Five Year Trends (2004 – 2008)
in Women Faculty At University of Minnesota, Twin Cities
Relative to Peer Research Institutions

Prepared by the Women’s Faculty Cabinet¹
in Collaboration with the Office of Institutional Research

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¹ Women’s Faculty Cabinet members for 2009-2010: Caroline Hayes (Chair), Michele Goodwin (Co-chair), Lisa Channer, Keya Ganguly, Rhonda Franklin, Patricia Frazier, Linda Halcon, Roberta Humphreys, Peg Lonnquist, Linda Kinkel, Alice Larson, Helga Leitner, Colleen Flaherty Manchester, Nancy Raymond, Janet Schottel.

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Contents

1. Executive Summary

2. Percentage of Women Faculty at UMN-TC as a Whole
   a. Five Year Trends (2004 – 2008): UMN-TC Relative to Other Research Universities,
   b. UMN-TC Relative to Several Comparison Groups: 2008,
   c. UMN-TC by Rank Relative to other Research Universities: 2008.

3. Percentage or Women Faculty by College
   a. Quick Summary for 2008: all UMN-TC Colleges Relative to Other Research Universities,
   b. Non-medical Women Faculty
      Five Year Comparative Trends for Each College, 2004 – 2008
   c. Medical Women Faculty:
      Five Year Comparative Trends for the Medical School, 2004 – 2008

4. Women’s Faculty Cabinet Recommendations
1. Executive Summary

The University of Minnesota’s Twin-Cities Campus (UMN-TC) is equal to many of its peers in the percentage of women faculty who are tenured or hold tenure-track positions, and for one comparison group UMN-TC has a slight lead. We have held our position relative to “the pack” for 5 years (Figure 1), but we have not managed to create a substantial lead in keeping with our strategic goals for excellence (see Figure 2).

At the same time, there are specific colleges within the University of Minnesota which have achieved substantial leads over equivalent collections of departments at our sister institutions. Most notable are the College of Design, Hubert H. Humphrey Institute of Public Affairs, Carlson School, and Law School which lead their peers by 19%, 13%, 11%, and 7% respectively (see Figure 4).

However, there are also several colleges that still lag behind their peers. In particular, Veterinary Medicine, Dentistry, and the Institute of Technology fall behind their peers by 7%, 3%, and 3%, respectively. While the gap for dentistry has been closing over the past 5 years, it has been increasing for Veterinary Medicine and the Institute of Technology. Furthermore, other colleges may be losing their leads, including the College of Biological Sciences and the College of Liberal Arts.

While the University of Minnesota should celebrate its accomplishments in advancing gender equity, we must also keep in mind that our current position is tenuous. It is not sufficient to simply increase the proportion of women faculty every year because our peers are doing the same, and many of them are excelling where we are average. We must not become complacent or we will fall behind.

However, at the same time, we are well positioned to become national leaders in faculty gender diversity if we continue and increase our institution-wide commitment to women faculty, and encourage all of our units to become leaders. (After all, this is Minnesota where all the colleges can be above average). Recommendations for next steps are outlined in the final pages of this report. We should aim not only to lead but excel.

Specific colleges at UMN-TC cannot be compared directly to colleges at other institutions because those colleges may include different disciplines. Instead, we have examined the component departments within each college, and compared them against equivalent set of departments at the other institutions, according to the process described on page 8.
2. Percentage of Women Faculty at UMN-TC as a Whole

2.a Five Year Trends (2004 – 2008): UMN-TC Relative to Other Research Universities (Non-Medical Women Faculty)

Figure 1 shows the 5 year trends for UMN-TC relative to all AAUs (e.g. all public and private AAUs which reported data for all 5 years.) UMN-TC maintained a greater percentage of women in tenured and tenure-track faculty positions for all 5 years, than the average or all AAUs reporting data, and these differences are each statistically significant ($\alpha = 0.05$). UMN-TCs lead has remained stable at around 2%, keeping just above the competitors, but it has not increased.

![Five Year Trends 2004 - 2008](image)

**Notes on Figure 1**

All AAUs (26). There are 62 universities participating in the AAU, however, not all of them submit data every year. Of those only 26 submitted data for the five years from 2004 to 2008. They are: Brown University, Columbia University, Cornell University - Endowed College, Duke University, Harvard University, Massachusetts Institute of Technology, North Carolina-Chapel Hill, Northwestern University, Princeton University, Purdue University, Rutgers-State University of New Jersey, Stanford University, State University of New York-Buffalo, Texas A&M University, University of Colorado-Boulder, University of Florida, University of Illinois at Urbana-Champaign, University of Iowa, University of Kansas, University of Maryland, University of Michigan-Ann Arbor, University of Minnesota-Twin Cities, University of Nebraska-Lincoln, University of Oregon, Washington University in St. Louis, Yale University.
2.b UMN-TC Relative to Several Comparison Groups: 2008

We compared the non-medical faculty at University of Minnesota Twin-Cities campus to four groupings of AAU universities: a comparison group of 10 universities selected by the administration; all public universities reporting data to the AAU in 2008; the Big 10; and all universities reporting data to the AAU, whether public or private. (Notes on the universities in each group are included at the end of subsection 2.c) The Medical School is not included in this comparison because not all universities included in the comparison groups included in Figure 1 have medical schools. A separate analysis for the Medical School is shown in Section 3.c.

Figure 2 shows that for non-medical faculty, UMN-TC’s statistically significant lead over all AAU universities (α = 0.05) disappears when UMN-TC is compared against the selected comparison group, all public AAU universities, or the Big Ten.

![Figure 2: Tenured and Tenure Track Women Faculty (non-medical) at UMN-TC compared to Peer Institution Groups, 2008](image)

Figure 2: A * indicates a statistically significant difference from University of Minnesota Twin-Cities Campus, α = 0.05

Additionally, UMN-TC has a significantly smaller proportion of women faculty overall relative to all comparison groups if one considers the combination of tenured, tenure-track, non-tenure track faculty and instructional staff (α = 0.05) (finding not shown graphically). There are several ways in which one might interpret this information. One is that UMN-TC women are less often relegated to the lower paid, lower status non-tenured positions than at other universities. However, the colleges within UMN-TC that are significantly ahead of their peers with respect to tenured and tenure-track women also have significantly higher proportions of women faculty overall (including instructional.

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staff and research faculty). Thus, the second finding could also indicate a smaller pipeline of local women at UMN-TC who might later move into tenure-track positions.

2.c UMN-TC by Rank Relative to Other Research Universities: 2008

When broken down by rank, UMN-TC has a statistically significant lead in the percentage of women faculty at the associate professor level, relative to all AAUs (see Figure 3). There were no statistically significant differences at the assistant and full professor levels. The most likely explanation is that 5 and 10 years ago, UMN was more successful in recruitment and hiring or women assistant professors than other AAUs, but in recent years they have caught up. This is assuming that at most faculty are hired at the assistant professor level, and women advance roughly at the same rate as men. While UMN-TC’s lead over other AAUs at the associate professor level is a positive sign, if we wish to keep pace with surpass our peers, we must increase recruiting of women faculty at all levels, particularly the assistant professor level where most new hires are made.

If one fails to examine the completion, at first glance one think that UMN-TC is doing well with respect to hiring of women assistant professors: the proportion of female assistant professors (43%) is greater than associate professors (42%). However, the bar keeps rising with the “rising tide” of women entering faculty positions. Other research universities have increased their percentage of women entering the tenure track faster than UMN-TC has. Thus, UMN-TC must continue to increase its new hiring efforts in order to stay ahead of the competition.

**Percent Tenured and Tenure-Track Women Faculty by Rank, 2008**

UMN-TC and AAU (39) 2008

All AAU Institutions Reporting Data for 2008

<table>
<thead>
<tr>
<th>Rank</th>
<th>UMN-TT</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Professors</td>
<td>43%</td>
<td>41%</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>42%</td>
<td>36%</td>
</tr>
<tr>
<td>Professors</td>
<td>21%</td>
<td>20%</td>
</tr>
</tbody>
</table>

* Statistically significant difference, $\alpha = 0.05$.

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Notes for Figure 2 and Figure 3

a nonprofit organization of 62 leading public and private research universities in the United States
and Canada. The 60 AAU universities in the United States award more than one-half of all U.S.
doctoral degrees and 55 percent of those in the sciences and engineering.

**Non-tenure track** includes research faculty and instructional staff not on the tenure track.

**Comparison Group:** ten research universities selected by the University of Minnesota
administration as highly relevant for comparison. These universities are: *University Of California-Berkeley, *University Of California-Los Angeles, University Of Michigan, *Ohio State University, Pennsylvania State University, University Of Texas, University Of Florida, University Of Illinois, University Of Washington, University Of Wisconsin.

**Big 10.** 11 Universities: Indiana University-Bloomington, *Michigan State University, Penn State-University Park, Purdue University, *Ohio State University, University of Michigan-Ann Arbor, University of Illinois at Urbana-Champaign, University of Iowa, University of Minnesota-Twin Cities, University of Wisconsin-Madison, Northwestern University.

**AAU Public.** 26 universities: Indiana University-Bloomington, Iowa State University, *Michigan State University, North Carolina-Chapel Hill, Penn State-University Park, Purdue University, Rutgers-State University of New Jersey, State University of New York-Buffalo, *State University of New York-Stony Brook, Texas A&M University, *Ohio State University, University of Michigan, University of Texas at Austin, University of Arizona, University of Colorado-Boulder, University of Florida, University of Illinois at Urbana-Champaign, University of Iowa, University of Maryland, University of Minnesota-Twin Cities, University of Missouri-Columbia, University of Nebraska-Lincoln, University of Oregon, University of Virginia, University of Washington, University of Wisconsin-Madison.

**AAU (39).** While there are 62 universities in the AAU, not all report data for all years. In 2008
39 of these 62 universities reported data: Brown University, Case Western Reserve University,
Columbia University, Cornell University - Endowed College, Duke University, Emory
University, Harvard University, Indiana University-Bloomington, Iowa State University,
Massachusetts Institute of Technology, North Carolina-Chapel Hill, Northwestern University,
Pennsylvania State University-University Park, Princeton University, Purdue University,
Rutgers-State University of New Jersey, Stanford University, State University of New York-
Buffalo, Texas A&M University, University of Chicago, University of Michigan-Ann Arbor,
University of Texas at Austin, University of Arizona, University of Colorado-Boulder, University
of Florida, University of Illinois at Urbana-Champaign, University of Iowa, University of Kansas,
University of Maryland, University of Minnesota-Twin Cities, University of Nebraska-Lincoln,
University of Oregon, University of Pennsylvania, University of Pittsburgh, University of
Washington, University of Wisconsin-Madison, Vanderbilt University, Washington University in
St. Louis, Yale University.

* No data reported for 2008.
3. Percentage of Women Faculty by College

3.a Quick Summary for 2008: all UMN-TC Colleges Relative to Other Research Universities (Medical and Non-Medical Women Faculty)

Figure 3 provides a comparison between colleges at the University of Minnesota by college to AAU universities. Since colleges at other universities include different disciplines, it was necessary to compare each college at UMN-TC not to other colleges at other universities, but the collection of equivalent departments.

![Graph: Tenured and Tenure Track Women Faculty at UMN-TC, 2008 Relative to 26 AAU Universities](image)

**Figure 4**

Numbers in parentheses after each college (33) are the number of tenured and tenure-track faculty, 2008.

* Significant difference, where $\alpha = 0.05$.
+ Significant difference, where $\alpha = 0.10$.

** The comparison group for the Medical School consists of 12 AAU institutions listed in section 3.b

**Summary.** Many of the UMN-TC colleges equal or lead their peers in the percentage of tenured and tenure-track women faculty, some substantially. Most notable are the College of Design, Hubert H. Humphrey Institute of Public Affairs, Carlson School, and Law School which lead their peers by 19%, 13%, 11%, and 7% respectively. However, there are also several colleges that still lag behind their peers, in particular, Veterinary Medicine, Dentistry, and the Institute of Technology, and which fall behind their peers by 7%, 3%, and 3%, respectively.

**Kudos.** Note that only the College of Design and the Carlson School have statistically significant ($\alpha = 0.05$) leads over their peers, e.g. all 39 public and private
AAUs reporting data in 2008. However, some colleges still have substantial accomplishments in faculty gender diversity even if they are not statistically significant, such as the **Hubert H. Humphrey Institute** (13% lead). For the Hubert H. Humphrey Institute, the lack of significance is partially a reflection of its size. With 25 faculty (men and women combined) in 2008, it was the smallest unit examined in this report.

**Concerns.** Similarly, only one college, the **Institute of Technology** had a statistically significantly lag behind its AAU peers ($\alpha = 0.10$). However, improvements could be made in many other units as well, such as **Veterinary Medicine** which lags 7% behind its peers, although this difference was not statistically significant given that it is a relatively small college (58 faculty). Indeed, our goal should be gender parity for all units.

**Notes on Figure 4**

**AAU (26).** A subset of AAU (39). Of the 62 AAU universities, only 26 universities reported data for all five years between 2004 and 2008. They are: Brown University, Columbia University, Cornell University - Endowed College, Duke University, Harvard University, Massachusetts Institute of Technology, North Carolina-Chapel Hill, Northwestern University, Princeton University, Purdue University, Rutgers-State University of New Jersey, Stanford University, State University of New York-Buffalo, Texas A&M University, University of Colorado-Boulder, University of Florida, University of Illinois at Urbana-Champaign, University of Iowa, University of Kansas, University of Maryland, University of Michigan-Ann Arbor, University of Minnesota-Twin Cities, University of Nebraska-Lincoln, University of Oregon, Washington University in St. Louis, Yale University.

**Note:** While all data in Figure 3 are 2008 data, we chose to use “AAU (26)” as the comparison group in this figure rather than AAU(39) because we wanted the numbers match up with the 2008 numbers in the following sections showing 5 year trends for each college from 2004 – 2008.

**How the college comparisons were done:** It does not necessarily make sense to compare a college at the University of Minnesota to colleges with similar names at other universities because each may include different collections of departments. Instead what we have done is to compare colleges at UMN-TC with the equivalent collection of departments at other universities. The data is collected from the AAU institutions by CIP code (Classification of Instructional Programs). Several CIP Code examples are listed below. The Office of Institutional Research mapped the CIP Codes to University of Minnesota-Twin Cities departments. The example below shows several of these mappings. Then, using this mapping, collections of equivalent departments can be constructed.

<table>
<thead>
<tr>
<th>Deptid</th>
<th>Department Name</th>
<th>CIP Code</th>
<th>CIP Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11093</td>
<td>IT Chem Eng &amp; Mat Science Adm</td>
<td>14.0701</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>11093</td>
<td>IT Chem Eng &amp; Mat Science Adm</td>
<td>14.1801</td>
<td>Materials Engineering</td>
</tr>
<tr>
<td>11093</td>
<td>IT Chem Eng &amp; Mat Science Adm</td>
<td>14.3101</td>
<td>Materials Science</td>
</tr>
<tr>
<td>11098</td>
<td>IT Chemistry Administration</td>
<td>40.0501</td>
<td>Chemistry, General</td>
</tr>
<tr>
<td>11098</td>
<td>IT Chemistry Administration</td>
<td>40.0599</td>
<td>Chemistry, Other</td>
</tr>
</tbody>
</table>

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3.b Five Year Comparative Trends for Each College, 2004 – 2008
(Non-medical Women Faculty)

This section examines five year trends within each UMN-TC college relative to all AAUs that have reported data for all five years from 2004 – 2008. Five year trends are shown for the following colleges:

1. Biological Sciences, College of
2. Carlson School of Management
3. Dentistry, School of
4. Design, College of
5. Education and Human Development, College of
6. Food, Agriculture and Natural Resource Sciences, College of
7. Hubert H. Humphrey Institute of Public Affairs
8. Law School
9. Liberal Arts, College of
10. Nursing, School of
11. Pharmacy, College of
12. Public Health, School of
13. Technology, Institute of
14. Veterinary Medicine, College of

Summary. These analyses allow one to look more deeply at trends over time in each college with respect to peer institutions, and whether leads or gaps are narrowing or widening. While the gap for dentistry has been closing over the past 5 years, it has been increasing for Veterinary Medicine and the Institute of Technology. Furthermore, some colleges currently leading their peers may be losing their lead; the College of Biological Sciences had a 5% lead in 2004, but only a 1% lead in 2008. Similarly, the College of Liberal Arts had a 4% lead in 2004, but only a 1% lead in 2008.

Notes on Figure 5 through Figure 18
AAUDE (26): Same as AAU (26), all AAU universities that reported data for all 5 years from 2004 through 2008: Brown University, Columbia University, Cornell University - Endowed College, Duke University, Harvard University, Massachusetts Institute of Technology, North Carolina-Chapel Hill, Northwestern University, Princeton University, Purdue University, Rutgers-State University of New Jersey, Stanford University, State University of New York-Buffalo, Texas A&M University, University of Colorado-Boulder, University of Florida, University of Illinois at Urbana-Champaign, University of Iowa, University of Kansas, University of Maryland, University of Michigan-Ann Arbor, University of Minnesota-Twin Cities, University of Nebraska-Lincoln, University of Oregon, Washington University in St. Louis, Yale University.
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3.c Five Year Comparative Trends for the Medical School, 2004 – 2008

The Medical School is now 3% above the AAU average for the percentage of women faculty who are tenured or tenure track. Furthermore, the Medical School lead has been increasing over the five years between 2004 and 2008, from a less than a 1% lead in 2004 to a lead of slightly more than 3% in 2008 (see Figure 19). While the Medical School’s current 3% lead over its peers is not statistically significant, it is notable. The Medical school is well positioned to become a national leader with respect to women faculty if it continues its current efforts.

![Figure 19](image)

Notes on Figure 19

The institutions selected for comparison to UMN-TC are the 12 institutions that have medical schools and have reported data for all 5 years between 2004 and 2008. There is no other relationship or conclusion that one should draw about these universities other than they submitted data for all 5 years.

**AAUDE (12) institutions**: Brown University, Columbia University, North Carolina-Chapel Hill, Northwestern University, Stanford University, State University of New York-Buffalo, The University of Michigan-Ann Arbor, University of Florida, University of Iowa, University of Minnesota-Twin Cities, Washington University in St. Louis, Yale University.
4. Women’s Faculty Cabinet Recommendations

Summary. The University of Minnesota’s Twin-Cities Campus (UMN-TC) is equal to many of its peers in the representation of women among tenured and tenure-track faculty, and for one comparison group it has a slight lead (see Figure 1), mainly at the associate professor level (see Figure 2). Several of its colleges have impressive and sizable leads over their peers while others are falling farther behind. However, UMN-TC is well positioned to become a national leader in gender diversity and a magnet for female and male faculty desiring a diverse and equitable environment, if it continues to substantially increase its percentage of women faculty across all colleges.

This represents a critical opportunity for achieving our goal to be among the top public universities. If we can become a national model for research universities in gender equity, UMN-TC will benefit both in quality and productivity. The quality of our faculty will increase as we improve our ability to attract and retain the best faculty. Additionally, there is strong evidence that an increased perception of equity has a substantial impact on productivity. Given the current economic crisis, the university as a whole is currently struggling to find ways low-cost and cost-effective investments that will have a dramatic and positive impact on quality and growth opportunities. This represents exactly such an opportunity if planned and implemented wisely.

This analysis has identified several specific colleges where more attention on hiring and retention of women faculty may lead to substantial gains. However, research has shown that efforts to change are most effective if an organization has 1) a highly visible concrete plan for the implementation of change in place at the top levels of the institution, and 2) some “teeth” behind the plan. While the University of Minnesota’s strategic plan includes gender diversity, as stated, it is a goal rather than a plan for implementation. Furthermore, there are no (obvious) teeth behind the goal.

Thus, we recommend the following actions:

1. **Task the Office of Institutional Research to update the analyses in this report annually** for assessment by the Provost’s office and the Women’s Faculty Cabinet so that we may monitor our progress. Consider providing this report to the Board of Regents each year.

2. **Present this report to the deans and associate deans.** Work with all colleges to help them increase their proportion of women faculty if they fall below 50%, particularly those colleges that may be losing their lead, or are falling behind their peers. Special attention should be given to Veterinary Medicine, the Institute of Technology, and the School of Dentistry. Even colleges that lead their peers may be able to find further opportunities for improvement in specific departments.

3. **Create an implementation plan for gender equity.** The Women’s Faculty Cabinet is willing to work with the Provost’s office to provide advice and recommendations on a concrete implementation plan, if so desired.

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4. **Give the effort teeth.** For example, set aside some portion of the funds from the compacting process for gender equity rewards (similar in concept to a pool of funds for merit raises). Give out awards in proportion to the size of a college’s lead over their peers in the AAU, and closeness to gender parity. The award should not be based on yearly improvement per se, but long-term sustained accomplishments. Thus a college that is substantially above its peers, such as the College of Design, should get a large share of the gender equity rewards even if they only maintain their current proportion of women faculty. Thus colleges that are already high achievers are rewarded, and sustainment of high achievement is also rewarded.

**Next steps** need to be developed jointly between the Women’s Faculty Cabinet and the Provost’s office. They may include anything from drilling down in the data to the department level to identify specific departments where opportunities for improvement may exist, to identifying cost-effective and efficacious institutional, college and department-level transformation activities.

**Closing thoughts.** While the focus of this report is on the numerical representation of women faculty, clearly gender equity is about more than numbers. It is also about culture and climate. The Women’s Faculty Cabinet’s study of work-life balance used data from the 2008 PULSE Survey, and revealed a number of issues for women faculty including lower satisfaction with the pay structure, higher stress among the senior women faculty relative to male faculty, and indications that stopping the clock may be viewed negatively. There are additional recommendations resulting from the work-life balance study. For example, possible next steps may be a breakdown of stress by college, or an addition to the 2010 PULSE Survey on service duties in order to better understand the sources of stress for our faculty.

We acknowledge that this report provides only a portion of the overall picture for women faculty at the University of Minnesota. As we gain more data on issues ranging from salary equity, tenure and promotion rates, retention, and hiring, we can make additional targeted and circumspect recommendations.

**Acknowledgements**

We would like to extend a special thanks to Linda Lorenz from the Office of Institutional Research at the University of Minnesota, and Roopa Makena for their assistance in gathering, analyzing and graphing these data.