

UNIVERSITY OF MICHIGAN
GENDER IN SCIENCE AND ENGINEERING

REPORT OF THE

SUBCOMMITTEE ON FACULTY RECRUITMENT, RETENTION AND
LEADERSHIP

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1 Overview and Charge

The Gender in Science and Engineering Committee was reconvened and reconfigured in April, 2003 by Mary Sue Coleman, President of the University of Michigan, and Paul Courant, Provost and Vice President for Academic Affairs of the University of Michigan. The formation of the committee was fostered by the President's Workshop on Gender Equity hosted by MIT and in response to local and national projects surrounding issues of gender equity. Three working subcommittees were formed to review institutional policies and practices within specified areas, to recommend and set goals for improved institutional policies and practices, and to recommend instruments to measure outcomes and to ensure accountability of the leadership at multiple institutional levels. The three subcommittees include: Recruitment, Retention and Leadership; Career Tracks and Work-Family Integration; Evaluation and Development of Faculty.

The Recruitment, Retention and Leadership Subcommittee was tasked with considering the broad areas of faculty recruitment, retention and leadership and to specifically

- 1) Examine institutional policies and practices, focusing on the University level and schools/colleges with substantial numbers of faculty in science and engineering disciplines (LSA, Engineering, Medicine, Dentistry, Pharmacy, Public Health, Nursing);
- 2) Recommend goals for improved policies and practices;
- 3) Identify potential measurable outcomes and methods for institutional data gathering, monitoring and review.

The following report details the findings and recommendations of the Subcommittee for Recruitment, Retention and Leadership.

2 Committee Membership

Membership of the Subcommittee for Recruitment, Retention and Leadership included:

Meigan Aaronson, LSA (Physics)

Frank Ascione, Pharmacy

Dick Canary, LSA (Math)

Steve Director (chair), Engineering

Lisa Kendra (staff), Engineering

Marci Lesperance, Medicine (Otolaryngology- Head and Neck Surgery)

Matt O'Donnell, Engineering (Biomedical Engineering)

Pamela Raymond, Medicine (Cell & Developmental Biology)

Stephanie Riegler (ex-officio), Engineering

3 Executive Summary

The Subcommittee on Recruitment, Retention and Leadership found substantial variation in the amount of documentation that supports policies and procedures at the institutional and unit (school/college) level. In addition the Subcommittee determined that the areas of retention and leadership were sufficiently intertwined that they would be better considered under the broader rubric of “Career Development”.

One of the key findings of the Subcommittee was the importance of a proactive and vigorous program for assistance in dual career situations as a critical component of any policy recommendation designed to improve diversity in the science and engineering faculty. In fact by appropriately handling dual career situations the University has the opportunity to recruit two outstanding individuals. To increase our success in attracting and retaining dual career couples, it is especially important to maintain constant support from central administration both in the development of institutional and unit-level policies and procedures and in identifying mechanisms to provide financial resources and incentives. The Subcommittee also felt that emphasizing interdisciplinarity as one of the distinctive hallmarks of the University’s academic scene could be an important tool to increase the diversity and excellence of the faculty, particularly in science and engineering.

In addition to developing a mechanism to share best practices, the principle recommendations of the Subcommittee, in abbreviated form are listed below by topic.

Hiring

1. Searches should be defined as broadly as possible to allow more diversity in the hiring pool.
2. Adopt aggressive recruiting policies whereby search committees proactively identify candidates, especially from under-represented groups.
3. Provide candidates with recruitment packets that contain institutional information on such issues as dual careers, gender initiatives, family friendly policies, as well as departmental information.
4. Require a permanent data collection system. Specifically, require departments to submit demographic information about their search process (interviews, offers and hires) to the Provost’s office to be eligible for PFIP (Provosts Faculty Initiative Program) funding.

Provosts Faculty Initiative Program (PFIP)

1. Maintain PFIP funding.
2. Employ the same hiring processes and standards for all candidates rather than having two separate hiring mechanisms: one for regular hires and one to promote diversity.

Dual Careers

1. Enhance staff support for dual career partners, e.g. Director of Academic Dual Career Services, shared by LSA, Engineering and Medicine, is one potential model.
2. Enhance financial support for dual career partners.
3. Maintain a centralized database of dual career partners and their career track within the university, and make the information available through regular reporting mechanisms.
4. Ensure department chairs and program directors, and their search committees are knowledgeable about the dual career process and sensitive to the policies, procedures and best practices and approaches.

5. Actively seek dual career couples.
6. Sensitize candidates to University opportunities for dual couples by creating a brochure highlighting existing dual career cases with their profiles and testimonials of their experience to be used as a handout for potential faculty recruits.

Mentoring

1. Implement structural mechanisms to inform faculty and chairs of updates in policies and university resources related to mentoring. Information should be available on websites, and faculty should be made aware of these resources.
2. Provide multiple avenues of support to faculty for career development at each stage of the academic ladder. Encourage the leadership of academic units to facilitate group and specific mentoring programs at the unit, department and program level.
3. Evaluate mentoring at the department level regularly and include this activity as part of chair performance evaluations.

Leadership

1. Develop specific processes to identify a diverse pool of mid-career faculty with the potential for leadership, and offer them formal mentoring/training opportunities early in their career to prepare them for future leadership positions, and then appoint them to such positions.
2. Develop specific procedures that increase the diversity of faculty who are awarded collegiate and endowed professorships in the academic units and named University professorships, such as the Thurnau Professorships and Distinguished University Professorships.

Retention

1. Establish endowed funding mechanisms for preemptive offers and counter offers that include salary increases, research supplements and incentives.
2. Establish an ongoing process to provide guidance for an equitable salary structure among faculty perhaps using a model based on multiple regression analysis.
3. Consider creating time limited named/endowed professorships for faculty at intermediate stages in their careers, for example, at the transition from Assistant to Associate Professor.
4. Increase the number of daycare facilities on or near campus.
5. Provide tuition relief for children of faculty and staff who are attending the University of Michigan.

4 Introduction

During the investigative part of its activities, the Subcommittee on Recruitment, Retention and Leadership found substantial variation in the amount of documentation that supports policies and procedures at the institutional and unit (school/college) level. In addition the Subcommittee determined that the areas of retention and leadership were sufficiently intertwined that they would be better considered under the broader rubric of “Career Development”.

While the Subcommittee made a number of findings as a result of its deliberations, one of the key ones was the importance of a proactive and vigorous program for assistance in dual career situations as a critical component of any policy recommendation designed to improve diversity in the science and engineering faculty. The University’s large size and location in the growing community of Ann Arbor, with its proximity to a major industrial metropolitan area and several other academic institutions, provides many opportunities to recruit two outstanding individuals to our campus and our community. The subcommittee recognized, however, that existing stigmas about the ‘trailing spouse’ in dual career situations must be reversed, and the University community must embrace these opportunities. To increase our success in attracting and retaining dual career couples, it is especially important to maintain constant support from central administration both in the development of institutional and unit-level policies and procedures and in identifying mechanisms to provide financial resources and incentives. Although dual career issues can, and do, become an issue for faculty retention, this topic is discussed below with recruitment, which is often the point at which such issues arise.

The Subcommittee also concluded that policies and practices should capitalize on the University of Michigan’s specific and unique strengths to attract, develop and retain an excellent faculty. One of the University’s main assets is its interdisciplinary nature. The Subcommittee felt that emphasizing interdisciplinarity as one of the distinctive hallmarks of the University’s academic scene could be an important tool to increase the diversity and excellence of the faculty, particularly in science and engineering. For example, interdisciplinary work:

- Appeals to many new faculty recruits;
- Introduces faculty to others across disciplines and across campus;
- Incorporates faculty more broadly into the U-M community, as opposed to isolated departments;
- Provides access to multiple mentors;
- Broadens opportunities for funding mechanisms

These are all important areas that can greatly affect our ability to recruit, promote, and retain exceptional faculty members with diverse backgrounds.

The remainder of the report is organized into two broad categories: Recruitment, with the sub-areas of Hiring, Provost’s Faculty Initiatives Program (PFIP), Dual Careers, and Career Development, with the sub-areas of Mentoring, Leadership, and Retention.

5 Recruitment

Recruiting practices across the University are as decentralized as the University itself. Many distinctions exist depending upon the size and resources of the academic unit, and departments within the academic unit. Despite these disparities, similar themes emerged with regard to the difficulties in recruiting and hiring female faculty in science and engineering disciplines. Some of the issues are interrelated, some are isolated, but all work together to form a collective barrier that many departments are struggling to overcome. The Subcommittee examined existing policies, procedures and practices related to recruitment, and formed the following recommendations.

5.1 Hiring

5.1.1 Policies, Procedures and Practices

Most schools/colleges have their own guidelines related to hiring faculty members. However, there seems to be a lack of formal policies on how search committees are selected and large variation exists among the practices of search committees and how they interpret and use school/college guidelines. Data suggests that women have been under-represented on search committees. Combined with the under-representation of women on our current faculty, this poses a barrier to the recruitment of female faculty.

5.1.2 Issues

The university has a strong interest in selecting diverse search committees which are committed to achieving a diverse pool of outstanding applicants. The education and awareness of search committees on gender equity issues seems to vary considerably across departments. While many departments recommend the ADVANCE Faculty Recruitment Handbook, and have had members of STRIDE meet with faculty members, not all search committee chairs and members receive appropriate training. When requested, very few schools could provide demographic data summarizing recent candidate interviews, offers and acceptances. The absence of consistent data regarding hiring may contribute to the perception that there is not a need to diversify applicant pools. In the current climate it may be necessary for search committees to aggressively pursue applicants, rather than passively hoping to achieve an excellent and diverse applicant pool. One successful model for diverse hiring in the sciences and Engineering is discussed in Appendix A.

One common barrier to a diverse applicant pool is a narrowly-defined search. A narrowly defined search is one in which departments are only looking for individuals in a sub-discipline. The narrower the criteria utilized, the less likely it is for the candidate pool to contain under-represented groups. In general, a narrowly defined search is less likely to produce the most outstanding candidates, so narrowly defined searches can be a barrier to both excellence and diversity. Too often the goals of diversity and excellence are regarded as, at worst, mutually contradictory, and, at best, independent. We believe that our central recommendations support both these goals and that the goals, far from being contradictory, reinforce one another.

5.1.3 Recommendations

1. Searches should be defined as broadly as possible to allow more diversity with hiring pool.
2. Adopt aggressive recruiting policies whereby search committees proactively identify candidates, especially from under-represented groups, instead of relying only on those who apply in response to written advertisements.

3. Provide information packets to give to candidates containing institutional information (dual career, gender initiatives, family friendly policies) and marketing tools, as well as departmental information.
4. Require a permanent data collection system with ‘teeth’: Require departments to submit demographic information about their search process (interviews, offers and hires) to the Provost’s office to be eligible for PFIP (Provosts Faculty Initiative Program) funding. Eventually this information could be garnered from data submitted to HR on the AAR forms. Make existing data readily available to schools/colleges from ADVANCE and Human Resources (AAR data).
5. Share best practices from units that are achieving diverse applicant pools as well as diverse search committees. Best practices include:
 - Select hiring committees with an eye towards representing the diversity of the faculty we hope to hire.
 - Hold departments responsible for the composition of search committees and candidate pools. One effective mechanism is to require search committees to submit short lists from committees to be reviewed at the school/college level.
 - Encourage departments and search committees to meet with STRIDE prior to the search process.
 - Evaluate interview process, for example by asking someone not on the search committee to conduct an exit interview with each faculty candidate before they leave campus. The interview serves as a means to find out how the visit went, and to pinpoint problem areas.
 - Educate departments on the power of language used in the written advertisements and in personal contacts between U-M faculty and potential candidates or colleagues.

5.1.4 Measures and Outcomes

Regular reporting procedures linked to monetary incentives for departments will help to generate accurate University-wide data, as well as reveal those departments that are doing well, and those that are not. However, data are not helpful unless they are verified, analyzed, shared, and used to improve existing conditions. Therefore, it is important to make existing data widely available.

5.2 Provost’s Faculty Initiative Program (PFIP)

5.2.1 Policies, Procedures and Practices

The Provost’s office sponsors the Provost’s Faculty Initiatives Program (PFIP), which provides supplemental resources to promote diversity within the faculty and assists in responding to unique opportunities.

5.2.2 Issues

While PFIP funds have been essential to the successful hiring of female and underrepresented minority faculty across all disciplines, and have allowed schools to take advantage of excellent hiring opportunities, there is evidence of a backlash against these practices in some departments. In some cases, this backlash has occurred in departments which have a bifurcated hiring mechanism that considers “regular hires” separately from “diversity hires.” When female and underrepresented faculty are hired via such a process they are viewed differently by their colleagues, which can negatively impact their ability to succeed and may later result in difficulties in retaining them.

5.2.3 Recommendations

1. Maintain PFIP funding.
2. Employ the same hiring processes and standards for all candidates. For example, some units have two separate hiring mechanisms: one for regular hires and one to promote diversity. Two vastly different processes can promote resentment within the department. Therefore, all hiring mechanisms should be similar regardless of the candidate (see Appendix A).

5.3 Dual Careers

5.3.1 Policies, Procedures and Practices

Currently, the Provost's Office supports a program for Dual Career Partners that has been helpful in many recruiting (and retention) instances. However, some units perceive a recent reduction in commitment from the Provost's office in regards to funding and personnel to help with dual partners, because of the pressures of current budgetary constraints. The schools/colleges do not appear to have any standard policies regarding dual career partners. Most are dealt with on an ad-hoc basis as the need arises.

5.3.2 Issues

Dual career issues repeatedly surfaced in the Subcommittee's conversations regarding recruitment. According to a panel of Associate Deans who spoke with the committee, finding employment opportunities for partners is increasingly a main component of recruitment efforts. Central to dual career issues in regards to gender is the sensitivity and legality of the subject. From the experience of the Associate Deans panel, as verified by U-M and national survey data, women may be less likely to ask for partner assistance for fears of provoking a bias against them in the hiring decision. The dual career problem is especially acute for female faculty in science and engineering disciplines, as national and U-M data show that as a group, they are far more likely than their male colleagues to have partners who are employed, and many have partners who are themselves scientists or engineers. Acknowledging this reality, many departments have sought dual career help for faculty candidates, but the reality is that not all partners can be accommodated within the job offer timeline.

Helping partners with non-academic jobs has been especially difficult because there is little negotiating leverage between the U-M, or a department, and an outside business. Even non-academic U-M jobs are sometimes difficult to negotiate, and U-M policies that provide protection to Reduction In Force (RIF) candidates as well as union and seniority rules are sometimes seen as a barrier. Other barriers are the limited opportunities to place partners in senior staff positions and the absence of financial assistance.

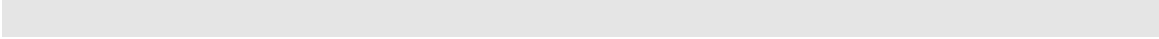
Thanks to cooperation among schools/colleges, and assistance from the Provost's office, the placement of academic partners has sometimes proven to be a little easier. The contribution of PFIP funds from the Provost's Office and the assistance of Provost's Office staff in negotiating deals between academic units are viewed as instrumental to success. However, there are several hidden sensitivities related to this practice. Some faculty resent hiring dual career partners on their faculty, because they perceive that resources will be taken away from future faculty positions. In addition, they fear that hiring lines may be cannibalized to accommodate the dual arrangement, especially in the current constrained economic situation. While the general sentiment among departments is increasingly to adopt a shared responsibility for dual partners, the subcommittee expressed an interest in receiving data about the success rate of academic partners and the distribution of these placements. Faculty may be more willing to accept dual career partner placements in their department if they knew that the likelihood of these faculty succeeding is high, and that accepting these placements is a shared institutional responsibility.

5.3.3 Recommendations

1. Enhance personnel support for dual career partners. It is important to have someone representing the University who is not involved in the hiring process in the event that candidates are insecure about raising the issue of a job for a partner or spouse. While there should be sufficient personnel at the Provost's level to ensure adequate communication with suitable candidates, other individuals who represent various units should also get involved. The recent creation of a new cross-unit position for a Director of Academic Dual Career Services, shared by LSA, Engineering and Medicine, is one potential model. It is also imperative to have a knowledgeable person or team of individuals for candidates to talk with about job possibilities in the Ann Arbor area. This should include representatives from major companies in Ann Arbor who may be potential employers. Most individual departments or academic units do not have an expert on staff who can advise in this area of expertise.
2. Enhance financial support for dual career partners. The availability of PFIP funds provided by the Provost is essential to success in recruiting and retaining faculty with dual career situations. One model is the informal 1/3, 1/3, 1/3 arrangement (equal sharing of funds from PFIP, the unit with the original hire, and the unit hiring the partner or spouse), which provides the initial funding for an academic position for a qualified partner or spouse. Being able to count on a consistent fiscal agreement is very helpful to units when budgeting and negotiating for assistance with dual partners. Some form of this funding model should be developed to include support for U-M staff positions.
3. Maintain a centralized database of dual career partners and their career track within the university, and make the information available through regular reporting mechanisms. A centralized database detailing the career trajectories of assisted partners/spouses could be used to evaluate and assess the success rate of the program.
4. Ensure that department chairs and program directors, and their search committees are knowledgeable about the dual career process and sensitive to the policies, procedures and best practices and approaches. Provide those responsible for faculty hiring with information about dual career funding processes and the legally acceptable ways to bring up dual career topics with potential recruits.
5. Actively seek dual career couples through marketing strategies directed toward them. Possible strategies include placing information about dual career opportunities on the University website (linked with department and unit sites), publishing stories about successful U-M couples, and actively seeking dual career couples who could be targeted for recruitment. A dedicated source of funds for dual career couples could be created as an incentive for departments to pursue such hires. The University should encourage a shift in the perception of dual career couples, looking at them as a special opportunity, not a problem, and develop a culture that appreciates the value and benefit of dual career couples. This includes changing the language that designates one of the couples as the "primary" candidate and the other as the "trailing" spouse.
6. Sensitize candidates to University opportunities for dual couples by creating a brochure highlighting existing dual career cases with their profiles and testimonials of their experience to be used as a handout for potential faculty recruits. Illustrate to incoming faculty that there is not a stigma associated with using these programs, and show them how many couples have thrived together at the U-M.

5.3.4 Measures and Outcomes

Consistent reporting and tracking of dual career partners will help to pinpoint deficiencies in the system and highlight mechanisms that work. Coordination between the departments, schools/colleges and the Provost's office will help to ensure more accurate data, and provide a checking system from all areas involved.



6 Career Development

The subcommittee chose to frame the issues surrounding leadership and retention using the positive language of career development. This section begins with a discussion of mentoring, in recognition of its important role in facilitating career transitions and progression.

Data from several internal studies, recently collated by the U-M ADVANCE project, clearly show that female faculty do not progress through the academic ranks at the same pace as their male colleagues, and that a larger proportion of male faculty achieve full professor status than female faculty. The relative under-representation of female full professors and the historical lack of female departmental chairs in the science and engineering disciplines at U-M has numerous negative consequences for climate and retention. This situation has only recently been abrogated by the appointments of women as department chairs, first in the Dental School and most recently in the Medical School.

The subcommittee spent some time discussing tenure policies and practices that have provided obstacles that have differentially impeded female faculty from achieving success. These include the biologically-mandated coincidence of the fixed tenure probationary period with child-rearing and family duties and the negative impact of departmental and school/college gender climates. Recognizing that the subcommittee on Evaluation and Development of Faculty is specifically charged with evaluating tenure and promotion policies, this report does not make specific recommendations in that policy area. However, changes in policies, procedures and practices that will promote increased proportions of female faculty who are successful at achieving tenure and promotion are obviously critical to foster career progression into the senior ranks and thence into leadership positions. The following discussion of career development will focus primarily on the career trajectory of faculty after they achieve tenure, which is a key leverage point for increasing gender equity in the academic leadership of the science and engineering faculty.

6.1 Mentoring

The committee 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. Mentoring is a critical factor in career development, and plays an important role in both faculty retention and leadership opportunities. There are many different approaches and best practices that can provide mentoring support. Examples of several different types of mentoring relationships, with variable levels of intensity and frequencies of interactions between mentees and mentors, are discussed below. Clearly, strengthening mentoring activities at the University of Michigan will benefit both male and female faculty.

6.1.1 Policies, Practices and Procedures

The Office of the Provost has developed a website on mentoring including links to information provided by the CEW (Center for Education of Women) and CRLT (Center for Research on Learning and Teaching). Programs in the schools and colleges are described along with training programs. In addition, the ADVANCE program launched a website in November 2003, which has links to additional information. Over time, it should be possible to assess the impact of these new resources on faculty satisfaction with the quality of mentoring.

An Advisory Committee on Mentoring and Community Building was formed by the Provost following a mentoring retreat in November 2000. This process led to concrete recommendations for all schools, which can be reviewed on the Office of the Provost website. For example, a formal third-year review for instructional faculty in the Medical school was instituted in response to this retreat.

The following discussion provides an overview of the different types of mentoring that should be considered in developing a truly comprehensive faculty mentoring program.

Specific (one-on-one) mentoring: These are activities that should be done by someone very familiar with specific issues unique to the mentee's field, or that involve direct and specific feedback from a supervisor such as a department chair. Roles for specific mentoring include:

- Review of service burdens.
- Review of class teaching loads/clinical loads.
- Critical feedback to junior faculty in the crucial years prior to tenure review with delineation of the exact criteria by which that faculty member will be evaluated at the annual review.
- Personal advice on sensitive issues that individuals do not feel comfortable discussing in groups.
- Review of *curriculum vitae* and annual reports.
- Identification and facilitation of specific opportunities for faculty members to grow into leadership positions.

Group mentoring: Not all mentoring activities require one-on-one interaction. "Group mentoring" refers to mentoring that can be accomplished to the benefit of multiple individuals at a time. Relying solely on department chairs/division chiefs to convey this information has not always been successful. Such mentoring sessions should be led by one or a few senior leaders. Each academic unit could define appropriate groups for these mentoring sessions: at the department level for large departments, between multiple departments (*e.g.*, all surgical departments at the Medical School), at the College or School level, or a combination of smaller schools. Mentees should feel free to join a mentoring session most beneficial to them even if it is part of a different division, department or school. The importance of this activity should be emphasized by repeating the sessions, so that they can be scheduled at times that are convenient for all faculty. Several U-M academic units have developed this type of group mentoring program, including the College of Pharmacy, the Department of Chemistry, and the basic science departments in the Medical School (see Appendix B). The latter two programs were developed with aid of funds from the ADVANCE program, through the mechanism of Departmental Transformation Awards.

Group mentoring may also help to alleviate the burden carried by some mid-career faculty who invest significant time in mentoring students and junior faculty while still in need of their own, more senior mentors. For example, some female faculty report that they are expected to mentor all the female students and trainees in a department or program, not just their own. Often these informal mentoring activities require a level of effort well out of proportion to the recognition that is given for this valuable service contribution. This unrecognized time commitment for faculty who have achieved tenure and promotion to Associate Professor status may contribute to a mid-career "stall."

Zone mentoring refers to developing as resource mentors specific individuals with particular areas of expertise such as interactions with particular government or private funding agencies, university service assignments, or teaching and learning resources such as CRLT. (See Appendix C for a specific example of how this type of mentoring is functioning in one department in the College of Engineering.) In this variation on the group mentoring idea, one senior leader can serve as a resource on a particular topic for multiple faculty members. Zone mentoring is distinct from the "one-size-fits-all" traditional approach, in which one mentor is assigned to each mentee in that it acknowledges the variety of expertise necessary for success in science and engineering, especially for interdisciplinary work, and the difficulty of finding one mentor to serve all the mentee's needs. Each mentee can benefit from guidance provided by expert mentors who can cover various needs.

Informal (peer-to-peer mentoring): Another variation on group mentoring is provided by facilitating interactions among peers. Several U-M groups at the institutional level sponsor dedicated networking sessions such as the ADVANCE annual dinner or “Women Talking Engineering and Science” and the CEW Junior Female faculty Network. The Medical School has also held Junior Female faculty Breakfasts and intermittently sponsors receptions after lectures from invited female speakers. There is also an annual reception for senior female faculty (all tracks) at the Medical School. Receptions held in conjunction with formal presentations offer flexibility to faculty to spend as much time in this activity as they find worthwhile.

Roles for these various types of group mentoring activities include:

- Disseminate information on institutional policies similar to the packages provided to all junior faculty/new hires. Topics may include dual career programs, modified duties, stopping tenure clock, leave policies, and work-family resources. The information should also be available on the web, but not only on the web
- Guidance for preparation of curriculum vitae/annual reports.
- Publicize the level of achievement in research, education and service expected for promotion to Professor.
- Communicate eligibility for internal awards and external national and international recognition.

6.1.2 Issues

While department chairs report they are providing a satisfactory amount of mentoring, the female science and engineering faculty report that the amount and quality of mentoring they are receiving is inadequate (ADVANCE, 2002; Report on the Status of Female faculty in the College of Engineering, 2003). The lack of a generally accepted way to define and measure mentoring may in part explain the lack of congruence between department chairs and female faculty regarding their perceptions of how mentoring actually happens at the University of Michigan.

The ADVANCE climate survey also found that female scientists and engineers reported receiving less mentoring than either male scientists and engineers or female social scientists. Female faculty reported an average of just over two male mentors, while male faculty had on average of nearly five mentors (see discussion below on ‘zone’ mentoring). Female scientists were much more likely to report little or no mentoring, particularly in the areas of networking, departmental politics, obtaining resources, advocacy, and work-family balance.

More recent reports indicate that faculty annual reviews often lack concrete guidance or constructive criticism, although faculty wish to receive positive as well as negative feedback from their supervisor. Department chairs report that they are not comfortable giving specific input on performance and progress. Regarding informal mentoring, it is not clear whether faculty desire or need more networking opportunities. In the College of Engineering, for example, “most female faculty are satisfied with the informal mentoring they seek” (Report on the Status of Female faculty in the College of Engineering, 2003). Yet in the same report, junior faculty also expressed the desire to receive much more mentoring and feedback and commented that there are not enough venues/occasions where junior faculty can gather to discuss career issues and to provide opportunities for networking. To maximize the benefit of mentoring programs, mentees must be an active participant in their own career advancement.

6.1.3 Recommendations

1. Implement structural mechanisms to inform faculty and chairs of updates in policies and university resources related to mentoring. Information should

be available on websites, and faculty should be made aware of these resources.

2. Provide multiple avenues of support to faculty for career development at each stage of the academic ladder. Encourage the leadership of academic units to facilitate group and specific mentoring programs at the unit, department and program level.
3. Evaluate mentoring at the department level regularly and include this activity as part of chair performance evaluations.
4. Share best practices on mentoring among departments/divisions. Examples include:
 - Identify units/individuals who have expertise in certain areas and are willing to mentor in their area of expertise (zone mentoring).
 - Publicly recognize mentoring as an essential tool for academic success. Include mentoring as an assessment measure in yearly faculty reviews. Create unit-level and university wide-awards for mentoring excellence.
 - Plan informational “group mentoring” sessions for junior faculty, and encourage them to invite senior administrative leaders of their choice. Information should be provided by those who are not directly evaluating the faculty member. These sessions will also promote informal interactions (networking) among the junior faculty members.
 - Implement programs to educate department chairs on best practices and policies for mentoring.

6.1.4 Measures and Outcomes

Promoting career development for all faculty should be a priority for senior U-M faculty and especially for the academic leaders at all levels of the institution. In particular, demonstrable commitment to faculty mentorship and success at facilitating faculty career development should be part of the regular performance evaluation for center directors, department chairs, deans and other academic leaders. Tools for assessment of faculty mentoring, such as the ADVANCE climate survey, should be developed and applied on a regular basis.

6.2 Leadership

6.2.1 Policies, Procedures and Practices

Leadership encompasses much more than academic administration. Faculty leaders are needed to drive the research and academic missions of the university and promote self governance at every level of the organization. Although schools and colleges have specific policies regulating selection processes for executive committees, chairs, deans, etc., there do not seem to be any university-wide policies regarding faculty selection for leadership positions. Generally, leadership development is informal and unevenly practiced across the university.

6.2.2 Issues

The lack of leadership opportunities for female faculty can and has led to retention situations. U-M demographic data show relatively greater proportions of women at the assistant professor level, and in upper administration, but much lower percentages of women at the level of full professor or department chair. This is true generally across disciplines, but is particularly acute in the sciences and engineering, as noted above. One way to address this gap is to recognize there are several ways to define a leader (academic administration, leading research centers, developing large grants), and to encourage female faculty to lead in their areas and reward them for doing so. It should also be recognized that when offered leadership positions, some female faculty may decline because they foresee little support from their colleagues, or because they are not relieved of other burdens differentially placed on them as

representatives of their minority status (*e.g.*, committee membership, informal student advising).

The department is where faculty interact the most with the institution, and workplace climate issues are the most succinct. Indeed, this is the level where academic culture is shaped, yet it is also where women are most underrepresented in leadership positions at U-M in science and engineering disciplines. Without female committee chairs and membership on integral decision making committees, gender disparities in academic leadership are perpetuated. Often, the only way for women interested in leadership positions to overcome this is to move into senior level positions without mid-level experience. For example, for most male faculty, the path to deanship is through the department chair position. For two recently departed female faculty in the College of Engineering, the department chair position was skipped, and they were positioned directly as deans.

Although regularly offered, institutional leadership training opportunities (Committee on Institutional Cooperation training etc.) are often not followed up with subsequent assignment to leadership positions, so that some faculty who attend never have the opportunity to put their training to use. Leadership development and training must be encouraged at every level of the organization.

6.2.3 Recommendations

1. Develop specific processes to identify a diverse pool of mid-career faculty with the potential for leadership, and offer them formal mentoring/training opportunities early in their career to prepare them for future leadership positions, and then appoint them to such positions. For example, late assistant professors and early associate professors can serve as associate departmental chairs for a pre-defined period of time.
2. Develop specific procedures that increase the diversity of faculty who are awarded collegiate and endowed professorships in the academic units and named University professorships, such as the Thurnau Professorships, which recognize excellence in undergraduate teaching, and the Distinguished University Professorships.
3. Establish best practices to encourage and incent department chairs and deans to appoint female faculty to leadership positions. Examples of best practices include:
 - Offer all faculty members in entry level leadership positions formal mentoring/training opportunities to prepare them for future senior leadership positions.
 - Develop processes to ensure that a diverse group of faculty are selected for institutionally-sponsored off-campus leadership training programs, such as those offered by the CIC (Committee on Institutional Cooperation) and ELAM (Executive Leadership in Academic Medicine). Faculty members who have attended these programs should be offered continuing support and guidance and should be considered for appointments to leadership positions.
 - Evaluate how department chairs are appointed in schools/colleges, and encourage the adoption of policies, procedures and practices that will improve diversity.
 - Encourage and incent schools/colleges to appoint department chairs who will promote leadership development for all interested faculty.
 - Establish support structures for all new department chairs and program leaders and other individuals in mid-level leadership positions, teaming them with individuals who have served in similar roles and have a

strong record of promoting leadership development and improving the climate in their organizations. The experience should be viewed positively and as an opportunity for career development.

6.2.4 Measures and Outcomes

The overall goal of a campus-wide leadership program is to diversify the population of leaders at every level of the institution. Consequently, measures such as the number of female faculty holding committee chairs, center directorships, associate chairs, as well as mid-level administrative positions such as department and program chairs, should be reported yearly by every school/college to the central administration. As more women move into lower-level leadership positions, we would expect more to transition into mid-level and upper administrative positions. Trends for schools/colleges should be evaluated annually.

6.3 Retention

Retention of our best faculty requires constant vigilance. After investing considerable time, effort and funds in recruiting faculty and then helping them, especially our junior faculty, launch a successful career, it is painful to lose them to another institution. Not only does this require starting from scratch to replace them, these faculty often end up competing with us. Even if we do not ultimately lose a faculty member, once they have an outside offer, a successful counter-offer can be expensive and may disrupt an otherwise rational distribution of faculty salaries within a department or a school or college. A better approach is practice a policy of “preemptive retention efforts” which typically would involve providing a positive and supportive climate for academic success and accomplishment, attention to issues of equity, and, as discussed in the above section, mentoring, career development and leadership opportunities.

6.3.1 Policies, Procedures and Practices

In 2001 the University of Michigan released an econometric study of salaries paid (in 1999) to tenured and tenure-track faculty (omitting the Medical School), which statistical analysis used multiple regression models to predict salaries based on several factors known to affect pay, and including gender as a variable. The report suggests that the actual salary paid to female faculty, on average, was between 1 and 3% less than the model predicted. A subsequent analysis of the subset of female science and engineering faculty revealed a residual due to gender of 3 to 5% (reference: Addendum to the 2001 Gender Salary Study: <http://www.umich.edu/~advproj/advreports.html>). Adjustments were made to some individual salaries by the schools and colleges, in AY2001-02, with the support of funds from the Provost. Some schools and colleges, including LSA and the College of Engineering, have adopted their own salary regression models and use these instruments to regularly track. A comparable analysis has been underway in the Medical School for the past two years, using more current salary data and a modified regression model designed to reflect the complex salary structure of the clinical departments. No analyses have been done for non-tenure-track faculty.

As part of its reporting requirements to the NSF, the ADVANCE project is carrying out an examination of retention rates for U-M faculty between 1991 and 2002 in science and engineering departments (LSA-Natural Science, College of Engineering, and Medicine-Basic Science), including a compilation of reasons why faculty left.

6.3.2 Issues

Several issues that the Subcommittee identified that demonstrate the impact of gender on faculty retention include childcare, mentoring, promotion timelines, salary inequity and marginalization, some of which have been discussed above. Such issues may surface at any stage of a faculty member’s career, however recognizing that newly tenured associate professors (i.e. “mid-career” faculty) are usually the most vulnerable to outside offers, the aforementioned issues become particularly salient and central to career development efforts at

this stage of the academic career trajectory. For instance, after achieving tenure, departmental support and communication often wanes leaving mid-career faculty with fears of marginalization (this is especially true for women), increased workloads and stress, and increased uncertainty about their future.

Guidelines for promotion to full professor are often unclear, and there are few opportunities for leadership roles for mid-career faculty members. Mid-career female faculty make valuable additions to their departments, but their voices are often absent in the leadership roles of committee chairs and they are rarely members of decision making circles. Child care issues linked to retention range from securing places in daycare centers close to home or campus, to paying college tuition. While family-related issues are being dealt with in depth by the subcommittee addressing Career Tracks and Work-Family Integration, they were raised repeatedly in discussions in the present subcommittee, and a few recommendations are therefore included in this report.

Retention concerns for early career faculty usually involve pre-tenure mentoring to ensure they make it to the mid-career stage. In particular, class load and service commitments should be monitored to prevent overload, which may result in weak casebooks and unnecessary removal of valuable faculty who do not achieve tenure.

Faculty members who receive tenure and remain associate professors for an indefinite amount of time pose severe career development issues. Mid-career faculty members need to become involved and active in their departments and the University through adequate mentoring, sponsoring and promoting. This is especially important for female faculty members who are not adequately represented in the full professor rank at Michigan. Unfortunately, mentoring is not highly recognized on campus and in departments, and there is often a disjuncture between how chairs and late-career faculty think they are mentoring, and how early and mid-career faculty feel they are being mentored.

Lastly, for all mid and late career faculty members, the rapidly growing market rate for entry level faculty appointments results in a noticeable compression of salary. This creates situations where faculty may not feel valued, and perceive the only way to improve their financial status is to move to another university, or leave academia for industry. While we cannot be expected to match or exceed all offers, it is important to show our faculty their value to us through salary increases, research supplements and other incentives (parking, campus amenities).


6.3.3 Recommendations

1. Establish endowed funding mechanisms for preemptive offers and counter offers that include salary increases, research supplements and incentives.
2. Establish an ongoing process to provide guidance for an equitable salary structure among faculty. Adopt a model based on multiple regression analysis for systematically evaluating faculty salary equity across the institution. Require each school/college to work with their departments to address equity concerns to develop and utilize their own regression models, and report annually to the Provost the results of their analysis and how any inequities uncovered were addressed.
3. Consider creating time limited named/endowed professorships for faculty at intermediate stages in their careers, for example, at the transition from assistant to associate professor.
4. Increase the number of daycare facilities on or near campus.
5. Provide tuition relief for children of faculty and staff who are attending the University of Michigan.
6. Establish best practices for retention including:

- Effective ways to negotiate retention with faculty.
- Conduct exit interviews with faculty who leave for other academic positions, as well as those who leave academia all-together. Interview faculty members who were considering leaving, but did not, and ask what kept them here at Michigan? Make exit interview data being collected by the Center for the Education of Women (CEW) in conjunction with the ADVANCE program widely available for analysis.

6.3.4 Measures and Outcomes

The overall goal of a retention program is to ensure that we are able to hold onto our best faculty in spite of offers that such faculty are likely to receive from other institutions. We should continue to carry on the process that was established as part of the NSF ADVANCE project to collect data about all retention efforts made each year. Specifically, to the extent possible, we need to understand how many of our faculty are being recruited by others, the reason for the interest of the other institution, the effort that was made to retain the individual if a decision was made to do so, the outcome of the effort, and if unsuccessful, the reason the individual left.



7 Appendix A

The Department of Mathematics maintains a Personnel Committee which oversees all tenure-track and tenured hiring. Its membership is designed to represent all the research areas within the department. The committee has met with STRIDE and is attuned to the critical need to increase the diversity of the faculty in Mathematics. The committee takes into account departmental needs, but is always searching for the best possible candidates throughout Mathematics. The committee meets year-round and often invites other faculty members to meetings to share their input and all faculty members are encouraged to suggest possible candidates. The committee aggressively seeks out the best possible candidates and invites them to apply. This process encourages an outstanding diverse applicant pool. The hires that emerge from this process have had a broad base of support within the department.

This strategy has been successful in addressing diversity concerns. In the 2002-2003 academic year, the Department of Mathematics hired female colleague 1 to the Nesbitt Chair in Actuarial Mathematics and hired female colleague 2 as a Full Professor. Female colleague 1 was hired as the result of a multi-year recruiting. Female colleague 2 spoke at the most recent International Congress of Mathematicians, which is one of the highest honors in the field. In the 2003-2004 Academic year, the department hired female colleague 3 as a tenure track assistant professor and her spouse was hired as a joint appointment between Mathematics and EECS. All these hires were accomplished at a time when there were severe budgetary constraints on hiring. As recently as 1990 the Department of Mathematics had no tenured female faculty. It currently has six tenured female faculty and two tenure track female faculty which, while still entirely too low, represents the largest number of female faculty at a top ten Department of Mathematics.

**ADVANCE DEPARTMENTAL TRANSFORMATION
PROPOSAL**

**Biomedical Sciences Junior Faculty Forum
2003-2005**

**Submitted by the
Basic Science Units in the Medical School*
November, 2003**

* Bioinformatics, Biological Chemistry, Cell & Developmental Biology, Human Genetics, Mental Health Research Institute, Microbiology & Immunology, Molecular & Integrative Physiology, Pharmacology, Unit for Laboratory Animal Medicine

Introduction

The ADVANCE progress report released to the University community in September, 2003 by the President and Provost noted that the best tool we have in our effort to recruit and retain women scientists, like all faculty, is to provide them with a climate that is hospitable and nurturing to their professional development. The survey data from the recent UM climate study indicated that mentoring for junior faculty is an area that could use additional attention, especially for junior faculty women in the sciences.

The basic science units in the Medical School constitute an expanding group of biomedical faculty, with many common research interests, most of whom participate in research and training programs that cross departmental, institute and program boundaries. The increasing collaboration and shared responsibility among the basic sciences is also reflected in the Dean's Endowment for the Basic Sciences (EBS), a fund which is managed by the collective group of chairs and directors of the units listed on the cover as sponsors of this proposal. The EBS group meets on a regular basis to allocate resources from this fund in response to joint requests from departments/programs or requests from individual departments.

Since each of the basic science departments has only a few junior faculty in a given cohort, and because the faculty appointed across these departments have so much in common, we believe that they would benefit from enhanced opportunities to network and interact with each other, to share experiences and work toward developing their academic careers. Many clinical departments have also begun to hire Ph.D. tenure-track faculty to help develop their research profiles, and most of these faculty have secondary appointments in a basic science department, which allows them access to graduate students and provides classroom/didactic teaching opportunities. These jointly-appointed faculty would be included in the program outlined in the proposal below.

We request partial funding assistance from ADVANCE to convene a Biomedical Sciences Junior Faculty Forum, which would meet throughout the academic year on a monthly basis. This mentorship program is modeled on the successful efforts that have recently been established in the Department of Chemistry and College of Pharmacy at UM.

Project Plan and Goals

The Biomedical Sciences Junior Faculty Forum will provide an opportunity for junior faculty (tenure-track Assistant Professors) to meet once a month throughout the academic year to hear presentations on selected topics from senior faculty or administrators, to ask them questions and to discuss the issues. Lunch will be provided, and the junior faculty themselves will decide what will be discussed and whom to invite. Staff support will be provided to help organize the meetings.

Suggested discussion topics include research grant budgeting and federal fund accounting, how to manage staff and students in a research lab, the promotion and tenure processes at the department, school and university levels, preparing research proposals and the role of DRDA, grant review and funding at NIH and NSF, how to develop teaching skills, opportunities to participate in interdisciplinary programs and training grants, etc.

In addition to the information provided to the junior faculty group by the senior faculty and administrators they invite, these meetings will also provide junior faculty with an opportunity to interact and network with a larger cohort of peers. Research (both nationally and in the UM climate survey) has shown that women faculty often feel uninformed or excluded from informal mentoring relationships that provide information about what steps

they should take to develop their career and what advice or counsel they should expect to receive from their senior colleagues, their department chair, or other mentors. The proposed format of these meetings will provide the entire junior faculty with a sense of responsibility and control over their own careers, and will ensure that all faculty, men and women alike, have equal access to important information. We also anticipate that these regular meetings will help to create a sense of collegiality and shared common purpose among the cohort of junior faculty, and will provide newly arriving faculty with automatic access to a network of their peers.

Outcome Assessment

A report will be submitted to ADVANCE in June of each year of funding that will include the following items:

1. A list of meetings held, topics discussed and invited speakers at each meeting, and number of junior faculty attending.
2. Collated results from an annual survey of the participants, asking for their candid assessment of the strengths and weaknesses of the program, the benefits they perceived, any problems or concerns they had, suggestions for topics to be covered, and any other suggestions for changes or improvements.
3. An evaluation from each basic science chair and director about the impact of the program on the junior faculty in their unit.

9 APPENDIX C

The conventional model of mentoring is one-on-one. That is, a single senior faculty member advises a junior mentee on all aspects of faculty life. Given the small number of senior women, however, a one-on-one approach often pairs a junior woman with a senior woman outside her research area or with a senior male who may not understand many of the environmental issues facing female faculty.

An alternate model is zone mentoring. A junior faculty member is advised by a set of senior faculty, each focusing on a different aspect of faculty life. As part of this system, a senior faculty can individually mentor a group on a specific topic. For example, the Chair of the Biomedical Engineering Department acts as the *de facto* mentor on NIH funding for almost all junior faculty in the College of Engineering. A specific case illustrates how this approach can work.

A faculty member in a discipline far from biology developed a technology relevant to medical devices. He did not know how to approach NIH to secure funding and was frustrated about finding potential collaborators in the Medical School. Through a very informal network he eventually contacted the BME Department Chair. He quickly learned about several potential collaborators, how to approach them, and how to start getting the kind of preliminary data required for an NIH application. He now is NIH funded. This system can be formalized to provide much deeper mentoring for all junior faculty, especially for those interested in leadership opportunities.

Individual mentoring is always preferred because of the deep intellectual relationship that can develop between mentor and mentee. However, zone mentoring by a set of trusted and caring senior faculty can greatly deepen mentoring experiences for a large number of faculty, particularly those from underrepresented groups lacking a diverse mentor pool. A combination of individual and zone approaches may optimize mentoring experiences for all junior faculty.

10 Bibliography

Addendum to the 2001 Gender Salary Study:
<https://www.umich.edu/~advproj/advreports.html>

NSF ADVANCE at the University of Michigan: Faculty Recruitment Handbook Academic Year 2002-2003: <http://www.umich.edu/~advproj/handbook.pdf>

Report on the Status of Female Faculty in the College of Engineering (2003).

Year End Report for the ADVANCE project, December, 2002:
<http://www.umich.edu/~advproj/dec2002report.pdf>

Year-End Report for ADVANCE Institutional Transformation Project, December 2003:
http://www.umich.edu/~advproj/P_Dec2003Report.pdf

11 Additional Resources

University of Michigan Policies regarding Recruitment, Retention and Leadership

I. Recruitment

SPG 201.22 *Recruitment and Employment Process*

SPG 201.47-1 *Recruitment Guideline for Regular Instructional Staff*

Office of the Provost *Faculty Appointment Guidelines*

Office of the Provost *Provost's Faculty Initiatives Program*

Office of the Provost *Dual Career Program*

II. Retention

Office of the Provost *Mentoring and Community Building at the University of Michigan*
<http://www.provost.umich.edu/mentoring/index.html>

President's Advisory Commission on Women's Issues (PACWI)
Extension of the tenure probationary period
Modified duties policy
Faculty/staff sexual harassment policy

SPG 201.93 *Modified duties: Relief from teaching based on effects of pregnancy, Childbirth or related medical conditions*

III. Leadership

SPG 201.60 *Training Programs*

Data Resources Regarding Recruitment, Retention and Leadership

I. Recruitment

Stride- Resources for Recruitment and Hiring
<http://www.umich.edu/~advproj/resources.pdf>

Links to other schools
<http://www.nmsu.edu/~advprog/faculty.html>

http://www.washington.edu/admin/eoo/forms/ftk_01.html

<http://web.mit.edu/faculty/reports/FacultySearch.pdf>

<http://www.gtdiversity.gatech.edu/outreachpg.html>

<http://www.lib.duke.edu/archives/holdings/life/womnet.html>

<http://physics.wm.edu/dualcareer.html>

<http://hven.swarthmore.edu/~jensen/couples.html>

Dual-Science-Career Couples: Survey Results

<http://www.physics.wm.edu/~sher/survey.html>

II. Retention

ADVANCE survey and report

<http://www.umich.edu/~advproj/about.html>

Women at the University of Michigan: A Statistical Report on the Status of Women Students, Faculty and Staff on the Ann Arbor Campus , Volume IV:

<http://www.umich.edu/~hrra/womenatum/>

MIT Report on the Status of Women Faculty

<http://web.mit.edu/faculty/reports/overview.html>

MIT Faculty Family Policies

<http://web.mit.edu/facfamily/>

Georgia Tech Faculty Training

<http://www.training.gatech.edu/main.html>

Georgia Tech Mentortech program

<http://www.mentortech.gatech.edu/>

Faculty Accountability- Duke University

<http://conferences.mc.duke.edu/99dpssc.nsf/contentsnum/s>

Competitive Excellence Recruitment and Retention- University of Washington

<http://www.washington.edu/admin/pb/request03/PerfA703.htm>

III. Leadership

MIT Leader to Leader (L2L) program

<http://web.mit.edu/hr/oed/121/index.html>

The Nicholas Faculty Leadership Initiative- Duke University

<http://www.campaign.duke.edu/case/Nichoweb/Nicholas.html>

Faculty Leadership in Interprofessional Education for Patient Safety (FLIEPPS) grant- University of Washington

<http://interprofessional.washington.edu/flipepps/>