute of Gerontology;

John L. King, Dean and Professor of Information, School of Information;

Patricia M. King, Professor, School of Education, Chair of the Center for the Study of Higher and Postsecondary Education;

Tresa M. Pollock, Professor of Materials Science and Engineering, College of Engineering;

Abigail J. Stewart, Agnes Inglis Collegiate Professor of Psychology, Professor of Women's Studies;

Jacqueline Vansant, Professor of German, Department of Humanities, College of Arts, Sciences and Letters, U of M – Dearborn;

Christina L. Whitman, Francis A Allen Collegiate Professor of Law, Law School, Professor of Women's Studies, College of Literature, Science & Arts.

In LSA, Dean Terrence McDonald convened a Dean's Advisory Committee on Gender in the

Natural Sciences. Abby Stewart participated in the first two meetings, during winter 2004; they focused on the GSE committee recommendations.

Abby Stewart and Samuel Mukasa (Professor of Geological Sciences) met with members of Case Western Reserve University's ADVANCE Project (Academic Careers in Engineering and Science) to discuss the design and impact of STRIDE.

Abby Stewart, along with Nancy Hopkins (professor of Biology, MIT) and Sue Rosser (Professor and Dean of the Ivan Allen College of Liberal Arts, Georgia Tech), presented a roundtable discussion at the *Recruiting, Retaining, and Advancing Women: Achieving the Critical Mass* sponsored by the ADVANCE Program at the Earth Institute at Columbia University. The session included discussion of comparable data collected from the ADVANCE institutions.

Barnard College's Center for Research on Women held a Conference entitled *Women, work, and the academy: Responding to 'post-civil rights era gender discrimination*.' On December 9th, Abby Stewart attended a public panel discussion. Presenters were Nancy Hopkins, Claude Steele, and Virginia Valian. On December 10th, Abby Stewart participated in a full-day working meeting organized around three thematic panels, each with 6-7 presenters. She presented *The power of ideas: Feminist theory and social science research as resources for transforming the academic science work environment.*

Abby Stewart and Anthony England (Associate Dean for Academic Affairs, College of Engineering and Professor of Electrical Engineering and Computer Science) attended the NSF Engineering Deans Workshop, held in Washington, DC in December. The Workshop was designed to provide an opportunity for ADVANCE institutions to share their experiences with each other, the broader engineering community, and the NSF engineering directorate staff.

D. PUBLICATIONS AND PRODUCTS

A booklet entitled *Elizabeth Caroline Crosby Research Fund Grant Winners 2002 and 2003* was published; it highlights and summarizes the projects conducted so far by winners. The booklet was distributed to all Network members, deans, chairs, president, and provost. This booklet was attached in the June 2004 report.

A new UM ADVANCE publication, *Giving and getting career advice: A guide for junior and senior faculty,* has been broadly shared on campus (e.g., Provost's office, APG, LSA, ISR, Kinesiology, Sociology, Pediatrics, and the Network of Women Scientists and Engineers). This publication has also been added to the ADVANCE website (see Appendix B).

Another new publication, *Frequently-asked questions: Retention of women science and engineering faculty*, has been broadly shared on campus. This publication is distributed with *Giving and getting career advice: A guide for junior and senior faculty*. It has also been added to the ADVANCE website (see Appendix N).

A Candidate Evaluation Tool was developed in collaboration with STRIDE. This tool offers a method for department faculty to provide evaluations of job candidates. It is meant to be a template for departments to employ and modify as necessary. The proposed questions are designed for junior faculty candidates; alternate language is suggested for senior faculty candidates. In addition to being

distributed on campus, the tool has also been added to the ADVANCE website (see Appendix D).

A new version of the UM ADVANCE brochure has been developed. The brochure outlines how to access the ADVANCE project at individual and departmental levels (see Appendix F).

A new publication, *Faculty Recruitment Handbook* was developed by members of the STRIDE Committee. The Handbook was distributed at fall 2004 workshops to all search committee chairs in Engineering, LSA and Medicine and is also available on the UM ADVANCE website at http://www.umich.edu/~advproj/ (see Appendix G).

Additional resources have been added to our website, including the STRIDE 2004 PowerPoint, links to other ADVANCE programs, and news of developments and initiatives with the program and accomplishments of female faculty. Some minor reorganization has been completed to improve navigation, and a website redesign is scheduled for the coming months to address some of the first generation limitations of the site and further improve navigation. The web address is: http://www.umich.edu/~advproj/

Additionally, UM ADVANCE received some press coverage during the past year. An article entitled *Hiring of female professors doubles in science and engineering* was published in the *University Record* (see Appendix H). This story was also featured on the UM website and President Coleman's website. Two articles were presented in the M-Edition of the *Ann Arbor News* which described the research of two STRIDE Committee members: Samuel Mukasa in *Geologist goes far afield and far back in time* (see Appendix I) and Mel Hochster in *Mathematician finds lyricism in work* (see Appendix J). Both Dr. Mukasa and Dr. Hochster included discussions of their membership on STRIDE and the efforts of the STRIDE Committee in their interviews, making these articles an excellent media opportunity to share the efforts of STRIDE with a broad audience. An additional article, *U-M professors struggle with gender parity* was published in the *Ann Arbor News* (see Appendix K). The article, *Lack of tenured female professors prompts 'U' to rethink tenure system*, was published in the *Michigan Daily* (see Appendix L). *The Chronicle of Higher Education* published an article entitled *Where the elite teach, it's still a man's world* in which Abby Stewart discussed the UM ADVANCE project.

E. CONTRIBUTIONS

The Elizabeth Caroline Crosby Fund awarded grants to nineteen women faculty in science and engineering in 2004. Most of these women hope to increase their chances of attaining tenure or promotion through the research supported by these funds. Some of the unique needs of this year's winners included: funding specialized child care to allow an applicant to attend and fully participate in an upcoming meeting where she was invited as a plenary speaker and for another applicant to cover child care costs during weekend and evening hours; supporting graduate students and post-doctoral students; and funding travel to pursue joint work with national and international off-site collaborators. An article will be published in the *University Record* in January (see Appendix Q). Awards were made to women in the following departments during the winter and fall terms of 2004:

Winter 2004 Crosby award winners:

Cell and Developmental Biology

Dentistry
Ecology and Evolutionary Biology and Zoology Museum
Geological Sciences
Internal Medicine
Kinesiology
Mechanical Engineering
Medicine and Human Genetics
Microbiology and Immunology
Naval Architecture and Marine Engineering

Fall 2004 Crosby award winners

Astronomy
Biostatistics
Chemistry
Ecology and Evolutionary Biology
Internal Medicine, Microbiology and Immunology
Materials Science and Engineering
Mathematics
Ophthalmology and Visual Sciences, Biological Chemistry
Pharmacology, Life Sciences Institute

The Lydia Adams DeWitt Research Fund awarded grants to two women faculty on the Primary Research Scientist track in 2004. These awards were in Atmospheric, Oceanic, and Space Sciences; and Ecology and Evolutionary Biology. Funding for these awards was provided by the UM Provost. We expect these awards to contribute not only to the careers of the women who receive them, but also to the morale of the women on the research science track in general.

An additional *Departmental Transformation Grant* proposal, submitted by a group of three male junior faculty in Physics, was funded in January. The proposal, entitled "Visitor Program for Young String Theorists," is to develop a visitor program that will bring outstanding young women scientists to the department for visits of a week or two in duration. The program is geared towards highlighting successful women and identifying potential targets for faculty recruitment. One particularly attractive feature of the proposal was the goal of involving the visitors in a range of ongoing departmental activities (courses, graduate seminars, etc.) to ensure that the visibility of women theorists in physics is increased. A second proposal was submitted by the entire Physics Department, and was funded in August. Entitled "Proposal to increase the visibility of women and minorities in visits to the University of Michigan Physics Department," this support allows all areas within the Physics Department to increase the number of invited women speakers and visitors to departmental seminar and colloquia series. It also included a plan to ensure the participation of students in these visits.

The Network of Women Scientists and Engineers is composed of tenured and tenure-track women faculty in science and engineering across the entire campus. The Network meets several times each year to socialize, to talk about issues the members have in common, and to develop plans for the future. The Network provides women faculty in science and engineering with opportunities to define collective goals and to support one another.

After some consideration, participation in the Network was extended to women in bioanthropology, biopsychology, and cognition and perception (in psychology). Eight women from these units were added to the Network.

The *Network* held the following events during the year.

January
We held a reception to honor the women who received Elizabeth C. Crosby awards in the past two years. Professor Emerita Sarah Newman offered comments about the life, research and advances achieved by Elizabeth Crosby. This event was attended by twenty-five women faculty and three male chairs in science and engineering. A reception is being planned for February 2005 to honor the most recent winners of Crosby Awards.

February
Sandra Shullman, Executive Development Group, Columbus, OH, conducted a workshop, "The Chemistry of Leadership: A Women's Leadership Development Program," designed to give participants some basic concepts and tools to further develop their leadership skills. Twenty-two women faculty participated.

March
We sponsored four events or activities. We held an advanced workshop on negotiating effectively through teamwork, conducted by Barbara Butterfield, formerly Chief Human Resource Officer for Academic and Staff Human Resources and Affirmative Action at the University of Michigan, and Jane Tucker, Senior Manager, SAP – Administration Systems Management Group at Duke University, in March, 2004. Twenty-four faculty members attended.

We held a lunch for a smaller subset of the Network, the LSA junior women faculty, for a discussion about mentoring with Pam Smock of ISR, who is serving as a mentoring liaison for ADVANCE, to discuss topics important for successful mentoring. Fourteen women attended.

We hosted a lunch for the Network College of Engineering women to talk about ADVANCE and socialize. Twenty women attended. Another lunch is being planned for February 2005.

We also collaborated on a session entitled "Creating Work/Life Balance: Choices and Challenges for Women Scientists" as an informative panel discussion of issues and strategies for developing a realizable work-life balance. Two panelists were from the Network. This session was sponsored by ADVANCE, The Office of Institutional Equity, The Faculty and Staff Assistance Program and Human Resource Development and was attended by 28 women.

April
We sponsored three events. The Chemistry Department (which has a DTG grant), sponsored a talk by Madeleine Jacobs, American Chemical Society Executive Director and Chief Executive Officer entitled, "Opening the Doors to Women in Chemistry: Why We Need Keys to the Doors." Approximately 400 students and faculty attended.

We hosted the Network of Women Scientists and Engineers Spring Dinner; it provided a chance to socialize. In addition, the CRLT players previewed their new "Faculty Advising Faculty Sketch," which elicited a lively discussion and feedback. Sixty-four faculty women attended.

We held a lunch for the Network to meet with Karen Uhlenbeck, Professor of Mathematics at University of Texas who received an honorary degree from UM in 2004. She shared ideas about mentoring women, an interest she is deeply committed to. Sixteen women faculty attended.

September
We hosted a Fall Dinner for the Network in Palmer Commons. Stephen Director, Dean of the College of Engineering, Allen Lichter, Dean of the School of Medicine, and Terrence McDonald, Dean of the College of Literature, Science and the Arts presented results from the recent Gender in Science and Engineering Committee reports. Sixty-three women attended.

October
We hosted a breakfast to provide the Network a chance to meet casually with Suzanne Lenhart, Professor of Mathematics, University of Tennessee and past president of the Association for Women in Mathematics. Four Network women attended the breakfast.

Howard Georgi, Mallinckrodt Professor of Physics, at Harvard University gave a presentation, jointly sponsored by UM ADVANCE and the Physics Department, entitled "Women and the Future of Physics." Approximately 130 people were in attendance. Members of the STRIDE Committee and the Physics Department joined Professor Georgi for dinner and discussion of Harvard's efforts.

Evelynn Hammonds, Professor of History of Science and of African and African American Studies at Harvard University, was scheduled to present "The Marginalization of Experience: Women of Color in Science." Dr. Hammonds needed to cancel the presentation due to campus matters which required her presence at Harvard. We are corresponding with Dr. Hammonds to identify a date to reschedule her presentation. We hope to bring renewed attention to our report on the climate for faculty of color in science and engineering via this event.

December
We held a lunch in December to provide Network women an opportunity to meet with UM President Mary Sue Coleman. Sixty-two women attended the lunch and discussed the recent recommendations of the Gender in Science and Engineering (GSE) Committee.

Members of the Network continue to become more involved in their own programming and events planning and provided several suggestions for the future including: another topic-oriented retreat, more opportunities to socialize and network, more workshops on topics including: negotiating, writing, funding, leadership, career, coping. The Network also would like more meetings with top university administrators.

CRLT Players performed the faculty sketch and mentoring sketch to multiple audiences, as discussed elsewhere in this report.

E. INTEGRATION OF ADVANCE ISSUES IN UNIVERSITY POLICY AND ADMINISTRATION

Abigail Stewart, Project PI, completed her second year as the Associate Dean for Academic Affairs in the College of Literature, Science, and the Arts during winter term 2004. This enabled her to participate in recruitment, hiring, promotion, and policy decisions in the College. She also serves on the Gender in Science and Engineering (GSE) Committee, the GSE Subcommittee on Family

Policies and Faculty Tracks, and provides support to the GSE Subcommittee on Faculty Evaluation and Development. She was invited to present information about bias and recruitment to committees searching for deans in the schools of Law, Public Health, Music and Education, as well as the Director of the Institute for Social Research.

Pamela Raymond, ADVANCE Co-PI, continues to serve as Senior Counselor to the Provost, maintaining crucial communication between ADVANCE and the central administration. Dr. Raymond returns from sabbatical and assumes the leadership as PI in January 2005 during Abby Stewart's sabbatical.

Janet Weiss, Associate Provost for Academic Affairs, has continued to provide advice and consultation on implementation of GSE committee recommendations.

The ADVANCE Steering Committee, composed of co-PIs Abby Stewart and Pamela Raymond and the Deans of Literature, Science, and the Arts, Engineering, and Medicine, meets quarterly.

Each of the three colleges with the largest number of women scientists and engineers (College of Engineering, Medical School, and College of Literature, Science and the Arts) is continuing their institutionalization of data collection procedures.

SECTION III: REPORT ON NSF INDICATORS AND PROGRAM EVALUATION

Indicators:
Third Year of UM ADVANCE (AY2004)
Second Year of UM ADVANCE (AY2003)
First Year of UM ADVANCE (AY2002)
& Baseline Year (AY2001)

A. INTRODUCTION

The UM ADVANCE indicator data reported here are for the 2003-2004 academic year (September 2003 – August 2004, hereby referred to as AY2004); the third year of ADVANCE funding occurred midway through the academic year of interest (i.e., January 2004).

We are reporting on all science and engineering faculty (instructional, research and clinical tracks) with budgeted (i.e., greater than 0% time equivalence) appointments in science and engineering departments in the College of Engineering[1] (CoE), the College of Literature, Science and the Arts' (LSA) Division of Natural Sciences[2] and the Medical School's Basic Science departments[3] (MED). In addition, individual science faculty members in six smaller schools that house science faculty at the University of Michigan are included. These schools include the School of Dentistry, the School of Information, the Division of Kinesiology, the School of Natural Resources and Environment, the College of Pharmacy and the School of Public Health. Faculty members in these schools were determined to be scientists by assessing the field of study in which they received their highest degree (see Appendix E for a listing of which fields of study were included). For those highest degrees that might comprise research in both science and non-science areas, we evaluated the individual cases and included faculty based on their research areas.

For each College or School, we included faculty from the instructional (tenure) track, the primary research track and the clinical track. These tracks generally refer to the titles of assistant, associate and full professor; assistant, associate and research scientist[4]; and assistant, associate and clinical professor, respectively. Instructors, research investigators and supplemental faculty were not included.

In this report, we discuss the state of women scientists and engineers at the University of Michigan for AY2004 via a review of the changes in gender composition from the baseline year (AY2001). However, given the small number of female faculty and corresponding small changes in numbers, we did not conduct statistical analyses on these comparisons.

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[1] Engineering: Aerospace Engineering; Atmospheric, Oceanic & Space Sciences; Biomedical Engineering; Chemical Engineering; Civil & Environmental Engineering; Electrical Engineering & Computer Science; Industrial & Operations Engineering; Materials Science & Engineering; Mechanical Engineering; Naval Architecture & Marine Engineering; Nuclear Engineering & Radiological Sciences.

[2] LSA: Astronomy; Chemistry; Ecology & Evolutionary Biology; Geological Sciences; Mathematics; Molecular, Cellular & Developmental Biology; Physics; Statistics.

[3] Medicine: Biological Chemistry; Cell & Developmental Biology; Human Genetics; Microbiology & Immunology; Pharmacology; Physiology.

[4] On the research track, after the assistant research scientist level, faculty may pursue two different track paths. One is designated by the titles associate research scientist and research scientist, the other by either research associate professor and research professor, or senior associate research scientist and senior research scientist. For our purposes, research faculty at the associate rank are considered together, as are faculty at the full rank (regardless of title).

Following this section of the report are tables presenting all of the indicators required by the National Science Foundation (NSF). A list of the tables is included in the table of contents. In extracting data from the University's databases, the effective date of March 1, 2004, was used. We have taken this to reflect conditions in effect during AY2004. These data were verified by the individual Colleges and Schools to ensure we did not exclude any faculty who may have been present in Fall 2003 and not in Winter 2004; the data liaisons in each academic unit also ensured that we included all additional positions (e.g., administrative positions) held during either semester. Some figures/tables may differ from the previous report (June 2004) as data were updated in September 2004.

For changes in status such as new hires and terminations/retirements, the effective dates used were between March 1, 2003, and March 1, 2004. That is, we report on faculty members who started their instructional tenure track position or who left their position between the given dates. While this means that the data for new hires and terminations/retirements do not match exactly with the academic year, the date parameters were selected to facilitate the reconciliation of changes in the number of faculty from AY2003 to AY2004. In the case of offers of employment and new hires, however, we also report on faculty members who received and responded (i.e., accepted or declined, not including pending cases) to offers of employment within the academic year of September 1 to August 31 (see page III-6). This timeframe recognizes the fact that academic hiring seasons extend well beyond the effective date of March 1, 2004. Lastly, with regard to faculty promotions, we report faculty whose promotions were effective in AY2004 (and thus were reviewed in the previous year, AY2003).

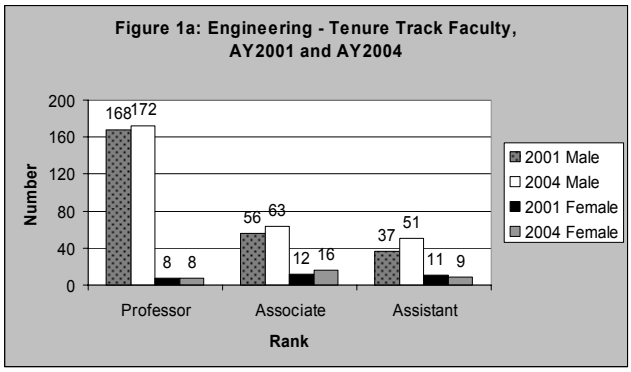
B. INSTRUCTIONAL (TENURE) TRACK FACULTY

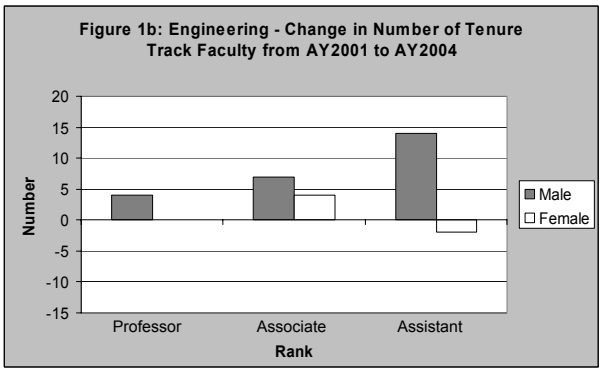
OVERVIEW

In this section we discuss the numbers of male and female science and engineering instructional (tenure) track faculty in each College and School. The percentages reported here are based on the number of men and women in each department (i.e., head count), and not based on time equivalents (FTE). Head counts are easier to conceptualize, and in most cases do not differ significantly from the FTE allocation (see Table 1 for percentages based on head count and FTE). Where the percentages based on head counts and those based on FTEs differ by more than 2 percentage points, the percentage based on FTE will be reported in brackets [ ].

COLLEGE OF ENGINEERING

In AY2004, the College was 90% male (N = 286) and 10% female (N = 33)[5] (see Figure 1a for aggregate data and Table 1 for breakdown by department); this reflects a very small decrease in the percentage of women from AY2001 when the comparable figures were 89% male (N = 261) and 11% female (N = 31). In AY2004, the small proportion of female faculty is particularly apparent at the professor level, where only 8 out of 180 (4%) of the faculty were women. At the associate professor level, women comprised 20% of the faculty, and at the assistant professor level, they comprised 15%.





Compared to the baseline year of AY2001, CoE has experienced a net increase of 25 male faculty and a net increase of 2 female faculty across all three ranks (see Figure 1b). Of the new hires in Engineering for AY2004, 19 were men (79%) and 5 were women (21%); see Table 2[6]. At the same time, Engineering lost 9 men and 3 women to retirements and other terminations (see Table 3). In terms of faculty promotions, 12 faculty were evaluated for promotion: 10 men and 2 women were promoted and none were denied promotion (see Table 4).

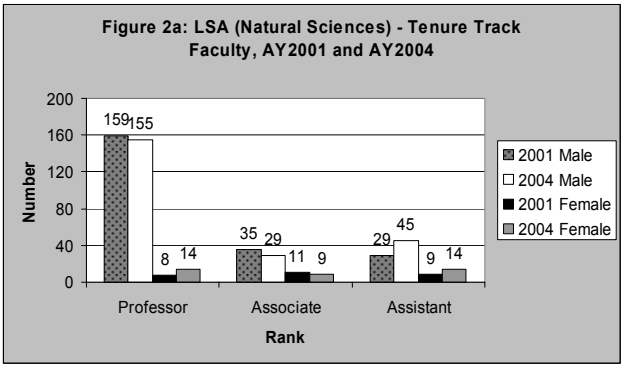
COLLEGE OF LSA (Natural Sciences)

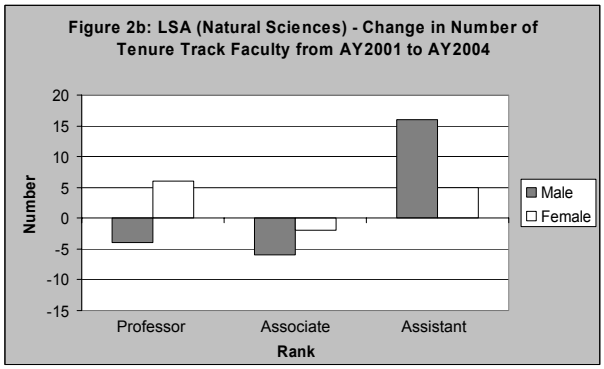
The overall composition of faculty in the Division of Natural Sciences for AY2004 was 86% male (N = 229) and 14% female (N = 37); the AY2004 data reveal an increase in the percentage of women faculty from AY2001, when the Division was 89% male (N = 223) and 11% female (N =

[5] All percentages are rounded to the nearest whole number. Also, while percentages are used throughout this report for ease of comparison across colleges and sub-populations that vary widely in number, the reader must keep in mind that due to the small number of female faculty, an addition/loss of one female will result in a larger corresponding percentage change than if that addition/loss had been one male. Please refer to the tables and figures for raw numbers.

[6] We report on faculty members who started their instructional tenure track position between March 1, 2003, and March 1, 2004.

28). The gender disparity in AY2004 was the greatest at the highest rank: only 8% of the full professors were women. At the associate professor level, 24% of the faculty were women, and at the assistant professor level, 24% of the faculty were women (see Table 1). Figure 2a depicts the aggregate number of faculty in each rank across the eight departments in LSA.



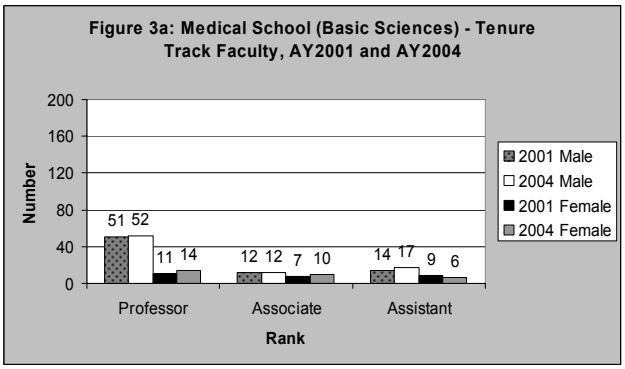


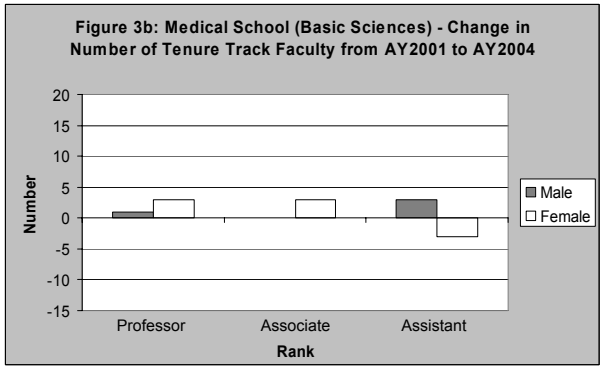
In relation to AY2001, LSA has seen a net increase of 6 male faculty and 9 female faculty across all instructional ranks (see Figure 2b). Of the new hires in LSA (Natural Sciences) for AY2004, 13 were men (72%) and 5 were women (28%); see Table 2. In the same year, the natural science departments lost 16 male faculty and 1 female faculty (see Table 3). Of the 11 faculty who were considered for promotion, 7 men and 3 women were promoted, and one man was denied tenure (see Table 4).

MEDICAL SCHOOL (Basic Sciences)

The basic science departments in the Medical School were comprised of 73% men [70% of FTE] (N = 81) and 27% women [30% of FTE] (N = 30) in AY2004; moreover, in AY2001, the faculty in the basic science departments were 74% male (N = 77) and 26% female (N = 27), which reflects a slight improvement from AY2001 to AY2004. At all ranks, women were in the minority: they comprised only 21% of professors, 45% of associate professors [51% of FTE] and 26% of assistant professors [29% of FTE]. Figure 3a shows the actual number of men and women at each rank in AY2001 as well as AY2004; see Table 1 for percentages based on head count and FTE.

In part due to the fact that the basic science departments in MED are smaller than either Engineering or LSA (Natural Sciences) departments, they have not experienced much change since AY2001; however, gains in the Medical School have been nearly equal for men and women. The School saw a net gain of 4 male and 3 female faculty members since AY2001 (see Figure 3b).

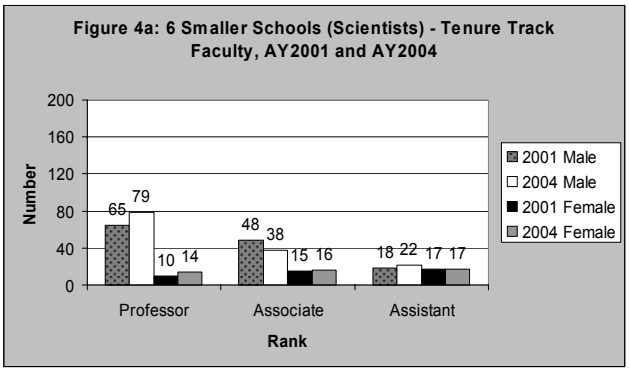


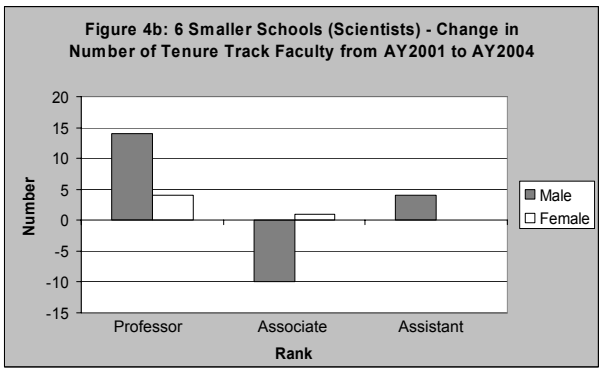


In AY2004, 8 men (80% of hires) and 2 women (20% of hires) joined the faculty in MED basic science departments; see Table 2. At the same time, 8 men and 1 woman left the faculty in AY2004 (see Table 3). With regard to promotions, all 7 faculty (2 men and 5 women) who were evaluated for promotion received it (see Table 4).

SIX SMALLER SCHOOLS (Science Faculty)

In AY2004, the overall proportion of female (scientist[7]) faculty across all six additional Schools was 25% (N = 47); this reflects a slight improvement from AY2001 when women faculty comprised 24% (N = 42) of tenure track faculty in the six additional Schools. In AY2004, this proportion ranged from 0% female in the School of Information to 47% female in the Division of Kinesiology (see Table 1 for breakdown by School). Looking at all six Schools by rank, we see that while almost half of all assistant professors were female (44%), this proportion dropped as we ascended the academic ladder; only 30% of associate professors and 15% of professors were female (see Figure 4a).





Considering all six schools together, there was a net gain of 8 male faculty members and 5 female faculty members since AY2001 (see Figure 4b). To date we have not collected information about new hires and promotions for instructional track faculty in these six smaller schools. We plan to collect and report these data next year.

SUMMARY OF CHANGES FOR ALL SCHOOLS/COLLEGES

Relative to AY2001 (baseline year), CoE reported a slight decrease in the percentage of female instructional track faculty in AY2004, though the absolute number of women appointed to instructional track positions increased by two from AY2001 to AY2004. In contrast, the LSA, MED and the six smaller Schools reported slight increases in the percentage of female instructional (tenure) track faculty as well as the number of women appointed to tenure track positions from AY2001 to AY2004. Looking across the Colleges and Schools, the most striking fact is the relatively low numbers of women faculty in all ranks in comparison to their male colleagues. In a pattern unchanged from that previously reported, the majority of instructional track science and engineering male faculty were found to hold the highest rank of professor, while the female faculty were relatively evenly distributed across all ranks.

[7] Only scientists in each department are included; non-scientists (based on highest degree or research area) are not reported.

OFFERS & HIRES, INSTRUCTIONAL (TENURE) TRACK FACULTY

One way to significantly change the gender composition of the faculty is through balanced hiring. UM ADVANCE is able to report major progress regarding the number women hired as a proportion of all science and engineering instructional track hires: 13% of new hires were women in AY2001 and 39% in AY2004 (i.e., September 1, 2003 to August 31, 2004). Furthermore, as a proportion of all science and engineering tenure track offers, 15% of offers went to women in AY2001 and 41% in AY2004. It is important to note that these data report the number of faculty members who received and responded to offers of employment within the academic year of September 1 to August 31 (i.e., the data are not as of the effective date of March 1, 2004, which is reported in Table 2). In CoE, while the number of offers decreased from AY2001 to AY2004 (N = 55 and N = 11, respectively; see Table 12a), the percentage of offers to women increased from 15% in AY2001 to 36% in AY2004 (see Figure 5a). LSA (Natural Sciences) issued 31 offers of instructional track employment in AY2001 and 23 offers in AY2004; though the total number of offers decreased from AY2001 to AY2004, the percentage of offers to women increased from 13% in AY2001 to 48% in AY2004 (see Figure 5b). Lastly, in MED, the number of offers increased from 5 in AY2001 to 15 in AY2004. The percentage of offers to women, however, decreased from 40% in AY2001 to 33% in AY2004 (see Figure 5c).

Figure 5a: Engineering - Number of Men & Women Who Were Offered and Accepted Tenure Track Appointments, AY2001 - AY2004

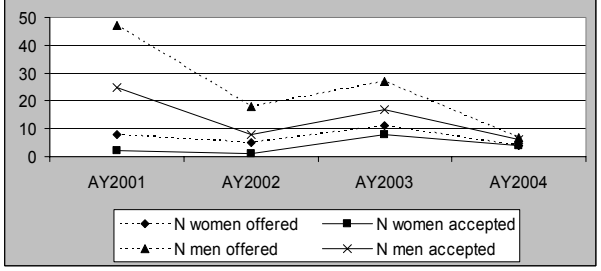


Figure 5b: LSA (Natural Sciences) - Number of Men & Women Who Were Offered and Accepted Tenure Track Appointments, AY2001 - AY2004

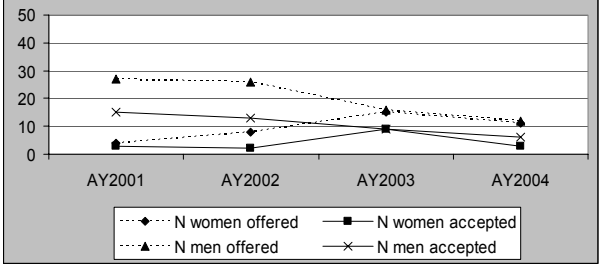
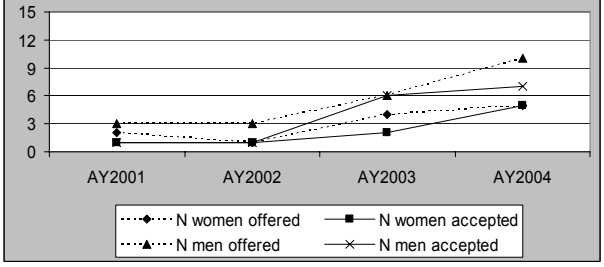


Figure 5c: Medical School (Basic Sciences) - Number of Men & Women Who Were Offered and Accepted Tenure Track Appointments, AY2001 - AY2004



In regard to the percentage of offers to women that were accepted in AY2001 and AY2004, the percentage increased from 25% to 100% in CoE, decreased from 75% to 27% in LSA and increased from 50% to 100% in MED (see Figures 5a – 5c).

Following the useful model of the Commission on the Status of Women at Columbia University ("Advancement of Women through the Academic Ranks of the Columbia University Graduate School of Arts and Sciences," November 2001) we also compared the gender balance of new hires (assistant professors) against the gender balance of existing *tenure-eligible faculty* (assistant professors) for each of the three Colleges/Schools. In AY2004, women faculty comprised: 36% of new hires and 15% of tenure-eligible faculty in CoE; 48% of new hires and 24% of tenure-eligible faculty in LSA; and 33% of new hires and 26%

Chart 5a: Faculty Hiring and Gender Balance, AY2001 – AY2004

	ENG		LSA		MED	
	N.H.	T-E	N.H.	T-E	N.H.	T-E
AY2004	**36%**	**15%**	**48%**	**24%**	**33%**	**26%**
AY2003	**29%**	**16%**	**48%**	**27%**	**40%**	**35%**
AY2002	**22%**	**17%**	24%	24%	25%	35%
AY2001	15%	23%	13%	24%	**40%**	**39%**

Note: College of Engineering (ENG), College of LSA (LSA) and Medical School (MED); New Hires (N.H.) and Tenure-eligible faculty (T-E)

[29% of FTE] of tenure-eligible faculty in MED (see Chart 5a). Therefore, each of the three Colleges/Schools reported a greater percentage of women among new hires than among tenure-eligible faculty and, therefore, employed new-hire processes that slightly improved the gender balance of the instructional track faculty for AY2004. Only the MED reported a greater percentage among new hires than among tenure-eligible faculty in AY2001.

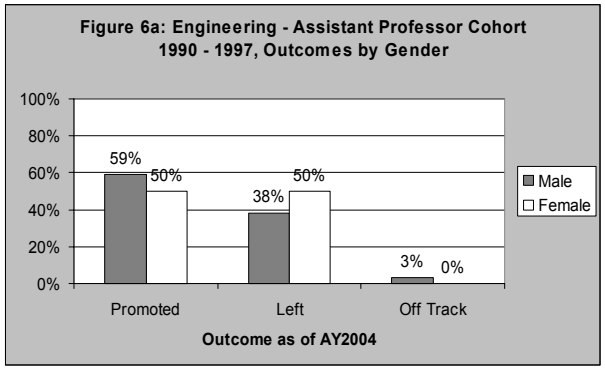
ASSISTANT PROFESSOR COHORT 1990 – 1997, OUTCOMES BY GENDER

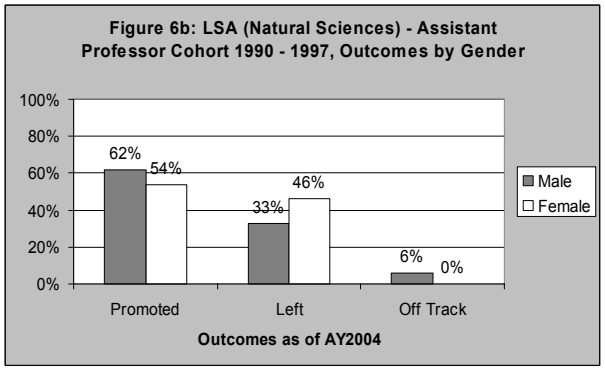
With the collection of longitudinal data, UM ADVANCE monitors the employment outcomes—promoted, retired/terminated or off track—for assistant professors in CoE, LSA and MED who initiated employment at the University between AY1990 and AY1997. Chart 6a reports outcomes, as of AY2004, for faculty comprising the 1990 – 1997 assistant professor cohort by College/School and gender (see Figures 6a – 6c for percentage difference by gender). CoE hired 61 male and 14 female assistant professors, and LSA hired 52 male and 13 female assistant professors between AY1990 and AY1997. Women, therefore, comprised 19% of new hires in CoE and 20% of new hires in LSA at the assistant professor rank. In both Colleges, relative to the percentages for male assistant professors hired during the same period, a lesser percentage of female assistant professors were promoted (50% in Engineering; 54% in LSA) and a greater percentage left as a result of retirement or termination (50% in Engineering; 46% in LSA; see Figures 6a and 6b). No female assistant professors in the 1990 – 1997 cohort went off track (i.e., left the tenure-track for a non-tenure-track position), and only a small percentage of male assistant professors (3% and 6%, respectively) elected this option. The reader should keep in mind, however, that due to the small number of female faculty, an addition/loss of one female will result in a larger corresponding percentage change than if that addition/loss had been one male.

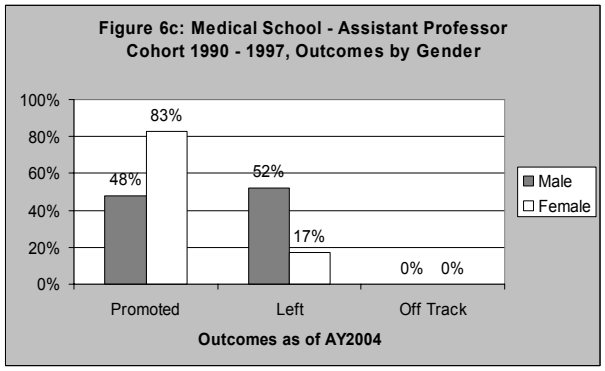
Chart 6a: Assistant Professor Cohort 1990 – 1997, Outcomes by Gender*

	ENG		LSA		MED	
	m	f	m	f	m	F
Promoted	36	7	32	6	11	10
Left	23	7	17	7	12	2
Off Track	2	0	3	0	0	0
Total N	61	14	52	13	23	12

Note: College of Engineering (ENG), College of LSA (LSA) and Medical School (MED); Left – Retired & Terminated;
* Outcomes are as of AY2004







MED hired 23 male and 12 female assistant professors between 1990 and 1997; women comprised 35% of new hires at the assistant professor rank. Two assistant professors (one male and one female) were still classified as assistant professors as of AY2004; therefore, these assistant professors were not included in the analysis, as neither is properly classified as promoted, left or off-track. In contrast to CoE and LSA, a greater

percentage of female assistant professors were promoted (83%) and a lesser percentage left (17%) due to retirement or termination, relative to the percentages for male assistant professors in the 1990 – 1997 assistant professor cohort (see Figure 6c). No assistant professors in MED went off-track as of AY2004.

ASSOCIATE PROFESSORS, AVERAGE NUMBER OF YEARS IN RANK BY GENDER

Figures 7a-c present the average number of years in rank (by gender) for associate professors (instructional track) in CoE, LSA and MED, respectively; moreover, Chart 7a reports the average number of years in rank by gender for associate professors and Chart 7b reports the ranges (i.e., minimum and maximum values) by gender for each of the academic years.

Chart 7a: Average Number of Years in Rank by Gender for Associate Professors, AY2001 – AY2004

	ENG		LSA		MED	
	m	f	m	f	m	F
AY2004	6.6	3.0	4.7	5.8	5.5	4.4
AY2003	6.2	3.5	4.1	6.1	5.2	4.8
AY2002	5.9	3.0	5.0	4.8	3.6	4.5
AY2001	6.3	3.7	5.1	4.5	3.1	5.6

Note: College of Engineering (ENG), College of LSA (LSA) and Medical School (MED); values are rounded to the nearest tenth

In CoE the average number of years in rank for male associate professors is consistently greater than the average for female associate professors during each of the four academic years (see Figure 7a). In contrast, the data for LSA and MED reveal fluctuations in whether men or women in the aggregate experienced the higher average number of years in the associate professor rank from AY2001 to AY2004 (see Figures 7b and 7c).

Chart 7b: Range Values for Associate Professors, Average Number of Years in Rank by Gender

	ENG		LSA		MED	
	m	f	m	f	m	F
AY2004	1-31	0-10	0-34	1-19	1-23	1-14
AY2003	0-30	0-9	1-33	2-18	0-22	1-13
AY2002	0-29	1-8	0-31	0-16	1-21	1-12
AY2001	1-28	0-11	0-31	2-16	1-20	3-11

Note: College of Engineering (ENG), College of LSA (LSA) and Medical School (MED); values are rounded to the nearest whole number

Figure 7a: Engineering - Associate Professors, Average Number of Years in Rank by Gender 2001 - 2004

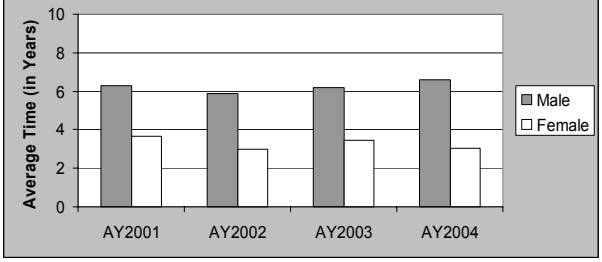


Figure 7b: LSA (Natural Sciences) - Associate Professors, Average Number of Years in Rank by Gender 2001 - 2004

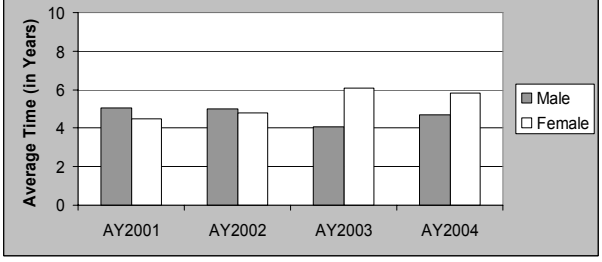
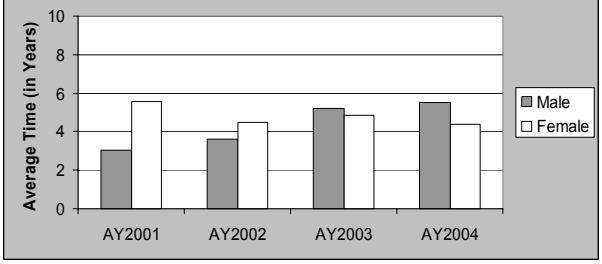


Figure 7c: Medical School (Basic Sciences) - Associate Professors, Average Number of Years in Rank by Gender 2001 - 2004



The sources of these mean difference are likely varied and complex, including the fact that some men have held the rank of associate professor for at least twice as long as the most senior woman. In addition, the average number of years in rank is sensitive to the percentage (by gender) of new hires, promotions and terminations. For example, while the composition of women in the associate rank (LSA) from AY2002 to AY2003 remained the same (which led to an increased average number of years in AY2003), the mean for the male associate faculty was affected by five promotions into the associate rank, three terminations/retirements and two new hires into the associate rank.

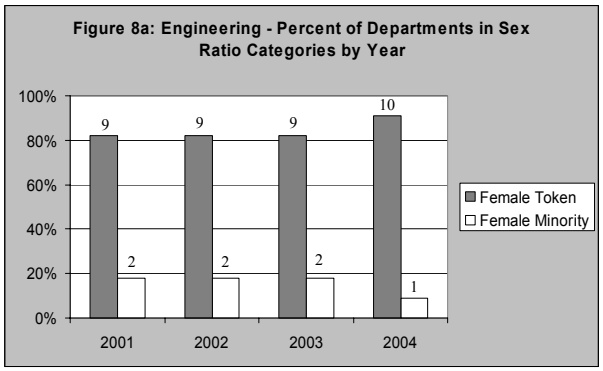
We will explore some alternative ways of analyzing these data (e.g., disaggregating by ranges of years in rank by gender, etc.) in order to represent the underlying issues better. In addition, we will encourage each college to consider within-college evidence carefully, and to disaggregate their own data further to draw meaningful conclusions about this issue.

OVER TIME CHANGE ON THE TENURE TRACK BY GENDER

Now that we have begun to accrue some longitudinal data, we thought it important to develop a more systematic process for assessing change over time. Our initial efforts were directed at the tenure track faculty, looking specifically at the ratio of women on the science and engineering faculty by department within each of the three major schools (Engineering, LSA and the Medical School). Following Lisa Frehill's suggestion (Georgia Tech Conference panel presentation, "Measuring the Status of Women: Toward Cross-Institutional Analysis to Understand Institutional Transformation," April, 2004) we assessed the sex ratio of each department in the three schools for AY2001 and AY2004. For some schools we also had data readily available for AY1990 and AY1995, which we also included in our analyses. The sex ratio categories used by Frehill are female token, female minority, sex balance, male minority and male token. We defined the categories as follows: female token (0-17% female); female minority (18-35% female); balance (36-64% female); male minority (65-82% female); and male token (83-100% female).

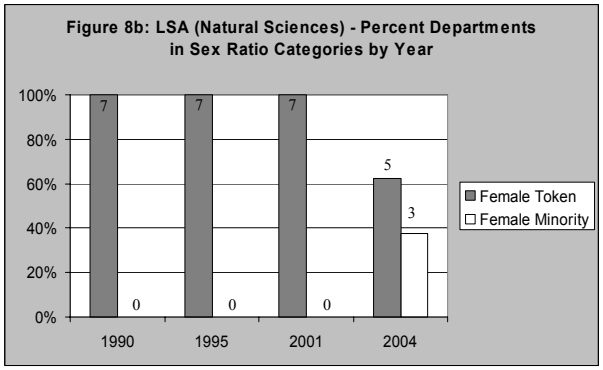
COLLEGE OF ENGINEERING

Looking first at CoE, we found that all but two of the 11 departments reflected a female token sex ratio[8] in AY2001, AY2002 as well as AY2003. The two remaining departments represented a female minority sex ratio in each year. In AY2004, only one department represented a female minority sex ratio, while the remaining ten departments reflected a female token sex ratio. Moreover, while one department maintained a female minority sex ratio throughout the four academic years, two other departments fluctuated between the female token and female minority sex ratios from AY2001 to AY2003. The graph (Figure 8a) depicts the percentage of departments in each category for four years. The percentages, moreover, are based on head counts within each department; see Appendix M for graphs that depict the percentage of departments in each sex ratio category based on FTE.



COLLEGE OF LSA (Natural Sciences)

We had data readily available for AY1990 and AY1995 as well as AY2001 and AY2004 by department for LSA. We looked specifically at the departments in the Division of Natural Sciences and found a pattern of improvement for the most recent year during which the number of female minority departments increased from zero to three (it should be noted that the total number of departments also increased between AY2001 and AY2004 because the biology department split into

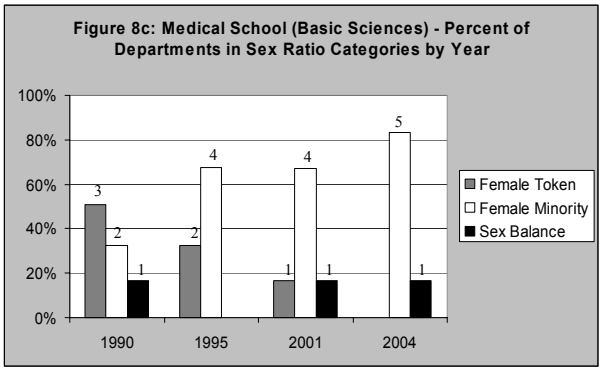


[8] The reader should keep in mind that due to the small number of female faculty, an addition/loss of one female will result in a larger corresponding percentage change than if that addition/loss had been one male.

two separate departments in AY2002). In the earlier three years, 100% of the departments had a female token sex ratio. The graph (Figure 8b) depicts the percentage of departments in each sex ratio category for the four academic years.

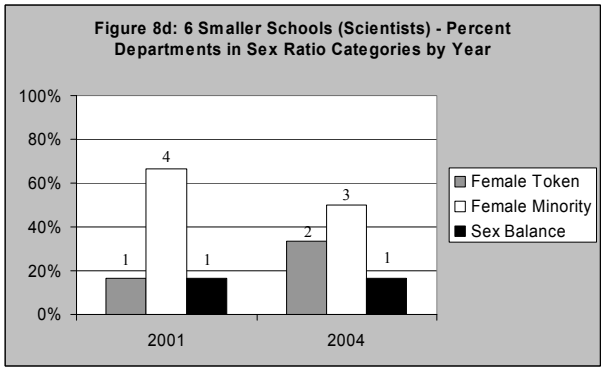
MEDICAL SCHOOL (Basic Sciences)

We obtained data by department for MED for AY1990 and AY1995 as well as AY2001 and AY2004 (see Figure 8c). We found a significant decline in the percentage of departments with a female token sex ratio between AY1990 and AY2004 as well as some fluctuation in the percentage of departments with female minority sex ratios and those with sex balanced ratios. By AY2004 the trend appears to reflect an increase in departments with a female minority ratio and an elimination of departments with a female token sex ratio. It will be important to see if this trend continues.



SIX SMALLER SCHOOLS (Science Faculty)

In AY2001, we found that science faculty in four Schools/Divisions reflected a female minority sex ratio. The science faculty in the remaining two academic units were coded as female token and sex balanced. By AY2004, the situation had regressed slightly; the science faculty in one School/Division, which was coded as female minority in AY2001, reflected a female token sex ratio in AY2004 (see Figure 8d). These analyses indicate the sex ratios for the science faculty only in the six Schools/Divisions, and do not necessarily reflect the ratios of the full faculty rosters for the Schools/Divisions.



Since AY2004 represents only the second full academic year of the NSF ADVANCE award, it is too soon to draw conclusions about ADVANCE project efforts to recruit and retain women scientists from these numbers. However, we find this analytic approach to be a useful tool for understanding the situation of women scientists within their respective departments and colleges and will continue to assess all science and engineering departments in this way for each of the subsequent years reported to NSF.

OVER TIME CHANGE ON THE TENURE TRACK BY RACE/ETHNICITY

We conducted a similar set of analyses looking at the racial/ethnic breakdown by department in each of the science and engineering departments for AY2001 and AY2004. In the University data base faculty ethnicity is coded using five mutually exclusive categories (American Indian/Alaskan Native; Asian/Pacific Islander; Black/African American; Hispanic/Latino; and white). We looked specifically at the percentage of faculty who were identified as a member of an underrepresented minority group (American Indian/Alaskan Native, Black/African American and Hispanic/Latino) compared to all faculty in the department.

It is not completely straightforward to select cutoffs for "representativeness" of ethnic minorities. However, using U.S. census data as our guide, we employed 25% as an estimate of "full representation" rather than 50% or "balance" as used in the gender analyses. The basis for this figure was the 2000 U.S. Census, which reported that African Americans constituted 12% of the U.S. population, Hispanics 12%, and American Indians 1%, for a total of 25% in these underrepresented groups. Accordingly, we designated 0-9% as ethnic/racial group token; 10-19% as ethnic/racial group minority; and 20% and over as ethnic/racial group full representation.

The analysis of data for underrepresented racial/ethic groups (i.e., American Indian/Alaskan Native, Black/African American and Hispanic/Latino) revealed very discouraging information: while some departments were moved from the "token" to the "minority" coding category, a number of them *declined* from AY2001 to AY2004. In CoE, 2 of 11 departments were coded as "minority" in AY 2001 and only one achieved that code in AY2004. In LSA, the results were unchanged: 1 of 7 departments was coded "minority" in AY2001, and 1 of 8 departments was so coded in AY2004 (in AY2002 the biology department split, creating one additional department in LSA's Division of Natural Sciences). In MED, 1 of 6 departments was coded as "minority" in AY2001 and no departments achieved that code in AY2004. As with LSA, in the six smaller schools, the number of Schools/Divisions coded as "token" and "minority" (4 and 2 of 6, respectively) remained the same in AY2001 and AY2004.

These data suggest that the University has not been successful either in recruiting underrepresented minority faculty in the sciences and engineering or in retaining those faculty already here. We are hopeful that the policies and procedures being institutionalized at the University of Michigan through the NSF ADVANCE grant project will also help to address the serious problems of under representation of ethnic/racial minorities on this campus.

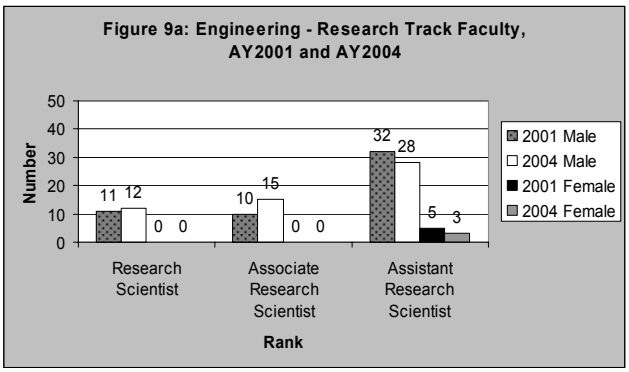
C. RESEARCH TRACK FACULTY

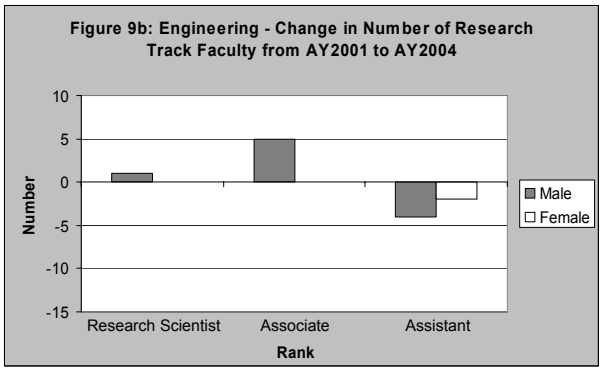
OVERVIEW

In this section we discuss faculty on the research track at the University. While there are actually two (not entirely distinct) research tracks, we do not distinguish between the tracks for this report. Thus, the ranks we consider are assistant research scientist, associate research scientist (including senior associate research scientist and associate research professor) and research scientist (including senior research scientist and research professor).

COLLEGE OF ENGINEERING

In AY2004, of the 58 faculty on the research track, 3 (or 5%) were female—all of whom were assistant research scientists; the 55 men were distributed across all ranks (see Figure 9a), although the majority were at the assistant rank (see also Table 1). In comparison to the baseline year (AY2001), the percentage of women on the research track decreased from 9% (N = 5) in AY2001 to 5% (N = 3) in AY2004.

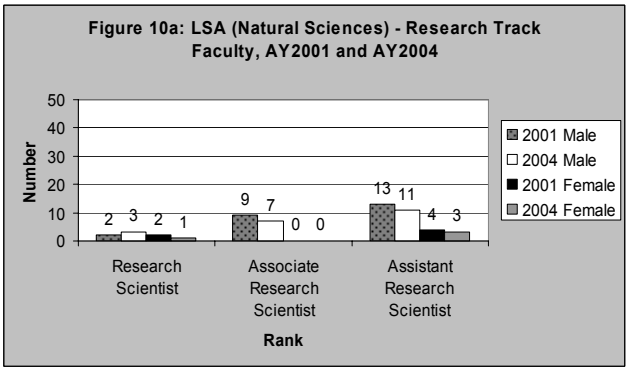


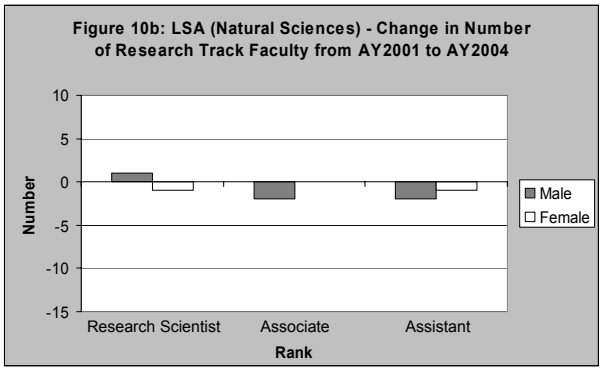


Since AY2001, CoE has seen a net increase of 2 male faculty and a net decrease of 2 female faculty (see Figure 9b).

COLLEGE OF LSA (Natural Sciences)

In AY2004, 16% of the research track faculty in the LSA Division of Natural Sciences were women (N = 4; see Figure 10a and Table 1), and 3 out of 4 of these women were at the lowest rank—that of assistant research scientist. Similar to the pattern observed for CoE, the male faculty (N = 21) were distributed across the ranks, with the highest concentration at the assistant rank. In comparison to AY2001, the percentage of women on the research track decreased from 20% (N = 6) in AY2001 to 16% (N = 4) in AY2004.

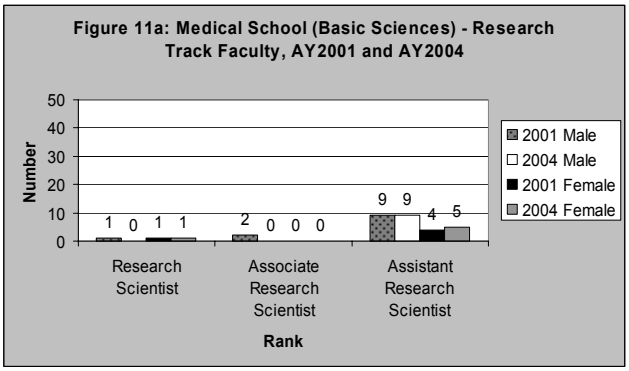


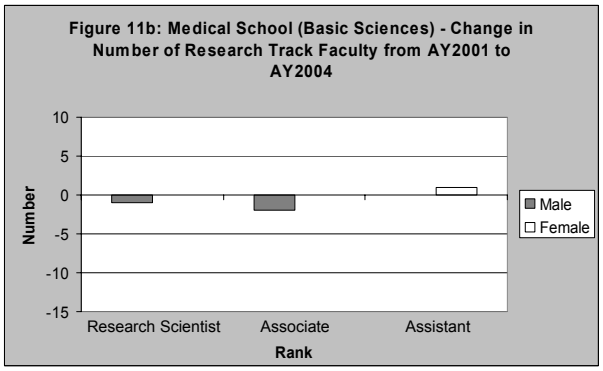


LSA has also seen a reduction in the number of research track faculty since AY2001. Since that time, the college has lost 3 male faculty and 2 female faculty (see Figure 10b).

MEDICAL SCHOOL (Basic Sciences)

40% [37% of FTE] of the research track faculty in the Medical School's basic science departments were women in AY2004 (N = 6; see Figure 11a and Table 1); this reflects an increase from AY2001 when 29% (N = 5) of the research track faculty in the basic science departments were women. As observed in the other Colleges, the distribution of research scientists in the Medical School was bottom-heavy, with the greatest proportion of faculty at the lowest rank, assistant research scientist, for both men and women.

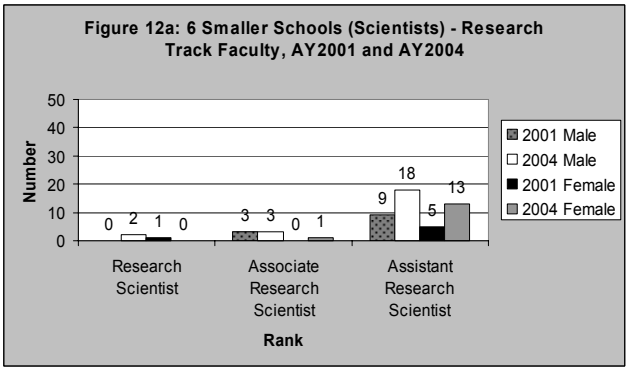


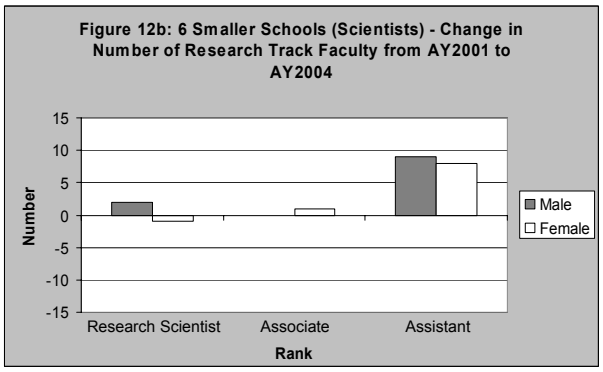


Since AY2001 MED has experienced a net decrease of 3 men and a net increase of 1 woman on the research track (see Figure 11b).

SIX SMALLER SCHOOLS (Science Faculty)

Women research scientists comprised 38% of the research track faculty in the six smaller Schools in AY2004 (N = 14; see Figure 12a and Table 1), whereas women comprised only 33% (N = 6) of the research track faculty in AY2001. In AY2004, all but one of the female research track faculty held the rank of assistant research scientist. While the majority of male research track faculty also held the rank of assistant research scientist, there were several holding the higher ranks of associate and research scientist.





In the past three years (i.e., since AY2001), the six smaller Schools have experienced a net gain of 11 male and 8 female faculty (see Figure 12b).

SUMMARY OF RESEARCH TRACK FACULTY

Overall, the proportion of women scientists on the research track in AY2004 did not change much from AY2001, with the notable exception of gains at the assistant research scientist rank. In CoE women comprised only 5% of the research faculty, which is even lower than the proportion of women on the tenure track (10%); in LSA women comprised 16% of the research faculty, which is slightly greater than the proportion of women on the tenure track (14%). In MED and the six smaller Schools, women are better represented, comprising 40% [37% of FTE] and 38%, respectively, of the research track, as compared to 27% and 25%, respectively, on the tenure track.

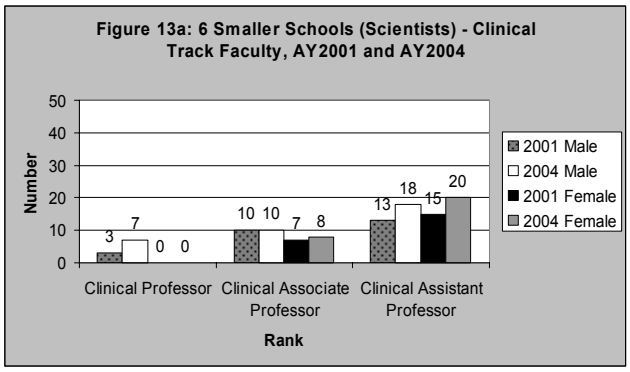
The distribution of faculty across the ranks (for both men and women) remained similar to that observed in previous years—the majority of faculty were at the lowest rank, rather than at the highest rank. This pattern is opposite to that observed for male tenure track faculty. Also in contrast to the tenure track, the number of faculty on the research track has been decreasing over the last few years.

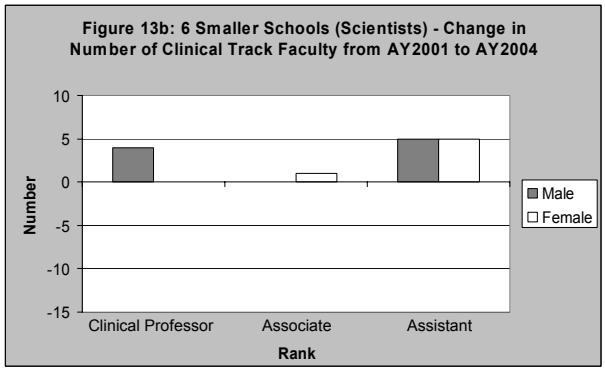
D. CLINICAL TRACK FACULTY

Here we report on the Colleges and Schools that have faculty on the clinical instructional track. In AY2004, MED (basic science departments) had one faculty member on this track; only the six smaller Schools had a group of faculty members on this track.

MEDICAL SCHOOL (Basic Sciences)
In AY2003 and AY2004, MED had only one clinical faculty in a basic science department. The single female clinical assistant professor in human genetics was appointed from a Research Investigator position. There were no clinical faculty in these departments in AY2002, and only one female clinical associate professor in AY2001 (please see Table 1 for details).

SIX SMALLER SCHOOLS (Science Faculty)
In AY2004, there were 28 female clinical track faculty, representing 44% of the clinical track faculty (see Figure 13a and Table 1) in the six smaller Schools; this reflects a decrease from AY2001, when women comprised 46% (N = 22) of the clinical track faculty. Similar to the research track faculty, the clinical track science faculty were concentrated at the lowest rank of clinical assistant professor (60%) and had the smallest proportion of faculty at the highest rank of clinical professor (11%).





Relative to AY2001, the clinical track in these schools experienced overall growth—a net gain of 9 male faculty members and a net gain of 6 female faculty members (see Figure 13b).

E. ADDITIONAL APPOINTMENTS AND HONORS

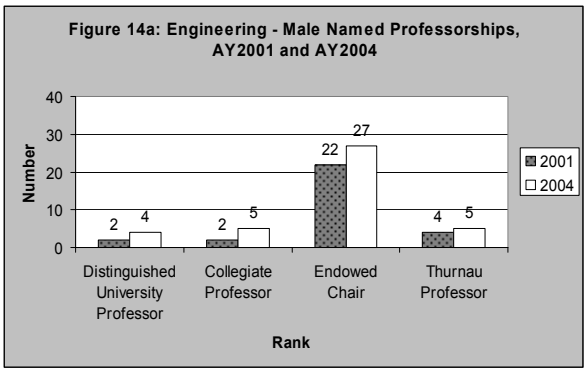
In this section we discuss additional appointments of interest held by instructional track faculty members. These appointments fall under two broad categories: named professorships and administrative service in leadership positions. Under named professorships, we considered the following four categories of honor (see Tables 9a-c): Distinguished University Professor (to recognize exceptional scholarly achievement, national and international reputation and superior teaching skills; a lifetime award), Collegiate Professor (for outstanding scholarship, teaching and service), Endowed Chairs and Thurnau Professor (for excellence in teaching). Since these appointments are generally limited to professors, we only considered faculty at this highest rank.

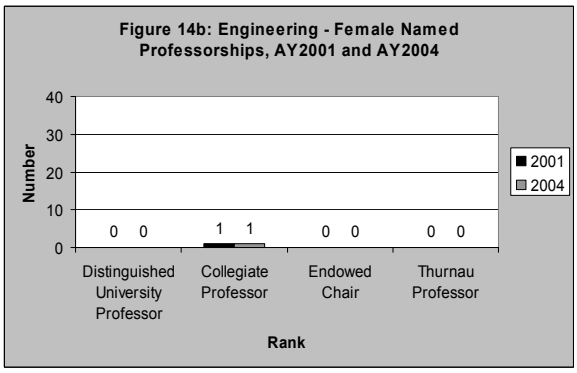
For administrative service, we considered membership on tenure and promotion committees (see Tables 10a-c) as well as administrative appointments (see Tables 11a-c). These appointments were largely held by professors, but also by associate professors, so we considered both associate professors and professors who held these positions. We included faculty who served on either college or department level tenure and promotion committees. For administrative positions, we included those who held these positions at the university, college or department levels.

For each type of appointment we assessed the change (or the lack thereof) in the number of women holding these positions from AY2001 to AY2004, and whether or not the rate of appointment was the same for men and women. For this last question, given the very small numbers (in some cases) of both women professors and available administrative appointments, we only considered categories in which the expected rate of appointment for women was equal to or greater than one woman.[9]

NAMED PROFESSORSHIPS
COLLEGE OF ENGINEERING

In AY2004, as in AY2001, all new named professors who were appointed were male: 2 Distinguished University Professors, 3 Collegiate Professors, 5 Endowed Chairs and 1 Thurnau Professor. The number of female professors holding a named professorship has remained unchanged from AY2001: 1 Collegiate Professor (see Figures 14a and 14b). In the category in which there is the largest number of positions, Endowed Chairs, the rate of appointment for men was 16% (27 out of 172), but there were no women holding this honor (see Table 9a). If women held these titles at the same rate as men, we would expect to have at least 1 female endowed chair (which would represent 12.5% of women full professors).

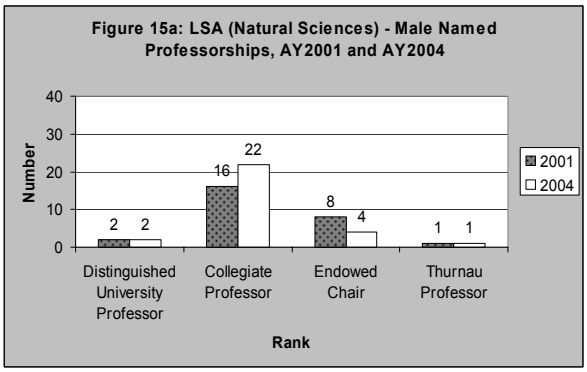


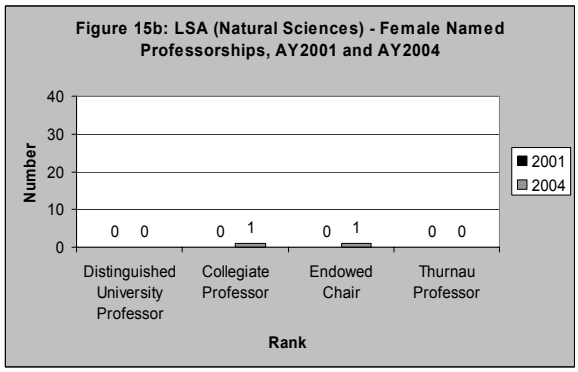


[9] Expected rates can be calculated for each level/category by taking the rates at which male faculty are awarded these positions.

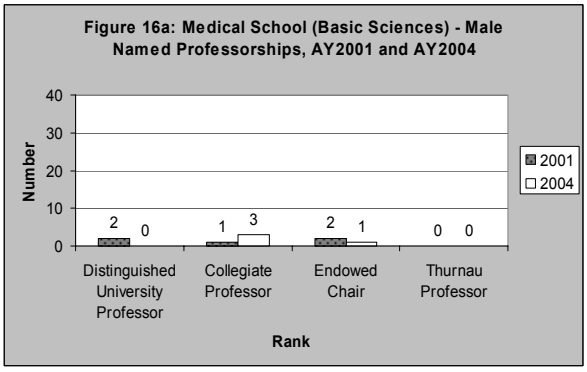
COLLEGE OF LSA (Natural Sciences)
In relation to AY2001, LSA reported the following changes in named professorships: an increase of 6 male Collegiate Professors, a net decrease of 4 male Endowed Chairs, a net increase of 1 female Collegiate Professor and a net increase of 1 female Endowed Chair (see Figures 15a and 15b).

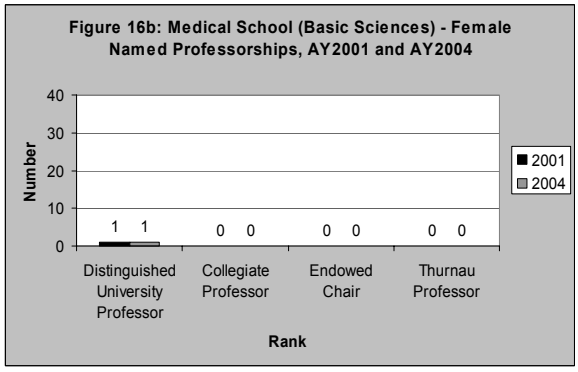
In LSA, the largest number of appointments are to Collegiate Professorships. Approximately 14% of all male professors (22 out of 155) held a Collegiate Professorship. The one female professor who holds this title represents 7% of all female professors. Thus, if women held these titles at the same rate as men, we would expect to have 2 female Collegiate Professorships (which would represent 14% of female full professors); see Table 9b.





MEDICAL SCHOOL (Basic Sciences)
Compared to CoE and LSA (Natural Sciences), MED had a much smaller number of faculty who held named professorships. As a result, we are unable to look at gender differences for any particular category of professorship. Overall, however, the rate of appointment to any of the four named professorships was comparable for men (8% of male full professors) and women (7% of female full professors) (see Figures 16a and 16b; Table 9c).





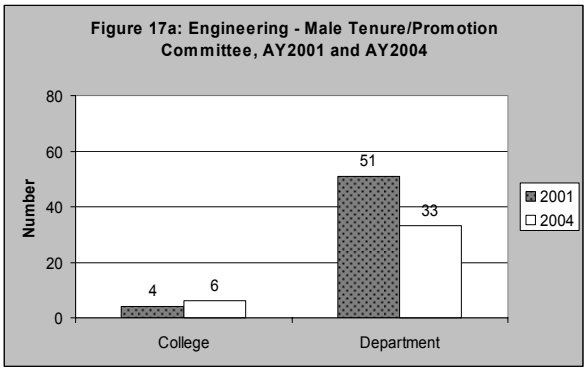
SUMMARY FOR NAMED PROFESSORSHIPS. Only LSA saw a net increase in the overall number of female faculty holding named professorships from AY2001 to AY2004. For male faculty, CoE saw 11 new male named professors, LSA gained 2 and the MED lost 1. The differences between new appointments of female and male faculty, while striking, must be considered in the context of the fact that women represent only 4%, 8% and 21% of the full professor population in CoE, LSA and MED, respectively. The expected numbers of new female named professorships are so small that it is difficult to determine if women are being appointed at

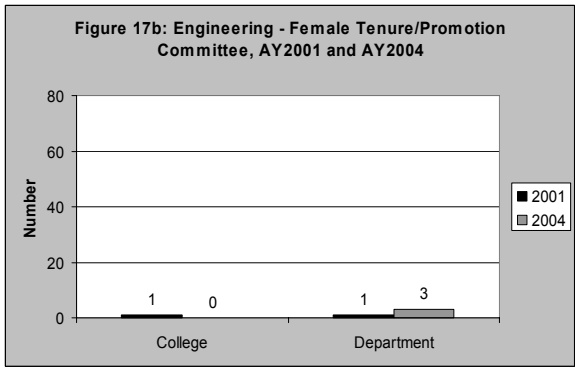
rates similar to that of men, although we do report instances in which it is clear that women are not being appointed at similar rates.

ADMINISTRATIVE SERVICE: TENURE/PROMOTION COMMITTEES
COLLEGE OF ENGINEERING

Overall the number of men serving on all tenure/promotion committees decreased by 16 from AY2001 to AY2004 (see Figure 17a). The number of women serving on these committees increased by 1 from AY2001 to AY2004 (see Figure 17b). The percentage of college-level committee members who were women decreased from 20% (N = 1) in AY2001 to 0% in AY2004; however, at the department-level, the percentage of committee members who were women increased slightly from 2% (N = 1) to 8% (N = 3).

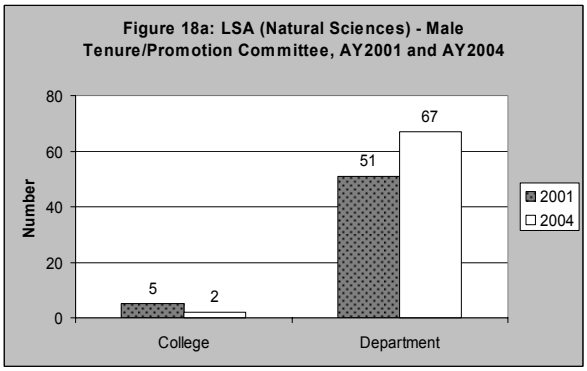
At the department-level in AY2004, 14% of male associate and full professors served on tenure/promotion committees (see Table 10a). Thus, the expected number of women serving on such committees would be 3, which matches the AY2004 data. At the college-level in AY2004, 3% of male associate and full professors and 0% of women associate and full professors served on a tenure/promotion committee. Given the small number of faculty on college-level tenure/promotion committees, the expected rate of appointment for women was less than one woman.

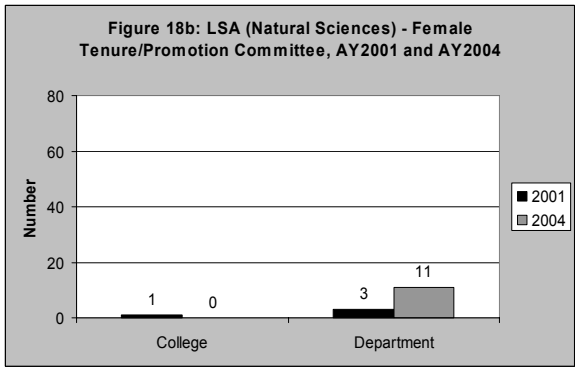




COLLEGE OF LSA (Natural Sciences)

The large apparent change in the number of faculty on all tenure/promotion committees from AY2001 to AY2004 (particularly for men at the department-level; see Figures 18a and 18b) was mainly due to a change in LSA's reporting procedure. Thus, we do not discuss any changes in number for LSA (Natural Sciences) in this report.





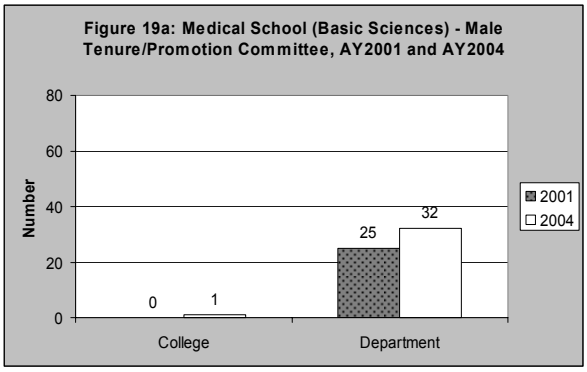
The proportion of women serving on department-level tenure/promotion committees in AY2004

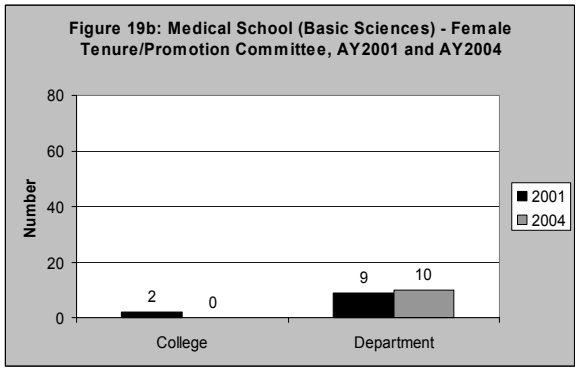
was 48% (see Table 10b). This is greater than the 36% of male associate and full professors serving on such committees. However, it is also important to recognize that only 14% (N = 3) of department-level committee members were women. At the college-level, two men (1% of male associate and full professors) from the natural sciences departments served on this committee; no women served in AY2004.

MEDICAL SCHOOL (Basic Sciences)

In relation to AY2001, there was an overall increase of 8 male professors serving on all tenure/promotion committees (college and department-level combined; Figure 19a) and a decrease of 1 female professor serving on such committees (see Figure 19b). The percentage of college-level committee members from basic science departments who were women decreased from 100% (N = 2) in AY2001 to 0% in AY2004; moreover, at the department-level, the percentage of committee members who were women decreased slightly from 26% (N = 9) to 24% (N = 10), due to an increase in the number of male professors serving on the department-level committees.

Overall, in AY2004, 50% of male associate and full professors served on department-level tenure/promotion committees. This rate is slightly higher than the 42% of women associate and full professors who served on these committees. If women held department-level appointments at the same rate as men, it is expected that 12 women would hold such appointments (50% of female associate and full professors); however, only 10 women associate and full professors served on department-level committees in AY2004. At the college level, 2% of male associate and full professors and 0% of women associate and full professors served on college-level tenure/promotion committees; see Table 10c. If women held these appointments at the same rate as men, it is expected that no women would serve on college-level tenure/promotion committees.

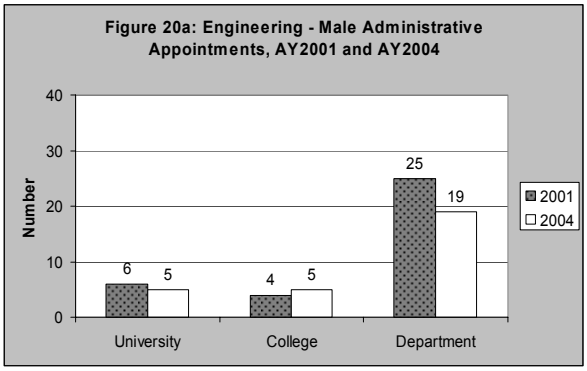


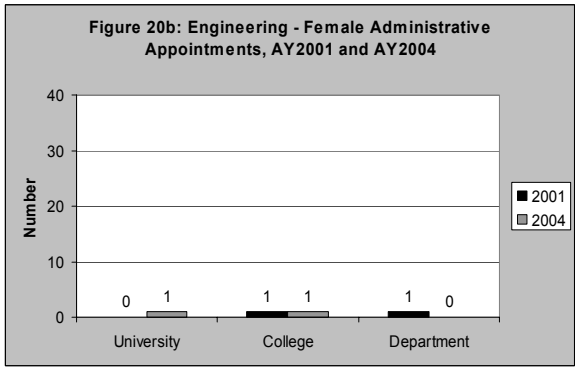


SUMMARY FOR TENURE/PROMOTION COMMITTEES. Given the small number of faculty on college-level tenure/promotion committees as well as the smaller number of women who hold the rank of full professor, the expected rate of appointment for women was less than one woman for each College/School. At the department-level, women held positions at rates similar to that of men in CoE and LSA, but remained underrepresented in MED. However, in regard to gender equity on tenure/promotion committees in AY2004, the percentages of committee members who were women reveal that female faculty are underrepresented on department-level tenure/promotion committees in each of the three College/Schools (8% in CoE, 14% in LSA and 24% in MED). Moreover, in AY2004, no women faculty served as members of college-level tenure/promotion committees.

ADMINISTRATIVE SERVICE: ADMINISTRATIVE POSITIONS
COLLEGE OF ENGINEERING

In CoE the total number of male faculty with administrative appointments dropped in AY2004: six fewer men held administrative positions in AY2004 than AY2001 (see Figures 20a and 20b). The total number of female faculty with administrative positions was unchanged from AY2001 to AY2004.

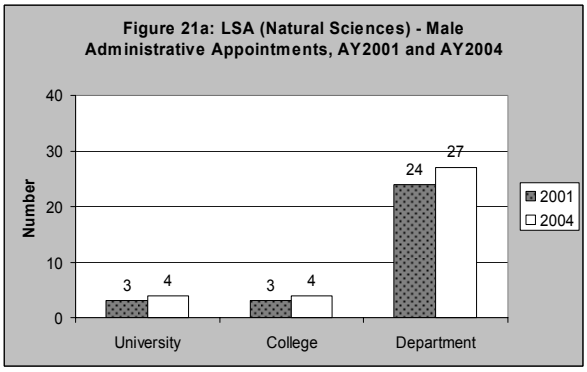


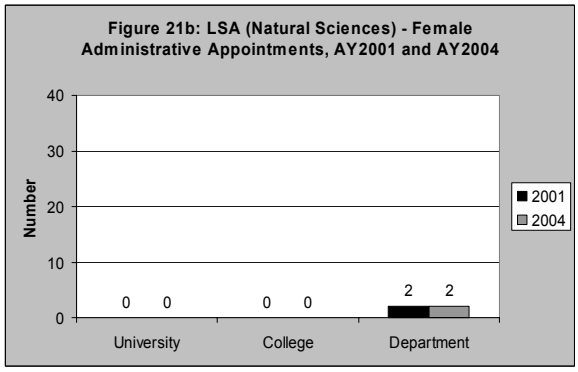


In AY2004, 2% (N = 5) of male associate and full professors held university and college-level administrative appointments, whereas 4% (N = 1) of female associate and full professors held appointments at both levels. Women, therefore, held university and college-level appointments at a higher rate than male associate and full professors. At the department-level, while 8% of male associate and full professors held administrative appointments, no women held these positions (Table 11a). If women held positions at the same rate as men, it is expected that approximately two women (8% of female associate and full professors) would hold department-level administrative appointments.

COLLEGE OF LSA (Natural Sciences)

In AY2004, there was no change in the number of women holding administrative positions from AY2001 in LSA (see Figure 21b). There was one additional man appointed at the university and college-levels, and an increase of 3 men holding positions at the department level (see Figure 21a).



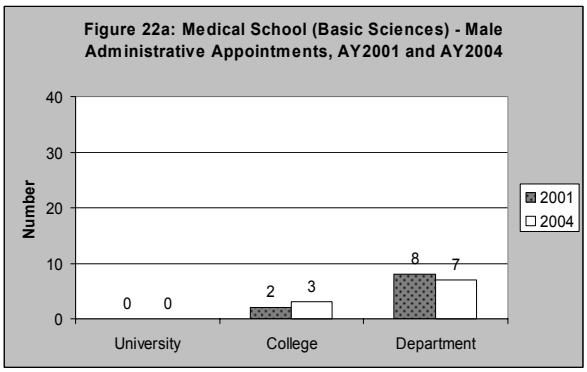


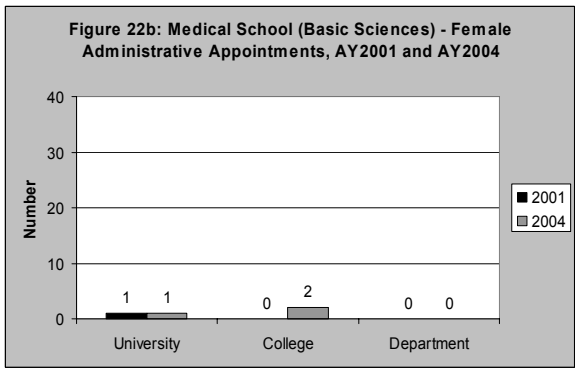
At the university and college-levels, 2% (N = 4) of male associate and full professors held administrative appointments in AY2004; however, no women held administrative appointments at either level. Moreover, if women held positions at the same rate as men, it is expected that no women would hold university or college-level administrative appointments. In AY2004, as in AY2001, two women held department-level administrative positions (9% of female associate and

full professors). This is less than the rate at which male faculty held department-level administrative positions (15%; see Table 11b). If women held these appointments at the same rate as men, it is expected that three women would hold department-level appointments.

MEDICAL SCHOOL (Basic Sciences)

In AY2004, two new female professors were appointed to a college-level administrative appointment (Figure 22b). Thus at the college-level, 8% of women associate and full professors and 5% of men associate and full professors held administrative appointments (see Table 11c).





In AY2004, 4% (N = 1) of female associate and full professors in the basic science departments held university-level administrative appointments; 0% of male associate and full professors in the basic science departments held such appointments. At the college-level, 5% of male and 8% of female associate and full professors held college-level administrative positions. Women, therefore, held university and college-level appointments at a higher rate than male associate and full professors. Lastly, at the department-level, while 11% of male associate and full professors held administrative appointments; no women served in AY2004. If women held appointments at the same rate as men, at least two women (11% of female associate and full professors) would hold department-level administrative appointments.

SUMMARY FOR ADMINISTRATIVE POSITIONS. The findings here are similar to those observed for membership on tenure and promotion committees: given the small number of faculty appointed to university and college-level administrative positions as well as the small number of women at the senior ranks, it is very difficult to determine if women and men were appointed to these positions at about the same rates. In the case of department-level administrative positions, women were not represented at the same rates as men in the any of the three Colleges/Schools. That is, women faculty were less likely to hold department-level administrative positions than were men faculty. This is particularly important as the largest numbers of positions in these colleges are at this level.

SUMMARY FOR NAMED PROFESSORSHIPS & ADMINISTRATIVE SERVICE: ALL SCHOOLS/COLLEGES

The discussion of equitable representation of women in these additional appointments is complicated by the low rates of appointment (for both men and women) to these positions, and further, by the low numbers of female faculty eligible (i.e., associate professors and/or full professors) to hold such positions. Though the findings must be considered within this context, it is nonetheless important to note any discernable gender disparities.

F. OTHER INDICATORS

Here we discuss additional indicators that were collected for AY2004. In the case of three variables: years in rank, years at the University, and salary, we collected data for all three tracks: instructional, research and clinical. For the fourth variable—startup packages—we only collected data for instructional track faculty from the three large Colleges/Schools (Engineering, LSA, and the Medical School).

YEARS IN RANK & YEARS AT INSTITUTION

The raw numbers are reported in Tables 5 and 6, respectively, and have been broken down by School/College, rank and gender. These data are used for salary equity analyses.

SALARY

Table 7 reports raw average salary by rank and gender for each school. In addition, Tables 8a-8c present descriptive statistics based on Lisa Frehill's recommendation (Georgia Tech Conference panel presentation, "Measuring the Status of Women: Toward Cross-Institutional Analysis to Understand Institutional Transformation," April, 2004). The salary ratios (see Chart 23a) may be interpreted as the amount the average female faculty member earns for every dollar the average male faculty member earns. Because neither of these approaches includes any statistical controls we cannot draw any conclusions from these data.

Chart 23a: Salary Ratios for Instructional (Tenure) Track Faculty for AY2001 AY2004

	ENG		LSA		MED	
	2001	2004	2001	2004	2001	2004
Professor	0.93	0.96	0.83	0.99	0.93	0.97
Associate	0.94	0.97	1.00	0.95	1.00	0.94
Assistant	1.00	1.00	1.00	0.99	0.94	1.04

Note: College of Engineering (ENG), College of LSA (LSA) and Medical School (MED)

Therefore, we continue to work on constructing an effective strategy for systematically assessing salary equity statistically—principally through developing a regression model that provides the necessary controls. Building on regression analyses done university-wide in 2001, last year we conducted analyses using a modified model with AY2003 salary focusing on one College. The results of these analyses were reported in last year's report. We continued to refine this model and reported on subsequent analyses with this revised model using AY2004 salary, again in one School; results from these analyses were reported in our June 2004 interim report. We are now using this model to conduct analyses with more recent data as well as with data from the other schools and plan to report on these results in our March 2005 quarterly report.

In addition, though we are awaiting a public announcement, Provost Paul N. Courant has agreed to charge a university committee with conducting a university-wide salary equity study every five years. The last university-wide salary study was done in 2001 assessing 1999 salary data.

STARTUP PACKAGES

Startup packages for new incoming instructional (tenure) track faculty for the three large Schools/Colleges have been compiled, but for reasons of confidentiality are not included in this report. These numbers, like those for salary, are raw numbers and do not take into account the field or type of research for individual new faculty. Therefore no conclusions can be drawn about gender. We continue to aggregate these data in the hope that eventually we will have sufficient data within similar or related disciplines to draw conclusions about gender. For the tables presented, start-up package funding is divided among three categories: base salary, benefits/miscellaneous startup costs (i.e., benefits, summer salary and moving costs) and research startup funds (i.e.,

research funds, equipment and minor renovations [less than $2000]). The total package represents the sum of all three categories.

SPACE

In Fall 2001, prior to the start of UM's NSF ADVANCE project, the staff at the Institute for Research on Women and Gender, with funding from UM administration, conducted a exhaustive assessment of space allocation for faculty, by department, across the three large Schools with science and engineering faculty. Preliminary data analyses by Drs. Hansen (Statistics) and Gonzalez (Psychology) have already been conducted and reported to NSF. Hansen and a colleague, Olsen Kopfer from Merck Research Laboratories, are preparing to submit a paper on their analyses for publication, "Optimal full matching and related designs via network flows."

G. PROGRAM EVALUATION

EVALUATION OF PROGRAMMING

Events. Recent events hosted by UM ADVANCE have been evaluated and reports have been completed. The full-length reports (with corresponding surveys) are provided in the appendices.

1) **Time Management Workshops** – On September 20, 2004, two workshops were offered – "Making the Most of Your Time" and "Women, Time and Role Overload"—on this campus through the Faculty and Staff Assistance Program (FASAP). Respondents identified that what they liked most about the workshops was hearing from other women about their experiences as well as learning that different people have unique ways of dealing with time management issues. In regard to what they liked least about the workshop, several respondents mentioned that the workshop did not offer them sufficient "tools" or solutions to deal with their particular situations. See Appendix C for the full-length report and corresponding online survey.
2) **STRIDE Recruitment Workshop** – The Committee on Science and Technology Recruiting to Improve Diversity and Excellence (STRIDE) presented three two-hour recruitment workshops for search committee chairs in CoE, LSA and MED. Twenty-six attendees responded to the survey – a 44% response rate. Twenty-three respondents rated the STRIDE recruitment workshop (overall) as very effective or somewhat effective; three attendees responded with a neutral rating. Respondents were also asked to respond to five open-ended questions: what was most effective; what was least effective; how could the presentation be improved; how may the presentation affect your department's search process; and should the workshop be held annually? Responses are summarized in the full-length report (see Appendix A).

Grants. We are in the process of compiling formal reports of progress on the Elizabeth C. Crosby Research Fund (29 tenured/tenure-track faculty awardees in AY2004) and the Lydia Adams Dewitt Research Fund (3 research-track faculty awardees in AY2004); a grant summary will be submitted as part of our next quarterly report.

ADDITIONAL EVALUATION EFFORTS

Summary of CEW's Climate Report on ADVANCE Departmental Transformation Grant Departments. The Center for the Education of Women (CEW) is engaged in an intensive qualitative evaluation of the DTG program. Two large DTG awards from the first selection process were selected for this evaluation; in addition, two departments that also applied in this first round but were not successful were selected for comparison. The first, base-line data collection effort has been completed and a confidential report was provided to the ADVANCE Project PI in August, 2004. Following is a summary of the findings from this initial effort.

A series of interviews were conducted primarily during Spring and Summer 2003, extending in a few cases into Spring 2004. The purpose of these interviews was to establish a baseline assessment of the climate in five University of Michigan departments, three that received substantial, first-round Departmental Transformation Grants (DTG) as part of the NSF ADVANCE Project and two that did not. Two of the departments are from LSA. One department received an initial round DTG in 2002 of $235,000; the other did not receive an initial round DTG but did receive an LS&A grant

of $45,000. Three departments are from Engineering. Two of these departments share a DTG grant of $165,000; the other department did not receive an initial round DTG but did receive a 2004 grant of $47,100.

The research goal was to interview all 18 of the tenured and tenure-track women who held substantial appointments in each of the five departments; and to interview an equal number of men in each department, matched by rank. Ultimately 14 women and 17 men tenure track faculty were interviewed. These were intended to be baseline interviews at the onset of the DTG grants. While more men could certainly have been contacted and interviewed, given their proportionally much higher numbers, the decision was made to limit the interviews to 31.

Selection of the first wave of men participants was based upon recommendations from chairs and women colleagues within each department. The second wave was a random selection from faculty lists, wherever possible matching the men's ranks with the women respondents' ranks. Twenty of the interviewed faculty were full professors, five were associate professors, and six were assistant professors. Most of the interviews were conducted in person and lasted about an hour. Two interviews were conducted by phone, the faculty members having left the University in the time between the onset of the ADVANCE project and the time of their interviews.

Summary of Findings

At the time they received their DTGs, the "successful" departments appeared to have more favorable climates and conditions—for both men and women—than did their comparison departments. Faculty members in these departments generally reported feeling that the department atmosphere was congenial, that they respected and were respected by their colleagues, and that they were generally satisfied with departmental policies and practices. Nevertheless, faculty in all five of the departments had some criticisms about gender- and nongender-related issues, policies and practices.

Summary of Climate Indicators

Several factors were identified through the interviews as important for supporting a healthy, positive climate for both men and women in higher education.

- **Collegiality:** Good relationships and respect among faculty are associated with a good climate. In departments where the climates appeared to be positive, faculty respondents reported feeling a sense of collegiality, support, and respect from their colleagues.
- **The Chair:** In the departments with positive climates, the respondents were more likely to perceive their chairs to be inclusive, open-minded, supportive, and interested in their welfare.
- **Policies and Procedures:** In the departments with good climates, faculty members tended to report that they are well informed about the policies and practices that affect their lives and are involved in the decision-making process. This transparency and inclusiveness made everyone feel like an important, valued member of the community.
- **Mentoring:** In the departments with good climates, faculty perceived mentoring to be a serious responsibility. The chair and senior faculty members create effective formal and/or informal programs, and they encourage junior faculty to seek out mentors. They take it upon themselves to offer support, for individuals or for groups of tenure-track junior faculty.
- **Facilities:** The importance of high quality facilities was a theme common to all five of the departments in this study. Even in situations where other aspects of the climate were

troublesome, the faculty spoke of the impact that the quality of resources, financial support, and graduate students can have on the climate.

The data from this series of interviews also led to several general observations, which will be investigated further:

- In addition to the key role that chairs play in determining the climate of a department, it's also evident that the climate is determined by the relationship between the chair and the department's executive committee, the amount of power that committee wields, and the quality and amount of communication between the executive committee and the rest of the faculty. Department executive committees need to be considered when addressing climate in a department.
- Men in a number of the five departments pointed out the valuable, different perspectives that women bring to their faculty meetings, i.e., problem-solving skills, consensus building, open communication styles, new outlooks on teaching. This suggests an important strategy for bringing women into key leadership positions.
- One or more of the men interviewed in all five departments said that, while they realize inequities for women exist in academia and at the University, they really do not believe that their women colleagues are ill treated. In other words, the men have not observed such problems in their own departments. At the same time, many of the women used the phrase "they just don't get it" to describe their male colleagues' lack of awareness of and attitudes about the challenges women face. This underscores the need to communicate the process of unconscious bias in evaluation through all levels of a department.
- Several men pointed out the likelihood of a discrepancy between what their male colleagues say about gender-related issues in their departments and what they really believe. The men did believe, however, that these public statements represent a necessary first step in the right direction. Again, the need for education about unconscious bias at all levels is underscored.
- Departments with less positive climates are more likely to attribute the problems women face to their individual personalities and idiosyncrasies or to women's unwillingness to help and support each other. This highlights the difficulties for women in particularly unwelcoming climates. While efforts to date have been focused on departments ready to address climate issues, it is also important for the ADVANCE project to focus attention on more recalcitrant departments.

Exit Interviews. CEW staff has also initiated exit interviews with all science and engineering tenure track faculty who have left the University (except those who retired) since the UM ADVANCE project began. An initial summary will be submitted as part of our next quarterly report.

Data Collection for the 2005 annual report. We will continue data collection on the indicators in the upcoming calendar year of 2005, making efforts to standardize the format and type of data received from individual Colleges and Schools.

H. INSTITUTIONAL TRANSFORMATION INDICATORS

Table 1: Instructional, Research and Clinical Track Faculty by Gender 2003 - 2004

	FULL PROFESSOR						ASSOCIATE PROFESSOR						ASSISTANT PROFESSOR						TOTAL					
	males			females			males			females			males			females			males			females		
	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE
ENGINEERING	172	96%	149.87	96%	8	4%	6.70	4%	63	80%	60.00	80%	16	20%	14.75	20%	51	85%	49.00	86%	9	15%	8.10	14%	286	90%	258.87	90%	33	10%	29.55	10%
LSA (Natural Sciences)	155	92%	136.72	91%	14	8%	13.50	9%	29	76%	26.50	77%	9	24%	8.00	23%	45	76%	42.00	76%	14	24%	13.50	24%	229	86%	205.22	85%	37	14%	35.00	15%
MEDICINE (Basic Sciences)	52	79%	40.17	78%	14	21%	11.52	22%	12	55%	8.90	49%	10	45%	9.10	51%	17	74%	13.77	71%	6	26%	5.75	29%	81	73%	62.84	70%	30	27%	26.37	30%
SIX SCHOOLS	79	85%	68.57	83%	14	15%	13.60	17%	38	70%	33.90	68%	16	30%	15.75	32%	22	56%	20.95	58%	17	44%	15.25	42%	139	75%	123.42	73%	47	25%	44.60	27%

	RESEARCH SCIENTIST						ASSOC RESEARCH SCIENTIST						ASST RESEARCH SCIENTIST						TOTAL					
	males			females			males			females			males			females			males			females		
	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE
ENGINEERING	12	100%	9.05	100%	0	0%	0.00	0%	15	100%	12.84	100%	0	0%	0.00	0%	28	90%	24.97	93%	3	10%	1.95	7%	55	95%	46.86	96%	3	5%	1.95	4%
LSA (Natural Sciences)	3	75%	3.00	80%	1	25%	0.75	20%	7	100%	5.64	100%	0	0%	0.00	0%	11	79%	8.50	78%	3	21%	2.40	22%	21	84%	17.14	84%	4	16%	3.15	16%
MEDICINE (Basic Sciences)	0	0%	0.00	0%	1	100%	1.00	100%									9	64%	8.95	68%	5	36%	4.30	32%	9	60%	8.95	63%	6	40%	5.30	37%
SIX SCHOOLS	2	100%	1.02	100%	0	0%	0.00	0%	3	75%	3.00	75%	1	25%	1.00	25%	18	58%	15.80	60%	13	42%	10.45	40%	23	62%	19.82	63%	14	38%	11.45	37%

	CLINICAL PROFESSOR						CLINICAL ASSOC PROFESSOR						CLINICAL ASST PROFESSOR						TOTAL					
	males			females			males			females			males			females			males			females		
	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE	N	% N	FTE	% FTE
SIX SCHOOLS	7	100%	6.30	100%	0	0%	0.00	0%	10	56%	9.50	59%	8	44%	6.70	41%	18	47%	17.10	47%	20	53%	19.21	53%	35	56%	32.90	56%	28	44%	25.91	44%

Note: Ns do not include faculty with only dry appointments in the department.
"% N" based on number of appointments within rank; "% FTE" based on FTE within rank

Table 2: Hires to the Instructional (Tenure) Track (between 3/1/2003 and 3/1/2004)

	FULL PROFESSOR		ASSOC. PROFESSOR		ASST. PROFESSOR		TOTAL	
	males	females	males	females	males	females	males	females
TOTAL ENGINEERING	3	0	2	3	14	2	19	5
Percent of Hires	100%	0%	40%	60%	88%	13%	79%	21%
TOTAL LSA (Natural Sciences)	2	2	1	1	10	2	13	5
Percent of Hires	50%	50%	50%	50%	83%	17%	72%	28%
TOTAL MEDICINE (Basic Sciences)	1	0	0	0	7	2	8	2
Percent of Hires	100%	0%	--	--	78%	22%	80%	20%

Table 3: Retirements and Terminations from the Instructional (Tenure) Track (between 3/1/2003 and 3/1/2004)

	FULL PROFESSOR		ASSOC. PROFESSOR		ASST. PROFESSOR		TOTAL	
	males	females	males	females	males	females	males	females
TOTAL ENGINEERING	-6	-2	-2	-1	-1	0	-9	-3
Percent of Terminations	75%	25%	67%	33%	100%	0%	75%	25%
TOTAL LSA (Natural Sciences)	-11	0	-3	0	-2	-1	-16	-1
Percent of Hires	100%	0%	100%	0%	67%	33%	94%	6%
TOTAL MEDICINE (Basic Sciences)	-5	-1	0	0	-3	0	-8	-1
Percent of Terminations	83%	17%	--	--	100%	0%	89%	11%

Table 4: Promotions effective AY2004 (Reviewed in AY2003)

	Asst-->Associate		Associate-->Full	
	males	females	males	females
TOTAL ENGINEERING APPROVED	5	1	5	1
Promotions Denied	0	0	0	0
TOTAL LSA (Natural Sciences) APPROVED	1	1	7	2
Promotions Denied	1	0	0	0
TOTAL MEDICINE (Basic Sciences) APPROVED	1	3	1	2
Promotions Denied	0	0	0	0

Table 5: Average Time (in Years) in Rank 2003 - 2004

	PROFESSOR		ASSOC PROF		ASST PROF		RESEARCH SCI		ASSOC RES SCI		ASST RES SCI		CLINIC PROF		CLINIC ASSOC P		CLINIC ASST P	
	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females
ENGINEERING	12.15	5.46	6.59	3.02	2.50	4.05	6.74		4.44		2.69	3.22						
LSA (Natural Sciences)	14.66	3.78	4.69	5.83	2.50	2.80	6.16	18.50	3.53		4.71	2.33						
MEDICINE (Basic Sciences)	13.89	8.98	5.51	4.36	2.11	2.60		6.50			1.54	3.91						1.63
SIX SCHOOLS	10.66	7.25	6.57	5.66	2.32	7.04	11.83		2.05	0.42	2.43	3.70	3.56		3.82	4.27	3.58	3.32

*includes all at FTE > 0%

Table 6: Average Time (in Years) at UM 2003 - 2004

	PROFESSOR		ASSOC PROF		ASST PROF		RESEARCH SCI		ASSOC RES SCI		ASST RES SCI		CLINIC PROF		CLINIC ASSOC P		CLINIC ASST P	
	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females
ENGINEERING	20.33	10.96	10.75	6.20	2.79	4.50	16.61		12.51		6.06	14.11						
LSA (Natural Sciences)	22.56	10.99	8.93	11.29	2.67	3.24	23.51	28.00	12.83		10.66	6.49						
MEDICINE (Basic Sciences)	23.34	21.70	12.18	11.04	2.72	3.07		28.50			10.79	8.85						6.00
SIX SCHOOLS	21.21	21.04	14.67	11.55	2.96	7.93	30.23		5.76	0.42	8.14	8.31	19.50		11.92	16.30	5.02	8.12

*includes all at FTE > 0%

Table 7: Mean Salary FTE* by Rank and Gender 2003 - 2004

	PROFESSOR		ASSOC PROF		ASST PROF		RESEARCH SCI		ASSOC RES SCI		ASST RES SCI		CLIN PROF		ASSOC CLIN PROF		ASST CLIN PROF	
	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females
ENGINEERING	$129,544	$121,632	$95,183	$92,889	$78,726	$77,924	$95,114		$72,080		$59,968	$60,079						
LSA (Natural Sciences)	$103,467	$104,352	$72,869	$71,403	$65,370	$63,994	$59,192	$61,486	$48,509		$41,748	$37,342						
MEDICINE (Basic Sciences)	$110,094	$104,857	$82,700	$80,970	$69,487	$68,495		$76,745			$49,641	$49,369						$58,418
SIX SCHOOLS	$118,202	$111,863	$88,715	$80,626	$66,185	$63,414	$41,005		$55,974	$77,727	$52,637	$52,497	$111,505		$84,598	$79,555	$69,916	$66,793

*Salary FTE based on 9-month academic year; salaries paid on 12 month year were divided by 11 and multiplied by 9.

Table 8a: ENGINEERING - Instructional (Tenure) Track Salary, Descriptive Statistics for AY2004				
	Males	Females	Difference^	Ratio^^
Annual Salary: Full Professors				
Mean	$129,914	$121,632	$8,281	
Median	$125,000	$120,014	$4,986	0.96
Std. Dev.	$22,851	$11,099		
Minimum	$76,402	$102,530		
Maximum	$196,670	$142,700		
# valid cases	172	8		
Annual Salary: Associate Professors				
Mean	$95,691	$92,889	$2,802	
Median	$94,916	$92,497	$2,419	0.97
Std. Dev.	$14,514	$6,571		
Minimum	$41,450	$79,404		
Maximum	$176,000	$103,501		
# valid cases	63	16		
Annual Salary: Assistant Professors				
Mean	$78,726	$79,495	-$769	
Median	$78,000	$77,726	$274	1.00
Std. Dev.	$5,410	$3,908		
Minimum	$71,000	$75,000		
Maximum	$90,790	$86,898		
# valid cases	51	9		

^ Difference (Gender Gap): male minus female

^^ Ratio: the ratio of women's to men's median earning

Table 8b: LSA (Natural Sciences) - Instructional (Tenure) Track Salary, Descriptive Statistics for AY2004				
	Males	Females	Difference^	Ratio^^
Annual Salary: Full Professors				
Mean	$103,562	$104,352	-$790	
Median	$98,913	$97,689	$1,224	0.99
Std. Dev.	$23,768	$20,794		
Minimum	$50,700	$85,500		
Maximum	$180,000	$160,000		
# valid cases	155	14		
Annual Salary: Associate Professors				
Mean	$73,314	$71,403	$1,912	
Median	$74,160	$70,329	$3,831	0.95
Std. Dev.	$8,205	$4,789		
Minimum	$46,050	$65,748		
Maximum	$86,026	$80,000		
# valid cases	29	9		
Annual Salary: Assistant Professors				
Mean	$65,370	$63,994	$1,376	
Median	$65,000	$64,450	$550	0.99
Std. Dev.	$2,962	$3,225		
Minimum	$57,400	$57,823		
Maximum	$75,400	$69,935		
# valid cases	45	14		

Table 8c: MEDICAL SCHOOL - Instructional (Tenure) Track Salary, Descriptive Statistics for AY2004				
	Males	Females	Difference^	Ratio^^
Annual Salary: Full Professors				
Mean	$133,659	$128,158	$5,501	
Median	$130,636	$126,942	$3,694	0.97
Std. Dev.	$32,151	$17,046		
Minimum	$62,914	$106,300		
Maximum	$211,646	$166,878		
# valid cases	52	14		
Annual Salary: Associate Professors				
Mean	$101,078	$98,964	$2,114	
Median	$103,431	$97,002	$6,428	0.94
Std. Dev.	$12,189	$10,219		
Minimum	$80,185	$83,246		
Maximum	$119,850	$114,322		
# valid cases	12	10		
Annual Salary: Assistant Professors				
Mean	$84,928	$83,716	$1,212	
Median	$81,600	$85,000	-$3,400	1.04
Std. Dev.	$9,657	$5,096		
Minimum	$75,347	$76,000		
Maximum	$113,500	$90,168		
# valid cases	17	6		

^ Difference (Gender Gap): male minus female

^^ Ratio: the ratio of women's to men's median earning

Named Professorships 2003-2004

Table 9a: ENGINEERING

	Males	% of male Profs*	% of all positions	Females	% of female Profs*	% of all positions
Distinguished University Professor	4	2.3%	100.0%	0	0.0%	0.0%
Collegiate	5	2.9%	83.3%	1	12.5%	16.7%
Endowed	27	15.7%	100.0%	0	0.0%	0.0%
Thurnau (for teaching)	5	2.9%	100.0%	0	0.0%	0.0%

Male Full Prof (Ns)	*172*	*Female Full Prof (Ns)*	*8*
% of all Full Profs	*96%*	*% of all Full Profs*	*4%*

Table 9b: LSA (Natural Sciences)

	Males	% of male Profs*	% of all positions	Females	% of female Profs*	% of all positions
Distinguished University Professor	2	1.3%	100.0%	0	0.0%	0.0%
Collegiate	22	14.2%	95.7%	1	7.1%	4.3%
Endowed	4	2.6%	80.0%	1	7.1%	20.0%
Thurnau (for teaching)	1	0.6%	100.0%	0	0.0%	0.0%

Male Full Prof (Ns)	*155*	*Female Full Prof (Ns)*	*14*
% of all Full Profs	*92%*	*% of all Full Profs*	*8%*

Table 9c: MEDICAL SCHOOL (Basic Sciences)

	Males	% of male Profs*	% of all positions	Females	% of female Profs*	% of all positions
Distinguished University Professor	0	0.0%	0.0%	1	7.1%	100.0%
Collegiate	3	5.8%	100.0%	0	0.0%	0.0%
Endowed	1	1.9%	100.0%	0	0.0%	0.0%
Thurnau (for teaching)	0	0.0%	0.0%	0	0.0%	0.0%

Male Full Prof (Ns)	*52*	*Female Full Prof (Ns)*	*14*
% of all Full Profs	*79%*	*% of all Full Profs*	*21%*

*Calculated as a proportion of full professors (with greater that 0 FTE) within gender
Some Professors may hold more than one title, and thus are counted once in each category.

Tenure/Promotion Committees 2003-2004

Table 10a: ENGINEERING

	Males	% of male Assoc/Profs*	% of all positions	Females	% of female Assoc/Profs*	% of all positions
College	6	2.6%	100.0%	0	0.0%	0.0%
Department	33	14.0%	91.7%	3	12.5%	8.3%

Male Assoc Prof (Ns)	*63*	*Female Assoc Prof (Ns)*	*16*
Male Full Prof (Ns)	*172*	*Female Full Prof (Ns)*	*8*
Male (Ns)	*235*	*Female (Ns)*	*24*
% of all Assoc/Profs	*91%*	*% of all Assoc/Profs*	*9%*

Table 10b: LSA (Natural Sciences)

	Males	% of male Assoc/Profs*	% of all positions	Females	% of female Assoc/Profs*	% of all positions
College	2	1.1%	100.0%	0	0.0%	0.0%
Department	67	36.4%	85.9%	11	47.8%	14.1%

Male Assoc Prof (Ns)	*29*	*Female Assoc Prof (Ns)*	*9*
Male Full Prof (Ns)	*155*	*Female Full Prof (Ns)*	*14*
Male (Ns)	*184*	*Female (Ns)*	*23*
% of all Assoc/Profs	*89%*	*% of all Assoc/Profs*	*11%*

Table 10c: MEDICAL SCHOOL (Basic Sciences)

	Males	% of male Assoc/Profs*	% of all positions	Females	% of female Assoc/Profs*	% of all positions
College	1	1.6%	100.0%	0	0.0%	0.0%
Department	32	50.0%	76.2%	10	41.7%	23.8%

Male Assoc Prof (Ns)	*12*	*Female Assoc Prof (Ns)*	*10*
Male Full Prof (Ns)	*52*	*Female Full Prof (Ns)*	*14*
Male (Ns)	*64*	*Female (Ns)*	*24*
% of all Assoc/Profs	*73%*	*% of all Assoc/Profs*	*27%*

*Calculated as a proportion of full and associate professors (greater than 0 FTE) within gender
Some Assoc/Profs serve on both college and department committees, and thus are counted once in each category.

Administrative Positions 2003-2004

Table 11a: ENGINEERING

	Males	% of male Assoc/Profs*	% of all positions	Females	% of female Assoc/Profs*	% of all positions
University	5	2.1%	83.3%	1	4.2%	16.7%
College	5	2.1%	83.3%	1	4.2%	16.7%
Department	19	8.1%	100.0%	0	0.0%	0.0%
TOTAL	29	12.3%	93.5%	2	8.3%	6.5%

Male Assoc Prof (Ns)	*63*	*Female Assoc Prof (Ns)*	*16*
Male Full Prof (Ns)	*172*	*Female Full Prof (Ns)*	*8*
Male (Ns)	*235*	*Female (Ns)*	*24*
% of all Assoc/Profs	*91%*	*% of all Assoc/Profs*	*9%*

Table 11b: LSA (Natural Sciences)

	Males	% of male Assoc/Profs*	% of all positions	Females	% of female Assoc/Profs*	% of all positions
University	4	2.2%	100.0%	0	0.0%	0.0%
College	4	2.2%	100.0%	0	0.0%	0.0%
Department	27	14.7%	93.1%	2	8.7%	6.9%
TOTAL	35	19.0%	94.6%	2	8.7%	5.4%

Male Assoc Prof (Ns)	*29*	*Female Assoc Prof (Ns)*	*9*
Male Full Prof (Ns)	*155*	*Female Full Prof (Ns)*	*14*
Male (Ns)	*184*	*Female (Ns)*	*23*
% of all Assoc/Profs	*89%*	*% of all Assoc/Profs*	*11%*

Table 11c: MEDICAL SCHOOL (Basic Sciences)

	Males	% of male Assoc/Profs*	% of all positions	Females	% of female Assoc/Profs*	% of all positions
University	0	0.0%	0.0%	1	4.2%	100.0%
College	3	4.7%	60.0%	2	8.3%	40.0%
Department	7	10.9%	100.0%	0	0.0%	0.0%
TOTAL	10	15.6%	76.9%	3	12.5%	23.1%

Male Assoc Prof (Ns)	*12*	*Female Assoc Prof (Ns)*	*10*
Male Full Prof (Ns)	*52*	*Female Full Prof (Ns)*	*14*
Male (Ns)	*64*	*Female (Ns)*	*24*
% of all Assoc/Profs	*73%*	*% of all Assoc/Profs*	*27%*

*Calculated as a proportion of full and associate professors (greater than 0 FTE) within gender

Table 12a: Offers and Hires, Instructional (Tenure) Track Faculty

	College of Engineering			
	Male		Female	
	Offered	Accepted	Offered	Accepted
AY2001	47	25	8	2
AY2002	18	8	5	1
AY2003	27	17	11	8
AY2004	7	6	4	4

	College of LSA			
	Male		Female	
	Offered	Accepted	Offered	Accepted
AY2001	27	15	4	3
AY2002	26	13	8	2
AY2003	16	9	15	9
AY2004	12	6	11	3

	Medical School			
	Male		Female	
	Offered	Accepted	Offered	Accepted
AY2001	3	1	2	1
AY2002	3	1	1	1
AY2003	6	6	4	2
AY2004	10	7	5	5

Appendix A: STRIDE Recruitment Workshop Evaluation

NSF ADVANCE
STRIDE Recruitment Workshop Evaluation
October & November, 2004

The Science and Technology Recruiting to Improve Diversity and Excellence (STRIDE) committee presented two-hour recruitment workshops for search committee chairs in the College of Engineering, College of Literature, Science and the Arts and the Medical School. These workshops were held in the evening on October 11 and 12 as well as November 8, 2004. The workshops were held on central campus (Michigan League and Michigan Union) as well as north campus (Lurie Engineering Center). The search committee chairs in each of the three Colleges/Schools received an invitation from UM ADVANCE to attend one of the three workshops; moreover, the deans of Engineering, LSA and Medicine strongly encouraged the search committee chairs to attend. In regard to attendance, seventeen search committee chairs registered for the October 11 workshop (zero no-shows), twenty for the October 12 workshop (two no-shows) and twenty-two for the workshop on November 8, 2004 (two no-shows). Attendees received an informational packet from UM ADVANCE, which contained (1) a Faculty Recruitment Handbook, (2) a "Frequently-Asked Questions: Retention of Women Science and Engineering Faculty" handout, (3) a copy of STRIDE's PowerPoint presentation and (4) contact information for UM ADVANCE and the STRIDE committee.

DATA COLLECTION
After the workshops UM ADVANCE's evaluation staff sent an on-line survey to attendees for assessment purposes. All fifty-nine attendees were invited to provide feedback and were given the option to complete the survey via an on-line system or on paper. Twenty-six attendees responded to the survey (44% response rate): twenty-one completed the on-line survey and five submitted a paper evaluation via campus mail. A copy of the survey is attached.

SURVEY RESPONSES: Close-Ended Questions
Survey respondents were asked to rate the effectiveness of the presentation overall as well as each of the presentation topics: is there a problem?; why diversity matters; unconscious bias in evaluation; recruitment; dual career & family policies, and family matters & evaluation bias on a five-point scale (very effective to not at all effective). Only those who attended the November 8, 2004 workshop were asked to rate the effectiveness of the "Is there a problem?" presentation topic, as this topic was inadvertently excluded from the October surveys.

Twenty-three respondents (88%; see Table A) rated the STRIDE recruitment workshop (overall) as very effective or somewhat effective; three attendees responded with a neutral rating. There was relatively little variation in topic ratings, though the section on "unconscious bias in evaluation" received the most

Table A: STRIDE Recruitment Workshop – Responses to Close-ended Survey Questions

	Positive	Neutral	Negative
Overall	88%	12%	--
Topic 1: Is there a problem*	86%	14%	--
Topic 2: Why diversity matters	73%	15%	12%
Topic 3: Unconscious bias in evaluation	100%	--	--
Topic 4: Recruitment	77%	19%	4%
Topic 5: Dual career & family policies	88%	12%	--
Topic 6: Family matters & evaluation bias	85%	8%	8%

Note: Positive – "very effective" and "somewhat effective" responses; Negative – "not very effective" and "not at all effective" responses
* N = 14 for "Is there a problem" presentation topic

uniformly positive rating. No respondents reported a "not at all effective" rating for any presentation topic.

SURVEY RESPONSES: Open-Ended Questions

Workshop attendees were also asked five open-ended questions:

- QUESTION 1: Overall, what was most effective about the presentation?
- QUESTION 2: Overall, what was least effective about the presentation?
- QUESTION 3: How could the presentation be improved (e.g., more or less discussion of particular topics; discussion of other topics, etc.)?
- QUESTION 4: How do you think the presentation may affect the search process in your department?
- QUESTION 5: Do you think we should hold workshops like this one on an annual basis for new search committee chairs?

<u>What was most effective?</u>

In regard to what was most effective about the STRIDE recruitment workshops, the respondents' comments focused on three general themes:

(1) the presentation was well supported by data and substantive research;
(2) the workshop provided specific and practicable strategies and recommendations; and
(3) the presenters were focused, enthusiastic and knowledgeable.

Multiple respondents cited the quality of the data and instructional materials/readings as the most effective aspect of the STRIDE recruitment workshops. Moreover, these respondents valued that the facts were clearly backed up by verifiable research. One respondent commented, "The data presented, both in the reading packet and as reemphasized in the workshop setting, is overwhelming and disturbing, and I think the point was made solidly." Another respondent specifically cited Frances Trix's article as the most effective resource gained from the workshop.

Regarding the second theme, a significant number of respondents noted the practical tips for dealing with a range of possible recruitment situations, listing of programs where real resources (i.e., money) are available as well as the description of University policies and resources for recruiting women candidates as the most effective features of the workshops. One respondent noted, "It was very effective to give direct suggestions about how search committees could do simple things to counteract gender schemas, improve problems associated with dual career recruitment, give [information] about family programs, etc."

Many respondents also highlighted the STRIDE committee members (the presenters) as the most effective part of the workshop. Respondents noted that the speakers communicated their convictions and focused on details. In addition, one respondent commented that the most effective feature of the presentation was "the enthusiasm of the presenters and their overall knowledge of the subject as evidenced by their answers to questions."

Lastly, in addition to the three general themes, respondents also commented on the quality of the food and the UC-Berkeley PowerPoint slide; a couple of respondents reiterated their rating (see close-ended questions) for selected presentation topics.

<u>What was least effective?</u>

The respondents were also asked to state what was least effective about the presentation. As with the previous open-ended question, these responses focus on three general themes:

(1) the attendees have seen this type of presentation too many times before;
(2) the presenters spend too much time trying to convince the audience that the problem exists, and not enough time on details and strategies; and
(3) the style of presentation and the workshop atmosphere were flawed and (for a few) stifling.

Multiple respondents noted that the STRIDE recruitment workshop was not the first time he/she had attended a STRIDE-like presentation. One respondent commented, "I have heard a lot of this material before and there is a declining fraction of the presentation that is novel or surprising to me." Another respondent was not convinced that "any unconvinced minds were changed." Many respondents also argued that the presentation focused too much on the existence of a problem, and not enough on specific strategies and recommendation. Specifically, one respondent would like to have seen more examples of diversity improving the quality of departments. Another respondent would have appreciated more examples of "mountains out of molehills" and "accumulation of disadvantage," while another attendee wanted a greater focus on issues relating to minority recruitment and retention.

Many respondents shared concerns and criticisms regarding the style of presentation, e.g., moving too slowly; reading from the PowerPoint; insufficient discussion. One respondent commented on the workshop's general atmosphere: "As with many presentations, there was some useful information but also a lot of stuff that was overly driven by the presenters' strong views, such that anyone with a more skeptical or critical eye would find much of the material unconvincing. … The atmosphere was such that I didn't feel at all comfortable with the idea of raising anything critical." In regard to the content of the presentation, a respondent reported, "The least effective part of the presentation involved the mere parroting of the results from the sociological studies that appear to show an almost innate predisposition for women and men to evaluate individuals from both genders differently."

<u>How could the presentation be improved?</u>
Respondents recommended the following list of improvements:

- "Provide specific instructions that a search committee chair or member can follow to reduce problems."
- "Get people to participate, perhaps by talking about situations in their departments."
- "Too many short presentations that might have been combined with one speaker."
- "Shorten the [presentation] to focus around the evidence and a bit of coaching."
- "Provide critiques of the sociological studies and methods."
- "In reading the material the two most effective articles were the one on the orchestra and on the recruitment process with identical letters with different names. These brought it home for me. Make people read these and get rid of the other stuff."
- "Invite people only from fields in which there is a clear and acknowledged shortage of women. Don't waste the time of the rest of us. If you want a serious discussion of these issues, then try to bring in people who are genuinely skeptical and willing to voice their criticisms, and bring enough of them that they're willing to speak up."

<u>How may the presentation affect your department's search process?</u>
Relative to the other open-ended questions on the survey, this question received the fewest responses. Those who did respond commented on the capacity of these types of presentations to "make it okay" to bring up issues regarding the recruitment of women and minority faculty. Most respondents focused on how the presentation has and will continue to affect their role in the search

process. For example, a respondent commented, “My own reading of letters has been altered by the impact of the data in the paper of Trix and Psenka.” Another respondent confirmed that “if…very few women are in the pool, we will hold off on the review until I can solicit more names and applications.” Furthermore, yet another respondent wrote, “[the workshop] has already affected it (e.g. by my pushing a colleague to tell me the outstanding *women* in addition to his short-list of outstanding candidates).” Lastly, a search chair commented, “I will strongly recommend that all members of the committee have written notes on each candidate, because the workshops helped me realize that this is probably the most common way that bias can enter the process. I will also encourage my committee to be able to justify why they are removing applications from the acceptable pile.” Three respondents reported that the workshop will have little, if any, impact on their department’s search process.

Should the workshop be held annually?

A clear majority of respondents supported the idea of offering this kind of workshop on an annual basis. A few respondents, moreover, recommended an expansion of the target audience to include all faculty (with an emphasis on new department chairs and directors) as well as administrative staff who support search committees. However, one respondent cautioned the committee not to assume that everyone’s issues are the same: “The presentations seemed to be focused on main campus type issues and it might be good to have one for the medical center given the large number of clinical (non-tenure-track) faculty involved.” Another respondent wrote, “Absolutely. It would be a serious mistake to have this kind of training program developed and NOT used to reach everyone and keep the momentum going.” As with the previous questions, one respondent did not support the idea of holding workshops like this one on an annual basis, and that “a different approach is needed.”

SURVEY

How effective do you think the presentation was?

- ⬜ very effective
- ⬜ somewhat effective
- ⬜ neutral
- ⬜ not very effective
- ⬜ not at all effective

Overall, what was most effective about the presentation?

Overall, what was least effective about the presentation?

Please rate the effectiveness of each of the following presentation topics (please check one for each):

Is there a problem?

- ⬜ very effective
- ⬜ somewhat effective
- ⬜ neutral
- ⬜ not very effective
- ⬜ not at all effective

Why diversity matters

- ⬜ very effective
- ⬜ somewhat effective
- ⬜ neutral
- ⬜ not very effective
- ⬜ not at all effective

Unconscious bias in evaluation

- very effective
- somewhat effective
- neutral
- not very effective
- not at all effective

Recruitment

- very effective
- somewhat effective
- neutral
- not very effective
- not at all effective

Dual career and family policies

- very effective
- somewhat effective
- neutral
- not very effective
- not at all effective

Family matters and evaluation bias

- very effective
- somewhat effective
- neutral
- not very effective
- not at all effective

How could the presentation be improved (e.g., more or less discussion of particular topics; discussion of other topics, etc.)?

How do you think the presentation may affect the search process in your department?

Do you think we should hold workshops like this one on an annual basis for new search committee chairs?

Giving and Getting Career Advice: A Guide for Junior and Senior Faculty[10]

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1) Why is career advice important?

Faculty careers develop over time. Along the way, and more than in most occupations, individuals are free to make decisions and choices about how they spend their time and about what they do. Making those decisions requires information and judgment about consequences, since the decisions you make now are likely to matter for the long term. With limited information, individuals lack the basis needed to make informed judgments. That's not likely to lead to the best decisions! And since time is finite, "yes" to a new commitment today also means "no" to a current activity or future opportunity. Career advice from people with information and experience can provide a crucial context for decision-making and career development.

Lack of access to career advice—often because of few opportunities for informal interactions in which information is conveyed casually—is one of the most widely reported barriers to career advancement. Moreover, there is evidence that all women and men of color are particularly likely to suffer career setbacks from lack of career guidance. In one study (Preston, 2003), one third of women interviewed who exited science cited a lack of guidance as the major factor leading to the exit decision, while none of the men interviewed identified this as a factor influencing exit.

2) What exactly is career advising? Is it the same thing as "mentoring"?

[10] This Guide was prepared by Pamela J. Smock and Robin Stephenson, with assistance from Janet E. Malley and Abigail J. Stewart. An early draft was reviewed by several colleagues, who provided valuable advice: Rebecca Bernstein, Aline Cotel, Danielle LaVaque-Manty, Mika LaVaque-Manty, Marvin Parnes, Martha Pollack, Michelle Swanson, Janet Weiss and Nicholas Winter.

Many people think of "mentoring" as something that is part of the graduate school relationship between an advisor and an advisee, and one in which the advisor sets relatively strong and clear limits on the advisee's range of choices. To avoid confusing this type of mentorship with the kind of interactions that junior faculty—who should proactively pursue their own career development—need to have with more senior colleagues, we are using the term "career advising" instead of mentoring.

There are many different forms of career advising and all of them are valuable to junior faculty. Some of them may, in fact, be similar to the mentoring of graduate students; but many are not. For example, Zelditch (1990) pointed out that junior faculty need several different kinds of people to help them: "Advisers, people with career experience willing to share their knowledge; supporters, people who give emotional and moral encouragement; tutors, people who give specific feedback on one's performance; masters, in the sense of an employer to whom one is apprenticed; [and] sponsors, sources of information about, and aid in obtaining opportunities." In a similar vein, the *University of Michigan Gender In Science and Engineering Subcommittee on Faculty Recruitment, Retention and Leadership*'s April 2004 Final Report broadly defined a mentor as a person who "facilitates the career and development of another person, usually junior, through one or more of the following activities: providing advice and counseling; providing psychological support; advocating for, promoting, and sponsoring the career of the mentee."

Senior faculty can provide some or all of these forms of career advice to their junior colleagues. However, it is not feasible or desirable to single out one individual to fulfill all possible mentoring roles or provide all possible kinds of career advice.[11] For example, a particular faculty member may be a great example of a programmatic research approach and successful external funding, but may not be a particularly constructive citizen of the department; another may work in an area very distant from junior colleagues' interests, but be a marvelous teacher and beloved mentor of graduate students; still a third may simply seem to radiate good judgment and a balanced and humane approach to life. Each of these people has valuable things to offer to junior colleagues, but no one of them is likely to be able to help with all aspects of someone else's career development.

3) What is the goal of providing career advice?

The ultimate goal of giving career advice to junior faculty is to enhance their chances of career success in earning tenure (for instructional faculty) or advancement and promotion (i.e., for research or clinical track faculty) through achievements in scholarship, success in obtaining external funding, teaching, and/or service. Thus, senior faculty can offer information and assistance not only by providing advice about one's area of scholarship, but by:

- Providing information about promotion and tenure processes
- Demystifying departmental, research center, college, and university culture
- Providing constructive and supportive feedback on specific work or on career progress
- Providing encouragement and support
- Helping to foster important connections and visibility

[11] While this guide is particularly aimed at the needs of untenured faculty, tenured faculty also need, and should seek, career advice—about the next career stage (e.g., promotion to full professor), or about taking on leadership roles or choosing not to, or about their next project, or next life stage (e.g., the period after children are grown, or retirement).

- Looking out for junior faculty interests

Junior and senior faculty alike should consider these topics for their discussions:

- Inside story on departmental culture
- How to navigate department and institution
- Grant sources; strategies for funding
- Publishing outlets and processes
- Teaching
- Research
- Key conferences to attend
- Service roles inside and outside the University, including work on committees
- Relationships to cultivate
- How to recruit students or postdocs to your research group
- Advice about the career ladder and alternative tracks
- How to plan a career trajectory
- External visibility
- Tenure and promotion processes
- Family issues
- National sources of support
- Publishing outlets and processes

4) What are the different forms of career advising?

Where will junior faculty find career advice? We believe they may find it in many kinds of interactions and relationships, including with peers. The following identifies several types of career advising:

Specific (one-on-one) advising: This kind of advice depends on conferring with someone very familiar with specific issues unique to the junior faculty member's field, or involves direct and specific feedback from a supervisor such as a department chair. Types of specific advising include:

- Review of current activities and future plans. These may include:
  - research activity, including publishing, grant activity, etc.
  - service activity, on campus and nationally
  - teaching activity, both in formal courses and mentoring students
  - clinical assignments
- Review of documents, like curriculum vitae, annual reports, required professional statements
- Critical feedback in the crucial years prior to tenure reviews or promotions, with delineation of the exact criteria by which that faculty member will be evaluated at the annual or third year review
- Personal advice on sensitive issues that individuals do not feel comfortable discussing in groups
- Identification and facilitation of specific opportunities for faculty members to grow into leadership positions

Group advising: Not all career advice requires one-on-one interaction. "Group advising" refers to advising that can be accomplished for the benefit of multiple individuals simultaneously. Sessions can be led by one or by a few senior faculty and address broad issues such as a collegial conversation about the intellectual concerns of the department or program, developing new courses, teaching evaluations, time management, or policies on tenure.

Zone advising: This refers to interactions with individuals with particular areas of expertise (zones) such as successful grant funding, university service assignments, or teaching and learning resources such as the Center for Research on Learning and Teaching (CRLT). In this variation on the group advising idea, one senior leader can serve as a resource on a particular topic for multiple junior faculty members.

Peer advising: Another variation on group advising is provided by facilitating career-relevant interactions among peers. Junior faculty can assist one another by sharing information, strategies, knowledge about resources, and general moral support. Types of peer advising activities include:

- Dissemination of information on institutional policies similar to the packages provided to all junior faculty/new hires. Topics may include dual career programs, modified duties, delays of the tenure review, leave policies, and work-family resources.
- Guidance for preparation of annual reports and tenure and promotion dossiers.
- Discussion of the level of achievement expected for promotion in various areas (e.g., research, teaching, success at obtaining external funding).
- Communication of eligibility for internal awards and external national and international recognition.

In general, career advising activities can take many forms and do not have to occur in formal settings. In addition, they can include both on-campus and national resources. The following list of potential locations or settings for career advising activities is adapted from the Association for Women in Science (AWIS) website on mentoring: http://www.awis.org/resource/mentoring.html.

Career advising contacts can be through:

- Informal office visits
- Email
- Campus Events
- "Shadowing" a senior faculty member by agreement
- Touring a lab or workplace
- Recreational activities
- Travel support
- Lectures
- Phone calls
- Meals and coffee breaks
- Professional society meetings
- Poster sessions or other special presentations
- Symposia
- Conferences
- Workshops

5) Common issues for junior and senior faculty regarding career advising

1. Think of yourself as establishing a respectful collegial relationship. Try to engage in ongoing conversations with one another. Try to meet at least once each semester to discuss professional development and progress in all key areas. Don't be invisible or cancel meetings unless absolutely necessary.

2. Work together to define your roles and to set goals. Remember that the career advising process is a two-way street, and you both have to establish the ground rules. This may include agreeing on what you will ask of each other. Things to consider regarding career advising may include:

- Reading drafts of grants or papers?

- Helping create opportunities or connections?
- Providing feedback about progress?
- Providing advice about teaching issues?
- Providing information about the department?
- Meeting yearly? Every semester? Monthly?

You can avoid letting each other down, or surprising each other, if you have an explicit sense of the nature of your expectations. And of course you both need to listen and be respectful, and recognize that both of you can benefit from these interactions.

3. Don't expect career advising to be a panacea for every academic and career problem; it can't address every issue, and no one relationship can encompass all aspects of anyone's career. Sometimes there are problems or issues that cannot be solved through the career advising process, although often the process can help redirect efforts to other sources of assistance (other faculty, colleagues at other institutions, or even institutional assistance, such as the Center for Research on Learning and Teaching). It's also true that sometimes you may give or be given genuinely bad advice (usually unintentionally!). A good way to guard against *taking* bad advice is to gather advice from multiple sources and compare what you hear. And never feel that just because someone gave you advice you have to take it; it's your career! You're interested in other people's perspectives, because they may help you understand or see things you otherwise wouldn't. But in the end you make the decisions.

4. Finally, like all other human relationships, relationships between junior and senior faculty may produce discomfort, despite everyone's best intentions. For example, some people (junior or senior) may feel that career advising requires them to expose vulnerabilities they are more comfortable concealing (a frequent concern of academics, who are occupationally subject to "impostor" anxieties) or to permit another person some degree of "control" over their decisions. A career advising relationship may even lead someone to feel more grateful, or more nurturant, than is comfortable in a professional relationship. If these uncomfortable feelings arise, they should not provoke alarm; instead, they are signs that the relationship may need some adjustment or fine-tuning. It is often possible to gain perspective on uncomfortable feelings like these from another colleague, preferably one not too directly involved with the other faculty member.

6) Tips for senior faculty

As a senior faculty member, you can help shape careers and encourage successful outcomes. You know and can explain the system, pointing out pitfalls, shortcuts, and strategies. Often, junior faculty need to learn what they may not even know to ask.

Think of your own experiences as a junior faculty member and how you achieved your current status. Giving valued advice is usually rewarding for the senior faculty member, as well as for her or his more junior colleague—in part because it can be an invigorating connection with people in touch with the most recent advances in the field you share. But recognize that it is often difficult and intimidating for junior colleagues to articulate their questions and needs, and to approach more senior faculty. Recall that things you say may—without you intending it—lead them to feel more anxious, more inadequate, or hopeless about their own future. It's important to contextualize your feedback so it is actually constructive rather than undermining, and offers direction rather than simply criticism.

1. Let your junior colleagues know that they are welcome to talk with you—just on one occasion or on a frequent basis. The gift of your full attention is often the most important one you can give a less experienced colleague.

2. Clarify expectations about the extent to which you can, or will, offer guidance concerning personal as well as professional issues. If you are not comfortable assisting in some areas, suggest another faculty member who may be able to assist. Recognize and evaluate what you can offer, and keep in mind that you cannot be expected to fulfill every function.

3. Inform junior faculty about how frequently you will be able to meet with them. Be explicit if you have a heavy travel schedule, are about to take a sabbatical, or will be assuming an administrative position. Discuss alternative means of communication (e.g., email or telephone) and encourage them to consult others who have proven to be reliable advisors. Try always to keep appointments you do make.

4. Provide specific information about as many topics as you can, such as the informal rules of the profession and of navigating the department and institution. Help junior faculty learn what kinds of available institutional support they should seek to further their own career development. Tell them about funds to attend a workshop, for example, or release time for special projects.

5. Recognize that sometimes your own experience is relevant and useful to colleagues who are more junior; hearing accounts of how you accomplished something (or failed to), including obstacles you faced, can help normalize and contextualize experiences for them. At the same time, it's good to bear in mind that circumstances change in academia, in the various colleges, units, and in departments. So it's good to underscore the need for junior colleagues to look into specific rules, policies and practices as they currently exist rather than relying on information passed on anecdotally.

6. Share the "tacit" rules of being successful in the business of research and within the relevant unit with junior colleagues.

7. Provide opportunities for junior colleagues. For example, suggest his/her name to be a discussant at national meetings or other such opportunities that will increase his/her visibility. Generally, take opportunities to promote the junior faculty member's research.

8. Ask your junior colleague to develop and share a work plan that includes short-term and long-term goals as well as a time frame for reaching those goals.

9. Give criticism as well as praise when warranted. Always present criticism in a private and non-threatening context with specific suggestions for improvement in the future. Rather than emphasize past problems or mistakes, focus on future actions that may remedy or redress those problems.

10. Tell junior faculty where they stand—how they are doing, whether they are meeting your expectations, and if they are showing what it takes to move up. Be specific. Don't just tell a junior faculty member that it's necessary to publish more in high-quality

journals, but suggest which journals those are, and give guidelines about approximately how many papers to shoot for in those journals before tenure.

11. Take responsibility to encourage junior faculty to be proactive about asking questions, seeking feedback, and making connections with senior colleagues. Take the time to make sure junior faculty are doing so.

12. Communicate. Failing to communicate is the biggest pitfall for all relationships. Remember that face-to-face meetings can often clear up misunderstandings better than email. Problems need to be discussed as soon as possible.

There are a number of specific areas in which you may be in a good position to help, or you may feel it is best to point the junior colleague toward someone who might be a better source of advice. These include:

1. Grantwriting. There are many features of the process of obtaining external funding that are unwritten or vague. Advisors can help by clarifying funders'/referees' criteria for successful grant proposals. Sharing negative experiences you have had in trying to secure outside funding, and how you managed or overcame them, may also be helpful.

   In some fields, junior faculty may be well-served by including senior colleagues as Co-PIs, Co-investigators or consultants in grant proposals. Give junior faculty advice about who might be helpful to include. Also, encourage junior faculty to apply for one of several "early career" grants (e.g., K01-Mentored Career Development Award [NIH]; Young Investigator Award [NSF]) and be available to provide substantial feedback on their early efforts.

2. Fostering networks for your junior colleagues. Whether or not you can provide something a junior colleague needs, suggest other people who might be of assistance: other UM faculty or colleagues from other universities. Introduce your junior colleagues to those with complementary interests within your unit or department, elsewhere on the UM campus, or at other universities. For example, at conferences, a simple introduction at a coffee break or an invitation to join your table for lunch may be sufficient to initiate a lasting advising relationship for a junior colleague.

3. Providing forthright assessments of their research through close readings of their work and trying to provide these assessments in a timely manner.

4. Providing opportunities for junior colleagues. For example, suggest his/her name to be a discussant at national meetings or other such opportunities that will increase his/her visibility. Generally, take opportunities to promote the junior faculty member's research.

7) Tips for department chairs and directors

Department chairs and program directors set the tone for how many faculty in the unit—senior and junior—will view the issue of career advising. If the chair or director does not appear to truly value the practice, or merely gives it lip service, it will be clear to all concerned that it is not a valued activity in the unit. By taking career advising seriously, and consistently communicating that it is

part of the responsibility of all faculty, chairs and directors can help create a climate in which better career advising takes place.

1. Build into the evaluations of senior faculty a share of responsibility for mentoring new colleagues. For example, during reviews for merit increases, chairs and directors can take into account the quality and quantity of career advising by asking explicitly for this information on the annual review forms. Have senior faculty document in their annual report their efforts to assist junior faculty in getting research grants, establishing themselves as independent researchers, and having their work published in peer-reviewed outlets. Collaborative research—especially when the junior scientist is the lead author—may also be a sign of a productive career advising relationship. You may also want to ask junior faculty to indicate which senior faculty have been helpful to them, as a sort of check on these self-reports.

2. Take multiple opportunities to communicate to senior colleagues the importance of providing career advice to junior faculty.

3. Ensure that the procedures and standards involved in the tenure and promotion processes are clear to junior faculty.

4. Ensure that all junior faculty know about University policies intended to ease the work-family conflict such as stopping the "tenure clock" and modified duties.

5. Create opportunities that encourage informal interaction between junior and senior faculty. You might create a fund for ordering pizza, a lunch budget, a gift card for a local coffee shop for them to share, etc.

6. Provide a "tip sheet" for new arrivals. A tip sheet would include items such as contact people for key services around the Department or unit. More broadly, check to ensure that the newly-arrived faculty have access to the information, services, and materials (e.g., computing or lab equipment) needed to function effectively in the environment.

7. Recognize that senior faculty may not be completely certain how best to engage in career advising. Help them! For example, sponsor a lunch for senior faculty in which the topic of discussion is career advising and faculty can exchange information and ideas on the subject.

8. Provide the junior faculty member with a yearly review—in addition to a formal interim (3^{rd} year) review—of her/his accomplishments and discuss goals for the future. Recognize that junior faculty may find it difficult to assess the significance of criticism; be careful to frame criticism in a constructive way, but also be as clear as possible. Be sure to provide some written follow-up, summarizing the discussion (or to ask your junior colleague to do that, so you can review it).

9. Use email as a mechanism to ensure the entire faculty has equal access to key decisions, information, and career opportunities.

8) Tips for junior faculty

Many units or departments will formally assign one or more senior faculty members to assist junior faculty. Sometimes, however, these relationships never develop or additional people are needed. In the worst case, the relationships set up formally may actually be destructive. More benignly, but still seriously, sometimes senior faculty appear to have no available time; then junior faculty feel they are either not getting what they need or fear they are intruding.

Junior faculty should feel that they are in charge of establishing and maintaining mentoring relationships. If a relationship is destructive or unhelpful, allow it to languish. It is much better to avoid interaction with a senior colleague who is not helpful than to continue it. However, avoidance alone is not enough. At the same time that you let one relationship dwindle, be sure to seek alternative relationships that are more helpful.

Despite appearances, most senior faculty are committed to the development of junior faculty and will readily provide career advice, if asked. Try to identify senior faculty in your department—or even in another department—who you think might have helpful advice for you; be the one to initiate a meeting. Alternatively, ask for an introduction from a colleague if you are uncomfortable introducing yourself. NSF ADVANCE[12] offers advice and help connecting women faculty in science and engineering with career advisors, or your chair or director can assist in identifying someone who would be an appropriate career advisor.

Additionally, don't limit your search for career advisors to your own institution. To establish a relationship with senior faculty in your research area from other institutions, ask them if they would be willing to meet with you on the phone, over email, at a conference, or invite them to present a seminar or talk in your department.

One person might serve as an advisor or mentor on departmental matters, another might provide information about and assistance with career opportunities, and another might serve as a role model for managing career and family responsibilities.

1. Read the faculty handbook (http://www.provost.umich.edu/faculty/handbook/), and become familiar with the research and background of your advisors' research and career. Read their CVs whenever you can.
2. Get the unwritten information. There are unwritten organizational structures, rules and customs defining the departmental and institutional culture. Respect and become acquainted with the staff clerical workers and treat them like the professional colleagues they are; they can be valuable sources of information about informal structure. Learn what services are available from the department and institution such as clerical help, release time, research assistance, and financial support.

3. Recognize the influential people in the department. Be observant and find out what behaviors are valued and which are not.

[12] NSF ADVANCE is a five-year, grant funded project promoting institutional transformation in science and engineering fields. The goals of this program are to improve recruitment and retention of women faculty in science and engineering and to improve the institutional climate. http://www.umich.edu/~advproj/

4. Be active and energetic. Do not assume that anyone else will look out for your interests. For example, in some departments teaching assignments are scrupulously fairly assigned, in others not. Equally, in some departments, junior faculty are encouraged only to develop a few new courses during the tenure probationary period, and they are encouraged to repeat them. If you feel that any of your teaching assignments is either unfair or unwise for you, be sure to seek out advice from other faculty about the issue, and about how to get it addressed. It is not best to simply suffer in silence; it is best to get the situation remedied and senior faculty in the department or even in the dean's office will be able to advise you about it.

5. For those on tenure track, develop a strategy that will guide your progress as a scholar, teacher, and colleague over the next five years. A lot of information about the tenure process is not written down. Make it your responsibility to find out by asking questions. Share the information and your strategies with your peers as a way to build camaraderie and to develop additional sources of information and support. For those not on a tenure track, develop a strategy for promotion and advancement. Again, ask questions about how to achieve your career aims.

6. Keep careful records of your activities (e.g., research and scholarship, grants written and funded, service activities, teaching and/or mentoring). Scrutinize your own record regularly to judge if your effort and priorities are aligned; be a proactive manager of your own career portfolio. This will greatly assist you, while evaluating new opportunities, and as you prepare for career advancement or tenure.

7. Determine if there are publications that you should avoid publishing in because they are not valued. Try to not waste your time serving on committees that are not valued, or teaching courses that do not strengthen your case for advancement or for tenure. Be sure to seek advice from senior faculty members about what committees to serve on, and then volunteer for those committees.

8. Seek information, advice, and assistance in developing, implementing, and revising your strategy; do not make major decisions without talking to other people.

9. Actively seek feedback from colleagues, senior faculty, department chair, or unit director. Recognize that other junior faculty—both at the University of Michigan and elsewhere—are often sources of valuable advice and help too. For example, another junior faculty member may have developed a teaching module that you can adapt for your purposes; or, as a group, junior faculty in a department or across a couple of departments may be able to provide one another peer mentoring; or ask specific administrators or senior faculty to discuss particular issues.

10. Do not assume that no feedback means there are no problems.

11. If your position was defined in specific terms when you were hired, be sure you have a copy of the job description. You want to be sure there are no aspects of the job you are expected to do that you don't recognize.

12. An annual review should be in writing. If it is negative and you believe the comments are legitimate, you should discuss them with your career advisors, including your chair or

director, and plan what you need to do to improve. If you believe a comment is not accurate, provide written materials to refute the evaluation.

13. Develop your own networks with junior faculty colleagues and others in your field.

14. Read and discuss any written policies about tenure and/or promotion with your career advisor(s).

15. Let your career advisors, chair or director, and colleagues know when you have done good work. Be sure that professional information is put into your personnel folder.

16. Communicate. Failing to communicate is the biggest pitfall for all relationships. Remember that face-to-face meetings can often clear up misunderstandings better than email. Problems need to be discussed as soon as possible.

9) Integrating work and personal life: University policies

In March 2004, the *University of Michigan Gender In Science and Engineering Report of the Subcommittee on Family Friendly Policies and Faculty Tracks* published recommendations to modify policies related to work-family issues. The policies being examined for revision include more flexible and extensive coverage for leave without pay, modified duties, and stopping the tenure clock. The report also discusses the need for additional on-campus daycare. The report and all UM policies are available online at the links listed below.

http://www.umich.edu/~advproj/GSE-_Family_Friendly_Policies.pdf
http://www.provost.umich.edu/faculty/handbook/index.html
http://spg.umich.edu
http://www.provost.umich.edu/programs/dual_career

Other UM resources include:
Work/Life Resource Center: http://www.umich.edu/~hraa/worklife
Center for the Education of Women: http://www.umich.edu/~cew

10) Summary: Questions to ask and to answer

This is a list of questions junior and senior faculty may use to remind them of issues they need to discuss that were outlined in the previous sections.

Department or Research Unit Culture	
	Who are the key people in the department or research unit?
	What are appropriate ways to raise different kinds of concerns or issues and with whom?
	Who can help me get email, find out about resources like copying or processes like grading?

	How do people find out about and get nominated for awards and prizes?
	What organizations are important to join?
Research	
	Can you tell me about the Institutional Review Board, which provides approval for human and animal subject experiments?
	How do I set up my lab?
	How do I get grants?
	Are my grant proposals appropriate for this department or unit?
	Are there research or equipment projects being developed by other faculty in the department that I can or should get involved with?
	May I read some successful grant proposals, as close to my research area as possible?
	What conferences should I attend?
	Are there people that I should collaborate with?
	How do you get on professional association panels?
	What are the journals to publish in? Have any colleagues published there?
	Am I publishing enough?
	How can I increase my visibility in the field?
Teaching	
	What classes do I need to teach?
	How do I get a good teaching schedule?
	How do I get to teach important classes?
	How do I deal with sticky situations or problems with students?
	Do I have enough graduate students?
	How are teaching evaluations handled and weighted?
Service	
	What are the important committees to serve on?
	How can I get nominated to be on them?
	Are there committees to avoid?
	How is this work documented?
Promotion and Tenure	
	What are the department's formal and informal criteria for promotion and tenure?
	What or who can clarify these criteria?
	What would you have wanted to know when you began the tenure process?
	How does one build a tenure file?
	Who sits on the tenure committee and how are they selected?
	How should I prepare for the annual review?
	What can I negotiate when I get an outside offer?
	How should I prepare for the third year review?
	Is my job description matching the work I do?
	Are my research, teaching, service and grants of an appropriate level?

	Who should I meet in the institution, in the discipline and even worldwide?

11) Additional resources on career advising and mentoring

Web and institutional resources

Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering, National Academy of Sciences, National Academy of Engineering, Institute of Medicine, National Academy Press, Washington DC, 1997. *http://www.nap.edu/readingroom/books/mentor/index.html*

The Association of Women in Science is a non-profit association which works to promote women's activities in all scientific fields, from mentoring to scholarships to job listings.
http://www.awis.org/resource/mentoring.html

The Center for Research on Learning and Teaching (CRLT) website provides a bibliography and links to online resources on mentoring. Topics covered include: institutional mentoring programs, mentoring women faculty and faculty of color, discipline-specific mentoring, and training materials for mentors and mentees.
http://www.crlt.umich.edu/publinks/facment.html

How to Mentor Graduate Students: A Guide for Faculty in a Diverse University.
http://www.rackham.umich.edu/StudentInfo/Publications/FacultyMentoring/contents.html

How to Get the Mentoring You Want: A Guide for Graduate Students at a Diverse University.
http://www.rackham.umich.edu/StudentInfo/Publications/StudentMentoring/contents.html

Providing Faculty with Career Advice or Mentoring: Principles and Best Practices, UM, College of LSA, June 2004.
http://www.umich.edu/~advproj/mentoringlsa.pdf

The University of Michigan Office of the Provost and Executive Vice President for Academic Affairs has links to articles and other information on mentorship.
http://www.umich.edu/~provost/mentoring/index.html

The Center for the Education of Women offers free counseling to University of Michigan faculty (as well as staff, students and residents of surrounding communities; call 998-7210). Faculty may wish to discuss career goals, job fit, negotiation strategies, work/life issues, problems affecting career progression or other needs. CEW also supports two professional development networks for faculty women: the Women of Color in the Academy Project and the Junior Women Faculty Network. In addition, CEW offers other kinds of programs addressing, for example, salary negotiation, grant proposal writing, parenting in the academy, financial planning, and research presentation. For more information contact the Center at 998-7080, or visit *www.umich.edu/~cew*.

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Appendix C: FASAP Workshop Evaluation

NSF ADVANCE
Making the Most of Your Time
FASAP Workshop Evaluation
October, 2004

On September 20, 2004 two workshops were offered with women scientists and engineers on this campus through FASAP (Faculty and Staff Assistant Program). The first workshop, "Making the Most of Your Time," was scheduled for the morning. The second workshop, "Women, Time and Role Overload," was scheduled for the afternoon at a different location.

Forty-one women registered for the morning workshop and 19 registered for the afternoon session; only three of these women were not also registered for the first session. Twenty-three women attended the first workshop and one woman (a female graduate student) attended the second workshop.

DATA COLLECTION
The ADVANCE Project sent an on-line survey to registrants for evaluation purposes. Since only one person attended the second workshop, the survey was designed specifically for the first workshop and asked respondents to provide feedback if they attended and/or an explanation for their non-attendance at either workshop. All 44 women who registered for either workshop received a copy of the survey with the exception of the one graduate student who only registered for and attended the second workshop. A copy of the survey is attached.

Ten women responded to the survey (23%); six of these women attended the first workshop and four did not attend any workshop. Three of the women were from LSA; two were from the Medical School. One woman also came from each of the following schools: Engineering, Natural Resources, Public Health and Nursing. Five of the respondents were on the instructional track; four were on the research scientist track. One respondent did not report school or track. We also received two e-mail responses from survey recipients explaining why they did not attend the workshop(s).

SURVEY RESPONSES: ATTENDEES
Closed-ended Questions. Survey respondents who attended the workshop were asked to provide their level of agreement to four close-ended questions:

- the topic is very relevant to me;
- the speakers were knowledgeable and communicated clearly;
- time allotted for this workshop was sufficient;
- I believe this workshop was a useful experience.

All respondents who attended the first workshop felt the topic was relevant to them. The respondents also either agreed or were neutral on the whether or not the speakers were knowledgeable and communicated clearly (one item) and that the time allotted for the workshop was sufficient. Four of the six respondents agreed or strongly agreed that the workshop was a useful experience; the remaining two were either neutral or disagreed with this item.

Open-ended Questions. Workshop attendees were also asked two open-ended questions: what they liked most and what they like least about the workshop. Four of the six respondents identified that what they liked most about the workshops was hearing from the other women about their own experiences. Two respondents also mentioned that they found the presentation thought-provoking, particularly in addressing the fact that different people have different ways of dealing with time management issues. One respondent identified the scientific, theoretical approach to time management, the knowledge of speaker, and the novelty of some information presented as particularly valuable to her. Another woman commented, "The workshop made me think about my own use of time, when my best time of the day is and how I go about tasks."

In terms of what they liked least about the workshop, five responses addressed the content of the workshops. Several respondents mentioned that the workshop did not offer them sufficient "tools" or solutions to deal with their particular situations. One woman commented, "The workshop didn't provide me with answers/solutions. I just came away more 'aware'." Another reported, "too much description of what it's like to live squeezed for time, not enough help to figure out what to do about it." Similarly, one respondent felt the workshop was directed more at people who have "the option of working at home and at all times."

In addition, one respondent felt that the leaders had too much material to get through and gave too much "air time" to the workshop participants; another felt that the workshops were held more like a lecture and didn't allow for enough participant participation.

Finally, one mentioned that the location was hard for her to get to and another suggested that soft drinks should be provided.

SURVEY RESPONSES: NON-ATTENDEES

Ten women explained their reasons for not attending one or both workshops either through their response to the open-ended question on the on-line survey or by return e-mail. Five of these women reported scheduling conflict, two reported illness, and one indicated that she did not receive the reminder about the workshop and therefore did not attend. Two of the ten women reported that they went to the first workshop and, based on that experience, decided not to attend the second workshop.

Making the Most of Your Time
Workshop Survey
October, 2004

Please tell us a little about yourself.

I am in the

- ☐ College of Engineering
- ☐ College of LS&A
- ☐ Medical School
- ☐ Other School/College (please specify) _____

I am a(n)

- ☐ Instructional track faculty member
- ☐ Research track faculty member
- ☐ Clinical track faculty member
- ☐ Postdoctoral fellow
- ☐ Graduate student
- ☐ other (please specify) _____

If you DID ATTEND the "Making the Most of Your Time" workshop, please continue with the survey.

If you DID NOT ATTEND the "Making the Most of Your Time" workshop please scroll to the last question on the survey.

Please tell us to what extent you agree with each of the following statements:

I believe this workshop was a useful experience.

- ☐ strongly agree
- ☐ agree
- ☐ neither agree nor disagree
- ☐ disagree
- ☐ strongly disagree

Time allotted for this workshop was sufficient.

- ☐ strongly agree
- ☐ agree
- ☐ neither agree nor disagree
- ☐ disagree
- ☐ strongly disagree

The speakers were knowledgeable and communicated clearly.

- ☐ strongly disagree
- ☐ agree
- ☐ neither agree nor disagree
- ☐ disagree
- ☐ strongly disagree

This topic is very relevant to me.

- ☐ strongly agree
- ☐ agree

- ○ neither agree nor disagree
- ○ disagree
- ○ strongly disagree

Tell us what you liked most about the workshop:

Tell us what you liked least about the workshop:

If you registered for either the "Making the Most of Your Time" or "Women, Time and Role Overload" workshop but did not attend, please tell us why. You can also use this space for any additional comments, or to elaborate on earlier questions.

Appendix D: Candidate Evaluation Tool

The following offers a method for department faculty to provide evaluations of job candidates. It is meant to be a template for departments that they can modify as necessary for their own uses. The proposed questions are designed for junior faculty candidates; however, alternate language is suggested in parenthesis for senior faculty candidates.

Candidate's Name: _____

Please indicate which of the following are true for you (check all that apply):

- □ Read candidate's CV
- □ Read candidate's scholarship
- □ Read candidate's letters of recommendation
- □ Attended candidate's job talk
- □ Met with candidate
- □ Attended lunch or dinner with candidate
- □ Other (please explain):

_____

_____

Please comment on the candidate's scholarship as reflected in the job talk:

Please comment on the candidate's teaching ability as reflected in the job talk:

Please rate the candidate on each of the following:	excellent	good	neutral	fair	poor	unable to judge
Potential for (Evidence of) scholarly impact						
Potential for (Evidence of) research productivity						
Potential for (Evidence of) research funding						
Potential for (Evidence of) collaboration						
Fit with department's priorities						
Ability to make positive contribution to department's climate						
Potential (Demonstrated ability) to attract and supervise graduate students						
Potential (Demonstrated ability) to teach and supervise undergraduates						
Potential (Demonstrated ability) to be a conscientious university community member						

Other comments?

Appendix E: List of Degrees Considered Science Degrees

List of Degrees of Faculty Included/Excluded as Scientists for the 6 Smaller Schools.

The following tables list all fields of degrees of instructional (tenure), research and clinical track faculty with budgeted appointments in these schools. Faculty holding degrees listed in the "Include" column were deemed scientists; those holding degrees in the "exclude" column were deemed non-scientists for our purposes (and not included in any tables or figures). Those holding degrees in the "individualized" column were looked at on an individual level: their current field of research, as reflected by recent publications and website descriptions, determined their status as scientists or nonscientists.

School of Dentistry:

Include	**Exclude**	**Individualized**
Anatomy Biochemistry Bioengrg & Biomedical Engrg Biology Biometrics And Biostatistics Chemical Engineering Dental Hygiene Dental Specialties Dentistry Dds Or Dmd Degree Genetics Materials Engineering Medicine Md Degree Microbiology Neurosciences Pathology Physical Sciences Physiology	Anthropology Education Medical Record Librarianship Psychology	Public Health

School of Information:

Include	**Exclude**	**Individualized**
Computer & Information Science Computer And Data Processing Elect & Communication Eng	Economics History Library Science Philosophy Political Science & Government Psychology Social Sciences	Information Sciences & Systems

Division of Kinesiology:

Include	**Exclude**	**Individualized**
Bioengrg & Biomedical Eng Engineering Neurosciences Physiology Stats, Math & Theory	Business Administration Education Experimental Psychology Marketing And Purchasing	Physical Education

School of Natural Resources:

Include	Exclude	Individualized
Agriculture & Natural Resource Biology Biometrics And Biostatistics Chemical Engineering Ecology Environmental Science Forestry Marine Biology Natural Resources Plant Physiology Zoology	Agricultural Economics City, Community & Reg Planning Educational Psychology Fine Arts Fish, Game & Wildlife Mgmnt Geography Landscape Architecture Law Political Science & Government Sociology	

College of Pharmacy:

Include	Exclude	Individualized
Biochemistry Biophysics Cell Biology Chemistry Pharmaceutical Chemistry Pharmacy Physical Chemistry Physical Therapy	Education	Health Serv & Paramedical Tech

School of Public Health:

Include	Exclude	Individualized
Analytical Chemistry Atmospheric Sci & Meteorology Biochemistry Biological Sciences Biometrics And Biostatistics Cell Biology Chemistry Civil & Construction Engrg Dentistry Dds Or Dmd Degree Ecology Foods, Nutrition And Dietetics Genetics Geochemistry Medical Specialties Medicine Md Degree Microbiology Molecular Biology Nutrition Physics Physiology Stats, Math & Theory Toxicology	Anthropology Business Administration Clinical Psychology Developmental Psychology Economics Educational Psychology Geography Health Education Hospital & Health Care Admin Law Political Science & Government Psychology Social Psychology Sociology Urban Studies	Environmental Health Health Professions Public Health

Appendix F: UM ADVANCE Brochure

Career Advising

A career advising program has been created to help connect potential mentors and mentees through social events and the provision of online resources. We also supply the *Giving and Getting Career Advice* handbook to both junior and senior faculty.

Network of Women Scientists & Engineers

A Network has been created for instructional track women science and engineering faculty on campus. The Network hosts discussions, speakers, and other social events. Some Network events are available to all women scientists and engineers on campus, and efforts are underway to create parallel networks for research track and clinical track faculty.

Women Talking Science & Engineering Program

The Women Talking Science & Engineering Program, part of the Interdisciplinary Program in Feminist Practice in Women's Studies and the ongoing Women Talking Work Program, provides women the opportunity to meet in small groups to discuss:

Jane Hassinger, Instructor

- the impact of gender and race on workplace dynamics
- communication, negotiation, and power
- professional practice and training, and improving the climate for and retention of women scholars
- research and theoretical literature about gender equity, particularly in science and engineering

Information on additional UM ADVANCE programs and resources to aid departments in addressing recruitment, retention, and climate can be found on the UM ADVANCE website: **www.umich.edu/~advproj**

NSF ADVANCE at the University of Michigan
Institute for Research on Women and Gender
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Ann Arbor, MI 48109-1290
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NSF ADVANCE

at the

University of Michigan

Resources for Improving Departmental Climate

- Advice on gender-equitable hiring practices
- Data-based consultation
- Funds to support a significant transformation in the environment for women faculty
- Interactive theater presentations

Useful Publications

- *Frequently-Asked Questions: Retention of Women Science and Engineering Faculty*
- *Giving and Getting Career Advice* handbook
- *Faculty Recruitment Handbook*
- *Principles for Best Practices in Creating a Positive Departmental Climate*

Support to Women Scientists & Engineers

- Funds to support success of women science and engineering faculty
- Career advising programs
- Network for instructional track women science and engineering faculty
- Women Talking Science & Engineering Program

For more information on the UM ADVANCE Project, please visit our website:
www.umich.edu/~advproj

Questions, Comments, or Concerns?
Please contact the UM ADVANCE team:
advanceproject@umich.edu

Resources for Improving Departmental Climate

STRIDE: Committee for Science & Technology Recruiting to Improve Diversity & Excellence

Men and women senior faculty educate and advise departments on gender-equitable hiring practices through:

- advising chairs on search committee composition and search practices
- working with search committees throughout the search process
- offering recruitment workshops to departments, search committees, and other faculty groups
- providing documents useful during the recruitment process

Data-Based Consultation

These consultations are individually scheduled with deparment chairs to discuss:

Cinda-Sue Davis, Instructor

- data on the status of women in science and engineering at the undergraduate, graduate, and faculty level, comparing UM data with national and international data
- data on the status of women within particular disciplines in science and engineering at the undergraduate, graduate, and faculty level, comparing UM data with national and international data
- possible strategies and departmental action

If there is interest, data can be presented to entire departments in workshop format.

Departmental Transformation Grants

Natural Science departments in the College of Literature, Science and the Arts, Basic Science departments in the Medical School, and all departments in the College of Engineering are eligible to apply for funds to support a significant transformation in the environment for women faculty. Grants of up to $100,000 will be awarded on a rolling basis. Interdepartmental proposals are encouraged.

Interactive Theater Performances

Center for Research on Learning and Teaching (CRLT) Players present scenarios portraying the challenges female faculty may encounter in interactions with students or faculty. These scenarios are based on data from interviews and focus groups conducted at UM. They provide a foundation for dialogue about climate and collegiality.

CRLT Players

Useful Publications

UM ADVANCE offers several publications regarding recruitment and retention of women science and engineering faculty. Some of these resources, which can be found on the UM ADVANCE website, include:

- *Frequently-Asked Questions: Retention of Women Science and Engineering Faculty*
- *Giving and Getting Career Advice* handbook
- *Faculty Recruitment Handbook*
- *Principles for Best Practices in Creating a Positive Departmental Climate*

Support to Women Scientists & Engineers

Grant Opportunities

Elizabeth Caroline Crosby Research Fund

Elizabeth Caroline Crosby Awards are available to help meet career-relevant needs of individual faculty if meeting those needs will help increase the retention or promotion of women scientists and engineers. The fund, initially seeded by an NSF ADVANCE grant, supports a range of activities necessary for scholarly work in science and engineering fields. Competition for funds ($100,000 annually) takes place annually.

Elizabeth C. Crosby

Lydia Adams DeWitt Research Fund

The Lydia Adams DeWitt Research Fund was created in 2002 to help meet career-relevant needs of individual primary research track faculty in science and engineering if meeting those needs will improve the retention or promotion of women scientists and engineers. Created with University funds and administered by the UM ADVANCE Project, DeWitt Awards support a range of activities necessary for scholarly work in science and engineering fields. Competition for funds takes place annually.

Faculty Recruitment Handbook

NSF at the University of Michigan
Academic Year 2004-2005

I. Introduction

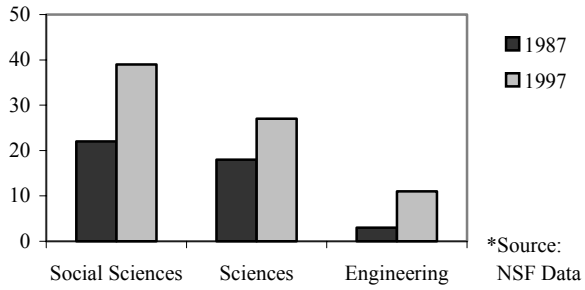
Efforts to recruit, retain, and promote women faculty in science and engineering have produced slow and uneven results. This has been the case both nationally and at the University of Michigan. Since the summer of 2002, under the auspices of the UM NSF ADVANCE grant, the Science and Technology Recruiting to Improve Diversity and Excellence Committee (STRIDE) has given presentations to science and engineering search committees and departments aimed at helping with the recruiting and retention of women and other minorities under-represented among the faculty.

The committee is composed of senior male and female science and engineering faculty who are able to advise departments on gender-equitable hiring practices through presentations, detailed and targeted advice, or focused discussions as needed.

STRIDE offers a presentation "Women in Science and Engineering: We've Come a Long Way -- Or Have We?" which the committee developed as an interactive tool to discuss with search committees and other faculty groups. It contains data about the low numbers of women faculty in science and engineering departments, especially at the higher levels. The data indicates that, in many cases, the problem is not entirely with the pipeline and emphasizes that men and women equally have non-conscious bias in evaluating women, both as job candidates and as colleagues. Schedule a presentation by calling 647-9359 or contacting advance@umich.edu. The PPT is accessible at www.umich.edu/~advproj/stridepresents_files/frame.htm

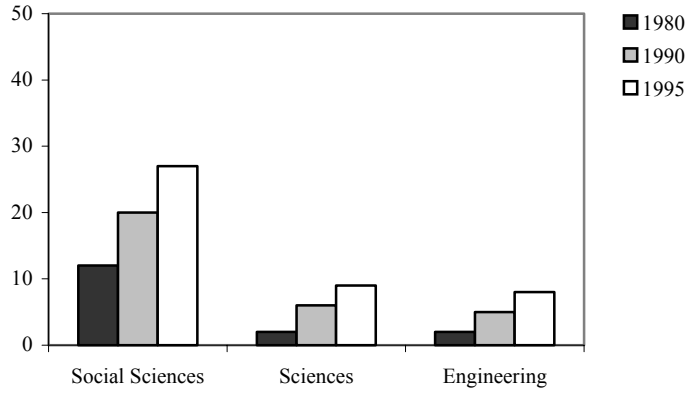
Background on the Numbers

Figure 1: National Percentages of Female Faculty in the Social Sciences, Sciences, and Engineering: 1987-1997*



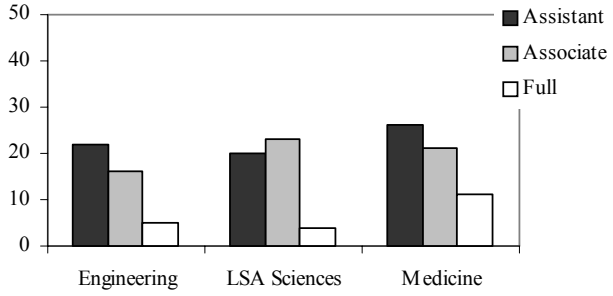
*Source: CEW Report 1996

Figure 2: Percentages of Female Faculty in the Social Sciences, Sciences and Engineering at UM: 1980, 1990, and 1995*



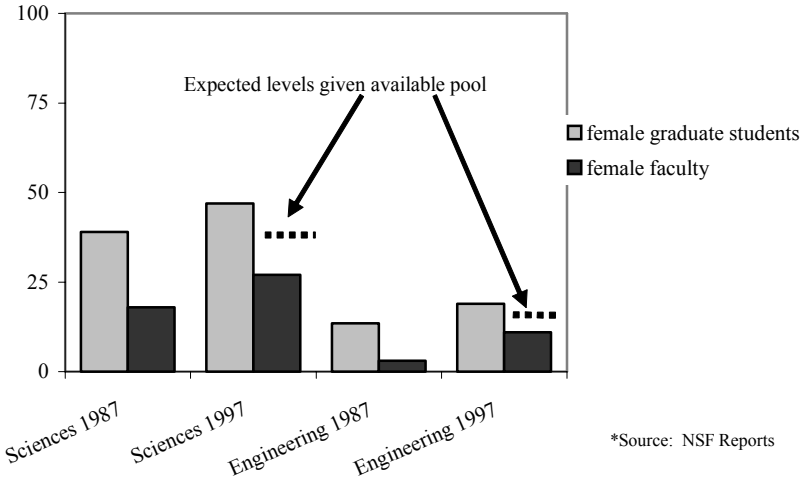
Studies reveal that women in academic science, as in academe more generally, are tenured and promoted more slowly, and earn less on average than their male counterparts, even when controlling for productivity. This has been true at the University of Michigan as well.

Figure 3: Percent of Women Instructional Track Faculty in Engineering, LSA Science Departments, and Medicine by Rank, 2000-01



In most science and engineering fields, the relative lack of women faculty cannot be understood as exclusively a "pipeline problem"—that is, a problem resulting from a lack of women qualified for the positions. In some fields there is still a serious pipeline problem: only 11% of mechanical engineering doctorates and only 13.5 % of physics doctorates completed in 2000 were earned by women, slight increases from 6.6% and 11.0 % in 1991[13]. However, in other fields the percentage of female Ph.D.'s is much higher. In fact, in some science fields women are receiving more doctorates than men: 57.6% of the doctorates completed in botany in 2000 went to women, as did 54.1% of those completed in developmental biology, and 50.2% in human/animal genetics, and these percentages continue to grow.[14] More importantly, though, women generally do not hold the number of tenure track positions in science that the numbers of doctorates they receive would lead one to expect, either in the fields where the rates are low or in those where they are high.

Figure 4: National Percentages of Female Graduate Students and Faculty in Science and Engineering: 1987 and 1998*



The reasons for the relatively low representation of women at the highest levels of academic science are complex and will not be solved by recruitment alone. However, different recruitment practices, such as those outlined in this handbook, are a crucial part of the solution. Indeed, increasing the number of women faculty can by itself do a great deal to change climate, making it better not only for women but for all faculty, and for graduate and undergraduate students as well, thus insuring that the best students and faculty can all thrive at the University of Michigan.

This handbook draws on material from handbooks developed at MIT, the University of Washington, Penn State University, and the University of Minnesota. These and other useful

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[13] Hill, Susan T. (2001). *Science and Engineering Doctorate Awards: 2000*. Arlington, VA: National Science Foundation.

[14] Ibid.

references are listed in the final section. Further resources can be found on the ADVANCE Project web page: www.umich.edu/~advproj

The University of Michigan's Provost's Faculty Initiative Program (PFIP) provides supplemental resources "to promote diversity in the University faculty and to respond to unique opportunities." This program can also help you recruit and retain excellent women and minority faculty. Consult the Provost's Office web page for further information: www.provost.umich.edu/programs/pfip.html

II. Initiating The Search Process

The composition of the search committee and its charge are factors likely to have consequences for the outcome of the search. It is important that issues of composition and charge be addressed quite deliberately and early. STRIDE would be happy to meet with department chairs or other decision-makers to help think through issues associated with the composition of, and charge to, the search committee.

Composition of the Committee

- Search committees should include members with different perspectives and expertise, and with demonstrated commitments to diversity.
- Search committees should include women and minorities whenever possible; consider including faculty from other departments if there are no women and/or minorities in your own.
- It is often helpful to appoint some search committee members from outside the department.

The Search Committee's Charge

- The Committee should be clear about whether its charge includes particular focus on gender-equitable search practices, and the goal of identifying outstanding women candidates for the position.
- The Committee is encouraged to engage in a detailed discussion of selection criteria and position definition prior to beginning the search.
- The committee should also discuss methods for actively recruiting women and minorities prior to beginning the search.
- The Committee should consider how it can convincingly represent the school or department's commitment to hiring and advancing female faculty. This may be of particular concern for departments that have few or no women faculty. In these cases, it may be helpful to develop long-term strategies for recruiting women. For example, the department might consider inviting targeted women faculty to give talks and then inviting them to apply for positions the following year.

- Feel free to consult STRIDE as questions arise throughout the search process. We especially encourage you to talk to us before you actually begin to search.

How Active Recruitment Efforts Can Backfire

- Women and minority faculty candidates wish to be evaluated for academic positions on the basis of their scholarly credentials. They will not appreciate subtle or overt indications that they are being valued on other bases, such as their gender or race. (Women candidates and candidates of color already realize that their gender or race may be a factor in your considerations.) It is important that contacts with women and minority candidates for faculty positions focus on their scholarship, qualifications, and potential academic role in the department.

The Importance of Dual Career Considerations

While it is critical that women candidates be treated first and foremost as the scholars they are, it is equally important that search committees and departments understand the importance of dual career considerations in recruiting women faculty in science and engineering.

- Female scientists are much more likely to be partnered with other scientists than male scientists are. For example, about 50% of married female physicists are married to other physicists, while only about 7% of married male physicists are married to other physicists.[15] This means that disadvantages that affect two-career academic couples have a disproportionate impact on women. Note, however, that female scientists are also twice as likely as male scientists to have no partner at all, and thus to have no household support system. Recognize that there is certainly variability among women scientists in their personal and household circumstances. Do not assume a single model involving a husband and children.

- Make sure everyone on the search committee is familiar with the UM's dual career support programs. Consult the Provost's Office for further information by calling 764-0151. Information is also available online at www.provost.umich.edu/programs/pfip.html This site provides online resources for dual career partners seeking employment. In addition, the document, "University of Michigan Dual Career Program: Roles and Responsibilities & Steps in the Process," a resource for University administrators, is available by calling 764-0151 to request a copy.

- Provide them with a copy of the flier, "Dual Career Program at the University of Michigan: A Guide for Prospective and New Faculty Members," available online. www.provost.umich.edu/programs/dual_career/DualCareerBrochure9201.pdf

- You may need to counter perceptions that Ann Arbor, as a small city, offers limited opportunities for a candidate's spouse or partner. Make sure candidates know about the diverse employment possibilities their partners might find not only at the university, but also throughout Ann Arbor and in the larger Southeast Michigan area. The Dual Career office can provide helpful information on Ann Arbor and surrounding communities. (See contact information above.)

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[15] McNeil, L., and M. Sher. (1999). "The Dual-Career-Couple Problem." *Physics Today*. College Park, MD: American Institute of Physics.

- Consider including a sentence like the following in job postings, if your committee and your department chair are in fact willing to do their best to help place qualified spouses and partners: "The University is responsive to the needs of dual career couples."

- Let candidates know that they may ask about dual career issues or other policies that may make the University of Michigan more attractive to them. Provide them with a copy of the university's brochure on the Dual Career Program. Do not, however, ask the candidate for information about relationship or family status if they don't volunteer it. It is illegal to request personal information from job candidates. Moreover, some women candidates will fear that any focus on this issue would place them at a disadvantage in the hiring process. Instead, make sure that candidates have all available information about University of Michigan policies and resources that might help them, so that the candidates will feel comfortable about making use of them if they want to.

- It may be helpful to identify someone in the department who can offer to have a confidential conversation (one not to be conveyed to anyone else in the department) with candidates about these issues. This person should be well-informed about all programs supporting faculty members' families, and willing to describe or discuss them with candidates, without transmitting information about the candidate's personal circumstances to the department or the rest of the search committee. However, this person should not ask for personal information if the candidate does not offer it.

- If a candidate does mention having a spouse or partner who will need placement help, try to help arrange interviews or other opportunities for the spouse or partner as early in the hiring process as possible. Contact the Dual Career Coordinator in the Provost's office for further information and assistance. (764-0151)

Defining the Position

- Develop broad hiring goals. Get consensus on areas of specialty and other specific requirements, while planning to cast the hiring net as widely as possible.

- Make sure that the position description does not needlessly limit the pool of applicants. Some position definitions may exclude female candidates by focusing too narrowly on subfields in which few women specialize.

- Consider, among selection criteria, the ability of the candidate to add intellectual diversity to the department, and demonstrated ability to work with diverse students and colleagues.

- If women or minority candidates are hired in areas that are not at the center of the department's focus and interest, they may be placed in an unfavorable situation. It is important to avoid this, which may require careful thought about how the department will support not only the individual, but also the development of that person's area within the department. Consider "cluster hiring," which involves hiring more than one faculty member at a time to work in the same specialization.

- Establish selection criteria and procedures for screening, interviewing candidates, and keeping records before advertising the position and before materials from applicants begin to arrive.

- Make sure that hiring criteria are directly related to the requirements of the position, clearly understood, and accepted by all members of the committee.

- Get committee consensus on how different qualifications will be weighted. Plan to create multiple short lists based on different criteria. (See "Creating the Short List," in section IV, below.)

Language for Announcing Positions

- Proactive language can be included in job descriptions to indicate a department's commitment to diversity. This may make the position more attractive to female and minority candidates. Examples include:

    - "The college is especially interested in qualified candidates who can contribute, through their research, teaching, and/or service, to the diversity and excellence of the academic community."

    - "The University is responsive to the needs of dual career couples."

    - "Women, minorities, individuals with disabilities, and veterans are encouraged to apply."

III. Committee Activity Before the Search Begins

It is likely to be extremely useful for the search committee, and/or a larger group in the department, to engage in a relatively extended review of the national context, as well as the department's own past history of searching and hiring, before beginning a new search. The department is more likely to be able to achieve a different outcome from past outcomes if it has some understanding of factors that may have played a role in limiting past success in recruiting women.

Reviewing the National Pool

- Take steps to identify the national "pools" of qualified candidates for the field as a whole and for subfields in which you are considering hiring. Subfield pools are sometimes quite different from overall pools. ADVANCE staff are willing and able to assist you in identifying field and subfield pools; contact Cinda-Sue Davis (csdavis@umich.edu) to request this assistance.

- Identify any institutions or individuals nationally that are especially successful at producing women doctorates and/or postdoctorates in your field or the desired subfield. Be sure to recruit actively from those sources.

Reviewing Past Departmental Searches

- **Find out how many women have applied for past positions in your department, as a percentage of total applicant pool.**

- Find out how many women have been brought to campus for interviews in your field in previous searches
- If women have been hired in recent searches, consider asking the search committees, the department chair, and the women themselves how they were successfully recruited.
- If women have been offered positions but have turned them down, consider finding out why they have turned them down. ADVANCE staff are willing and able to conduct confidential interviews with such candidates, if you think they might be less than candid in talking with colleagues in the same field (contact advance@umich.edu). Be sure, in any case, to collect multiple accounts; they often conflict. Listen for potential insights into departmental practices that might have been a factor in candidates' decisions. Stories that appear to be highly individual at first may reveal patterns when considered in the aggregate.
- Find out what has happened to women who were not hired in previous searches. Where are they now? Does it appear that something interfered with your assessment of their likely success?
- If no women have been offered positions in recent searches, consider redefining departmental evaluation systems in ways that might take strengths of female candidates into better account. Consider whether positions have been defined too narrowly. If candidates have been ranked on a single list, consider using multiple ranking criteria in the future.

IV. Recruiting Activities During the Search

Broadening the Pool

- Be aware that the University of Michigan's Provost's Faculty Initiative Program (PFIP) provides supplemental resources "to promote diversity in the University faculty and to respond to unique opportunities." This program can help you recruit and retain women and minority faculty. Consult the Provost's Office for further information: www.provost.umich.edu/programs/pfip.html
- View your committee's task as including a process of generating a pool rather than merely tapping it. This may be accomplished by having committee members attend presentations at national meetings and develop a list of potential future candidates based on those. Candidates identified in this way may be in any field, not necessarily the one targeted for a particular search. In fact, the department may consider creating a committee to generate women and/or minority candidates, who can then be considered for targeted recruitment outside of subfield-defined searches. (This approach has been used successfully by the Psychology Department at UM.) In addition, the committee may consider issuing invitations to visit UM informally to present research before candidates are ready for an active search. Cultivating future candidates is an important activity for the search committee to undertake, and may require that the search have a longer time horizon than is typical.

- If your department is a significant source of qualified applicants nationally, consider setting aside the traditional constraint against "hiring our own." It may be important, if your department or related ones at UM is a significant producer of the pool, to avoid unduly constraining the search to those trained elsewhere.

- Keep in mind that some eminent universities have only recently begun actively to recruit women and minorities as students. Therefore, consider candidates from a wide range of institutions.

- Consider the possibility that women who have excelled at their research in departments less highly ranked than UM's may be under-placed and might thrive in the University of Michigan research environment.

- Make sure that the committee's system of evaluation does not inadvertently screen out well-qualified applicants from historically Black colleges and universities.

- Be careful to place a suitable value on non-traditional career paths. Take into account time spent raising children or getting particular kinds of training, unusual undergraduate degrees, and different job experiences. There is considerable evidence that evaluations of men frequently go up when they have such work experience, while evaluations of women with the same kinds of experience go down.[16]

- Keep in mind that women candidates are more likely to be hired when more than one woman is brought in for an interview.

- Rank candidates separately on several different criteria, rather than using a single aggregate ranking list.

- Consider re-opening or intensifying the search if the pool of applicants does not include female or minority candidates who will be seriously considered by the search committee.

Use Active Recruiting Practices

- Advertise the position for at least thirty days before the application deadline.

- Use electronic job-posting services targeted at diverse groups such as minority and women's caucuses in your discipline. (A list of several resources follows on the next page.)

- Make personal contacts with women and minorities at professional conferences and invite them to apply.

- Ask faculty and graduate students to help identify women and minority candidates.

- Contact colleagues at other institutions to seek nominations of students nearing graduation or others interested in moving laterally, making sure to request inclusion of minorities and women.

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[16] Egan, Mary Lou, Marc Bendick, and John J. Miller. (2002). "U.S. firms' evaluations of employee credentials in international business." *International Journal of Human Resource Management* 13:1. London: Routledge, Taylor and Francis Group.

- Place announcements in newspapers, journals, and publications aimed specifically at minorities and women.
- Identify suitable women and minority faculty at other institutions, particularly faculty who may currently be under placed, and send job announcements.
- Contact relevant professional organizations for rosters listing women and minorities receiving PhDs in the field.

Use Active Recruiting Resources

Be aware that most fields have resources—listservs, email groups, etc.—that can help you identify or reach qualified women and minority candidates. Either seek these out on your own, or request assistance from advance@umich.edu in identifying them.

- Recruitment Sources page at Rutgers lists several resources that can be helpful in recruiting women and minority candidates. http://uhce.rutgers.edu/apsonline/ha_home.html
- The WISE Directories publishes free annual listings of women and minority Ph.D. recipients, downloadable as pdf documents. http://www.cic.uiuc.edu/programs/DirectoryOfWomenInScienceAndEngineering/ http://www.cic.uiuc.edu/programs/DirectoryOfMinorityCandidates/
- The Minority and Women Doctoral Directory "is a registry which maintains up-to-date information on employment candidates who have recently received, or are soon to receive, a Doctoral or Master's degree in their respective field from one of approximately two hundred major research universities in the United States. The current edition of the directory lists approximately 4,500 Black, Hispanic, American Indian, Asian American, and women students in nearly 80 fields in the sciences, engineering, the social sciences and the humanities." Directories are available for purchase. www.mwdd.com/index.asp
- National Science Foundation Survey of Earned Doctorates is published yearly. While it does not list individual doctorate recipients, it is a good resource for determining how big the pool of new women and minority scholars will be in various fields. www.nsf.gov/sbe/srs/ssed/start.htm
- Society of Women Engineers maintains an online career fair. www.swe.org
- Association for Women in Science maintains a job listings page. www.awis.org

Creating the Short List

As you begin to evaluate applicants and candidates, be aware of the kinds of evaluation biases that psychological research has identified in both women's and men's judgments of job candidates. You may want to view the videotaped lecture by Virginia Valian summarizing this research, and discuss it as a group. Alternatively, your committee could review some of her

written work and discuss that. ADVANCE staff will be happy to help you obtain this material (contact advance@umich.edu).

The most important general point about the process of creating the short list is to build in several checkpoints at which you make a considered decision about whether you are satisfied with the pool of candidates you have generated.

- Get consensus on the multiple criteria that will be used to choose candidates for interviews. Notice that different criteria may produce different top candidates. Be sure to consider all criteria that are pertinent to the department's goals (e.g., experience working with diverse students might be one). In addition, discuss the relative weighting of the different criteria, and the likelihood that no or few candidates will rate high on all of them.

- Develop a "medium" list from which to generate your short list. Are there women or minority candidates on it? If not, consider intensifying the search before moving on. Consider contacting STRIDE for advice or help.

- Consider creating separate short lists ranking people on different criteria, such as teaching, research potential, and mentoring capacity. Develop your final shortlist by taking the top candidates across different criteria. Evaluate this step before finalizing the list; consider whether evaluation bias may still be affecting your choices.

- Alternatively, generate a separate "medium" list that ranks the top female candidates if only one or two women show up on your first medium list. Consider whether evaluation bias (the tendency to underestimate women's qualifications and overestimate men's) might have played a role in the committee's judgments by comparing the top females on the new medium list with the original medium lists. Create a new short list by drawing the top candidates from both "medium" lists.

- Plan to interview more than one woman. Interviewers evaluate women more fairly when there is more than one woman in the interview pool. When there is only one woman, she is far less likely to succeed than women who are compared to a mixed-gender pool of candidates, probably because of the heightened salience of her gender.[17]

V. Handling Campus Visits

The campus visit is an important opportunity for the department to communicate three messages:

1. You are seriously interested in the candidate's scholarly credentials and work;
2. Michigan is a good place to come, both because it is intellectually lively, and
3. Because it has a variety of humane, family-friendly policies in place.

How these messages get communicated can make a critical difference in recruiting women to departments in which they will be vastly outnumbered by male colleagues.

[17] Valian, Virgina. (1999). *Why So Slow? The Advancement of Women*. Cambridge, Mass.: The MIT Press. See especially chapter 7.

- Make it clear that you are interested in the candidate's scholarship and skills, rather than his or her demographic characteristics. It is generally not helpful to make a point with candidates that the department is eager to hire women and minorities.

- Consider how the department will represent the university as a whole as a place in which women faculty can thrive. Distribute information about potentially relevant policies (dual career, maternity leave, modified duties, etc.) to all job candidates regardless of gender.

- Consider how the department will represent itself as a place in which women faculty can thrive. This may be difficult for departments that currently have few or no women faculty members. Some things that may make the department more attractive to women are:
    - Clear and public policies and procedures for evaluation and promotion
    - Mentoring resources for junior faculty in general and female faculty in particular
    - Development of some practices in evaluation and annual reporting that value mentoring of women and minority faculty and students
    - An explicit plan to promote gender equity within the department

- Schedule interviews and events with consistency. Allow equal time for each candidate to interview and meet with the same personnel whenever possible. Treat internal candidates with the same consistency. If you often recruit from among alumni, be sure to consider the fact that non-alumni who don't have the "head start" that comes from knowing people on campus might need to spend more time here in order to receive equitable consideration.

- Give the candidate a chance to interact with the department's faculty in multiple venues. Formal talks may not reveal every candidate's strengths. Consider including Q + A sessions, "chalk talks," and other less formal interactions.

- Focus on the candidate's ability to perform the essential functions of the job and avoid making assumptions based on perceived race, ethnic background, religion, marital or familial status, age, disability, sexual orientation, or veteran status.

- Create opportunities for the candidate to meet with other faculty or community members, including members of STRIDE, who can provide relevant information to candidates who are women or members of underrepresented groups. Be sure to offer information and access to faculty who might represent opportunities for interdisciplinary collaboration.

- Avoid leaving candidates alone with faculty who may be hostile to hiring women and minorities. If a candidate is confronted with racist or sexist remarks, take positive and assertive steps to defuse the situation. Be sure there is a practice in place in the department for dealing with the expression of racist or sexist attitudes, and that the candidate is made aware of it, if the situation arises.

- Use a set of common questions with all candidates to allow comparative judgment and insure that crucial information related to the position is obtained.

- Introduce women and minority members of the department to all candidates, not just women and minorities. Moreover, if women and minority faculty members are expected to play an especially active role in recruiting new faculty, be sure to recognize this additional service burden in their overall service load.

VI. Negotiating Contracts

- The way in which contract negotiations are conducted can have huge impact not only on the immediate hiring outcome, but also on a new hire's future career. Candidates who feel that negotiations are conducted honestly and openly will feel more satisfied in their positions and more committed to staying at the UM than those who feel that a department has deliberately withheld information, resources, or opportunities from them. Initial equity in both the negotiated conditions and in the department's follow-through on the commitments it makes are likely to be very important factors in retention as well as recruitment.

- Women candidates may have received less mentoring at previous career stages than their counterparts, and may therefore be at a disadvantage in knowing what they can legitimately request in negotiations. To ensure equity, consider providing all candidates with a complete list of things it would be possible for them to discuss in the course of negotiations. These might include:

    - Course release time
    - Lab equipment
    - Lab space
    - Renovation of lab space
    - Research assistant
    - Clerical / administrative support
    - Discretionary funds
    - Travel funds
    - Summer salary
    - Moving expenses
    - Assistance with partner / spouse position
    - Other issues of concern to the candidate

- Consider appointing an advocate or mentor to help candidates throughout the negotiation process and help him or her to secure the best possible package.

- If a candidate has a spouse or partner who will need placement help, try to help arrange interviews or other opportunities for the spouse or partner as early in the hiring process as possible. Be familiar with University resources to support these efforts. Consult the Provost's Office for further information:
  www.provost.umich.edu/programs/dual_career/index.html
  www.provost.umich.edu/programs/dual_career/DualCareerTips.pdf

- Be sure to provide clear, detailed information about mentoring practices as well as all crucial review criteria and milestones such as annual reviews, third year reviews, tenure reviews, and post-tenure promotion reviews.

VII. Evaluating the Search

If the department hires a woman and/or minority candidate, consider the factors that may have enabled it to do so and keep a record of good practices and successful searches for future reference.

If the applicant pool was not as large, as qualified, or as diverse as was anticipated, consider:

Could the job description have been constructed in a way that would have brought in a broader pool of candidates?

Could the department have recruited more actively?

Were there criteria for this position that were consistently not met by women or candidates of color?

If women and/or minority candidates were offered positions that they chose not to accept, what reasons did they offer? Consider as many factors as you can identify. Are there things that the department could do to make itself more attractive to such candidates in the future? Be sure that any analysis and insight is shared with departmental decision-makers and is part of the process of initiating future searches. If you would like someone outside your department to help with a confidential interview of the candidate(s), please contact ADVANCE for help (advance@umich.edu).

VIII. Candidate Evaluation Sheet

The following offers a method for department faculty to provide evaluations of job candidates. It is meant to be a template for departments that they can modify as necessary for their own uses. The proposed questions are designed for junior faculty candidates; however, alternate language is suggested in parenthesis for senior faculty candidates.

Candidate's Name: _____

Please indicate which of the following are true for you (check all that apply):

- □ Read candidate's CV
- □ Read candidate's scholarship
- □ Read candidate's letters of recommendation
- □ Attended candidate's job talk
- □ Met with candidate
- □ Attended lunch or dinner with candidate
- □ Other (please explain):

_____

_____

Please comment on the candidate's scholarship as reflected in the job talk:

Please comment on the candidate's teaching ability as reflected in the job talk:

Please rate the candidate on each of the following:	excellent	good	neutral	fair	poor	unable to judge
Potential for (Evidence of) scholarly impact						
Potential for (Evidence of) research productivity						
Potential for (Evidence of) research funding						
Potential for (Evidence of) collaboration						
Fit with department's priorities						
Ability to make positive contribution to department's climate						
Potential (Demonstrated ability) to attract and supervise graduate students						
Potential (Demonstrated ability) to teach and supervise undergraduates						
Potential (Demonstrated ability) to be a conscientious university community member						

Other comments?

IX. Readings on Gender and Faculty Recruitment

Bensimon, E.M., Ward, K., & Sanders, K. (2000). "Creating Mentoring Relationships and Fostering Collegiality." 113-137. Bolton, MA: Anker Publishing.
Describing the department chairs' role in developing new faculty into teachers and scholars.

Georgi, Howard. (2000). "Is There an Unconscious Discrimination Against Women in Science?" *APS News Online*. College Park, Maryland: American Physical Society.
An examination of the ways in which norms about what good scientists should be like are not neutral but masculine and work to disadvantage women.

McNeil, L., and M. Sher. (1999). "The Dual-Career-Couple Problem." *Physics Today*. College Park, MD: American Institute of Physics.
Women in science tend to have partners who are also scientists. The same is not true for men. Thus many more women confront the "two-body problem" when searching for jobs. McNeil and Sher give a data overview for women in physics and suggest remedies to help institutions place dual-career couples.

Mickelson, R. A. and M. L. Oliver (1991). Making the Short List: Black Faculty Candidates and the Recruitment Process. *The Racial Crisis in American Higher Education.* C. Kerr, State University of New York Press.
Examination of issues involved in recruitment of racial minorities to faculty positions, especially issues associated with the prestige of training institutions.

Sagaria, M. A. D. (2002). "An Exploratory Model of Filtering In Administrative Searches: Toward Counter-Hegemonic Discourses." *The Journal of Higher Education* 73(6): 677-710.
Describing administrator search processes at a predominately white university in order to explore whether searches may be a cause for the limited success in diversifying administrative groups.

Smith, D. (2000). "How to Diversify the Faculty." *Academe*, 86, no. 5. Washington, D.C.: AAUP.
Enumeration of hiring strategies that may disadvantage minority candidates or that might level the playing field.

Steinpreis, R.E., Anders, K.A. & Ritzke, D. (1999). The impact of gender on the review of the curricula vitae of job applicants and tenure candidates: A national empirical study. *Sex Roles*, 41, 7/8, 509-528.
A study demonstrating the operation of gender bias in the evaluation of job applicants and tenure candidates.

Trix, F. and C. Psenka (2003). "Exploring the color of glass: letters of recommendation for female and male medical faculty." *Discourse & Society* 14(2): 191-220.
Letters of recommendation for successful female and male medical faculty showed differences in terms used to describe them and in the length of letters. Letters for females were shorter than those for males; included more phrases expressing doubts; were more likely to include only minimal information; mentioned their personal life more often. Letters for males included more repetition of

standout words like “outstanding”, and included more references to research, skills and abilities and career.

Turner, Caroline Sotello Viernes. (2002). *Diversifying the Faculty: A Guidebook for Search Committees*. Washington, D.C.: AACU.
Informed by the growing research literature on racial and ethnic diversity in the faculty, this guidebook offers specific recommendations to faculty search committees with the primary goal of helping structure and execute successful searches for faculty of color.

Valian, V. (1998). "Evaluating Women and Men." (Chapter 1 and Chapter 7.) *Why So Slow? The Advancement of Women.* Cambridge, Mass.: MIT Press.
In this chapter, Valian presents research that demonstrates that men and women who do the same things are evaluated differently, with both men and women rating women’s performances lower than men’s, even when they are objectively identical.

Wenneras, C. & Wold, A. (1997). “Nepotism and sexism in peer-review.” *Nature*, 387, 341-343.
This Swedish study found that female applicants for postdoctoral fellowships from the Swedish Medical Research Council had to be 2.5 times more productive than their male counterparts in order to receive the same “competence” ratings from reviewers.

Wolf Wendel, L. E., S. B. Twombly, et al. (2000). "Dual-career couples: keeping them together." *The Journal of Higher Education* 71(3): 291-321.
Addresses academic couples who face finding two positions that will permit both partners to live in the same geographic region, to address their professional goals, and to meet the day-today needs of running a household which, in many cases, includes caring for children or elderly parents.

Yoder, J. (2002). “2001 Division 35 Presidential Address: Context Matters: Understanding Tokenism Processes and Their Impact on Women’s Work.” *Psychology of Women Quarterly*, 26.
Research on tokenism processes is reviewed and coalesces around gender constructs. Reducing negative tokenism outcomes, most notably unfavorable social atmosphere and disrupted colleagueship, can be done effectively only by taking gender status and stereotyping into consideration. These findings have applied implications for women’s full inclusion in male-dominated occupations.

Background Readings on Women’s Scientific Careers

A Study on the Status of Women Faculty in Science at MIT. (1999)**.** *The MIT Faculty Newsletter*, Vol. XI, No. 4.
This is the original MIT report that has spurred so many other studies

Hopkins, Nancy, Lotte Bailyn, Lorna Gibson, and Evelynn Hammonds. (2002). *An Overview of Reports from the Schools of Architecture and Planning; Engineering; Humanities, Arts, and Social Sciences; and the Sloan School of Management*. Massachusetts Institute of Technology.
The overview of MIT’s more recent study of all of its schools.

Etzkowitz, H., C. Kemelgor, and B. Uzzi. (2000). "The 'Kula Ring' of Scientific Success.” *Athena unbound: The advancement of women in science and*

technology. Cambridge: Cambridge University Press.
Explores the ways in which the lack of critical mass for women in science disadvantages them when it comes to the kinds of networking that promotes collaboration and general flow of information needed to foster the best possible research.

Long, J. Scott, ed. (2001). "Executive Summary." *From Scarcity to Visibility: Gender Differences in the Careers of Doctoral Scientists and Engineers.* 1-8. Washington, D.C.: National Academy Press.
This excerpt provides an overview of differences in the science careers of men and women.

X. Handbooks

In addition to the articles listed above, and several other resources, material from each the following recruitment guides was used to help develop this handbook:

"Affirmative Action Guidelines for Searches to Achieve Diversity." Penn State University. Available online: www.psu.edu/dept/aaoffice/GettingResults/index.htm

"Faculty Recruitment Toolkit." (2001). University of Washington. Available online: www.washington.edu/admin/eoo/forms/ftk_01.html

"Guidelines for Recruiting & Appointing Academic Personnel, Appendix A: Recruiting a Diverse, Qualified Pool of Applicants." University of Minnesota. Available online: www1.umn.edu/ohr/ohrpolicy/Hiring/Guidelines/appendixa.htm

"Massachusetts Institute of Technology Faculty Search Committee Handbook." (2002). MIT. Available online as pdf document: web.mit.edu/provost/Search_Comm.Handbookt8.pdf

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Appendix H: *The University Record* *"Hiring of female professors doubles in science and engineering"* *Published 11/08/04*

Hiring of female professors doubles in science and engineering

By Laura Bailey
News Service

The number of successful offers made to female professors has doubled since 2001 in science and engineering, according to a new report monitoring the progress of the ADVANCE project at its midway point.

The report indicates that in 2001, about 20 percent of successful job offers went to women, but in 2003 and 2004, nearly 40 percent of successful job offers went to females. The promising figures are contained in a progress report on the National Science Foundation (NSF)-funded ADVANCE project's impact 2 1/2 years into the five-year grant period.

Seventeen of 25 science and engineering departments in the three participating schools (College of Engineering, Medical School and LSA) successfully have recruited women faculty in the past two years. In fact, of 82 new science and engineering faculty on the tenure track, 31 are women, the report says.

"I think that those numbers suggest that Michigan has come up with a system for more effective searches, and their recruiting efforts are more effective so they are getting a broader, more expansive pool of more high caliber applicants, including women," says Alice Hogan, director of the NSF ADVANCE program.

U-M is one of 18 ADVANCE projects nationwide. The program's goal is to improve the campus environment for women faculty in science and engineering, thus increasing recruitment, retention and promotion of tenure-track women faculty.

"There are several reasons for the increase in successful recruitment of women," says Abigail Stewart, professor of psychology and women's studies, and one of the principal investigators on the project.

"Search committees made aggressive outreach to female candidates, and the committee on Science and Technology Recruiting to Improve Diversity and Excellence (STRIDE) offered advice to search committees. They made formal presentations, met with committees to discuss strategies, distributed a handbook on recruitment strategy, and posted their Powerpoint slides on their Web site. Their goal was to increase awareness of the impact of unintentional bias on hiring."

They also offered advice to search committees about effective strategies in recruiting women candidates. For example, well-intentioned faculty often stress their department's desire to hire a female scientist when talking to candidates, but the STRIDE committee advises that women often find that approach insulting; they recommend not stressing the gender issue to recruits, Stewart says.

"A woman scientist wants to be recruited as a scientist, just like a man does," Stewart says.

Successful recruitment of women faculty in the natural sciences is an important goal of the program. Other goals include successful retention and promotion of women, as well as improvement of the climate for women faculty on campus.

Evidence of the impact of the University's ADVANCE project in meeting these other goals is not as clear, although there are a variety of initiatives underway to improve career advising, and to address these issues. For example, an ADVANCE-sponsored effort aimed at improving the environment for women faculty is provided by the CRLT Players from the Center for Research on Learning and Teaching. In one to one-and-a-half-hour sessions, they perform brief sketches that represent some of the challenges female faculty may encounter in interactions with other faculty. The sketches provide a foundation for dialogue about climate and collegiality.

Hogan says STRIDE and the CRLT Players are two of the unique and highly effective strategies that U-M has developed to recruit more women.

"The ADVANCE programs have made a real difference to our ability to recruit and retain gifted women faculty in the sciences and engineering. We plan to institutionalize ADVANCE's most successful programs and practices throughout the University, so that Michigan will continue to be a national leader in recruiting outstanding women to join the faculty, and ensuring that their careers here are successful and rewarding," says Provost Paul N. Courant.

U-M also is interested in recruiting underrepresented students. To that end, another NSF-funded project is underway at the Horace H. Rackham School of Graduate Studies. The program allots $6 million over five years to develop innovative models to recruit, mentor and retain minority students in science and engineering doctoral programs, and to develop strategies to identify and support underrepresented minorities who want to pursue academic careers.

U-M has participated in the NSF program, called the Alliance for Graduate Education and the Professoriate, since 1998. This year, however, Rackham has formed a partnership with Michigan State University, Wayne State University and Western Michigan University.

For information on ADVANCE, visit http://www.umich.edu/~advproj/index.html.

To access this article, visit http://www.umich.edu/~urecord/0405/Nov08_04/00.shtml.

The University Record article was highlighted on the University of Michigan main web site (www.umich.edu).

The article was also highlighted on President Mary Sue Coleman's web site (http://www.umich.edu/pres/).

President Mary Sue Coleman

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U-M, state of Michigan gain from $70 million nanotech access grant

U-M College of Engineering is member of the winning team of universities that landed $70 million NSF grant over five years to open access to nanotechnology resources. **more...**

PRESIDENT COLEMAN'S "FUTURE DIRECTIONS: SHAPING THE MICHIGAN DIFFERENCE"
An address to the University community

President Coleman addresses the University community regarding highlights of the past year, current initiatives underway, and future opportunities and challenges facing the University of Michigan.

>>View address

U-M hiring of female professors doubles in math and sciences

Number of successful offers made to female professors has doubled since 2001 in science and engineering, according to new report monitoring progress of U-M ADVANCE project. more...

http://www.umich.edu/pres/

Appendix I: Profile of Dr. Samuel Mukasa, STRIDE Committee Member
ANN ARBOR NEWS (M-Edition)
"Geologist goes far afield and far back in time"
Published 09/02/04

mlive.com
Everything Michigan

Geologist goes far afield and far back in time

'I learn something new every day,' says professor Samuel Mukasa

Thursday, September 2, 2004BY GEOFF LARCOM

News Staff Reporter

University of Michigan geology professor Samuel Mukasa grew up in Kenya and Uganda, places where, as he says, "geology stares you in the face every day."

Schoolchildren in Uganda learn about the East African Rift, a fault that widens several centimeters annually, a gap that could create an ocean in several million years.

Mukasa liked to climb mountains and hills as a young boy, and joined his high school's climbing club, which would even scale volcanic mountains. In such places Mukasa would ask the question that now defines his academic career: "Why is this here?"

The question stayed with him as the Ugandan government became unstable and the local university collapsed nearly overnight.

Mukasa began looking outward for college, and a good friend from high school who hailed from New Hampshire told him about that state's university. Thus began an academic career that would take Mukasa all over the world, from the mountains of Peru to the volcanoes of the Philippine Islands to the ragged rock formations of Antarctica.

"I learn something new every day," Mukasa says from his office in the C.C. Little Building on U-M's Central Campus.

Mukasa's research takes him far afield and far back in time. He has studied the breakup of Gondwana, the great southern continent that is now Antarctica, India and other parts of Southeast Asia.

He has studied active volcanoes in the Philippines, South Korea and Mexico, using radioactivity to understand their dynamics.

The most dramatic of those trips have been to Antarctica, where Mukasa has studied rock formations and what they can tell about the history and future of the Earth.

These grant-funded trips involve flying in December, the Antarctic summer, to New Zealand, then catching a flight to the base near Ross Bay. One trip then involved another flight of about 620 miles to study the Dufek Intrusion, a giant rock formation.

The group of several students, guides and Mukasa were left out there for several days and then retrieved. He has also done research in West Antarctica, where he and others used the U.S. Coast Guard icebreaker Polar Sea as a platform for launching helicopter missions ashore.

Eric Essene, a colleague, praises Mukasa's singular field work, along with his efforts to improve the climate for women and minorities in faculty positions.

Along with a passion for his discipline, Mukasa is very active with STRIDE, a U-M committee that seeks to improve the faculty mix around the country.

Mukasa sees the issue in chicken-and-egg terms, worrying about the negative impression that up-and-coming, would-be science scholars get from departments largely devoid of female or minority role models. Mukasa says it's a frustrating loop that's hard to escape.

"What happens to these students after they excel as undergrads?" he asks.

The committee clearly has work to do, but has abundant plans as well, as a two-inch-thick August meeting agenda on Mukasa's desk suggests.

Essene describes Mukasa as more formal than most geologists, but adds that his colleague and friend is loyal and fun to be with.

St. Louis University geologist John Encarnacion, who met Mukasa in the Philippines while he was studying volcanoes, later came to Michigan to study under Mukasa.

Encarnacion recalled meeting with a graduate advisor and Mukasa about his academic program, a talk that offered a first clue about to his mentor's fun-loving nature. Mukasa asked the advisor if the courseload was OK for a new student such as Encarnacion.

"Sam wanted to know if I would still have a social life," Encarnacion recalls now. "He was concerned that I have a well-rounded experience at Michigan, especially coming from another country."

"We don't expect our students to have a social life; we expect them to stay in the lab and work their butts off!" the advisor said, or words to that effect.

Encarnacion says that in the end he did have a social life, and that his experience at U-M "was one of the best times of my life, thanks partly to Sam."

Encarnacion saw another lighthearted side of Mukasa when they shared a hotel room at a national geoscience meeting. Surfing the channels for something to watch on TV, Mukasa settled on "The Three Stooges."

"He laughed like no one I know," Encarnacion says. "He loves those guys."

Encarnacion says Mukasa gave advice that set him on his career path and exemplifies his teacher's approach to his work. In his first year of graduate studies at U-M, Encarnacion debated switching from geochemistry and tectonics (study of the earth's deformation) to environmental science, mainly over concerns about landing a job.

"Sam told me that I should go where my passion is," Encarnacion says. "I followed his advice and I am now quite happy with my academic career."

Mukasa ushers a visitor out of his book-filled office and out into the hall, to a picture of him at the South Pole.

He will fly there again Dec. 29, his ninth trip to the bottom of the globe.

"It's an exciting life," he says of his work. "It certainly is."

News staff reporter Geoff Larcom can be reached at glarcom@annarbornews.com or (734) 994-6838.

Appendix J: Profile of Dr. Mel Hochster, STRIDE Committee Member
ANN ARBOR NEWS (M-Edition)
"Mathematician finds lyricism in work"
Published 09/02/04

mlive.com
Everything Michigan

Mathematician finds lyricism in work

They're not just numbers and formulas to Mel Hochster, but also works of art

Thursday, September 2, 2004BY GEOFF LARCOM

News Staff Reporter

Mel Hochster first came to love mathematics because his sister didn't.

She was seven years older and an English professor in the making. She teasingly asked her 11-year-old brother to help her understand the latest high school math homework.

"I became interested and could explain it back to her," recalls Hochster.

Thus began a mathematical odyssey that endures to this day. Hochster, who grew up in Brooklyn, N.Y., bought some advanced math books soon after that, and by age 14 was auditing college calculus classes.

But it wasn't so much a journey of ambition, rather one of fascination and aesthetics.

"Once I got into math, I found it was very beautiful," Hochster says in his brightly lit office in East Hall, amid a backdrop of labyrinthine equations on a blackboard.

Shortly after discovering math, Hochster found two kindred school spirits, Jeff Cheeger and George Bergman, now professors at the New York University's Courant Institute and Cal-Berkeley, respectively. Together, they shared a passion for what they saw as the almost lyrical qualities of advanced mathematics.

Bergman tells the story of how he first met Hochster in junior high, approaching him in the school lunchroom and talking about "spirals in the complex plane."

"When Mel and I met, we had about an equal knowledge of mathematics," says Bergman, who had been playing with math since early childhood. "I was taken aback to learn that he had learned it all in the past year."

Colleagues say Hochster, who has taught math at the University of Michigan since 1976, retains that youthful zest for his subject and seeks to impart it to young students, who haven't yet experienced the beautiful and more abstract aspects of math.

"I really want to turn them on," he says. "Our society badly needs people trained in mathematics. I want to expose as many young people as I can."

Part of that exposure is serving as an enthusiastic academic role model. "Mel is a world leader in commutative algebra, and his presence here brings us tremendous visibility," says Karen Smith, who returned to U-M as a math professor in 1996 after earning her Ph.D. under Hochster's supervision.

Smith points to the 30 or so Ph.D. students Hochster has advised who have gone on to be

influential mathematicians.

In a large section of Math 216, a course in differential equations required in many U-M sequences such as engineering, Hochster learned all the students' names after getting headshots by photographing them in class.

He happily recalls the story of a female student in an upper-level algebra class who tried mightily but struggled to understand the material. She regularly consulted with Hochster during his office hours, and received a solid grade of "C," which earned her a heartfelt letter of recommendation.

"I was able to say I've never had any student work as hard to overcome difficulties," Hochster says. "She would succeed in anything, if there was any chance of success."

Hochster is also passionately committed to ensuring that women are fairly treated in academia, and increasing their numbers in math and science departments.

To that end, Hochster serves on U-M's STRIDE Committee, which pushes for gender equity in math and science departments, and he advises faculty groups conducting searches.

Abigail Stewart, a U-M professor of psychology and women's studies who works closely with the STRIDE committee, recalls that Hochster came up with the committee name on the spot to stand for "Science and Technology Recruiting to Improve Diversity and Excellence."

"Mel was part of the group from the beginning and has made a great contribution to it," Stewart says.

Stewart recalled how Hochster took the occasion of a special Sokol Award lecture last year to talk to his colleagues about the role of women in mathematics rather than his own scholarship. "This was a remarkable thing to do ... " Stewart says. "He told his story with ... appreciation for women mathematicians' accomplishments, respect for their capacity to overcome obstacles and indignation that they had to."

Hochster cites studies that show various forms of unconscious bias, such as when faculty evaluate vitae of composite candidates named "Brian" or "Karen" and invariably form more favorable first impressions of the man.

"Women are notoriously underrepresented in science departments," Hochster says. "We're pretty serious about this."

"He means everything to the department and the university," says colleague Toby Stafford. "The amazing thing about Mel is how dedicated he is to the department and university. I have lost count of the number of important committees he has been on."

Says Stewart: "Mel combines great warmth, humor and brilliance."

As active as he is professionally, Hochster's family life is also vibrant and exciting. His office is dotted with photos of his children, which include a grown son, now a mathematician, two grandchildren, a teenage daughter and eight-year-old triplets.

Other interests abound as well. Hochster enjoys watching U-M sports, particularly football, basketball and hockey. He writes poetry, plays video games, likes crossword puzzles, hosts bridge luncheons.

Yet spreading the good word about the study of advanced math remains front and center for Hochster, as it has for half a century.

Smith recalled that at the time of her doctoral graduation, in 1993, she remarked to Hochster that he'd advised a lot more female students than random statistics would predict.

He appeared to have not noticed this before, and essentially told Smith, "I don't see why, I don't treat them any differently than male students."

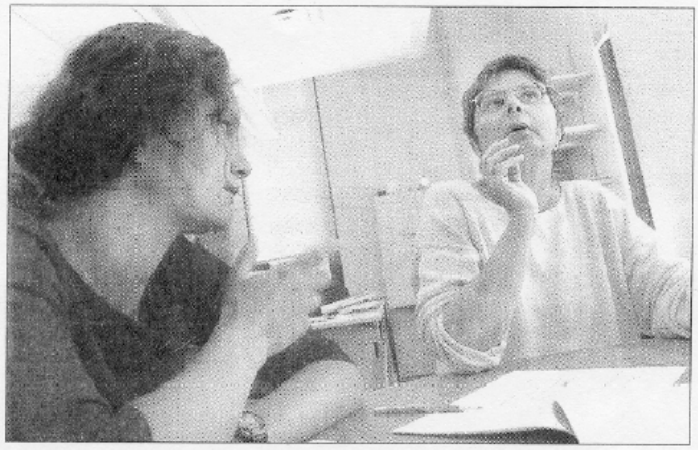
"That is exactly the point," Smith says now.

News staff reporter Geoff Larcom can be reached at glarcom@annarbornews.com or (734) 994-6838.

Appendix K: *Ann Arbor News (M-Edition)*
"U-M professors struggle with gender parity"
Published 09/02/04

M EDITION

U-M professors struggle with gender parity



ELIYAHU GURFINKEL, THE ANN ARBOR NEWS

Deborah Goldberg, right, a biology professor and chair of the Ecology and Evolutionary Biology Department at the University of Michigan, discusses a project with Radka Wildova, a post-doctoral fellow in ecology. Goldberg said U-M has supported her since she arrived in 1983, but more women faculty are needed, particularly in the sciences.

Overt bias falls but subtle factors harder to solve

BY DAVE GERSHMAN
News Staff Reporter

It took stubbornness as well as smarts for Joanna Mirecki Millunchick to become a professor working in materials sciences and engineering.

While she was studying for her bachelor's degree at DePaul University in the late 1980s, Millunchick ran into one of the oldest stigmas for women seeking entry into male-dominated fields such as academia.

"I was told as an undergraduate that if I didn't make it in physics, it's OK, I'd make a wonderful mother," said Millunchick, now an assistant professor at the University of Michigan.

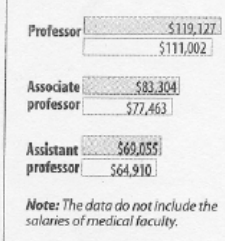
While opportunities continue to grow for women in higher education, gender parity at universities across the country and at U-M is still a long way off. Blatant discrimination against women may have declined, scholars say, but more subtle factors are still at work and need to be addressed so women can increase their ranks in academia.

U-M has made steady progress over the last two decades, but women hold only 27 percent of the tenure-

SEE **FACULTY**, BACK PAGE

Average salaries

Women still earn less than men in tenure-track faculty positions at U-M.



Note: *The data do not include the salaries of medical faculty.*

Source: University of Michigan

SONIA L. GOTTFRIED, THE ANN ARBOR NEWS

Ann Arbor News
Thursday, September 2, 2004
Pages A1 and A10

FACULTY FROM A1

Lack of work boundaries can affect women in academia

track jobs, and they still earn significantly less than men, according to the latest figures from the university.

U-M President Mary Sue Coleman, who became the first woman to lead the university when she was hired in 2002, said she's gratified by the progress women have made, though more has to be done.

"My experience was not unusual," Coleman said, recalling the climate when she earned her Ph.D. in biochemistry in 1969. "My experience was supportive in college. By the time I got to grad school, people were not as encouraging. They didn't take the attitude that I would have a serious scientific career."

Statistics show women are digging themselves out of a "great historical hole," said Susan Kaufmann, associate director for the Center for the Education of Women at U-M.

Between 1990 and 2003, the percentage of women among U-M faculty increased at these levels:

- Full professors: to 17 from 9 percent.
- Associate professors: to 35 from 23 percent.
- Assistant professors: to 36 from 30 percent.

Kaufmann is concerned that the encouraging progress in reaching the upper ranks of academia may be harder to come by in the future, because not as many women are making inroads in the job of assistant professor. That position is the entry-level tenure-track job, the start of the pipeline to becoming a full professor.

"Unless it increases significantly," Kaufmann said, "we're not going to make the same kind of progress."

Salaries are also coming under scrutiny. Women working as associate professors at U-M earn an average of $4,000 less than men, a disparity that grows to $8,000 when comparing salaries of full professors. The average salary for a male full professor is $119,127, compared to $111,002 for a woman, according to 2003 academic year figures.

A 2001 campuswide U-M study attributed much of the gap to two factors. First, women tend to be at an earlier stage of their careers, with fewer years of seniority. Thirty years ago, few women earned Ph.D.s, the ticket to an academic job. Second, women were fewest in the fields of science, engineering and technology, where market forces have driven up salaries.

Given the results of the study, the university's deans, who negotiate faculty salaries, sought $600,000 from the central administration in 2002 to immediately increase salaries and benefits of 122 women, who received individual pay boosts of $500 to $10,000 a year. An estimated 100 other women had their salaries raised by deans who tapped their own departmental budgets without asking for more money, said Janet Weiss, associate provost for academic affairs.

The university plans to do campuswide salary reviews periodically.

A 2002 study looked at the campus climate for women, reporting that 15 percent of women in science and engineering said they had been discriminated against in terms of salaries, promotions or access to department resources in a five-year period.

The more recent study was conducted by the Advance Program, which U-M started with a grant from the National Science Foundation. The program's mission is to recruit more women in sciences and engineering, and it is trying to improve the campus climate for women. Among other steps, it links beginning female academics with mentors, provides grant funds for research, and holds lunches and seminars for women, where they can meet each other and talk about the issues common to women in their fields.

Abby Stewart, a U-M professor of psychology and women's studies, is the director of the Advance Program. She would not call the pay gap the result of deliberate gender discrimination. But the gap is real, she said, and it adds up to a "nontrivial" amount of money during the course of a woman's career.

"It's the result of lots of small decisions that end up producing an outcome that we wish wasn't there," she said.

Exactly why that happens is the subject of speculation, for now. Increasingly, scholars are asking whether the working conditions of academia discourage women from climbing the career ladder.

"Academic life, in general, was constructed with somebody else in mind than women," Stewart said. "I think it was constructed for people who had somebody at home taking care of things. It wasn't constructed for a two-career household. The demands of the work are boundaryless. Academic life is a life in which work is just everywhere."

Stewart and other scholars say some research suggests women stay in their jobs longer without being promoted, and they tend not to job hop or seek as many competing offers as men when they negotiate pay packages, all factors that can affect salaries. Research also suggests women publish less often than men, and ask for smaller grants to fund research.

"Those things can build up and have an affect on your career," said Deborah Goldberg, a professor and chairwoman of the department of ecology and evolutionary biology, who was hired by U-M in 1983.

Appendix L: *The Michigan Daily* *"Lack of tenured female profs prompts 'U' to rethink tenure system"* *Published 12/08/04*

Lack of tenured female profs prompts 'U' to rethink tenure system

Female professors hold 26 percent of tenure-track positions at the University, according to a 2003 report.

By Leah Guttman, Daily Staff Reporter
December 08, 2004

Across the country, increasing numbers of women are earning doctorates in the humanities and social sciences. "But few of these women are found in higher education positions," said Psychology and Women's Studies Prof. Abigail Stewart.

Within the University, females abound at the graduate instructor level and as lecturers and researchers. Their presence is even higher — 64 percent — in the ranks of archivists, curators and librarians, according to a 2003 report on the status of women affiliated with the University. But in tenure-track positions at the University, female representation is the lowest — 26 percent of the total — with few of these positions held by women of color.

The disparity between women and men in tenure-track positions at the nation's top research universities raises questions about the nature of the tenure-process and whether changes within the system could help women acquire tenured professorships. The University is undertaking some steps to evaluate the possibility of such changes.

Jean Waltman, a research associate at the Center for the Education of Women, said although there are places where women are at parity with men, the disparity increases in the ranks of full professorship.

"As the prestige of the university goes up, the number of women in tenure-track positions goes down," she said, referring to institutes of higher education in general.

Researchers are examining a number of factors to explain the shortage of tenured female faculty.

Stewart said one possibility that may explain the disparity is that women are more likely than men to consider where they want to raise their families before the prestige of the university for which they want to work.

Waltman said women sometimes find an unwelcoming atmosphere at premier research institutions, pointing to research data showing that women in academia, compared to men, feel less engaged in their departments and more marginalized and have greater difficulty finding mentors. Though this is not true in every case, it does play into the problem, she said.

Another controversial factor is the sometimes covert nature of the hiring process, she said. "There is a traditional, unspoken sense of what a professor should look like, what a professor should study,

what kind of training, background and publication records (he or she) should have," Waltman said. "In some sense, women get excluded because they don't fit the hiring pattern."

According to the 2003 report, the University "lags dramatically behind the national pool in terms of gender representation." And despite having an adequate number of doctoral students in most fields, "the percentage of women faculty within most academic disciplines at (the University) continues to be at or below the 1979 national levels."

To address these kinds of problems, the University has undertaken programs such as ADVANCE, a five-year project funded by the National Science Foundation that seeks to improve the recruitment and retention of women faculty in science and engineering. The program appears to have made gains, as 40 percent of professors hired in these fields by the University this year were women, whereas women represented only 20 percent of hirings in 2001.

Also in progress is a discussion on re-assessing the concept of a tenure-track position., as well as changes in the tenure-track process itself. Waltman said innovative policies to address these issues are being considered by University administrators and faculty members.

Some of these, such as part-time tenure, would ease the balance between work and home life. This would permit an instructor to remain active in the University and stay on the tenure track while working at a reduced rate, Waltman said.

Permanently extending the tenure clock — a way of lengthening the five- to seven-year process — is also being discussed, Waltman said. This change would alter the University's clock-stop policy, which currently allows instructors to take one year off while on the tenure track. Allowing more than one break would help women who need time to raise their families while on the tenure track, Waltman said.

"We're already a little bit flexible," Stewart said regarding the University's tenure-track process. "But we're not as flexible as we might be. … We have an outer limit and might consider changing that."

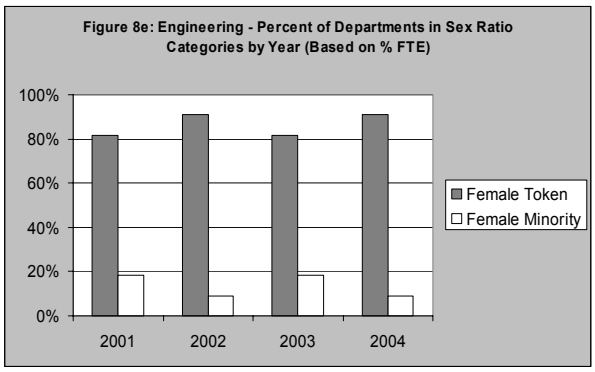
Appendix M: Percentage of Departments in Each Sex Ratio Category Based on FTE

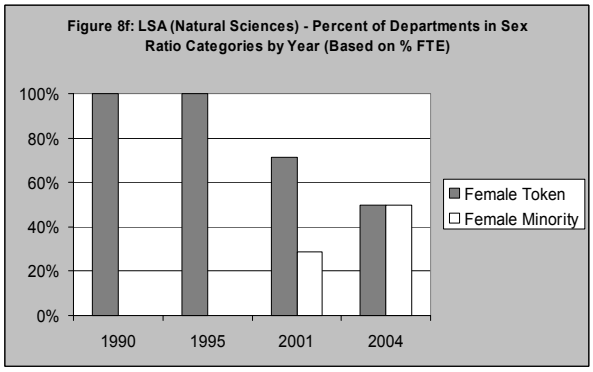
OVER TIME CHANGE ON THE TENURE TRACK BY GENDER –
Percentage of Departments in Each Sex Ratio Category Based on FTE

Following Lisa Frehill's suggestion (Georgia Tech Conference panel presentation, "Measuring the Status of Women: Toward Cross-Institutional Analysis to Understand Institutional Transformation," April, 2004) we assessed the sex ratio of each department in the three schools for AY2001 and AY2004. UM ADVANCE defined Freehill's categories as follows: female token (0-17% female); female minority (18-35% female); balance (36-64% female); male minority (65-82% female); and male token (83-100% female).

College of Engineering						
	Percentage of Departments in Each Sex Ratio Category Based on **Head Count**			Percentage of Departments in Each Sex Ratio Category Based on **FTE**		
	Female Token	Female Minority	Sex Balanced	Female Token	Female Minority	Sex Balanced
AY2001	9	2	0	9	2	0
AY2002	9	2	0	10	1	0
AY2003	9	2	0	9	2	0
AY2004	10	1	0	10	1	0

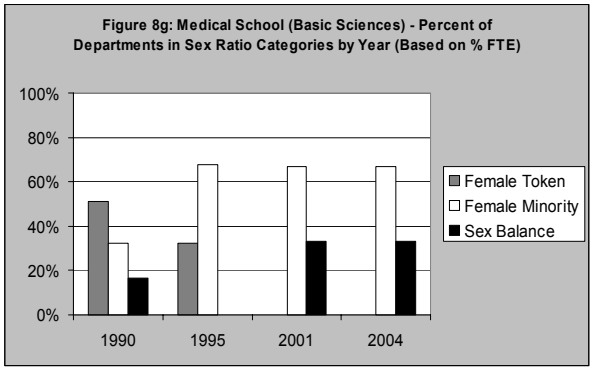
College of Literature, Science and the Arts						
	Percentage of Departments in Each Sex Ratio Category Based on **Head Count**			Percentage of Departments in Each Sex Ratio Category Based on **FTE**		
	Female Token	Female Minority	Sex Balanced	Female Token	Female Minority	Sex Balanced
AY2001	7	0	0	5	2	0
AY2002*	6	2	0	3	5	0
AY2003	4	4	0	3	5	0
AY2004	5	3	0	4	4	0
* In AY2002 the number of natural science departments increased from seven to eight, as the biology department split into two separate departments.						

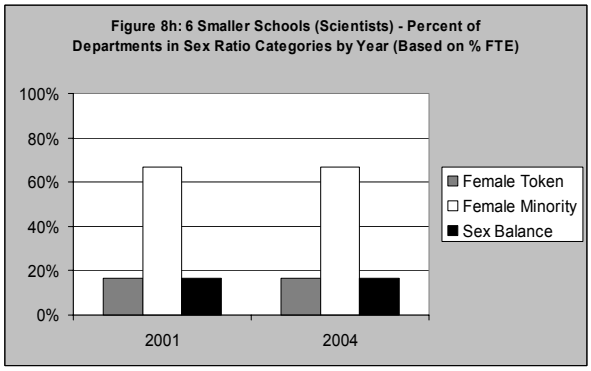




Medical School						
	Percentage of Departments in Each Sex Ratio Category Based on **Head Count**			Percentage of Departments in Each Sex Ratio Category Based on **FTE**		
	Female Token	Female Minority	Sex Balanced	Female Token	Female Minority	Sex Balanced
AY2001	1	4	1	0	4	2
AY2002	0	5	1	0	5	1
AY2003	0	5	1	1	3	2
AY2004	0	5	1	0	4	2

Six Smaller Schools						
	Percentage of Departments in Each Sex Ratio Category Based on **Head Count**			Percentage of Departments in Each Sex Ratio Category Based on **FTE**		
	Female Token	Female Minority	Sex Balanced	Female Token	Female Minority	Sex Balanced
AY2001	1	4	1	1	4	1
AY2002	1	4	1	1	4	1
AY2003	1	4	1	1	4	1
AY2004	2	3	1	1	4	1





Appendix N: *Frequently-Asked Questions: Retention of Women Science and Engineering Faculty*

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Frequently-Asked Questions: Retention of Women Science and Engineering Faculty

What is life like at Michigan for women science and engineering faculty?

- Women comprise 10% of engineering faculty, 12% of LSA science faculty, and 29% of the medical school basic science faculty.
- Overall, women science and engineering faculty at the University of Michigan—like men—report high levels of satisfaction with their teaching, research and colleagues.
- Nevertheless, the ADVANCE 2001 climate survey revealed that women science and engineering faculty report experiencing high rates of gender discrimination and unwanted sexual attention (41% and 20%, respectively, in the last 5 years).
- There are important differences in the home lives of women and men faculty in science and engineering. Male faculty at UM are much more likely than women faulty to have a partner who is not in the workforce; women are more likely to be burdened by more household responsibilities.
- One-third of women interviewed in a national study who had exited science cited a lack of guidance as the major factor leading to the exit decision whereas none of the men interviewed identified lack of mentoring as a factor influencing exit. 73% of all the women interviewed described situations where either positive mentors advanced their careers or the indifference, and even hostility, of potential mentors impeded their careers. [1]
- At UM, women faculty reported an average of just over 2 male mentors while men scientists reported an average of nearly 5. In fact, fewer than half of the women scientists and engineers reported any mentoring of any kind in 5 of 8 mentoring areas.
- Women faculty rates their departments more negatively than male faculty in terms of many features of the climate.

What exactly is "the climate"?

The workplace climate is the interpersonal environmental context for our work lives. It includes cues that we are taken seriously (that is, included and consulted), valued and appreciated, in contrast to cues that we are invisible or unheard, devalued, and not appreciated.

What makes a climate bad?

Often it is enough for a workplace simply to have a numerically dominant group (by gender, race, or other characteristics) for that workplace to develop a "culture"—a set of daily practices and habits—that feel alien and exclusionary to people not in that group. Sheer demographics contribute to creating a climate that feels unwelcoming to people not like the dominant group.

Workplace climates feel unwelcoming when people's actions (in universities, administrators, faculty, students and/or staff) seem disrespectful or hostile, regardless of their intent.

How can climate be improved?

Being aware of the problem, and openly discussing it is an enormous first step. It is often difficult to talk about the climate openly, without fear of causing offense or pain. There are several resources for improvement including:

- CRLT Players' Performances of their "Faculty Meeting" sketch
- CRLT Players' Performance of their "Mentoring" sketch
- STRIDE Presentations and Discussions

[1] "Leaving Science: Occupational Exit of Scientists and Engineers," Anne E. Preston, Haverford College, June 2003.

- CEW's Best Practices
- Departmental Transformation Grants

Do women faculty in science and engineering actually leave more than men do?
From the national data over time, we think they do, but it's very hard to tell for sure about the University of Michigan. With such small numbers of women and large numbers of men on the faculty, it's very difficult to assess differences in attrition rates. Moreover, the University does not record information about attrition in a uniform manner. We need to gather better data than we have. But given the small numbers of women, it is important to keep the ones we hire. The evidence about the climate suggests that may not be so easy.

Do women scientists and engineers demand counter-offers more than men because they are out on the market?
No. In fact, evidence from many institutions suggests that women faculty are generally ***less*** likely to ask for counter-offers than men, and ***more*** likely simply to leave once they have made up their minds to go.

Why do women science and engineering faculty leave?
Generally women scientists and engineers eventually accept offers from other institutions for reasons that have to do with the climate at the first institution and their hopes for the climate at the second. Suspicions that they may be undervalued by the chair, colleagues, students and/or staff are confirmed when people at other institutions treat them with respect and interest and offer them conditions of support for their research.

Why do women leave instead of asking for a better situation at UM?
If one of the important factors influencing women to leave is the climate, what exactly would they ask for?

It's also true that partners' careers and children's preferences play more of a role in women faculty's decision-making; for that reason, women faculty generally do not enter the job market for the purpose of improving their situation at their home institution. When they do enter the job market, they normally only pursue situations that address their household situations as well. In the end, when women are offered a job elsewhere, they are more likely to leave, while men are more likely to negotiate and stay.

If it's critical to keep women from responding to potential offers (since they're likely to take them), what can be done to lessen the chances of them responding?
We can ensure that the campus climate generally, and the departmental climate particularly, is so good that they will not believe they can reproduce it elsewhere.

At the campus level, this means ensuring that there are strong policies in place that support the career needs of faculty who carry substantial responsibilities for care giving and running households. These policies include flexibility in full and part-time work and the tenure review period; institutional vigilance about evaluation bias in salary, tenure and promotion assessments; and support for care giving responsibilities (including modified duties, delays in the tenure review).

At the departmental level, this means ensuring that department chairs are selected and supported in the maintenance of an environment that is respectful and inclusive in the classroom and laboratory, the faculty meetings, corridors, and departmental decision-making. Clear and transparent policies are key supports for a respectful and inclusive climate.

How can more women be retained?
At the campus and college level, review and change policies.
At the departmental level:
- Improve the climate
- Recruit more women

At the individual level:
- Appoint women to leadership positions they deserve
- Recognize women for their accomplishments
- Provide better mentoring to women

What should happen if I hear that a woman is looking at jobs elsewhere?
As with any faculty member, ask her what would make her happier at UM. Talk to your chair or dean about what can be done to address her needs.

What should I do if I learn that a woman has a great offer?
Look at the whole package and evaluate the woman's contributions at UM carefully. Figure out whether she has been undervalued at UM and how you can value her more adequately. Be flexible and willing to make exceptions for both women and men where rules are concerned.

Appendix O: *The University Record "Nine receive Crosby research award" To be published January 2004*

Nine receive Crosby research awards

The National Science Foundation (NSF)-funded ADVANCE program, in cooperation with the president's and provost's offices, has made nine Elizabeth Caroline Crosby Research Awards to advance the careers of women in science and engineering at U-M. The awards totaling $100,600 were announced by Abigail Stewart, PI of the NSF ADVANCE grant, on behalf of the Selection Committee.

The number of Crosby proposals increased significantly this year, making the field extremely competitive. Proposals were judged on two criteria: the quality and significance of the scholarly activity itself and, equally important, its value in enhancing women's participation and advancement in science and engineering at the University. A panel of senior UM scientists and engineers selected the winners. Stewart noted that "The Selection Committee had very hard decisions to make. There were many outstanding proposals and they were only able to support a small proportion of those who applied. They aimed to provide support to projects that were particularly distinguished and at the same time had the clearest claim to 'making a difference' to women scientists' career trajectory."

Crosby award recipients collaborate on research with national and international colleagues in their fields. They present papers and plenary addresses at national and international conferences. They develop pilot research evidence to support applications for external funding. They mentor and introduce students—including women students—to scientific and engineering fields of study. In this way, the Crosby Fund provides crucial support to women science and engineering faculty who in turn inspire young women (and men) students to pursue careers in science and engineering. Also, the Crosby awards provide unique support for some of the family life demands that affect women more than men, and can interfere with research-related activities. These include pregnancy and child care, as well as other kinds of caregiving. Such unique support opportunities can make the difference in a faculty member being able to attend a conference or travel to collaborate with off-site colleagues.

2004 Crosby award winners

Kathleen L. Collins, Internal Medicine, Microbiology and Immunology, "HIV Immune Evasion"

Kristina Hakansson, Chemistry, "Tandem High-Resolution Mass Spectrometry for Nucleic Acid Structural Characterization"

Smadar Karni, Mathematics, "Computational Methods for Compressible Gas Dynamics"

Susan Murray, Biostatistics, "Quality-of-life-adjusted Analysis of Correlated Landmark Event Times"

Mary E. Putman, Astronomy, "The Milky Way's Eating Habits"

Gabrielle Rudenko, Pharmacology, Life Sciences Institute, "Biochemical, biophysical and structural studies of neurexins and DeltaFosB"

Debra A. Thompson, Ophthalmology and Visual Sciences, Biological Chemistry, "Phagocytic Signaling Pathways in the Retina"

Katsuyo Thornton, Materials Science and Engineering, "The instabilities of steps on semiconductor surfaces"

Priscilla Tucker, Ecology and Evolutionary Biology, "A genome-wide assessment of reproductive isolation in a house mouse hybrid zone"

For more information, please see: http://www.umich.edu/~advproj/grants.html