Assessing the climate
for
doctoral students
at the University of Michigan

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I. INTRODUCTION[1][2]

The initial motivation for this report was a desire specifically to assess the climate for women and underrepresented minorities in doctoral programs at the University of Michigan. The UM ADVANCE project had conducted a study of the academic work environment—often referred to as the climate—for women and underrepresented minority faculty in science and engineering.[3] In the course of that project, both faculty and students had expressed an interest in conducting a parallel study with doctoral students in the same fields. (Although the climate for Master's students is also important, many academic disciplines at UM do not offer a Master's degree as a stand-alone program, and many Master's programs are much more practice-oriented than the academic doctoral programs. This study focuses on doctoral students in programs that aim primarily, or at least substantially, to produce academic scholars.)

Of course evaluations of the "climate" are always subjective judgments; what is warm to one person is cold to another, even though it may be "objectively" 68 degrees Fahrenheit. It is worth noting, though, that cumulatively most people would agree—without reference to objective temperature—that Michigan is generally "cold" and Tennessee is "warm." If we want to know about what a group of people, or an individual person, is experiencing—how they feel—it is actually best to ask them (rather than to use a thermometer). In assessing how welcoming or alienating a school or work environment is, there is no "thermometer"—there are only people's judgments. We can, of course, assume that the aggregate picture we get of a climate from those judgments is "objective," or we can simply compare those who find it "cool" to those who find it "warm," and see who falls into those two groups. This study, then, measured doctoral students' judgments of the climate, with the primary goal of assessing whether that climate varied for particular groups of students.

In consultation with several key staff[4] at the Rackham Graduate School and with graduate students, we decided that the focus of this study should be gender and race-ethnicity. Although it was recognized that the type of field a student was in was

likely important, it was difficult to decide on an indicator of field type. One potential variable was Rackham division: Biological and Health Sciences; Physical Sciences and Engineering; Social Sciences; and Humanities and Arts. However, these four divisions combine departments and schools that are quite heterogeneous. Equally, looking separately at schools and colleges in some cases does the same thing (e.g., the College of Literature, Science and the Arts, which has three divisions of its own) and at the same time in some cases artificially separates individuals in closely related fields. We examined both Rackham Division and School or College differences, and were not convinced that these captured important differences well. In consultation with Rackham staff, we decided to report the Division data in the tables at the end of this report, but not to summarize or discuss them. However, we have in all cases in this report described gender and race-ethnicity differences that are *not accounted fo*r by divisional differences. Our process of analysis is outlined further in the section below on our *Analysis Strategy*.

The goal of this report is to provide aggregate results across the sample. The broad range of disciplines and divisions of the students in the sample mean that any one department or discipline is, generally, not well-represented in the data. A few schools or departments are sufficiently represented that separate analyses could be conducted with respondents from those units. We welcome requests from deans or unit leaders to consider if such analyses are feasible. However, we urge readers to assume, unless there is sufficient reason to think otherwise, that the findings presented in this report apply to the students in their units. If there is a critical question of interest that is not addressed in this study it may be useful to consider collecting data at the unit level to assess that issue.

Survey
The survey was initially developed by the NSF ADVANCE staff in conjunction with Rackham Graduate School administrators and was further modified based on feedback received from graduate students. We conducted focus groups with a diverse group of 14 students who encouraged us to cast a broad net in assessing aspects of doctoral students' experience, as we aimed to understand the circumstances under which some or many doctoral students thrive and those under which they do not.[5] The questionnaire was administered via an online survey, and took students an average of 30 minutes to complete (it is 11 pages of questions). Survey topics included skills, training and learning experiences, advising and mentoring, career planning goals, department climate, and background information (a copy of the survey is included in this report as Appendix A).

Data Collection
In fall 2004 all doctoral students enrolled in Rackham for more than one year received a request to complete an on-line survey (n=5340). The surveys were anonymous and all respondents were promised confidentiality. To encourage participation, respondents were entered into a pool from which thirty students were randomly selected to receive a $50 gift. We received a total of 1454 surveys (27% response rate).

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[5] We are most grateful to these doctoral students who generously provided their advice to us about the development of the survey.

Sample
While we surveyed all students who were currently registered and who had enrolled in a UM doctoral program before January 2004, we limited analyses to those students who had entered graduate school no earlier than fall 1998.   This criterion resulted from analyses indicating that—as we expected—the sample was most representative of the larger Rackham pool of students when it was limited to students who had been in graduate school for less than seven years. Since students who have been enrolled for a longer period often are engaged in research off campus, and have varying levels of commitment to degree completion, we felt it was best to limit the sample to the group who had first enrolled no earlier than fall 1998.

Of the 1454 students who initiated the survey, 1179 completed usable surveys. Of these, 61 reported that they entered graduate school before fall 1998 and 5 other students reported starting after December 2003; these students were dropped from the study. In addition, 315 students did not report the demographic information necessary for these analyses, leaving an analyzable sample of 798 students. We suspect this high rate of refusal to respond to the demographic questions may be an indication of a substantial level of anxiety about confidentiality. It is difficult to know what might have caused this anxiety, but it is possible that the online survey method did not appear to protect students' privacy. We speculate about this because a 1993 survey of graduate students (which used a very different sampling procedure) had a 43% response rate overall[6].

Because we lost a significant proportion of the sample as a result of lack of provision of demographic information, we did further analyses to determine if there were important differences between students who did report demographic information and those who did not; we found no statistically significant differences on any of the climate indicators discussed in this report between these two groups of students, so we believe that the findings in this report can be safely generalized to the larger population of Rackham students who responded.

<u>Gender and race-ethnicity breakdown of sample</u>.   Since our primary aim was to assess differences in the doctoral student experience among students who varied in terms of gender and racial-ethnic background, it is useful to review those characteristics of our sample. About 60% of the analyzed sample were female and 40% male. Students were grouped into three very broad race-ethnicity categories, based on the largest groups available for analysis. We would have liked to assess the climate for relatively specific groups of students (e.g., African-Americans, Latinos, etc.), but the numbers only permitted broader groupings. One important difference among students is race-ethnicity in very broad terms (majority or "white"

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[6] This report, on *A Survey of the Graduate Experience: Sources of Satisfaction and Dissatisfaction among Graduate Students at the University of Michigan* was conducted by J.Manis, S.Frazier-Kouassi, C. Hollenshead & D. Burkam and published in 1993 as a CEW Research Report. The study focused on both doctoral and master's students, and unfortunately had little overlap with our survey in the content of the questions; even in those places where there was overlap in content, the format of the questions was different. These differences derive from the fact that our procedure began not with the 1993 survey, but instead with the 2001 faculty survey of climate for science and engineering (see Stewart, Stubbs & Malley (2002) and Stewart, Malley & Stubbs (2004) listed in footnote 2),and from our concern to address issues of perceived importance to contemporary doctoral students and Rackham staff. Thus, some items were included because they had proved useful in the faculty climate study, some were drawn from national models, and some emerged from our discussions with Rackham staff and current students.

and underrepresented minority or "of color"), and another is U.S. or international country of origin. We found that three groups were in fact well-represented in our sample: white and originally from the U.S. (65%); students of color of U.S. origin[7] (17%); and international students of color[8] (18%). Because there were so few white international students (n=55; fewer than 7%), we did not include them in the analyses assessing race-ethnicity differences (see Table 1a for a breakdown of the sample by gender and race-ethnicity groups).

The demographic breakdowns within the analyzable sample generally reflect the overall rates of doctoral students reported by Rackham (See Table 1b). However, female students responded at a higher rate than male students (they represent 44% of the Rackham student body but 60% of our sample), as is typical in studies of this kind (see discussion in Stewart, Stubbs & Malley, 2002).

Divisional breakdown of sample. It is also useful to note that the sample drew from all four of the Rackham divisions: 173 (22%) of the respondents were enrolled in the biological/health sciences; 266 (34%) were in the physical sciences/engineering; 216 (28%) were in the social sciences; and 123 (16%) were in the humanities. Students were also asked to report their department or program of study. Appendix B lists the number of students by departmental groups reported within each division[9].

Generally, students in the physical sciences/engineering responded at a lower rate than students in other divisions (they represent 40% of the Rackham student body and 32% of our sample); this difference appears to be the result of the lower response rate by male students in this division. As noted above, male students responded at a lower rate than females across all divisions; however, the rate of male respondents in physical science/engineering was the lowest (they represent 31% of the student body but only 20% of the respondent sample).

Analyses

Analysis strategy. Descriptive analyses were conducted on the sample of 798; we examined differences among students in terms of gender and race-ethnicity. In addition, analyses assessed divisional differences. However, as they are not the primary focus. of this report, the results are not reported in the text, but are provided in the tables appended to this report so the interested reader can assess divisional differences in results. It is important to note, though (as is discussed below) that gender and race-ethnicity differences reported here cannot be accounted for by divisional differences. In addition, when appropriate, we also examined other differences among the students (e.g., gender of advisor, relationship and parent

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[7]These students identified their race/ethnicity as follows: 32% Asian/Asian American; 28% Hispanic/Latino; 20% African American/Black; 10% Mixed; 6% East Indian; 3% American and 2% Native American.

[8] These students identified their race/ethnicity as follows: 64% Asian; 20% East Indian; 17% Black; 6% International; 5% Hispanic or Latino, 3% Arab/Middle Eastern; 2% Mixed.

[9] Concerning divisions, it is interesting to note that there were different race and gender patterns by division (see Table 1b). The physical sciences/engineering division respondents were 38% female, both the biological/health sciences and humanities division respondents were 69% female; and the social sciences division was 74% female. The overwhelming majority of students in each division were white U.S. students (ranging from a low of 62% in the biological/health sciences to a high of 75% in the humanities). The highest proportion of international students of color was in the physical sciences/engineering (30%); this division also had the lowest proportion of U.S. born students of color (13%).

status). Where we found statistically significant differences we report them in the text, but do not include these results in the appended tables. All reported differences are at the p ≤ .05 level of significance unless otherwise stated.

Statistical controls. All analyses were conducted **controlling for the students' current financial situation** and **number of years at UM** as these variables were correlated with variables under investigation; specifically, *number of years at UM* was negatively correlated with the family factors scale of the career features measure and students' overall rating of their departments' climate   It was positively correlated with the family lifestyles scale of the confidence measure (see Table 1c).[10] *Current financial situation* was positively correlated with all three advisor rating scales, the ability to teach scale of the confidence measure and the overall climate rating. Statistically significant findings reported here account for these controls; that is, they cannot be accounted for by years at UM or current financial situation[11].

Weights. As reported, male doctoral students were less likely to respond to the survey than were women (women represented 44% of the Rackham student body but 60% of our sample). Thus, men were underrepresented in our sample. Equally, based on our best estimate of the rate of international students of color in the Rackham student body (31%), these students were also underrepresented (they were 18% of our sample)[12]. Given the differential response rates by gender and race-ethnicity, all analyses presented in this report were conducted with appropriate weights to account for these differences.[13] Weighted data analyses adjust the raw survey data to represent the population from which the sample is drawn.   The weighted analyses included the same controls previously mentioned.

In all cases, when we have reported significant differences for gender and/or race-ethnicity, we have verified that those differences hold up, regardless of differences in the other variable or by division. Thus, when we describe a gender difference, it **cannot be accounted for** by differences in gender by division or by differences in race-ethnicity; similarly, when we report a race-ethnicity difference, it cannot be accounted for by differences in the divisions or by gender. In short, reported differences hold up in the context of the other two variables, as well as the two control variables already described.

Key variables. We begin by describing what we learned about doctoral students' overall **confidence** and **discouragement**, and then turn to an account of the **climate** in their departments. These sections form the central focus of our interest: the climate for women and underrepresented minorities in doctoral programs at the University of Michigan. The next sections review many **features of graduate student experience**, and we conclude with a discussion of **other aspects of graduate students' lives**. These sections are included in the hope that they may illuminate the sources of some of the differences discovered in the climate. In each

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[10] We also found some evidence that the relationship between students' ratings of advisors and assessment of the climate strengthens for students who have been at UM longer (see page 28).

[11] We also conducted separate analyses assessing differences for students based on their current financial situation. These findings are discussed on page 23.

[12] Understandably, there is a high rate of non-response by international students to the U.S. categories for race-ethnicity in student records. We assumed that all international students who did not identify themselves as white should be considered international students of color.

[13] We are grateful to Brady West at the Center for Statistical Consulting and Research at the University of Michigan for advice on this issue.

section we consider the data overall, and then findings by gender and race-ethnicity (U.S. born white students, U.S. born students of color and international students of color). Finally, we present some relationships between these variables and indicators of students' morale.

When appropriate, variables were combined to create composite scores to simplify interpretation. A listing of these composite indices and the variables that were combined to create them are reported as Appendix C.

II. DOCTORAL STUDENTS' MORALE

The first issue we addressed is doctoral students' morale. We were interested in the degree to which students felt positive and hopeful about their involvement in their doctoral programs. We viewed this as an indication of their overall enthusiasm for the graduate school experience (and therefore potentially affected by the climate), and we assessed it in several ways.

Confidence
Students were asked to rate **how likely they were to pursue a career in their current field of study** on a five-point scale from "almost certainly won't" (1) to "definitely will" (5). The average rating was high (4.16), suggesting that these students generally thought they will "probably" pursue a career in their current field of study. There were no differences on this item by gender or race-ethnicity.

Students were also asked to rate **how well they thought they were doing** in graduate school on a five-point scale, from "not sure I'll make it" (1) to "extremely well" (5). Overall, students indicated that they were doing well; the average rating was 3.73, approximating the "above average" marker.   Male students rated themselves as doing significantly better than female students (mean score for men was 3.83 and for women was 3.61). There were no statistically significant differences among the race-ethnicity groups on this variable (mean scores for U.S. white students, U.S. students of color and international students of color were 3.76, 3.70, and 3.70 respectively).

In addition to this general rating, students were also queried about how confident, on a four-point scale from "not at all true" (1) to "very true" (4), they felt about a **series of 18 possible career outcomes** (e.g., that I can become a professor in a top research university or that I can both have children and be a successful academic). Initial analyses were conducted comparing the means on each item within groups (e.g., gender, race-ethnicity). A listing of all 18 items as well as the results of these analyses can be found in Table 2.

To simplify these data, a factor analysis was conducted on these 18 items, producing five separate factors for confidence concerning career abilities: university/research job; research; teaching; non-academic job; and family/lifestyle. The items that comprise each scale are as follows[14]:

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[14] Cronbach alphas for each scale are as follows: university/research job (.72); research (.76); teaching (.76); non-academic job (.71); and family/lifestyle (.69).

I am confident …..

university/ research job:	I can be a professor at a top research university. I can be a professor at a 4-year college. I can be a faculty administrator in a university.
research:	I have received adequate training to be a good researcher. I am in the right field. my research interests are considered important in the field. in my abilities to obtain funding as a researcher.
teaching:	I have received adequate training to be a good teacher. in my abilities as a teacher.
non-academic job:	I can do research in industry/private sector. I can get a job in a non-profit or government agency. I can become an administrator/manager in business. I can be self-employed.
family/lifestyle:	I can balance work and personal life. I can both have children and be an academic. I can make it financially.

Gender and race-ethnicity differences. We found no differences between the men and women on the first two scale scores (see Table 2); that is, women and men were equally confident of their ability to obtain an academic job and in their research abilities. However, women were significantly less confident than men in their abilities as a teacher, to obtain a non-academic position, and to balance work and family lives. When these gender differences were examined by gender of advisor[15] the differences on two of the scales (teaching and obtaining a non-academic position) only held for students with male advisors. Women's lower confidence in their abilities to balance work and family lives held, regardless of advisors' gender.

There were no differences among students by race-ethnicity in their confidence about teaching and research abilities or in their ability to combine work and family. However, international students of color reported significantly less confidence than both groups of U.S. students on the university/research job and non-academic job scales.

Further, across these demographic groups, those students with children were more confident (mean score of .21) on the family/lifestyle scale than students who were not parents or in a committed relationship (mean score of .01). There were no differences on any of these scales when comparing those with and without partners.

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[15]562 (71%) of the students in this sample had male advisors; 227 (29%) had female advisors; 182 (39%) of the female students and 45 (14%) of the male students had female advisors.

Discouragement

The students were asked if they **had ever felt discouraged** about pursuing their current field of study while at UM. Nearly three-quarters of the students reported that they had. Generally, women were significantly more likely than men to indicate that they had been discouraged (75% of the women compared to 67% of the men; X^2=5.08, p=.02). When examined by gender of advisor these statistically significant differences only held for students with male advisors. There were no differences on this item by race-ethnicity. However, further analyses revealed that students who had never felt discouraged were more likely to have been at UM fewer years and not to have an academic parent.

In addition to this overall question, students were asked if they had ever felt **discouraged in twelve specific areas** (e.g., coursework, interactions with other students, financial concerns, etc.); see Table 3a. Overall, at least one-quarter of the students reported that they had been discouraged about their departments' climates, interactions with advisors, research, and career opportunities, as well as their personal lives and financial concerns.

Gender differences on discouragement. Women reported significantly more discouragement than men on several items (course material, interactions with students, department climate, and starting a family); see Table 3b for results for each item. However, when we divided the students into those with male vs. female advisors, we found that this pattern of gender difference generally held for students with male advisors only; that is, female students with male advisors were significantly more discouraged about the climate in the department, and showed a tendency to be more discouraged about interactions with students and course materials (p$\leq$.10). In addition, female students with male advisors were significantly more discouraged about interactions with their advisors. In contrast, female students with female advisors were not more discouraged than their male counterparts with the department climate, interactions with students, or interactions with their advisors.

Race-ethnicity differences on discouragement. International students of color reported significantly lower levels of discouragement about interaction with their advisors, the department climate, and course materials than all U.S. students (see Table 3b). In contrast, white U.S. students expressed more discouragement than all other students about starting a family. When looking at gender of advisor, these differences among racial-ethnic groups only held for students with male advisors[16].

Among all students, those who reported being in a committed relationship were more discouraged about family obligations (their mean score was .14 compared .06 for other students). Students who were parents reported being less discouraged about career opportunities (mean score of .21 compared with mean score of .28 for students without children) and more concerned about family obligations (mean score of .34 compared to .07 for those without children).

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[16] 317 (69%) of white U.S. students, 77 (64%) of U.S. students of color, and 110 (85%) of international students of color had male advisors.

Doctoral Students' Morale: Summary

Generally, students reported a high level of confidence and expected to pursue a career in their academic field, although women rated themselves as less confident than men. In particular, they were less confident than men in their abilities as a teacher, about obtaining a non-academic position, and in being able to balance work and family lives. Similarly, international students of color reported less confidence than both groups of U.S. students on the university/research job and non-academic job scales. Those students who reported being in a committed relationship and those with children expressed higher levels of confidence on the family/lifestyle scale than students who were not parents or in a committed relationship.

Figure 1: Percent Ever Discouraged by Gender for Students with Male and Female Advisors

ᵃdenotes means statisically signficantly different from each other.

Figure 2: Level of Discouragement about Family Obligations by Relationship and Parental Status

ᵃᵇdenotes means statistically signficantly different from each other.
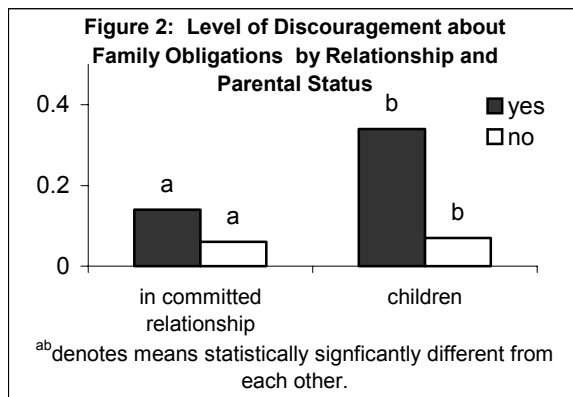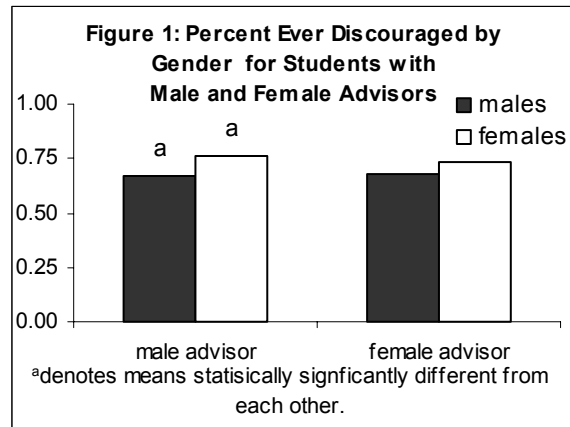
Most students reported some level of discouragement (in particular with their departments' climate, interactions with advisors, research, and career opportunities) during their academic career; again, women were more likely to report ever having been discouraged than men. However, this was only true for women with male advisors (see Figure 1). Women with female advisors were not more discouraged than their male counterparts on these items. However, those students were more likely to report being discouraged than their male counterparts with family obligations. Students with partners and children were more discouraged about family-related matters (see Figure 2).

III. OVERALL CLIMATE OF DEPARTMENT OR AREA

Students were asked to describe the department "climate" in a number of ways. They were asked about their overall satisfaction with it; about how supportive it is for different kinds of students; about the attitudes of both students and faculty in the department about those groups; and about those groups' comfort and inclusion in the department. Students were also asked how often they had heard insensitive or disparaging comments about the groups.

In addition to these assessments of the climate in terms of particular groups, students were asked to rate the overall climate in terms of a series of bipolar adjectives (welcoming vs. alienating; cooperative vs. competitive), and in terms of

openness to diversity. These scales were also used in the faculty study. Finally, students' own experiences, as well as their estimates of the prevalence and frequency of sexual harassment in their departments were assessed.

Department Climate

Overall department climate. Students were asked to rate the overall climate of their departments on a four-point scale from "very dissatisfied" (1) to "very satisfied" (4). The mean rating for all students was near the satisfied point on the scale (2.92). Most students indicated that they were satisfied (53%), with about half as many indicating they were very satisfied (23%). Fewer were dissatisfied (17%) or very dissatisfied (7%).   Women students were significantly less satisfied with the climate than male students; however, when examined by gender of advisor this difference only held for students with male advisors. No differences were found among the three race-ethnicity groups (see Table 4a).

Department climate for particular groups. Students were also asked a series of questions about the climate for different groups (men, women, international students, racial-ethnic minorities, sexual minorities,[17] and students with disabilities). Slightly more than half of the total sample of students reported that their departments offered a supportive environment for women, international students and racial-/ethnic minorities (see Table 4b). Fewer indicated that it was supportive for men, sexual minorities and disabled students.

About one quarter of the students reported that some students have a condescending attitude toward international students and slightly fewer have condescending attitudes toward racial-ethnic minorities, women, sexual minorities and students with disabilities (see Table 4b). Their ratings of faculty on this dimension showed a similar rate of endorsement, particularly in the case of women, international students, racial-ethnic minorities and men. The rates were lower in the case of sexual minorities and students with disabilities.   However, only some students thought members of these groups felt as comfortable or included in the department as other groups (see Table 4b).

Differences in reporting of negative comments. Students were also asked how often they had heard insensitive or disparaging comments about women, men, racial-ethnic minorities, religious groups, and sexual minorities by faculty and students within the past year. Women reported hearing significantly more negative comments than men in the case of faculty comments about women and racial-ethnic minorities (see Tables 5a and 5b).   U.S. students of color reported hearing more negative comments than U.S. white students and international students of color from faculty about racial-ethnic minorities; both white U.S. students and U.S. students of color reported hearing more negative comments than international students of color from faculty about women. And U.S. students of color indicated that they heard more negative comments from students about women, men, racial-ethnic minorities, and sexual minorities than all other students.

Ratings of climate items. Students were presented with a series of pairs of descriptive terms (such as collegial/contentious; rigid/flexible; homogeneous/diverse)

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[17] The term "sexual minorities' was used in the survey on advice of the graduate students that it was most economical and inclusive of students who identify as gay, lesbian, bisexual, queer and transgendered. We have preserved that language throughout discussion of these findings.

representing two ends of a five-point continuum and asked to rate how much their departments' climates were like either descriptive term (see Table 6a for a listing of all the paired descriptors and rating percentages).   These individual climate items were factor analyzed, producing two scales[18]: one focusing on the four items reflecting the environment's openness to diversity (i.e., non-sexist/sexist, non-homophobic/homophobic, non-racist/racist, diverse/homogeneous) and the remaining constituting general climate (welcoming/alienating, friendly/hostile, respectful/disrespectful, collegial/contentious, collaborative/individualistic, cooperative/competitive, supportive/not-supportive, flexible/rigid, protective/threatening, encouraging/ discouraging, down-to-earth/snobbish).

 Gender and race-ethnicity differences on climate scales.   Women rated their department climates as less positive on both scales than did their male counterparts (see Table 6b). The difference on the general climate scale only held for students with male advisors when students were assessed separately based on advisor's gender. U.S. students of color rated their departments as being less open to diversity than all other students. There were no differences among the race-ethnicity groups on the general climate scale.

Group differences on specific climate items. Mean scores were calculated for each bipolar descriptor pair and comparisons were made within demographic groups (see Table 6b). Compared with men, women found their departments significantly less welcoming, friendly, diverse, respectful, collegial, collaborative, and encouraging, as well as more sexist, racist, threatening and snobbish. International students of color described their departments as significantly more diverse (vs. homogeneous) and more homophobic than both groups of U.S. born students. They also rated their departments as significantly more protective and down-to-earth and less sexist than white U.S. students   White U.S. students rated their departments as least racist and homophobic of all three groups. U.S. students of color reported that their departments were less respectful than all other students; they also rated their departments as significantly less homophobic than international students of color.

Sexual Harassment
One of the standard measures of "sexual harassment" used in national studies avoids using the term itself, since individuals disagree about its precise meaning. (Thus, social scientists are unable to be sure that individuals have the same behaviors in mind when respondents report that they have or have not experienced "sexual harassment.") The measure we used asks respondents about "unwanted and uninvited sexual attention," and then lists particular behavior that might reflect that. According to this measure, about 10% of the women students (compared with 1% of the male students) reported having experienced sexual harassment at the UM within the past year, a statistically significant difference (X^2=23.81, p<.0001). It is difficult to contextualize this rate of reporting for women since studies of sexual harassment vary widely, especially in how sexual harassment is defined and the period of time over which the harassment may have occurred. Studies generally

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[18] Cronbach alphas for the two scales are: openness to diversity (.72); general climate (.93).

report a range in the rate of reported sexual harassment between 20% and 40%[19] for undergraduate and graduate students over the course of their educational training.

Our finding of 10% during one year is not inconsistent with these rates, and may even suggest a rate that is on the high side if we consider the length of time that Ph.D. students are in school. Moreover, this rate may be higher than was reported by women faculty in our own climate study (conducted in fall, 2001[20]) which revealed rates of reported sexual harassment of 20% for women scientists and engineers and 13% for women social scientists over the course of a five-year period.

Students were also asked about the prevalence and frequency of "unwanted and uninvited sexual attention," or sexual harassment, in their own departments on a five-point scale from not at all prevalent/frequent (1) to very prevalent/frequent (5).   The mean ratings for both items were relatively low (1.38 in both instances) suggesting that students viewed sexual harassment as relatively rare in their departments. There were no significant differences by gender or race-ethnicity on either of these variables.

Overall Department Climate: Summary

Figure 3: Ratings of Department's Openness to Diversity Scale by Gender

[a]denotes means statisfically signficantly different from each other.
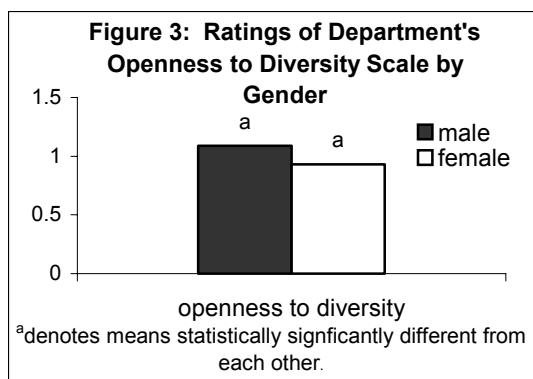
Most students were satisfied with their departments' climate, but 25% were dissatisfied. They also reported that they did not think their departments provided welcoming and inclusive environments for sexual minority and students with disabilities. Women found the climate significantly more negative than men. Women rated their departments' general climate as more negative and less open to diversity (see Figure 3).

Women also reported hearing more negative comments from faculty about women and minority students and a higher level of sexual harassment. International students of color generally found the climate to be more positive than U.S. students.

U.S. students of color reported their department climates were less respectful, less open to diversity, and

Figure 4: Ratings of Department's Openness to Diversity Scale by Gender[b]

[ab]denotes means statisfically signficantly different from each other.

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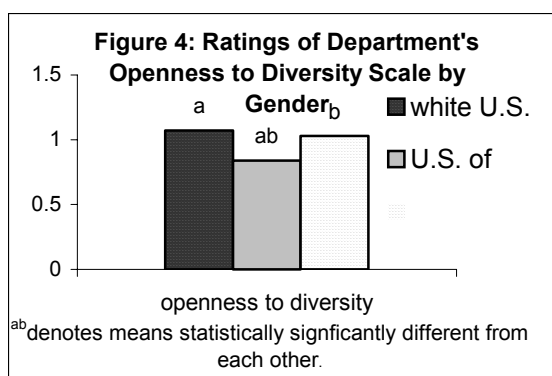
[19] See for example: Shinsako, S.A., Richman, J. A., & Rospenda, K.M. (2001). Training-related harassment and drinking outcomes in medical residents versus graduate students. *Substance use and Misuse*. 35(*14*), 2043-2063; Kelley, M.L., & Parsons, B. (2000). Sexual harassment in the 1990s: A university-wide survey of female faculty, administrators, staff, and students. *The Journal of Higher Education*, 71 (*5*), 548-568; and Glaser, R.D., & Thorpe, J.S. (1986). Unethical intimacy: A survey of contact and advances between psychology educators and female graduate students. *American Psychologist*. 41(*1*), 43-51.
[20] See Stewart, Stubbs & Malley (2002) *Assessing the work environment for women scientists and engineers*; and Stewart, Malley & Stubbs (2004).

more racist (see Figure 4).

IV. DOCTORAL STUDENTS' EXPERIENCES OF GRADUATE SCHOOL

This section documents doctoral students' experiences of graduate school because differences in these areas may help us understand the differences discovered in morale and climate by gender and race-ethnicity.

Graduate School Experiences
Importance of experiences. Respondents were given a list of 20 experiences they were likely to encounter as students (e.g., learning research techniques, courses or training in pedagogy, opportunities to present research, etc.) and asked to rate how important each experience was to them on a four-point scale from "waste of time" (1) to "extremely important" (4), or not applicable (see Table 7 for results of these analyses for all items).

Differences on importance of experiences by gender and race-ethnicity. There were several statistically significant differences across the demographic groups on individual items (see Table 7). Women rated all of the following items as significantly more important than men: cognate and elective courses; learning research techniques; training in pedagogy; practice interview/job market help; interdisciplinary training; and support groups and organizations. International students of color rated required coursework, conducting research, attending professional conferences, and meeting outside speakers as significantly more important than both groups of U.S. students and prelim/qualifying exams, practice interview/job market help and non-department lectures as more important than white U.S. students. U.S. students of color rated social events significantly higher than the other two groups of students and interdisciplinary training higher than white U.S. students. In contrast, they rated department lectures significantly less important than the other two groups; international students rated this item significantly higher than the other two groups. In addition, white U.S. students rated cognate courses, internships, department lectures, study groups, support groups and organizations, and language practice as significantly less important than all other students.

Sufficient opportunities for experiences. In response to the question as to whether or not they had sufficient opportunities for each of the (non-required) experiences at UM, about one-third (33%) listed only two or fewer particular experiences (out of 16) for which they had insufficient opportunity to experience. An additional third (33%) listed between three and five particular experiences as insufficiently provided. The remaining third (35%) identified 6 or more. Of these, most (28%) listed up to 10 experiences.

It is particularly important to take note of those experiences students generally felt were ones for which they were given insufficient opportunity. We looked specifically at those identified by at least 25% of the respondents who rated each item as those for which they had had insufficient opportunity. They included:

- practice interviews and/or job market help (44%);
- training in pedagogy (49% of those who rated this item[21]);
- interdisciplinary training (42%);
- internships or industrial experiences (64% of those who rated this item[22]);
- attending professional conferences (33%);
- study groups (29%);
- learning research techniques (27%);
- opportunities to participate in group or collaborative research (20%);
- language practice (48% of those who rated this item[23]);
- support groups/support organizations (25%).

All of these, except internships, language practice and support groups, were generally rated by all students as quite or very important.

Differences in sufficient opportunities. International students of color reported a significantly higher total number of insufficient opportunities than all other students; U.S. students of color reported a significantly higher number than white U.S. students. Men and women did not differ on this variable.

Sources of Information
Students were asked about the sources of different kinds of information they need to know in order to be successful in graduate school (e.g., funding sources, how to write a professional paper, university and departmental requirements, etc.). Their sources included UM faculty, other students, department staff, other resources, or themselves (see Table 8a for percentages of students reporting different groups as sources of information by topic).

Differences by gender and race-ethnicity on sources of information.   A count of how many different kinds of information were learned from each of the various sources (e.g., faculty, students, staff) was created for each group. There were no differences on these counts by gender (see Table 8b for results of these analyses; Table 8c provides counts of groups providing information by information type). International students of color were significantly more likely than all other students to indicate that they didn't have much information on these topics and less likely than all others to learn from other students or on their own. They also reported fewer sources of information for internal and external funding than all other students and fewer sources who provided information about department politics than white U.S. students. U.S. students of color were most likely to report that they learned information on their own—their ratings were significantly higher than the other two groups of students. They also identified fewer sources of information about how to

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[21] 21% of respondents indicated that training in pedagogy was not applicable to them (44% of these students were in the physical sciences/engineering division; 31% were in the biological/health sciences division; 17% were in the social sciences and 2% were in the humanities).

[22] 44% of respondents indicated it was not applicable to them (32% of these students were in the social sciences; 26% were in the humanities; 22% in the physical sciences/engineering and 21% in the biological/health sciences).

[23] 45% indicated it was not applicable to them (33% of these students were in the physical sciences/engineering; 32% were in the social sciences; 28% were in the biological/health sciences and 8% were in the humanities).

write professional papers than their white counterparts. U.S. white students were more likely to report that they learned on their own than international students of color.

Experiences of Graduate School: Summary

Experiences for which many students reported insufficient opportunities include training in pedagogy, practice with job interviews, and training in interdisciplinary research. A third of the students reported at least 6 areas where they felt they had had insufficient opportunities; some identified several more. International students of color reported a higher level of insufficient opportunities than U.S. students of color and U.S. students of color reported a higher level than white U.S. students (see Figure 5).

Figure 5: Count of Insufficient Opportunities for Experiences by Race/Ethnicity

count of insufficient opportunities

abc denotes means statistically significantly different from each other
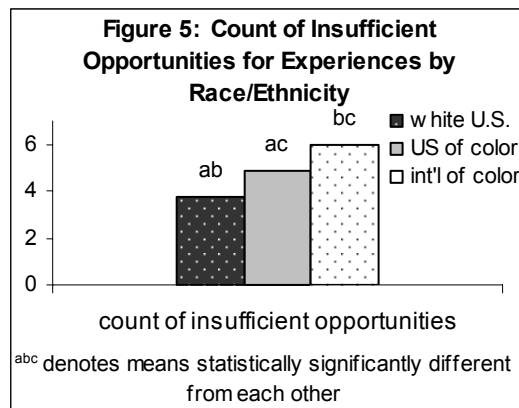
International students of color were most likely to report that they didn't have much information related to their graduate education and less likely than all others to learn this information from other students or on their own. U.S. students of color were most likely to report that they learned information on their own.

V. ADVISING AND SUPPORT

Information was gathered about many different aspects of students' experiences with advising and mentoring, ranging from the ease or difficulty students had in finding an advisor to the level of support from faculty, students, and others. Because so much of doctoral students' education takes place in the context of their relationship with their advisors, we suspected that differences in advising and support might help illuminate the discovered differences in morale and climate.

Getting Advisors

About one third of the doctoral students reported that advisors were assigned to them. Of those for whom this was not the case, 41% reported that it was hard, or very hard to get an advisor. Half of the students reported that they had more than one advisor. Most of these students (79%) reported that they had one or two "other" advisors, beyond their primary advisor; the rest had more.

Differences by gender and race-ethnicity on getting advisors. International students of color found it harder (mean score of 2.27 on a four-point scale from hard (1) to easy (4)) than U.S. white (2.75) and racial-ethnic minority students (2.84) to find an advisor. There was no gender difference on this variable.

Adequacy of Advice

Students were asked how adequate the advice was from their primary advisors on a four-point scale from "not at all adequate" (1) to "very adequate"(4). The mean rating

was 2.94, suggesting that, on average, students found their advisors' advice "pretty adequate." Male students reported a statistically significantly higher level of satisfaction (mean score of 3.02) than female students (2.85). When we examined students whose advisors were male compared to those whose advisors were female we found that male students with male advisors were more satisfied (3.06) than comparable female students (2.76) with the advice they got from their advisors; however, there were no gender differences in the satisfaction of students of female advisors (mean scores for male and female students were 2.77 and 3.01 respectively). We found no difference in reported adequacy of advisor advice among the three race-ethnicity groups.

Areas of Advisor Support
Students were given a list of 19 different **ways their advisors could be supportive** (or unsupportive) of them (e.g., helps me secure funding for my graduate studies; teaches me the details of good research practice; instructs me in teaching methods). They were asked to rate (on a four-point scale from low to high agreement) how much they agreed with each item in terms of their own advisors (see Table 9a for ratings by item).

Scales assessing instrumental help, availability and egalitarianism/respect. The items were factor analyzed, producing 3 separate scales about the kind of support advisors provide (instrumental help; general availability; egalitarianism/respect); items that were included in each scale are as follows[24]:

	My primary advisor…
Instrumental help:	helps me secure funding.
	assists with networking.
	assists with writing publications and presentations.
	instructs in teaching methods.
	advises about preparing for career advancement.
	advises about getting work published.
	advises about department politics.
	gives information about career paths open to me.
	teaches me to write grant proposals.
General availability:	is available to help with my research.
	is available to talk about other aspects of the program.
	gives regular and constructive feedback.
	is often not available to me. (reverse coded)
Egalitarianism/ respect:	expects me to work so many hours it's hard to have a personal life. (reverse coded)
	sees me as a source of labor. (reverse coded)
	treats my ideas with respect.
	would support any career path.

Gender and race-ethnicity differences on the advisor scales. On two of the three scales male students reported average scores that were significantly higher than

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[24] Cronbach alphas for the three scales were: instrumental help (.87); general availability (.88); egalitarianism/respect (.66).

those of female students (instrumental help and general availability); there were no differences on the egalitarianism/respect scale (see Table 9a). The significant gender differences remained on those scales when we limited our analyses to students whose advisors were male, but were absent when we compared male and female students whose advisors were female.

International students of color scored significantly higher on the advisor instrumental help scale than white U.S. students; U.S. students of color scored higher on the advisor egalitarianism/respect scale than all other students. There were no differences on the general availability scale by race-ethnicity. Interestingly, the results were consistent when we limited analyses to students with male advisors. When we looked just at students with female advisors we found no race-ethnicity group differences on the instrumental help and egalitarian/respect scales. However, international students with female advisors reported a higher average level of advisor general availability than U.S. white students with female advisors.

Students in committed relationships rated their advisors significantly higher in egalitarianism/respect (mean score of .02) than those not in a relationship (-.11). And those with children rated their advisors higher in general availability (.16) than those without children (.01).

Most Important Aspects of Advising
Students were asked to rank order the **five most important kinds of support** from the list of 19 advisor items.   The two items most often rated overall as in the top five were: gives me regular and constructive feedback on my research (70%) and is available to me when I need help with my research (71%); see Table 9b for percentage of students ranking each item as one of the five most important. Ratings of students' **overall level of satisfaction** with their five top rated items revealed a mean, on a 4-point scale from "very dissatisfied" (1) to 4 "very satisfied" (4), of 3.09, suggesting students were, on average, satisfied with their top rated items.

Group differences on satisfaction with advice.   Women were significantly less satisfied than men on this measure (mean scores for women and men respectively were 3.02 and 3.14). Looking within gender of advisor, this significant difference only held for students with male advisors. There were no race-ethnicity differences on this measure.

Support/Advice from People Other than Primary Advisor
Questions were also asked about the same kinds of **advice and mentorship from other groups of people** (e.g., faculty, other students, staff). Not surprisingly, students frequently identified faculty members as a source of advice and mentorship (see Table 10a). Students were also often identified for such things as: help with research; available to talk about other aspects of the program; and treating my ideas with respect. Staff were much less often mentioned as sources of support and advice, but several students endorsed them in the case of each item, suggesting that they do serve an important role for some students. In addition, nearly one-quarter of the students said staff help them find funding for graduate studies and are available when they need to talk about other aspects of the program.

A count of how many different kinds of support were provided from each of the various sources was calculated for each group (staff, faculty, non-UM faculty other

students and lab and study groups). Results from these analyses can be found in Table 10b. On average, students reported a higher level of support from faculty and other students than from members of the other groups. A similar count was computed for the number of groups who provide support for each of the items (see Table 10c). Students reported finding more support (across groups) for talking about programs, help with research, talking about research ideas, and respect for their ideas, and less support for writing grants, getting published, and networking.

Differences by gender and race-ethnicity on non-advisor support and advice. Female students reported receiving significantly more support from lab and study groups than male students (see Table 10b). International students of color reported receiving significantly less support from staff, non-UM faculty, and other students than both groups of U.S. students.

Looking at the kinds of support potentially provided to students we found no differences between men and women (Table 10c). There were, however, several differences among the race-ethnicity groups. Specifically, international students of color reported significantly lower levels of support than the two U.S. student groups in several areas: help finding funding; help with research; someone to talk about their program; someone to teach details of research; encouragement in research interests and goals; respect for their ideas; and support for any chosen career path. White U.S. also rated their level of support for any chosen career path significantly lower than U.S. students of color.

Social and Emotional Support
Students were asked about the level of **social and emotional support** similar groups of people (staff, other students, UM faculty, non-UM faculty, primary advisor, and family and friend) might provide. Across the sample, family and friends were identified often as a source of support for students, particularly in providing emotional support when they need it and building their confidence (see Table 11a). Not surprisingly, faculty were also mentioned frequently as providing support. UM faculty advisors, in particular, were more frequently mentioned than UM faculty in general for advocating for students with others when necessary. The one area where neither advisors nor faculty in general provided much support was in talking with students about the conflicting demands between academic life and starting/managing a family. For this item, other students and family/friends were far more likely to be identified as providing support.

Again, counts of how many different kinds of social and emotional support were provided by each group as well as counts of number of different groups providing support in each area were calculated (see Table 11b and 11c).

Differences by gender and race-ethnicity on social and emotional support. There was one statistically significant difference in these counts between men and women: women reported receiving more kinds of support from other students than men reported (see Table 11b). International students of color reported receiving significantly fewer kinds of support from other students, UM and non-UM faculty, and staff than both groups of U.S. students. U.S. students of color indicated that they received significantly more support from staff than white U.S. students.

Women reported receiving significantly more support from different groups of people than men in three areas: emotional support when needed; intellectual inspiration,

and role modeling (see Table 11c). In contrast, men indicated that they received significantly more support in talking about conflicting demands between academia and family life and treatment as a colleague. International students of color reported significantly fewer groups providing support than all U.S. students in all but one area—talking about conflicting demands between academia and family life.

Satisfaction with social and emotional support. Students were asked to rate **how satisfied** they were overall with the level of non-academic, social/emotional support they receive from members of each of these groups on a 4-point scale from "very dissatisfied" (1) to "very satisfied" (4). While students were generally satisfied or very satisfied with support received from members of all groups, they were most satisfied with the support they receive from family and friends (see Table 11d). Students and staff were rated next highest and faculty were rated lowest.

Differences by gender and race-ethnicity on satisfaction with social and emotional support. Men students were significantly more satisfied than women students with the non-academic, social/emotional, support they received from UM faculty. International students of color were significantly less satisfied than all other students with the support they received from non-UM faculty and other students; U.S. students of color reported being more satisfied than white U.S. students with the support they received from their primary advisors.

Advising and Support: Summary
Students reported being generally satisfied with their advisors, although women were less satisfied than were men, particularly with male advisors. Women reported less instrumental help and general availability from their advisors than male students; however, this appeared limited to women with male advisors (see Figure 6).

Figure 6: Advisor Ratings of Instrumental Help & Egalitarianism/Respect Scales by Gender

[a]denotes means statisically signficantly different from each other.
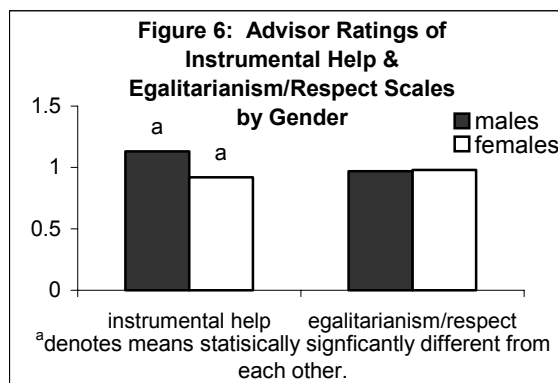
In terms of similar kinds of support from those other than their advisors, we found

Figure 7: Ratings of Advisor Instrumental Help and Egalitarianism/Respect Scales by Race/Ethnicity

[abc]denotes means statistically signficantly different from each other.
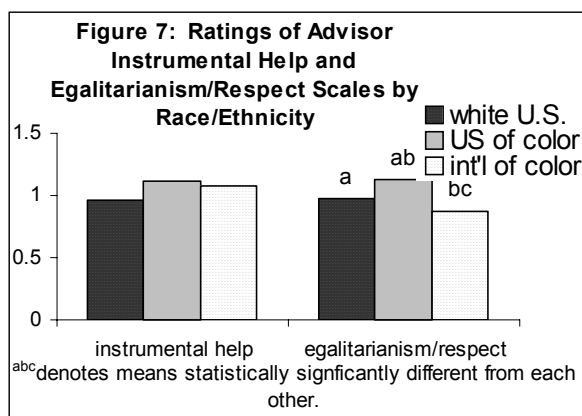
that international students of color often reported lower levels of support (e.g., from staff and other students as well as for such things as help with funding and research, encouragement and support for their career goals) than U.S. students. International students of color and white U.S. students also reported lower levels of egalitarianism and respect from their advisors than U.S. students of color (see Figure 7).

Overall, students' satisfaction with the level of social and emotional support they received was lowest for faculty; family and friends were rated the highest (see Figure 8).   Women reported less satisfaction with UM faculty than men; international students of color also reported lower levels of satisfaction with support from students and non-UM faculty. U.S. white students were least satisfied with the social and emotional support they received from their advisors.

Figure 8: Level of Satisfaction with Socio-Emotional Support by Category
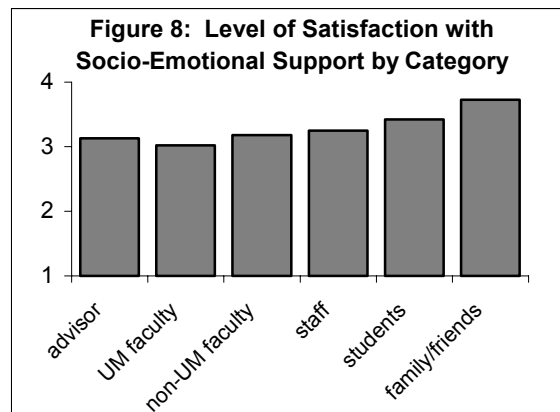
VI. CAREER GOALS

Career goals may be indicators of morale (one's goals may change as a function of higher or lower morale). However, they are also indicators of interests and preferences. We assessed them separately, and examined the possibility that differences in career goals might account for apparent group differences in morale or climate.

Future Career Goals
Students were asked to rate, on a four-point scale from "very unattractive" (1) to "very attractive" (4), eight career goals they might have for the future (e.g., become a professor in a top research university, work independently, become a faculty administrator); see ratings of individual career goals in Table 12. The highest rated item was to both have children and be a successful academic. In fact, this item was rated highest by all groups of students (regardless of gender and race-ethnicity). Not surprisingly, students with children also rated this item significantly higher (mean of 3.71) than students without children (3.42).

Gender differences on future career goals. There were statistically significant gender differences on half of these career goal items. Male students rated two career goals as significantly more attractive than female students: becoming a professor in a top research university and getting a research job in industry or the private sector. Women reported two other career goals as more attractive than the men: becoming a professor in a 4-year college and working in a non-profit or government agency. These differences persisted when we looked just at students with male advisors, but disappeared in the case of students with female advisors.

Race-ethnicity differences on future career goals. There were also a few statistically significant differences by race-ethnicity groups on these items. International students of color rated being a professor in a top research university and research in industry or the private sector as more attractive than both groups of U.S. students; in contrast they rated being a professor in a 4- and 2-year college as less attractive than their comparison groups. U.S. students of color also rated getting a research job in industry or the private sector significantly more positively than white U.S. students.

Influential Features of Academia
Students were presented with a list of 20 features of academia that might influence their interest in becoming a faculty member and asked to rate, on a five-point scale from "might make me seek out other careers" (1) to "this definitely attracts me to academia" (5), how much each item increases (or decreases) their desire to become an academic. See Table 13a for mean ratings by individual item.

Scales assessing influential features of academia. We created two three-item scales (family life factors and positive change/inspire others) to assess family life aspects, and the desire to have an impact through academic work; items comprising each scale are as follows[25]:

family life factors:	ability to have both children and a career
	ability to balance personal and professional lives
	compatibility with spouse' career options
positive change/ inspire others:	opportunity to create change in the field
	opportunity to have positive impact in academy and beyond
	opportunity to inspire others about the field

There were no differences among any of the groups on the positive change/inspire others scale. However, men scored statistically significantly higher than women on the family life factors scale. Similarly, international students of color scored higher on this scale than the two U.S. groups. We also compared students with and without children and found that those students with children (n=87) were significantly higher on both scales than those without children.

Most Important Features
The respondents were also asked to identify the three items from the same list that had the **largest positive effect** on their interest in becoming a faculty member and the three items that had the **largest negative effect**. "Research" was the item that was most frequently selected as a having the largest positive effect followed by "teaching" (see Table 13b). These were followed by: makes use of my personal talents and skills; working on a college campus; how academia fits with my personality/temperament; opportunity to make positive impact beyond academic; and opportunity to inspire others about the field.

The most frequently identified negative influences were: the promotion process; the workload I'm likely to encounter; and the academic job market (see Table 13c). Other frequently mentioned negative influences were: the ability to balance professional and personal lives; the ability to both have children and pursue a career; faculty members' way of life and compatibility with partner's career.

Rankings by men and women on most important features of an academic career. Overall, men and women students ranked most of the same features in their top categories. The top two features listed as having the most positive effect by both men and women were research and teaching (see Table 13b). More women than men ranked the opportunity to inspire others about my field, the opportunity to make

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[25] Cronbach alphas for the two scales are: family life factors (.82); positive change/inspire others (.72).

an impact beyond academia, and that academic makes use of personal talents and skills as one of the three most important features to them. In contrast, more men than women ranked security of tenure as one of three most important features.

Both groups of students rated the promotion process, the expected workload and the academic job market as the most negative features (see Table 13c). More women than men rated the ability to have both kids and a career as a top negative feature. In contrast, more men identified salary levels in academia as one of the three most negative features.

<u>Race-ethnicity rankings on most important features of an academic career.</u> Both research and teaching were highly ranked by white U.S. students. This was also true for U.S. students of color; however, teaching was selected more often by them as a top feature than research. For these students, making an impact beyond academia was also highly rated. Research was also a top positive feature for international students of color; teaching was less popular than other aspects of careers.

The promotion process and the job market were the two top negative features rated by white U.S. students. For U.S. and international students of color they were workload and the promotion process.

Career Goals: Summary

Overall students expressed a preference for being able to combine family life with a successful academic career. Many aspired to become a professor in a 4-year college. Career aspirations for men appeared higher than those for women; men found becoming a professor in a top research university and getting a research job in industry or the private sector more attractive than women; this was also true for international students of color compared to U.S. students. In contrast women rated being a professor in a 4-year college and working in a non-profit or government agency

Figure 9: Attractiveness Ratings of Career Goals by Gender

abcd denotes means statistically significantly different from each other.

higher (see Figure 9). The gender differences persisted when we looked just at students with male advisors, but did not hold for students of female advisors.
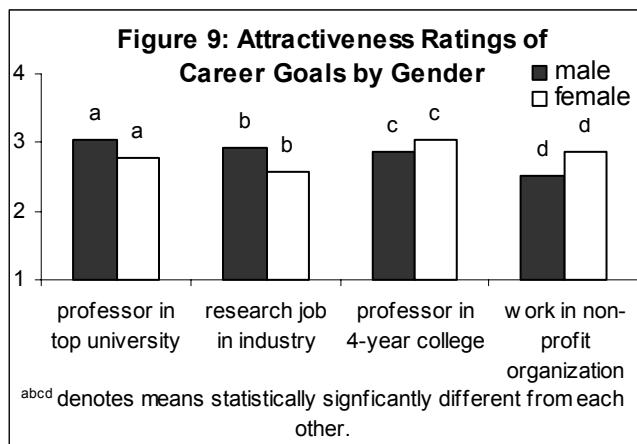
Their ratings of influential features of an academic career revealed that men rated family life factors as more positively influential than women did. International students of color also rated these factors more positively compared to U.S. students. Not surprisingly, overall, students rated research and teaching as the most important positive features of an academic career.

VII. PERSONAL LIFE CONTEXT

We assessed the personal life contexts of doctoral students by gender and racial-ethnic group, knowing that these groups might differ in life circumstances. These life circumstances in turn might affect their goals, their morale, and their experience in graduate school.

Current Personal Life Situation

Family life. Approximately two thirds of the students (64%) indicated that they were married or in a committed relationship; this was true for 67% of the women and 62% of the men. Slightly more (69%) of the white U.S. students, compared with 60% of both groups of students of color, were in a committed relationship. Of all students in a committed relationship, 35% reported that their partners did not live in Ann Arbor; however, nearly half of the U.S. students of color who were partnered reported that their partners were not local. Most (70%) of the partners were employed full or part-time; 43% of them were full or part-time students. Only 9% were neither a student nor employed. More women (67%) than men (47%) had partners who were employed full-time. While approximately two-thirds of the U.S. students had partners who were employed full-time (63% for white and 65% for U.S. students of color), far fewer (39%) of the partners of international students of color were reportedly working full-time and more (47%) were not employed. About half of the partners in each of the race-ethnicity groups were full or part-time students.

Thirteen percent of all respondents had children living with them. This was true for 17% of the men and 8% of the women. The rates were similar for the three race-ethnicity groups; however, 18% of the international students of color reported having children.

An additional 7% of the full sample had other relatives for whom they were financially responsible. There were no differences on this variable by gender but there were for race-ethnicity: international students of color reported a significantly higher rate (13%); than U.S. students of color (7%) and white U.S. students (3%); X^2=20.51, p<.0001.

Financial situation. Students were asked to rate their current financial situation using a 3-point scale. One-fifth (21%) reported that "it's a financial struggle." More than half (59%) indicated that "it's tight but I'm doing fine" and the remaining 20% reported that "finances are not a problem." There were no differences by gender or race-ethnicity on this item.

Analyses based on financial situation revealed that students who reported a worse financial situation were less confident about making it financially and more discouraged about the personal lives and financial concerns. They also reported more insufficient opportunities for graduate experiences and that they were less likely to learn information from the faculty and the staff. They rated their advisors lower on the instrumentality scale, expressed lower satisfaction with their advisors, and indicated that it was harder to get an advisor.

One third of the sample (32%) indicated that they still had debt from their undergraduate education. These students were more likely to be female and U.S. students of color (and white U.S. students were more likely to be in debt than

international students of color). Students with debt were also more likely to be worse off financially.

Family of Origin
<u>Parents</u>. Students were queried about their families of origin. They reported that most of their mothers and fathers had at least some college (about 80%). Over one-quarter of their fathers had a doctoral degree or were ABD. Over one-quarter of the mothers had some graduate school and 9% achieved a doctorate or were ABD. In addition, 25% of parents had been or are currently faculty members in higher education. There were no gender differences in parents' education level; however, U.S. students reported a significantly higher education level for both their fathers and mothers compared to international students of color.

Nearly two-thirds of the students reported that their parents are supportive of their current choice of field, but only 12% said that it was the career their parents would have chosen for them.

<u>Families' and peers' financial situations</u>. Respondents were asked to describe their families' financial situation when they were growing up on a six-point scale from "very poor, not enough to get by" to "extremely well to do." The average rating (3.52) put them between "had enough to get by but not many extras" and "had more than enough to get by." There was no difference on this variable by gender; however, international students of color rated their childhood families' financial situation (3.32) significantly lower than white U.S. students (3.65).

In contrast, the respondents rated their peers' (graduate students in their programs) family of origin financial situation slightly higher (4.00) than their own, right at the "had more than enough to get by" level.   Women (4.05) rated their peers' family of origin financial situation significantly higher than men (3.93). And white U.S. students (3.95) rated it significantly lower than U.S. students of color (4.23) and significantly higher than international students of color (3.88).

Personal Life Context: Summary
Two-thirds of the students were married or in a committed relationship and 35% of these had partners who lived outside of Ann Arbor. Almost all of the partners were employed or students. In contrast, far fewer (13%) of the students had children and even fewer (7%) were financially responsible for another relative (this was most likely true for international students of color).

More than half of the students indicated that their financial situation was "tight but fine," 20% indicated that they were struggling financially. Students who reported a worse financial situation reported more insufficient opportunities for graduate experiences, rated their advisors lower on the instrumentality scale, expressed lower satisfaction with their advisors, and indicated that it was harder to get an advisor.

Respondents' parents were highly educated (80% had at least some college) and 25% reported parents who were or are faculty in higher education. Generally, parents were supportive of the students' career choice.

VIII. SUMMARY OF INITIAL FINDINGS

Findings about the UM Doctoral Experience Generally
The characteristics of this sample underscore the heterogeneity of UM doctoral students. They differ widely in background experience, personal life circumstances, interests, needs and goals. Still, overall, results from this survey indicate that doctoral students at the University of Michigan feel they are "a little above average" in terms of their own performance. They believe that they "probably" will pursue a career in their current field of study. And over half are quite confident that they can pursue desirable career outcomes. Moreover, most report that they found it relatively easy to find an advisor, and most find the advice they get "pretty adequate," particularly in the areas of feedback on research and help with research.

On the other hand, nearly three-quarters of the students report having been discouraged about pursuing their field of study at some time while at UM, and ratings of the departmental climate suggest that while students, on average, are reasonably satisfied personally, they think the climate is not particularly supportive for some groups of students.[26] About a quarter of all students have difficulty finding an advisor, and few feel they get help with issues of managing the combination of career and personal life.

Students clearly find information and support in a variety of ways and from a variety of sources; and overall they particularly value their research training at Michigan. Relatively large numbers of students reported a desire for more experience in several areas, including preparation for job-seeking, pedagogy, internships, and interdisciplinary and/or collaborative work.

Findings Related to Gender
Morale. Women generally estimated their performance in graduate school as lower than did men, and expressed less confidence on three of the confidence scales (teaching; obtaining a non-academic position and family/lifestyle) and on two critical items: becoming a professor at a top university and being successful in their field. Moreover, they reported being more discouraged about their graduate school training, overall and in several particular areas. This discouragement may be related to their experiences with their advisors, and other UM faculty, about whom they expressed lower levels of satisfaction than male students reported.

Department Climate. Women were significantly less satisfied with the climate than men. They reported hearing more negative comments about women and racial-ethnic minorities from faculty than men did and were more likely to report experiences of sexual harassment. They also rated their department climates as less positive overall as well as less open to diversity. Women found their departments less welcoming, friendly, diverse, respectful, collegial, collaborative, and encouraging than did men, as well as more sexist, racist, threatening and snobbish.

Experiences of Graduate School. Generally, women rated many of the specific graduate student experiences more positively (and none more negatively) than their

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[26] It is noteworthy that a substantial proportion of the students believe that the environment is not very supportive to students with disabilities or to sexual minority students. Although we do not have much information about these two groups in this study, these findings suggest the importance of further study of the graduate experience of these two groups.

male counterparts. In most ways, there were few differences in the experiences reported by men and women (e.g., sufficient opportunities for experiences and obtaining information).

Advising and Support. Women students reported that they were less satisfied than men were with the advice and support they got from their advisors. Moreover, they reported that their advisors were less helpful to them in several critical areas (e.g., instrumental help and general availability). It is interesting to note that many of these gender differences disappeared when we looked just at students whose advisors were female. Women students in this group are not more discouraged nor were they less satisfied with their advisors than male students with female advisors.

Career Goals. In rating the positive (and negative) aspects of academic careers, male and female students diverged. Women tended to rate as less positive than men several specific features of academic jobs (e.g., the academic job market, the faculty way of life, the promotion process, the workload, ability to have children and a career, ability to balance personal and professional lives, compatibility with spouse' options, and parents' desires); no features were rated more positively by women. In addition, male students rated more prestigious career goals as more attractive than female students (becoming a professor in a top research university and getting a research job in industry or the private sector); in contrast women rated the less prestigious career goals as more attractive than the men (e.g., teaching in a 4-year college and working in a non-profit or government agency). These differences did not hold in the case of students with female advisors. Women students were also more likely to identify the (lack of) ability to have both kids and a career and to balance personal and professional lives as negative features of an academic job.

Background. Compared to men, women were more likely to be in a committed relationship and their partners were more likely to be employed full-time. Women were also less likely to have children; they also reported more financial hardship than men.

Findings Related to Race-ethnicity
International students of color. The graduate school experiences of international students of color were different from both U.S. white students and students of color in meaningful ways. Perhaps not surprisingly, these students indicated they had fewer sources of information about how to manage graduate school, were less likely to gain information on their own, and identified fewer opportunities for ordinary graduate student experiences. They also reported less confidence than both groups of U.S. students about gaining a research or a non-academic job. However, they indicated lowest levels of discouragement and they tended to rate their advisors more positively on a variety of dimensions. International students of color indicated less academic support from non-UM faculty, students and staff as well as lower levels of satisfaction with the psychosocial support they received from these groups.

International students of color demonstrated the highest career aspirations and rated research, the academic job market, promotion process, workload, ability to have both children and a career, ability to balance personal and professional lives, and compatibility with spouse's career option higher than U.S. students; the reverse was true for teaching and opportunity to inspire others.

International students of color were less likely to have a partner working full-time, and more likely to be financially responsible for other family members. Both their parents' level of education and their childhood family's financial situation were lower than U.S. born students.

U.S. students of color.   U.S. born students of color reported that they were more likely than other students to learn important information about graduate school on their own. They reported more satisfaction with the social and emotional support they received from their primary advisors, but also indicated fewer opportunities for graduate student experiences than white U.S. students.

The climate was more negative for these students than for either international students of color or U.S. born white students. They reported more negative comments about different minority groups from faculty and staff and rated their departments lowest in terms of openness to diversity.

Unlike the other two groups of students, U.S. students of color rated teaching as the most important feature of an academic job.   They also expressed more interest in getting a research job in industry or the private sector than other students.

Like white U.S. students, U.S. students of color were more likely to have an employed partner than international students of color.

White U.S. students. White U.S. students were no different from other students on levels of confidence and overall discouragement; however, they were most discouraged about one item: starting a family. They indicated that they had fewer insufficient opportunities for graduate student experiences than other students.

They, like U.S. students of color, had less trouble than international students in getting an advisor and reported receiving more support from non-UM faculty, students and staff than international students of color. White U.S. students were more likely than international students of color to report that faculty made negative comments about women. They also reported that their departments were least racist and less homophobic.

White U.S. students rated getting a research job in industry or the private sector lowest of all students; a particularly attractive feature of academia for these students was how academic life uses their talents and skills.

Like U.S. students of color, white U.S. students were more likely to have an employed partner than international students of color.

IX. RELATIONSHIPS BETWEEN KEY VARIABLES AND STUDENT MORALE

We viewed students' morale (assessed here in terms of confidence and discouragement) as an indication of their overall enthusiasm for the graduate school experience and therefore potentially affected by the climate as well as other experiences of graduate student life. Moreover, we anticipated that many of these experiences could affect their future career goals. Thus, correlational analyses were conducted to examine the relationship between students' morale and career goals

and these experiential factors. Morale was assessed using the six confidence scales (confidence in obtaining a university/research job; research; teaching; obtaining a non-academic job; and family/lifestyle) and the overall measure of discouragement. In terms of career goals, we were particularly interested in the more traditional academic careers: becoming a faculty member in a top research university and a faculty member in a 4-year college.

Experiential measures included climate assessments (overall rating of the department climate and the two climate scales: openness to diversity and general climate); ratings of the advisor (the three advisor rating scales—instrumentality, general availability, and egalitarianism and respect; ratings of the adequacy of the advisor's advice and satisfaction with advisor's social and emotional support); and broader graduate student experiences (count of insufficient opportunities for specific graduate student experiences and level of satisfaction with social and emotional support received from UM faculty). As with all previous analyses, correlations were calculated controlling for current financial situation and number of years at UM.

Correlations revealed strong and significant relationships between students' morale and career goals and the climate, advisor, and broader experience factors in the expected directions (see Table 14a). Generally, we found that the climate, advisor, and broader experience items were all significantly correlated with discouragement (the more positive the experience the lower the level of discouragement) as well as with four of the five confidence scales (not with confidence in obtaining a non-academic job), and having a career goal to become a professor in a top university. The more positive the experience the higher the reported level of confidence.   We also examined the relationships between morale and family situation (partner and parent status as well as whether or not partner resides in Ann Arbor); generally, these variables were not related to morale or career goals.

These results suggest that students' experiences of their departments' climates, as well as their relationships with their advisors and other UM faculty, have profound implications for students' confidence and desire to pursue a career in a research university. The lack of findings concerning wanting a career at a 4-year school may suggest that students will pursue such a goal regardless of their graduate school experiences, but that more positive and encouraging experiences are necessary for them to aspire to a position in a top research university.

We also examined the relationship between the climate and advisor variables, since advisors may play an important role in students' experiences of their departments' climate. Correlational analyses again reveal strong positive results—the five advisor measures (three scales, adequacy of advice and satisfaction with support) were all positively correlated with the three climate measures (overall climate and the two climate scales); see Table 14b.

 Although experiences with advisors and ratings of the climate are statistically related, it is important to note that the correlation coefficients (which range from .21 to .51) suggest that students are not equating the climate with their experiences with their advisors, and that other factors beyond their advisors play an important role in how they experience their department climates. For example, students' discouragement with their interactions with others students, their satisfaction with the support they receive from other faculty, students and staff, as well as their reports of

prevalence and frequency of sexual harassment are all also highly correlated with their ratings of the department climate. However, the relationship between advisor and climate ratings appears to strengthen over time; generally, the correlation coefficient between advisor and climate ratings are lower for students who have been at UM 1-2 years than those who have been at UM longer (see table 14c).

We calculated the same correlational analyses separately for gender and race-ethnicity groups; overall, the pattern was strikingly similar for men and women, and for white U.S.-born students (see Tables 14d, 14e, 14f). Within these groups there were some minor differences that may be important. For men, for example, advisor ratings were not related to having the goal of being a professor in a top university. In contrast, for women, advisor variables were generally not related to their confidence in teaching. For men, the highest career aspiration may be relatively independent of advisor encouragement, while for women it is teaching that is relatively independent. But for both advisor support, like a positive climate, was generally related to positive outcomes.

Analyses for white U.S. students were mostly similar to those found for the total sample. For this group alone, the climate was related to their confidence about obtaining a non-academic job.

Results for U.S. students of color revealed that neither advisor variables, nor insufficient opportunities, were related to their confidence about obtaining a position at a research university or their goal of pursuing such a career (see Table 14g). Confidence and commitment to these goals seems relatively independent of graduate school experiences for U.S. students of color, suggesting that the patterns of support that are effective for U.S. white students are not effective, or trusted, for this group. Climate, insufficient opportunities and advisor rating were, however, strongly related to these students' confidence in their research abilities, and less so to their confidence in teaching. This may be related to these students rating teaching as a more positive aspect of academia than research.

Analyses of the data from international students of color revealed the greatest deviation from the overall pattern (see Table 14h). For these students, climate and advisor factors were unrelated to confidence about obtaining a position at a research university, their teaching ability, or their ability to obtain a non-academic career. They were also, generally, unrelated to their having a career goal of being a professor in a top university. Instead, lack of opportunities in graduate school was negatively related to their level of confidence in almost all areas.

X. IMPLICATIONS OF FINDINGS

Taken together, these findings reveal that students' *experiences of the climate,* as well as their *relationship with their advisors* (and other UM faculty), play a powerful role in the students' confidence that they can be successful academics and their interest in pursuing a faculty career at a top research university. The provision of *opportunities for the broad range of experiences* normally open to students is also important. These relationships do vary in important ways for different demographic groups. Students with less positive experiences of the climate (women and U.S. students of color) and less positive relationships with advisors (women) appear to be

at the highest risk for lower morale and career aspirations, while international students—who report the largest number of areas of "insufficient opportunities"— seem particularly to benefit from the broadest range of opportunities. Finally, across many different areas (advising, goals, etc.), the issue of *managing a personal and professional life* was identified as one that students find problematic. It is, then, in these four areas that it seems most important to attempt to create changes in students' graduate school experience.

Experiences of the Climate
Altering a departmental climate is not a simple task. However, the NSF ADVANCE program nationally and at the University of Michigan, like other such efforts, has had some success in improving the climate in at least some locations. Generally, improvements in the climate have been found to be related to strong, committed leadership from individuals who understand and believe in the importance of the climate, creation of clear, transparent procedures for addressing issues within a unit, and a commitment to surfacing and addressing specific climate issues, particularly those experienced by minorities (who may otherwise be reluctant to voice problems). First steps in this direction would be to sensitize both graduate chairs and department chairs to the importance of the climate for graduate students, the fact that it varies among different groups, and the value of creating structures for students to articulate issues, of defining clear, transparent procedures, and of setting a tone of civility and respect for all groups in the department.

Advisor Relationships
Many faculty-graduate student advising relationships seem to work well, and when they do students thrive. It is disturbing that one quarter of the students reported difficulty in finding an advisor. Given the importance of advising relationships, it would be useful both to provide support for advisor-finding and to document "best practices" in advising based on advising relationships identified by both faculty and students as particularly successful or unsuccessful.

It is clear, however, that these relationships do not work equally well for women students as for men, and that women faculty advisors are viewed by male and female students much more similarly than are male faculty advisors. It may be worthwhile to conduct further research into precisely what the difficulties are that male faculty encounter in advising female students—both from the perspective of the faculty member and the student. While cross-gender and cross-race mentoring has been recognized as more difficult than within-group mentoring, our results suggest that it is the particular pairing of male faculty with female students that is vulnerable to difficulties. It might be especially useful to compare the practices of men advising women with those of women advising men to identify strategies that help make these cross-gender advising relationships work better.

Opportunities for Experiences
Opportunities for a variety of experiences in graduate school were unevenly reported, with international students particularly reporting that they did not have access to as many opportunities as they wanted. Moreover, these reports were related to many negative outcomes for these students. These findings are consistent with other evidence in the data that international students were more isolated than other students, and along with U.S. students of color, felt they either lacked information they needed, or relied on their own efforts rather than others' assistance.

These findings suggest that students of color are particularly ill-served by reliance on informal sources of information generally and more particularly about opportunities. Efforts to create uniform, transparent access to information at the departmental, college and Rackham level should mitigate these problems.

Managing Personal and Professional Lives
As noted above, one area of particular concern for female students, but that male students also noted as a problem, is how academics manage both personal and professional lives. All students reported that faculty provided little advice about how to manage potentially conflicting demands between their academic and family lives. Female students expressed less confidence in their ability to balance family and professional lives and rated the family life factors scale (ability to have both children and a career; ability to balance personal and professional lives; compatibility with spouse's career options) as a less positive influential feature of academia than male students. In short, it appears clear that this domain is one in which students want and need more support and help. It may well be that individual faculty advisors are not the best sources of advice and help, given that students and faculty may not particularly "match" on this dimension, and that students probably need a wider range of models than any one advisor could provide. In addition, some departments may have a relatively small range of alternatives represented within it. Perhaps Rackham could play an even more active role than it currently does in providing exposure to alternative models.

Conclusions
The findings from this study point to specific goals individual departments and schools should adopt to improve the experiences of Ph.D. students at the University of Michigan. Specifically, units should:

- sensitize chairs, department chairs, and faculty in general to different experiences/needs of female students and students of color;
- ensure that critical information about graduate training is formally, widely, and clearly disseminated to all students;
- provide formal support structures, including support for finding an advisor, especially for students who may be less well integrated into the department;
- increase exposure to a range of alternative ways of managing personal and professional lives in academia.

It is worth repeating that the broad range of disciplines and divisions of the students included in this study mean that any one department or discipline is, generally, not well-represented in the data. However, we believe readers should assume, unless there is definite reason to think otherwise, that the findings presented in this report apply to the students in their units. We have recommended some specific steps that should improve the situation for female students as well as students of color, without making it worse for male or white students. We also recommend further study within departments and schools to pursue critical questions of interest. It may also be useful to consider collecting additional data across programs to help clarify some of the issues raised in this study.   Depending upon the purpose of the data collection, possible approaches may include exit interviews with students who completed their programs of study or who left prior to completion, and interviews with students after their first year of graduate education.

Finally, we note that everything recommended here would benefit all graduate students, and therefore the entire institution. Improving the climate and the quality of advising, information and structures for graduate students should not only improve graduate students' morale (and thereby retention), but also their continued aspiration to the kinds of careers they came to the University of Michigan to pursue.

XI. TABLES

Table 1a: Demographic Breakdown of Sample by Gender

GENDER:	TOTAL		RACE/ETHNICITY						PARTNERED				CHILDREN				DIVISION							
			white US		US of color		intl of color		yes		no		yes		no		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
male	318	40	172	61	33	12	75	27	196	62	119	38	46	15	256	85	53	17	164	53	55	18	38	12
female	474	60	300	68	88	20	52	12	147	67	147	31	35	8	419	92	119	26	99	21	160	35	85	18
TOTAL	792		472		121		127		343		266		81		675		172		263		215		123	

Table 1b: Demographic Breakdown of Sample by Race-Ethnicity

DIVISION:	RACE/ETHNICITY						GENDER			
	white US		US of color		intl of color		male		female	
	N	%	N	%	N	%	N	%	N	%
biological/health sci	97	62	33	21	27	17	53	31	119	69
phys sci/engineering	134	57	30	13	70	30	164	62	99	38
social sciences	137	71	35	18	22	11	55	26	160	74
humanities	84	75	20	18	8	7	38	31	89	69

Table 1c: Correlations of Current Financial Situation and Years at UM with Several Key Indicators (N=704)

	current financial	years at UM
advisor instrumental subscale	0.12 ***	-0.01
advisor availability subscale	0.08 *	-0.05
advisor egalitarian subscale	0.07 *	0.02
career features family subscale	-0.01	-0.08 *
confidence in family/lifestyle subscale	0.02	0.08 *
confidence in teaching subscale	0.13 ***	-0.06
overall rating of department climate	0.14 ***	-0.09 *

*p≤.05; ***p≤.001

Table 2: Mean Confidence Ratings about Different Career Outcomes by Items and Scales

I feel confident that…	TOTAL (N=709)		GENDER				RACE/ETHNICITY						DIVISION							
			males (N=274)[†]		females (N=434)[†]		white US (N=462)[†]		US of color (N=119)[†]		int'l of color (N=127)[†]		biological/ health sci (N=157)[†]		phys sci/ engineering (N=231)[†]		social sciences (N=191)[†]		humanities (N=112)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
university/research job scale	-0.02	0.82	0.03	0.95	-0.08	0.71	0.06	0.72 a	0.07	0.90 b	-0.19	1.01 ab	0.09	0.77 a	-0.17	0.91 abc	0.10	0.72 b	0.12	0.77 c
research scale	-0.03	0.78	-0.01	0.93	-0.04	0.67	-0.02	0.67	-0.09	0.85	0.01	1.05	0.20	0.67 abc	-0.12	0.86 a	-0.04	0.75 b	-0.07	0.75 c
teaching scale	0.00	0.89	0.08	1.03 a	-0.11	0.78 a	0.03	0.82	0.06	0.92	-0.10	1.08	-0.13	0.95 a	-0.06	0.88 b	0.03	0.86 c	0.37	0.73 abc
non-academic job scale	0.00	0.75	0.05	0.87 a	-0.07	0.65 a	0.03	0.65 a	0.13	0.76 b	-0.14	0.99 ab	0.15	0.66 ad	0.06	0.79 b	-0.02	0.73 cd	-0.43	0.69 abc
family/lifestyle scale	0.03	0.78	0.15	0.89 a	-0.12	0.69 a	0.01	0.67	0.15	0.77	-0.01	1.09	0.11	0.78	0.07	0.82	-0.07	0.72	-0.09	0.81
I can become a professor in a top research university.	2.65	0.97	2.73	1.10 a	2.54	0.87 a	2.62	0.88	2.70	1.04	2.66	1.21	2.81	0.93 a	2.50	1.08 ab	2.75	0.87 b	2.69	0.92
I can get a research job in industry or private sector.	3.23	0.94	3.33	1.05 a	3.11	0.84 a	3.19	0.85	3.32	0.93	3.23	1.20	3.51	0.68 ab	3.44	0.89 cd	2.98	0.93 ace	2.23	0.95 bde
I can become a professor in a 4-year college.	3.27	0.86	3.28	1.02	3.26	0.75	3.40	0.73 a	3.35	0.87 b	3.00	1.16 ab	3.36	0.79 a	3.14	1.01 abc	3.36	0.77 b	3.39	0.76 c
I can get job in non-profit or government agency.	3.24	0.87	3.21	1.10	3.28	0.69	3.40	0.69 a	3.44	0.75 b	2.85	1.28 ab	3.41	0.79 ab	3.12	0.99 ac	3.43	0.71 cd	2.90	0.90 bd
I can become a faculty administrator.	2.44	0.99	2.49	1.19	2.37	0.85	2.52	0.86 a	2.57	1.09 b	2.23	1.26 ab	2.46	0.96	2.31	1.12 ab	2.56	0.89 a	2.66	0.88 b
I can become an administrator/ manager in business.	2.29	1.11	2.41	1.27 a	2.15	0.98 a	2.31	0.99	2.40	1.14	2.22	1.43	2.26	1.07 a	2.46	1.18 b	2.24	1.05	1.93	1.05 ab
I can be self-employed.	2.49	1.05	2.55	1.19	2.41	0.94	2.50	0.91	2.61	1.11	2.40	1.39	2.56	1.05	2.46	1.14	2.52	0.97	2.37	0.98
I can be successful in my field.	3.46	0.68	3.55	0.75 a	3.35	0.62 a	3.50	0.58	3.48	0.70	3.38	0.95	3.55	0.66	3.46	0.76	3.44	0.61	3.33	0.67
I can balance work & personal life to my satisfaction.	3.14	0.83	3.26	0.92 a	3.01	0.76 a	3.08	0.74	3.25	0.86	3.19	1.08	3.17	0.84	3.22	0.86	3.03	0.81	3.07	0.82
I can get academic job in appealing geographic location.	2.60	0.92	2.67	1.09 a	2.51	0.79 a	2.59	0.83	2.67	0.99	2.57	1.15	2.85	0.89 abc	2.59	1.02 ad	2.58	0.80 be	2.33	0.86 cde
I can both have children and be a successful academic.	2.89	0.95	3.08	1.04 a	2.65	0.84 a	2.79	0.85 ab	3.00	0.95 a	2.97	1.24 b	2.97	0.96	2.85	1.04	2.80	0.87	2.97	0.87
I can can make it financially when I get out.	3.22	0.80	3.26	0.92	3.17	0.72	3.31	0.68 a	3.30	0.79 b	3.01	1.11 ab	3.33	0.78	3.26	0.85	3.16	0.72	2.99	0.83
I have received adequate training to be a good teacher.	2.80	1.03	2.90	1.20 a	2.68	0.89 a	2.79	0.97	2.85	1.03	2.79	1.21	2.66	1.04 a	2.73	1.06 b	2.84	0.99 c	3.24	0.87 abc
I have received adequate training to be a good researcher.	3.28	0.83	3.31	1.00	3.24	0.69	3.28	0.74	3.20	0.86	3.31	1.07	3.56	0.62 abc	3.20	0.95 a	3.22	0.78 b	3.20	0.81 c
I am in right field.	3.29	0.85	3.30	1.01	3.27	0.74	3.34	0.74	3.22	0.92	3.24	1.12	3.30	0.89	3.22	0.93	3.36	0.75	3.32	0.81
my research interests are considered important in my field.	3.19	0.81	3.19	0.97	3.18	0.70	3.20	0.71	3.15	0.92	3.20	1.05	3.39	0.75 abc	3.13	0.87 a	3.08	0.84 b	3.15	0.73 c
in my ability to obtain funding as a researcher.	2.58	0.90	2.58	1.10	2.58	0.74	2.53	0.82	2.55	0.85	2.69	1.15	2.82	0.81 abc	2.43	1.01 ad	2.63	0.80 bd	2.56	0.84 c
in my abilities as a teacher.	3.08	0.91	3.16	1.06 a	2.98	0.80 a	3.15	0.83 a	3.17	0.93 b	2.90	1.14 ab	2.98	0.98 a	3.04	0.92 b	3.10	0.90 c	3.38	0.73 abc

[†] Ns vary slightly by item

[abcde] Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 3a: Percent Ever Felt Discouraged Overall and by Item

total discouragement	71%
course material	22%
course selection	16%
academic performance	17%
research	30%
interaction with students	14%
interaction with advisor	26%
climate in department	28%
career opportunities	27%
personal life	25%
financial concerns	29%
starting a family	16%
family obligations	11%

Table 3b: Mean Ratings for Reasons for Discouragement

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=714)		(N=277)		(N=436)		(N=465)		(N=121)		(N=127)		(N=157)		(N=233)		(N=193)		(N=112)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
course material	0.22	0.41	0.17	0.45 a	0.27	0.38 a	0.24	0.38 a	0.28	0.47 b	0.14	0.46 ab	0.22	0.41	0.16	0.40 a	0.30	0.43 a	0.24	0.40
course selection	0.16	0.37	0.14	0.41	0.19	0.34	0.16	0.32	0.20	0.42	0.15	0.47	0.12	0.32	0.15	0.39	0.19	0.36	0.23	0.39
academic performance	0.17	0.38	0.16	0.43	0.19	0.34	0.14	0.31	0.18	0.40	0.22	0.54	0.15	0.35	0.17	0.41	0.20	0.38	0.14	0.32
research	0.30	0.46	0.31	0.55	0.28	0.38	0.33	0.42	0.32	0.49	0.23	0.55	0.34	0.47 a	0.32	0.51 b	0.27	0.41	0.18	0.36 ab
interaction with students	0.14	0.35	0.11	0.38 a	0.18	0.33 a	0.14	0.31	0.16	0.39	0.13	0.45	0.09	0.27 a	0.13	0.36 b	0.15	0.33 c	0.27	0.42 abc
interaction with advisor	0.27	0.44	0.25	0.51	0.29	0.39	0.31	0.41 a	0.29	0.47 b	0.19	0.51 ab	0.30	0.45	0.26	0.48	0.25	0.40	0.29	0.43
climate in department	0.28	0.45	0.25	0.51 a	0.33	0.40 a	0.31	0.41 a	0.38	0.51 b	0.18	0.50 ab	0.23	0.41	0.25	0.48	0.35	0.45	0.34	0.45
career opportunities	0.27	0.44	0.26	0.53	0.28	0.39	0.29	0.40	0.24	0.44	0.26	0.57	0.27	0.44 a	0.26	0.48 bd	0.19	0.36 cd	0.48	0.47 abc
personal life	0.28	0.45	0.25	0.52	0.32	0.40	0.31	0.41	0.27	0.46	0.24	0.56	0.31	0.45	0.22	0.46	0.35	0.45	0.31	0.43
financial concerns	0.29	0.45	0.29	0.54	0.29	0.39	0.30	0.41	0.27	0.46	0.29	0.59	0.26	0.43	0.28	0.49	0.30	0.43	0.37	0.45
starting a family	0.16	0.36	0.11	0.37 a	0.21	0.35 a	0.20	0.36 ab	0.11	0.32 a	0.11	0.42 b	0.15	0.35	0.12	0.35	0.20	0.38	0.19	0.37
family obligations	0.11	0.31	0.11	0.37	0.11	0.27	0.12	0.29	0.10	0.31	0.10	0.40	0.11	0.31	0.09	0.31	0.13	0.31	0.14	0.32

[abc]Matching symbols identify groups that are significantly different from each other at the $p < .05$ level of significance regardless of significance of overall F-test.

Table 4a: Mean Rating of Overall Department Climate

	TOTAL		GENDER			RACE/ETHNICITY		
			males	females		white US	US of color	int'l of color
	(N=708)		(N=273)	(N=434)		(N=461)	(N=120)	(N=126)
	M sd		M sd	M sd		M sd	M sd	M sd
overall climate	2.92 0.83		2.98 0.96 [a]	2.84 0.73 [a]		2.94 0.75	2.89 0.88	2.91 1.03

[a]Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 4b: Percent Reporting Supportive and Unsupportive Department Climates for Different Groups

	supportive environment	students are condescending	faculty are condescending	…feel comfortable
men	38%	4%	3%	71%
women	57%	17%	20%	64%
international students	58%	12%	17%	58%
racial/ethnic minorities	53%	19%	13%	53%
sexual minorities	33%	15%	8%	38%
students with disabilities	15%	7%	3%	25%

Table 5a: Mean Ratings of Negative Comments by Faculty

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
Negative comments from faculty about:	(N=707)		(N=273)[†]		(N=434)[†]		(N=462)[†]		(N=119)[†]		(N=126)[†]		(N=156)[†]		(N=231)[†]		(N=190)[†]		(N=112)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	1.26	0.52	1.16	0.50 [a]	1.38	0.52 [a]	1.28	0.48 [a]	1.38	0.65 [b]	1.17	0.51 [ab]	1.25	0.51	1.21	0.51	1.35	0.55	1.28	0.52
men	1.22	0.48	1.20	0.56	1.25	0.43	1.24	0.45	1.29	0.54	1.16	0.53	1.19	0.42	1.18	0.47	1.29	0.52	1.31	0.54
racial or ethnic minorities	1.23	0.51	1.18	0.53 [a]	1.28	0.50 [a]	1.18	0.40 [a]	1.39	0.69 [ab]	1.22	0.63 [b]	1.16	0.41 [a]	1.19	0.51 [b]	1.32	0.57 [ab]	1.27	0.54
religious groups	1.25	0.53	1.27	0.65	1.24	0.43	1.27	0.49	1.31	0.62	1.19	0.57	1.26	0.51	1.17	0.49 [ab]	1.32	0.55 [a]	1.37	0.57 [b]
sexual minorities	1.13	0.40	1.12	0.46	1.14	0.37	1.14	0.37	1.18	0.53	1.09	0.40	1.11	0.38	1.10	0.36	1.16	0.43	1.19	0.49

[†] Ns vary slightly by item

Table 5b: Mean Ratings of Negative Comments by Students

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
Negative comments from students about:	(N=706)		(N=272)[†]		(N=433)[†]		(N=462)[†]		(N=119)[†]		(N=125)[†]		(N=156)[†]		(N=230)[†]		(N=190)[†]		(N=112)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	1.65	0.73	1.60	0.84	1.71	0.65	1.60	0.63 [a]	1.97	0.82 [ab]	1.54	0.89 [b]	1.68	0.73	1.60	0.75	1.65	0.73	1.68	0.71
men	1.58	0.72	1.56	0.88	1.61	0.60	1.60	0.64 [ab]	1.80	0.79 [ac]	1.43	0.85 [bc]	1.54	0.65	1.52	0.75	1.67	0.74	1.73	0.70
racial or ethnic minorities	1.51	0.71	1.48	0.82	1.54	0.62	1.40	0.56 [a]	1.85	0.87 [ab]	1.49	0.89 [b]	1.44	0.61	1.50	0.78	1.60	0.69	1.50	0.71
religious groups	1.56	0.73	1.58	0.90	1.54	0.60	1.59	0.66	1.63	0.77	1.46	0.91	1.52	0.67 [a]	1.44	0.74 [bc]	1.63	0.74 [b]	1.77	0.73 [ac]
sexual minorities	1.41	0.67	1.40	0.81	1.42	0.57	1.39	0.59 [a]	1.61	0.83 [ab]	1.32	0.74 [b]	1.37	0.60	1.35	0.69	1.41	0.63	1.58	0.75

[†] Ns vary slightly by item

[abc] Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 6a: Percent Positive* Ratings of Department Climate Items

welcoming	66%	cooperative	49%
friendly	70%	non-homophobic	63%
non-racist	78%	flexible	53%
diverse	51%	protective	47%
respectful	71%	supportive	64%
non-sexist	64%	encouraging	64%
collegial	58%	down-to-earth	43%
collaborative	40%		

* % who rated item 4 or 5 on 5-point scale ranging from the listed positive
descriptor (scored 5) to a paired negative descriptor (scored 1).

Table 6b: Mean Ratings of Department Climate Characteristics by Item and Scales*

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=710)		(N=274)†		(N=435)†		(N=462)†		(N=120)†		(N=127)†		(N=157)†		(N=231)†		(N=191)†		(N=112)†	
	M	sd	M	sd`	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
general climate scale	0.02	0.76	0.13	0.78 [a]	-0.12	0.68 [a]	-0.02	0.67	-0.03	0.86	0.11	0.94	0.17	0.62 [ab]	-0.01	0.79 [a]	-0.10	0.73 [b]	0.02	0.70
openness to diversity scale	0.02	0.73	0.09	0.86 [a]	-0.07	0.69 [a]	0.07	0.63 [a]	-0.16	0.88 [ab]	0.03	0.87 [b]	0.27	0.70 [abc]	-0.01	0.81 [a]	-0.08	0.71 [b]	-0.14	0.77 [c]
alienating/welcoming	3.76	1.19	3.87	1.37 [a]	3.62	1.06 [a]	3.68	1.03	3.77	1.31	3.89	1.55	4.06	1.00 [abc]	3.77	1.29 [a]	3.55	1.17 [b]	3.61	1.21 [c]
hostile/friendly	3.91	1.00	4.00	1.13 [a]	3.81	0.90 [a]	3.86	0.87	3.88	1.11	4.01	1.29	4.10	0.90 [ab]	3.92	1.06 [a]	3.78	1.01 [b]	3.81	0.96
racist/non-racist	4.22	1.07	4.34	1.19 [a]	4.07	0.97 [a]	4.39	0.82 [ab]	3.99	1.24 [a]	4.06	1.51 [b]	4.50	0.85 [ab]	4.18	1.22 [a]	4.05	1.06 [b]	4.17	0.98
homogeneous/diverse	3.48	1.18	3.58	1.36 [a]	3.36	1.04 [a]	3.35	1.01 [a]	3.21	1.22 [b]	3.85	1.51 [ab]	3.49	1.18	3.60	1.29	3.33	1.01	3.37	1.15
disrespectful/respectful	3.90	1.00	3.99	1.16 [a]	3.80	0.87 [a]	3.92	0.83 [a]	3.67	1.09 [ab]	4.01	1.36 [b]	4.11	0.88 [ab]	3.85	1.12 [a]	3.80	0.93 [b]	3.91	0.93
sexist/non-sexist	3.86	1.18	4.07	1.29 [a]	3.60	1.06 [a]	3.77	1.09 [a]	3.67	1.23 [b]	4.11	1.35 [ab]	4.11	1.06 [ab]	3.82	1.30 [a]	3.72	1.12 [b]	3.86	1.09
contentious/collegial	3.65	1.06	3.74	1.22 [a]	3.54	0.93 [a]	3.66	0.93	3.74	1.12	3.60	1.38	3.82	1.04	3.60	1.10	3.60	1.04	3.64	1.05
individualistic/collaborative	3.06	1.26	3.15	1.48 [a]	2.94	1.09 [a]	3.01	1.10	2.95	1.23	3.20	1.73	3.54	1.15 [abc]	3.12	1.35 [ad]	2.90	1.15 [be]	2.34	1.08 [cde]
cooperative/competitive	3.36	1.16	3.44	1.38 [t]	3.27	1.00 [t]	3.37	1.05	3.31	1.17	3.38	1.50	3.75	1.07 [abc]	3.25	1.29 [a]	3.32	1.08 [b]	3.13	1.04 [c]
homophobic/non-homophobic	3.97	1.05	4.03	1.21	3.90	0.94	4.21	0.89 [ab]	3.87	1.14 [ac]	3.60	1.30 [cb]	4.14	1.02 [a]	3.82	1.12 [ab]	3.92	1.00 [c]	4.15	0.99 [bc]
not-supportive/supportive	3.68	1.10	3.47	1.31	3.37	0.93	3.65	0.95	3.56	1.23	3.81	1.40	3.99	0.92 [ab]	3.62	1.22 [a]	3.51	1.01 [b]	3.66	1.13
rigid/flexible	3.43	1.09	3.47	1.16	3.36	0.81	3.41	0.92	3.38	1.09	3.48	1.57	3.64	0.99 [ab]	3.41	1.25 [a]	3.33	0.99 [b]	3.33	1.05
threatening/protective	3.42	0.96	3.76	1.23 [a]	3.58	1.00 [a]	3.32	0.83 [a]	3.41	0.98	3.58	1.29 [a]	3.67	0.93 [abc]	3.40	1.08 [a]	3.32	0.82 [b]	3.27	0.96 [c]
discouraging/encouraging	3.69	1.03	3.79	1.16 [a]	3.58	0.93 [a]	3.62	0.92	3.67	1.12	3.82	1.29	3.88	0.93	3.65	1.15	3.65	0.97	3.60	1.00
snobbish/down-to-earth	3.24	1.11	3.29	1.30 [a]	3.19	0.97 [a]	3.16	1.01 [a]	3.20	1.25	3.41	1.28 [a]	3.65	1.03 [abc]	3.24	1.19 [ad]	3.17	0.97 [be]	2.86	1.06 [cde]

* each characteristic listed represents the two end-points on a continuum. A score of 1 represents the first characteristic listed; a score of 5 represents the second characteristic listed for each rating.

† Ns vary slightly by item

[abcde] Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 7: Mean Ratings of Importance of Graduate Student Experiences by Item

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=712)		(N=275)†		(N=436)†		(N=464)†		(N=121)†		(N=126)†		(N=157)†		(N=233)†		(N=192)†		(N=112)†	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
teaching/serving as GSI	3.22	0.81	3.18	0.97	3.27	0.70	3.26	0.74	3.23	0.92	3.13	0.97	3.08	0.74 ab	3.13	0.91 c	3.29	0.74 ad	3.60	0.65 bcd
required coursework	3.13	0.78	3.13	0.93	3.13	0.67	3.09	0.72 a	3.03	0.84 b	3.28	0.90 ab	2.98	0.77 ab	3.12	0.85 c	3.23	0.70 a	3.31	0.69 bc
cognate courses	2.70	0.90	2.60	1.07 a	2.83	0.75 a	2.61	0.83 ab	2.82	0.88 a	2.79	1.13 b	2.72	0.81 ab	2.47	0.95 acd	2.91	0.76 c	3.08	0.87 bd
elective courses	2.86	0.84	2.79	0.97 a	2.96	0.73 a	2.86	0.75	2.90	0.86	2.84	1.10	2.77	0.78 ab	2.73	0.90 cd	3.07	0.71 ac	3.09	0.90 bd
prelim/qualifying exams	3.06	0.90	3.03	1.11	3.10	0.73	2.98	0.83 a	3.10	0.98	3.20	1.06 a	3.12	0.88	3.02	0.99	3.01	0.81	3.25	0.84
learning research techniques	3.69	0.60	3.64	0.77 a	3.74	0.47 a	3.64	0.59	3.73	0.55	3.75	0.71	3.88	0.33 abc	3.69	0.66 ad	3.69	0.59 be	3.36	0.72 cde
conducting research	3.85	0.42	3.85	0.48	3.84	0.39	3.81	0.42 a	3.83	0.49 b	3.94	0.36 ab	3.94	0.28 ab	3.88	0.43 c	3.83	0.45 ad	3.66	0.51 bcd
attending professional conferences	3.33	0.78	3.29	0.93	3.37	0.66	3.21	0.71 a	3.31	0.84 b	3.56	0.87 ab	3.55	0.64 ab	3.42	0.78 cd	3.16	0.79 ac	3.00	0.79 bd
internships/industrial experiences	2.71	0.97	2.75	1.09	2.67	0.86	2.43	0.85 ab	2.83	1.01 a	3.07	1.08 b	2.66	0.96	2.81	1.01	2.56	0.89	2.68	1.02
courses or training in pedagogy	2.57	0.87	2.48	1.00 a	2.68	0.76 a	2.54	0.82	2.63	0.91	2.59	1.03	2.53	0.89	2.48	0.89	2.56	0.82	2.80	0.87
opportunities to present research	3.51	0.66	3.48	0.78	3.54	0.57	3.46	0.59	3.51	0.72	3.58	0.81	3.76	0.46 abc	3.48	0.72 ad	3.50	0.64 be	3.20	0.68 cde
department lectures, talks, etc.	3.03	0.75	3.04	0.86	3.02	0.67	2.98	0.66 ab	2.83	0.84 ac	3.23	0.88 bc	3.13	0.75	3.06	0.77	2.97	0.70	2.90	0.76
meeting outside speakers	2.89	0.75	2.89	0.86	2.88	0.67	2.79	0.67 a	2.83	0.77 b	3.08	0.90 ab	3.07	0.75 abc	2.86	0.79 ad	2.86	0.71 b	2.72	0.69 cd
practice interview/job market help	2.97	0.88	2.84	1.04 a	3.12	0.73 a	2.85	0.79 a	3.03	0.88	3.12	1.08 a	2.86	0.84 ab	2.86	0.98 cd	3.19	0.77 ac	3.15	0.77 bd
interdisciplinary training	2.99	0.84	2.90	0.98 a	3.11	0.74 a	2.92	0.79 a	3.17	0.83 a	3.02	1.02	3.00	0.73 a	2.85	0.91 bc	3.07	0.85 b	3.29	0.78 ac
social events	2.43	0.81	2.41	0.96	2.46	0.70	2.35	0.71 a	2.64	0.90 ab	2.46	1.00 b	2.53	0.75	2.38	0.91	2.46	0.72	2.40	0.78
non-department lectures, talks, etc.	2.40	0.79	2.38	0.91	2.41	0.70	2.31	0.67 a	2.40	0.82	2.53	1.07 a	2.43	0.76 a	2.25	0.85 abc	2.52	0.75 b	2.53	0.73 c
study groups	2.37	0.90	2.34	1.01	2.40	0.83	2.25	0.80 ab	2.56	0.99 a	2.45	1.10 b	2.17	0.84	2.42	1.00	2.43	0.85	2.41	0.84
support groups/organizations	2.36	0.94	2.25	1.07 a	2.48	0.84 a	2.13	0.80 ab	2.68	1.00 a	2.53	1.14 b	2.27	0.94 a	2.26	0.95 b	2.54	0.91 ab	2.49	0.93
collaborative research opportunities	3.08	0.82	3.05	0.95	3.11	0.73	3.04	0.76	3.04	0.86	3.18	0.97	3.18	0.74 a	3.09	0.89 b	3.13	0.79 c	2.70	0.78 abc
language practice	2.67	1.11	2.64	1.29	2.72	0.95	2.38	0.96 ab	2.77	1.15 a	2.91	1.24 b	2.51	1.23 a	2.61	1.23 b	2.70	0.97	3.02	0.89 ab

† Ns vary slightly by item

abcde Matching symbols identify groups that are significantly different from each other at the p≤.05 level of significance regardless of significance of overall F-test.

Table 8a: Percent Reporting Groups as a Source of Information by Topic

where learned about:	on own	other students	faculty	dept. staff	other sources
internal funding sources	24%	31%	26%	15%	5%
external funding sources	30%	33%	22%	10%	5%
administrative processes	38%	36%	18%	7%	1%
information resources	32%	15%	12%	8%	4%
writing professional papers	24%	49%	24%	2%	0%
finding internships	83%	12%	5%	0%	0%
department politics	18%	40%	25%	15%	1%
how to do interdisiplinary research	60%	25%	12%	2%	0%
how to present work	29%	36%	32%	3%	0%
how to run experiments	44%	22%	26%	7%	1%
rackham requirements	20%	39%	23%	15%	2%

Table 8b: Mean Count of Kinds of Information Provided by Groups Sources

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION							
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=714)		(N=277)		(N=436)		(N=465)		(N=121)		(N=127)		(N=157)		(N=233)		(N=193)		(N=112)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
don't know	1.94	1.97	1.97	2.34	1.90	1.70	1.84	1.74 a	1.57	1.57 b	2.33	2.84 ab	1.48	1.63 ab	2.17	2.27 a	2.02	1.97 b	1.90	1.71
on own	4.97	2.76	5.07	3.28	4.85	2.37	5.04	2.45 ab	5.64	2.82 ac	4.46	3.52 bc	5.08	3.02	4.85	2.92	5.08	2.49	4.95	2.50
other students	3.41	2.66	3.28	3.17	3.56	2.28	3.76	2.37 a	3.62	2.82 b	2.69	3.26 ab	3.16	2.44	3.34	2.93	3.84	2.68	3.29	2.37
faculty	4.42	2.65	4.54	3.17	4.28	2.26	4.48	2.33	4.41	2.95	4.33	3.37	5.61	2.26 abc	4.29	2.98 ad	4.10	2.47 b	3.58	2.24 cd
department staff	2.71	1.71	2.71	2.01	2.70	1.49	2.81	1.50	2.75	1.69	2.49	2.32	2.88	1.73 a	2.59	1.84 ab	2.94	1.57 bc	2.46	1.56 c
other sources	0.92	1.43	0.85	1.68	1.00	1.25	0.99	1.34	0.84	1.33	0.84	1.82	1.18	1.64 a	0.57	1.22 abc	1.14	1.36 b	1.04	1.44 c

Table 8c: Mean Count of Groups Who Provide Information by Item

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION							
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=714)		(N=277)		(N=436)		(N=465)		(N=121)		(N=127)		(N=157)		(N=233)		(N=193)		(N=112)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
sources of internal funding	1.44	1.13	1.37	1.30	1.51	1.00	1.59	0.97 a	1.74	1.14 b	1.00	1.40 ab	1.44	1.10 ab	1.20	1.18 acd	1.68	1.11 bc	1.71	0.96 d
sources of external funding	1.27	1.13	1.21	1.29	1.34	1.01	1.41	1.00 a	1.47	1.28 b	0.92	1.30 ab	1.41	1.05 a	1.05	1.11 abc	1.42	1.16 b	1.42	1.17 c
pratical administrative processes for research	0.98	0.97	0.91	1.14 a	1.07	0.84 a	1.04	0.89	1.03	0.96	0.85	1.19	1.35	0.89 ad	0.84	1.06 abc	1.15	0.90 be	0.55	0.77 cde
necessary informational resources	1.07	0.99	1.12	1.18	1.02	0.85	1.11	0.85	0.97	0.95	1.08	1.42	1.09	0.97	0.93	0.97 ab	1.24	1.03 a	1.27	0.96 b
how to write professional papers for publication	1.05	0.77	1.09	0.91	0.99	0.66	1.10	0.69 a	0.90	0.77 a	1.04	0.99	1.09	0.79 a	1.04	0.79 b	1.12	0.71 c	0.83	0.75 abc
how to find internships	0.22	0.54	0.29	0.72 a	0.14	0.37 a	0.21	0.47	0.22	0.58	0.25	0.71	0.17	0.45 a	0.33	0.69 abc	0.16	0.45 b	0.13	0.39 c
departmental policies	1.41	1.00	1.41	1.22	1.40	0.83	1.54	0.88 a	1.37	0.96	1.21	1.34 a	1.29	0.90 a	1.35	1.11 b	1.56	0.98 ab	1.51	0.89
how to do interdisci- plinary research at UM	0.57	0.81	0.54	0.96	0.60	0.69	0.59	0.77	0.55	0.77	0.53	0.97	0.70	0.82 a	0.45	0.81 ab	0.58	0.79	0.68	0.79 b
how to present my work at professional meetings	1.09	0.87	1.09	0.99	1.10	0.78	1.13	0.80	1.03	0.85	1.07	1.10	1.26	0.78 ad	1.12	0.92 b	1.03	0.85 cd	0.79	0.79 abc
how to run experiments	0.98	1.03	0.97	1.18	0.98	0.92	0.92	0.90	0.98	1.08	1.07	1.36	1.65	0.94 abc	1.16	1.10 ade	0.59	0.79 bdf	0.07	0.32 cef
department/Rackham requirements for degree	1.40	1.04	1.40	1.21	1.42	0.92	1.44	0.93	1.37	1.01	1.36	1.41	1.41	0.99	1.34	1.11	1.52	1.06	1.42	0.81

[abcdef]Matching symbols identify groups that are significantly different from each other at the p $\leq$ .05 level of significance regardless of significance of overall F-test.

Table 9a: Mean Level of Agreements with Advisor Items by Item and Scales

my primary advisor:	TOTAL		GENDER				RACE/ETHNICITY						DIVISION							
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=711)		(N=276)[†]		(N=434)[†]		(N=462)[†]		(N=121)[†]		(N=127)[†]		(N=156)[†]		(N=232)[†]		(N=192)[†]		(N=112)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
instrumental help scale	0.03	0.69	0.13	0.80 [a]	-0.08	0.61 [a]	-0.03	0.64 [a]	0.03	0.75	0.13	0.79 [a]	0.19	0.60 [ab]	0.10	0.70 [cd]	-0.08	0.70 [ac]	-0.21	0.73 [bd]
general availability scale	0.03	0.81	0.10	0.93 [a]	-0.06	0.71 [a]	-0.04	0.72	0.12	0.89	0.08	0.98	0.20	0.70 [abc]	0.04	0.87 [a]	-0.05	0.77 [b]	-0.16	0.85 [c]
egalitarianism/respect scale	-0.03	0.70	-0.03	0.81	-0.02	0.62	-0.02	0.62 [ab]	0.13	0.74 [ab]	-0.13	0.90 [b]	-0.07	0.70 [a]	-0.09	0.75 [bc]	0.03	0.65 [b]	0.13	0.65 [ac]
helps me secure funding for my graduate studies.	3.18	0.94	3.31	1.05 [a]	3.02	0.85 [a]	3.14	0.85 [ac]	2.93	1.04 [ab]	3.39	1.08 [bc]	3.42	0.75 [ab]	3.39	0.95 [cd]	2.81	0.94 [ac]	2.80	0.92 [bd]
is available to me when I need help with my research.	3.31	0.78	3.38	0.89 [a]	3.24	0.71 [a]	3.29	0.71	3.31	0.84	3.35	0.97	3.43	0.71	3.34	0.83	3.23	0.75	3.18	0.82
is available to me when I need to talk about the program.	3.15	0.82	3.20	0.97	3.09	0.72	3.10	0.72	3.22	0.95	3.19	1.02	3.28	0.74	3.14	0.90	3.11	0.78	3.06	0.87
teaches me the details of good research practice.	3.03	0.90	3.13	1.06 [a]	2.90	0.78 [a]	2.96	0.83	3.12	0.95	3.08	1.10	3.22	0.78 [abc]	3.04	1.00 [ad]	3.01	0.86 [be]	2.67	0.84 [cde]
gives me regular and constructive feedback on my research.	3.11	0.88	3.19	1.00 [a]	3.00	0.79 [a]	3.00	0.83 [ab]	3.19	0.93 [a]	3.23	1.00 [b]	3.30	0.78 [ab]	3.16	0.93 [c]	3.00	0.88 [a]	2.86	0.90 [bc]
helps me develop professional relationships with others in the field.	2.83	0.93	2.92	1.10 [a]	2.73	0.80 [a]	2.81	0.87	2.91	0.89	2.83	1.17	2.95	0.87	2.84	1.00	2.76	0.90	2.75	0.94
assists me in writing presentations or publications.	3.09	0.89	3.22	0.98 [a]	2.93	0.81 [a]	3.00	0.82 [a]	3.04	0.97 [b]	3.27	1.02 [ab]	3.33	0.73 [ab]	3.25	0.92 [cd]	2.91	0.86 [ace]	2.56	0.86 [bde]
expects me to work so many hours that it is hard to have a personal life.	1.97	0.86	1.98	1.02	1.95	0.75	1.99	0.78 [a]	1.79	0.83 [ab]	2.04	1.13 [b]	2.05	0.85 [ab]	2.02	0.92 [cd]	1.87	0.80 [ac]	1.83	0.79 [bd]
encourages me in my research interests and goals.	3.30	0.77	3.29	0.90	3.30	0.69	3.30	0.69	3.42	0.74	3.22	1.05	3.32	0.76	3.25	0.76	3.35	0.78	3.35	0.85
instructs me in teaching methods.	2.21	0.84	2.32	0.97 [a]	2.07	0.72 [a]	2.06	0.74 [ab]	2.30	0.84 [a]	2.40	1.04 [b]	2.22	0.81	2.26	0.85	2.07	0.83	2.29	0.86
is often not available to me.	3.02	0.89	3.02	1.04	3.01	0.78	2.98	0.82	3.16	0.87	2.99	1.10	3.12	0.83	2.98	0.93	2.97	0.86	3.02	0.93
would support me in any career path I might choose.	2.98	0.72	3.01	0.80	2.95	0.65	2.96	0.67 [a]	3.14	0.72 [ab]	2.92	0.86 [b]	3.07	0.69	3.03	0.71	2.94	0.67	2.80	0.82
advises about preparation for career advancement.	2.81	0.79	2.83	0.94	2.79	0.69	2.80	0.73	2.89	0.88	2.79	0.93	2.82	0.81	2.77	0.82	2.89	0.77	2.82	0.79
advises about getting my work published.	3.10	0.84	3.22	0.96 [a]	2.95	0.73 [a]	3.04	0.77	3.08	0.87	3.21	1.02	3.36	0.73 [ab]	3.24	0.84 [cd]	2.93	0.78 [ace]	2.62	0.84 [bde]
advises about departmental politics.	2.56	0.83	2.61	0.99	2.51	0.70	2.60	0.75	2.57	0.91	2.49	1.01	2.60	0.80	2.54	0.87	2.61	0.82	2.48	0.83
treats my ideas with respect.	3.33	0.71	3.36	0.81	3.29	0.63	3.38	0.61	3.33	0.75	3.24	0.95	3.31	0.67	3.30	0.73	3.32	0.72	3.45	0.69
provides information about career paths open to me.	2.65	0.81	2.74	0.95 [a]	2.53	0.69 [a]	2.58	0.71	2.70	0.91	2.72	1.01	2.62	0.78	2.74	0.86	2.62	0.78	2.48	0.77
sees me as a source of labor to advance his/her career.	3.16	0.83	3.10	1.00 [a]	3.24	0.69 [a]	3.15	0.75	3.30	0.81	3.11	1.08	3.02	0.82 [ab]	3.00	0.94 [cd]	3.31	0.74 [ace]	3.60	0.52 [bde]
teaches me to write grants/research proposals.	2.51	0.88	2.50	1.06	2.52	0.74	2.47	0.80	2.44	0.86	2.63	1.11	2.89	0.78 [abc]	2.43	0.95 [a]	2.46	0.81 [b]	2.23	0.82 [c]

[†] Ns vary slightly by item

[abcde] Matching symbols identify groups that are significantly different from each other at the ≤ .05 level of significance regardless of significance of overall F-test.

Table 9b: Percent Ranking Each Item as One of Five Most Important Advisor Activities

helps me secure funding for my graduate studies.	47%
is available to me when I need help with my research.	71%
is available to me when I need to talk about the program.	17%
teaches me the details of good research practice.	44%
gives me regular and constructive feedback on my research.	70%
helps me develop professional relationships with others in the field.	27%
assists me in writing presentations or publications.	33%
expects me to work so many hours that it is hard to have a personal life.	6%
encourages me in my research interests and goals.	47%
instructs me in teaching methods.	6%
is often not available to me.	4%
would support me in any career path I might choose.	10%
advises about preparation for career advancement.	23%
advises about getting my work published.	24%
advises about departmental politics.	4%
treats my ideas with respect.	34%
provides information about career paths open to me.	9%
sees me as a source of labor to advance his/her career.	1%
teaches me to write grants/research proposals.	16%

Table 10a: Percent Indicating Advice and Support from Each Group

	TOTAL SAMPLE				
	staff (N=696)	students (N=696)	faculty (N=696)	advisor (N=696)	family/ friends (N=696)
provides emotinal support when I need it	17%	66%	21%	30%	94%
is easy to discuss ideas with	11%	77%	49%	59%	55%
treats me as a colleague	18%	77%	48%	50%	18%
talks about conflicting demands between work and family	8%	51%	20%	21%	46%
advocates for me with others when necessary	19%	34%	41%	61%	33%
generally respects opinions of others in the department	28%	51%	58%	59%	11%
treats me as a whole person–not just a scholar	27%	66%	40%	52%	71%
inspires me intellectually	5%	57%	66%	67%	39%
builds my confidence	15%	56%	42%	53%	68%
serves as a role model	7%	39%	57%	58%	40%

Table 10b: Mean Count of Kinds of Support Ptrovided by Group Sources

	TOTAL		GENDER			RACE/ETHNICITY				DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=696)		(N=265)		(N=430)		(N=455)		(N=119)		(N=121)		(N=154)		(N=227)		(N=185)		(N=112)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
UM staff	2.15	2.27	2.15	2.70	2.16	1.97	2.26	1.92 a	2.66	2.85 b	1.66	2.69 ab	2.40	2.51	2.07	2.59	2.19	1.89	2.12	1.87
UM faculty	7.39	4.49	7.51	5.49	7.25	3.75	7.51	3.90	7.53	4.56	7.09	6.21	7.87	4.10 a	6.37	5.42 abc	8.38	3.64 b	8.08	3.82 c
non-UM faculty	1.75	3.13	1.64	3.67	1.88	2.75	1.94	2.99 a	2.44	3.55 b	0.98	3.00 ab	1.50	2.85 ab	1.34	3.03 cd	2.22	3.17 ac	2.43	3.39 bd
other students	5.26	3.96	5.01	4.65	5.55	3.46	5.95	3.43 a	6.11	4.05 b	3.51	4.76 ab	4.91	3.75 ab	4.44	4.02 cd	5.98	3.91 ac	6.68	3.78 bd
lab/study groups	3.15	4.18	3.45	5.25 a	2.81	3.35 a	3.25	3.77	2.92	4.00	3.13	5.62	4.61	4.29 ab	4.18	4.88 cd	1.41	2.71 ac	0.99	2.52 bd

Table 10c: Mean Count of Kinds of Support Provided by Group Sources

	TOTAL		GENDER			RACE/ETHNICITY				DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=696)		(N=265)		(N=430)		(N=455)		(N=119)		(N=121)		(N=154)		(N=227)		(N=185)		(N=112)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
helps me find funding for my graduate studies.	1.28	0.98	1.25	1.12	1.32	0.89	1.34	0.90 a	1.49	1.10 b	1.06	1.09 ab	1.29	0.96 abc	1.00	0.95 ade	1.56	0.96 bd	1.65	0.93 ce
is available to me when I need help with my research.	1.86	1.01	1.88	1.22	1.83	0.86	1.95	0.91 a	2.02	1.01	1.60	1.26 ab	2.04	1.01	1.89	1.20	1.72	0.87	1.77	0.79
is available to me when I need to talk about my program.	1.92	1.05	1.97	1.24	1.85	0.90	2.01	0.95 a	2.10	1.11 b	1.65	1.23 ab	2.05	1.02	1.88	1.19	1.83	0.93	1.94	0.96
teaches me the details of good research practice.	1.37	0.97	1.39	1.14	1.34	0.84	1.46	0.90 a	1.41	1.04 b	1.18	1.08 ab	1.67	1.05 abc	1.31	1.00 a	1.32	0.85 b	1.12	0.85 c
gives me regular and constructive feedback on my research.	1.29	0.93	1.29	1.11	1.30	0.79	1.37	0.86 a	1.44	1.01 b	1.08	1.04 ab	1.52	0.89 a	1.11	1.02 abc	1.40	0.89 b	1.35	0.75 c
helps me develop professional relationships with others in the field.	1.06	0.97	1.09	1.12	1.02	0.87	1.05	0.87	1.22	1.07	0.97	1.20	1.09	1.01	1.00	1.07	1.09	0.89	1.20	0.86
assists me in writing presentations or publications.	1.16	0.97	1.17	1.16	1.14	0.83	1.21	0.90	1.14	0.95	1.09	1.22	1.25	0.89	1.13	1.08	1.17	0.95	1.08	0.84
teaches me to write grants/research proposals.	0.74	0.82	0.71	1.01	0.77	0.69	0.79	0.81	0.76	0.82	0.64	0.88	0.95	0.77 a	0.56	0.83 abc	0.80	0.81 b	0.82	0.84 c
provides information about career paths open to me.	1.24	1.12	1.23	1.29	1.25	1.00	1.28	1.01	1.28	1.31	1.14	1.30	1.34	1.13	1.26	1.25	1.23	1.04	1.02	0.94
encourages me in my research interests and goals.	1.65	1.18	1.61	1.36	1.70	1.05	1.85	1.06 a	1.89	1.29 b	1.14	1.24 ab	1.69	1.16 a	1.47	1.36 abc	1.82	1.04 b	1.81	0.96 c
would support me in any career path I might choose.	1.47	1.28	1.48	1.56	1.45	1.07	1.60	1.16 ab	1.90	1.44 ac	0.96	1.26 bc	1.52	1.22	1.41	1.50	1.46	1.10	1.54	1.20
advises about getting my work published.	1.10	0.93	1.14	1.10	1.06	0.82	1.14	0.86	1.15	1.02	1.00	1.10	1.09	0.86	1.08	1.04	1.12	0.88	1.12	0.90
advises about departmental politics.	1.41	1.06	1.40	1.30	1.41	0.88	1.48	0.95	1.47	1.03	1.24	1.39	1.48	1.03	1.29	1.18	1.47	0.94	1.52	1.02
treats me ideas with respect.	2.17	1.38	2.14	1.63	2.20	1.19	2.40	1.22 a	2.38	1.46 b	1.62	1.57 ab	2.31	1.32	2.00	1.65	2.18	1.19	2.33	1.10

abcde Matching symbols identify groups that are significantly different from each other at the ≤ .05 level of significance regardless of significance of overall F-test.

Table 11a: Percent Reporting Social and Emotional Support from Different Groups

	TOTAL SAMPLE				
	staff (N=696)	students (N=696)	faculty (N=696)	advisor (N=696)	family/ friends (N=696)
provides emotinal support when I need it	17%	66%	21%	30%	94%
is easy to discuss ideas with	11%	77%	49%	59%	55%
treats me as a colleague	18%	77%	48%	50%	18%
talks about conflicting demands between work and family	8%	51%	20%	21%	46%
advocates for me with others when necessary	19%	34%	41%	61%	33%
generally respects opinions of others in the department	28%	51%	58%	59%	11%
treats me as a whole person–not just a scholar	27%	66%	40%	52%	71%
inspires me intellectually	5%	57%	66%	67%	39%
builds my confidence	15%	56%	42%	53%	68%
serves as a role model	7%	39%	57%	58%	40%

Table 11b: Mean Count of Social and Emotional Support from Different Groups by Item

	TOTAL		GENDER				RACE/ETHNICITY					DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=703)		(N=271)		(N=431)		(N=458)		(N=119)		(N=125)		(N=157)		(N=230)		(N=188)		(N=111)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
UM staff	1.50	2.17	1.44	2.48	1.58	1.95	1.56	1.88 ab	2.00	2.76 ac	1.13	2.43 bc	1.58	2.22	1.44	2.37	1.61	2.10	1.43	1.85
other students	5.58	3.17	5.25	3.75 a	5.99	2.69 a	6.16	2.51 a	5.99	3.42 b	4.36	4.31 ab	5.47	2.98 a	5.31	3.57 bc	5.83	3.00 b	6.16	2.73 ac
UM faculty	4.28	3.12	4.33	3.71	4.23	2.68	4.68	2.68 a	4.34	3.28 b	3.58	4.12 ab	4.21	2.94 abc	3.55	3.39 ade	5.10	2.88 bd	5.24	2.64 ce
non-UM faculty	1.38	2.47	1.23	2.80	1.56	2.22	1.68	2.41 a	1.66	2.75 b	0.71	2.15 ab	0.96	1.96 ab	1.14	2.48 cd	1.79	2.62 ac	1.98	2.55 bd
primary advisor	5.02	3.30	5.11	3.92	4.91	2.85	5.12	2.93	5.35	3.43	4.65	4.29	5.38	3.21	4.77	3.53	5.15	3.18	5.19	3.13
family/friends	4.72	2.65	4.60	3.27	4.87	2.17	4.78	2.29	4.82	2.80	4.56	3.58	4.74	2.53	4.87	3.03	4.38	2.32	4.71	2.50

Table 11c: Mean Count of Social and Emotional Support across Different Groups by Item

	TOTAL		GENDER				RACE/ETHNICITY					DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=703)		(N=271)		(N=431)		(N=458)		(N=119)		(N=125)		(N=157)		(N=230)		(N=188)		(N=111)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
provides emotional support when I need it.	1.99	1.03	1.82	1.16 a	2.20	0.90 a	2.12	0.92 a	2.11	1.00 b	1.71	1.29 ab	1.99	0.92 abc	1.71	0.99 ade	2.35	1.03 bd	2.26	1.03 ce
is easy to discuss ideas with.	2.08	1.13	2.10	1.36	2.06	0.97	2.25	0.98 a	2.07	1.15 b	1.82	1.52 ab	2.00	1.01 a	1.97	1.34 bc	2.18	1.00 b	2.34	0.99 ac
treats me as a colleague	1.76	1.14	1.84	1.42 a	1.66	0.91 a	1.95	1.03 a	1.73	1.26 b	1.45	1.27 ab	1.68	1.09	1.72	1.23	1.91	1.06	1.70	1.08
talks about conflicting demands between academic & starting/managing family	1.30	1.13	1.20	1.35 a	1.42	0.96 a	1.31	1.03	1.36	1.30	1.25	1.32	1.36	1.19	1.19	1.15	1.49	1.11	1.30	1.06
advocates for me with others when necessary	1.33	1.22	1.29	1.39	1.38	1.09	1.33	1.14 ab	1.70	1.36 ac	1.12	1.25 bc	1.40	1.26	1.29	1.31	1.29	1.13	1.38	1.08
generally respects opinions of others in the department	1.54	1.34	1.57	1.62	1.50	1.13	1.68	1.21 a	1.68	1.49 b	1.20	1.54 ab	1.48	1.30 a	1.49	1.47 b	1.47	1.21 c	1.85	1.26 abc
treats me as a whole person--not just a scholar	2.09	1.36	2.00	1.63	2.20	1.17	2.31	1.21 a	2.27	1.45 b	1.60	1.60 ab	1.97	1.28 a	1.99	1.53 bc	2.18	1.30 b	2.41	1.19 ac
inspires me intellectually	1.86	1.26	1.71	1.48 a	2.03	1.08 a	2.02	1.07 a	2.01	1.31 b	1.49	1.66 ab	1.81	1.22 a	1.67	1.39 bc	2.06	1.17 b	2.14	1.12 ac
builds my confidence	1.91	1.27	1.82	1.51 a	2.03	1.09 a	2.07	1.15 a	2.04	1.20 b	1.57	1.60 ab	1.86	1.18 a	1.79	1.38 bc	2.03	1.27 b	2.16	1.12 ac
serves as a role model	1.61	1.29	1.49	1.53 a	1.75	1.11 a	1.80	1.13 a	1.83	1.34 b	1.14	1.57 ab	1.41	1.14 ab	1.50	1.46 cd	1.75	1.23 ac	2.01	1.15 bd

abcde Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 11d: Mean Level of Satisfaction with Social and Emotional Support from Each Group

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION							
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=689)		(N=268)[†]		(N=420)[†]		(N=452)[†]		(N=116)[†]		(N=121)[†]		(N=151)[†]		(N=224)[†]		(N=188)[†]		(N=108)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
staff	3.25	0.70	3.20	0.90	3.31	0.53	3.26	0.59	3.35	0.70	3.17	0.98	3.40	0.60 [a]	3.16	0.83 [ab]	3.24	0.63	3.37	0.61 [b]
students	3.42	0.66	3.40	0.74	3.44	0.60	3.51	0.56 [a]	3.49	0.66 [b]	3.21	0.89 [ab]	3.48	0.58	3.37	0.71	3.44	0.65	3.37	0.66
UM faculty	3.02	0.80	3.09	0.94 [a]	2.94	0.69 [a]	3.01	0.73	3.02	0.84	3.05	1.02	3.22	0.64 [abc]	2.98	0.89 [a]	2.97	0.76 [b]	2.94	0.85 [c]
non-UM faculty	3.18	0.72	3.15	0.91	3.21	0.58	3.23	0.60 [a]	3.34	0.64 [b]	2.92	1.18 [ab]	3.40	0.52 [a]	3.03	0.88 [a]	3.24	0.69	3.16	0.59
primary advisor	3.13	0.85	3.16	1.04	3.10	0.71	3.05	0.79 [ab]	3.29	0.83 [a]	3.19	1.04 [b]	3.24	0.77	3.14	0.95	3.11	0.83	3.02	0.78
family friends	3.73	0.53	3.76	0.63	3.69	0.46	3.72	0.45	3.75	0.48	3.73	0.80	3.77	0.45	3.76	0.63	3.68	0.48	3.65	0.50

[†] Ns vary slightly by item

[abc]Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 12: Mean Ratings of Possible Future Career Goal by Item

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities
	(N=706)		(N=276)[†]		(N=431)[†]		(N=462)[†]		(N=119)[†]		(N=127)[†]		(N=157)[†]		(N=233)[†]		(N=190)[†]		(N=112)[†]
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
become a professor in a top university	2.93	0.96	3.05	1.08 [a]	2.78	0.87 [a]	2.80	0.90 [a]	2.80	1.00 [b]	3.23	1.06 [ab]	2.71	1.01 [abc]	2.97	1.04 [a]	2.97	0.90 [b]	3.18	0.75 [c]
get a research job in industry or private sector	2.76	0.95	2.91	1.04 [a]	2.57	0.86 [a]	2.50	0.84 [ab]	2.80	1.04 [ac]	3.17	0.98 [bc]	2.95	0.86 [ab]	3.08	0.88 [cd]	2.38	0.87 [ace]	2.12	0.90 [bde]
become a professor in a 4-year college	2.94	0.90	2.86	1.07 [a]	3.04	0.76 [a]	3.13	0.75 [a]	3.07	0.92 [b]	2.55	1.13 [ab]	2.66	0.94 [abc]	2.86	0.94 [ade]	3.03	0.81 [bdf]	3.42	0.71 [cef]
teach in a 2-year college	1.98	0.79	1.92	0.92	2.04	0.69	2.06	0.70 [a]	2.00	0.85 [b]	1.82	0.96 [ab]	1.90	0.84 [a]	1.97	0.85 [b]	1.90	0.72 [c]	2.19	0.66 [abc]
work independently (e.g., consulting, writing)	2.63	0.92	2.62	1.08	2.65	0.80	2.56	0.79	2.69	1.01	2.72	1.21	2.83	0.85 [ab]	2.52	0.98 [a]	2.60	0.89 [b]	2.68	0.87
get a job in a non-profit or government agency	2.67	0.86	2.52	1.00 [a]	2.85	0.74 [a]	2.66	0.77	2.79	0.88	2.61	1.13	2.75	0.85 [a]	2.57	0.90 [ab]	2.82	0.83 [bc]	2.56	0.80 [c]
become a faculty administrator in a college/univ.	2.35	0.93	2.35	1.11	2.35	0.80	2.29	0.83	2.45	0.94	2.40	1.24	2.26	0.90	2.34	1.01	2.36	0.87	2.53	0.90
both have children and be a successful academic	3.46	0.75	3.42	0.90	3.50	0.64	3.44	0.71	3.50	0.77	3.46	0.89	3.38	0.82	3.42	0.79	3.54	0.65	3.53	0.73

[†] Ns vary slightly by item

[abcdef] Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 13a: Mean Ratings of Influential Features of Academic Career

	TOTAL		GENDER				RACE/ETHNICITY						DIVISION						
			males		females		white US		US of color		int'l of color		biological/ health sci		phys sci/ engineering		social sciences		humanities	
	(N=714)		(N=274)[†]		(N=433)[†]		(N=461)[†]		(N=119)[†]		(N=127)[†]		(N=157)[†]		(N=231)[†]		(N=191)[†]		(N=112)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
family life factors scale	0.06	0.83	0.23	0.90 [a]	-0.14	0.74 [a]	-0.08	0.74 [a]	0.03	0.88 [b]	0.32	0.99 [ab]	0.02	0.81	0.16	0.88	-0.01	0.78	0.01	0.78
positive change/inspire others scale	-0.04	0.81	-0.09	0.96	0.02	0.70	-0.04	0.71	0.09	0.73	-0.11	1.15	-0.12	0.80	-0.09	0.87	0.08	0.74	0.04	0.82
research	4.30	0.95	4.31	1.05	4.29	0.88	4.23	0.91 [a]	4.18	1.07 [b]	4.48	0.94 [ab]	4.28	0.92	4.25	1.05	4.42	0.92	4.32	0.81
teaching	4.14	1.02	4.13	1.21	4.16	0.89	4.26	0.91 [a]	4.26	0.98 [b]	3.87	1.35 [ab]	4.04	1.06 [a]	4.03	1.15 [bd]	4.22	0.91 [cd]	4.49	0.84 [abc]
working on college campus	4.23	0.86	4.21	0.99	4.26	0.77	4.32	0.76 [a]	4.29	0.85 [b]	4.05	1.13 [ab]	4.17	0.81 [ab]	4.10	0.99 [cd]	4.39	0.77 [ac]	4.42	0.74 [bd]
salary levels in academia	2.83	1.01	2.84	1.20	2.82	0.87	2.83	0.88	2.64	1.05	2.94	1.35	2.65	1.11	2.91	1.02	2.92	0.96	2.70	0.91
academic job market	2.48	1.04	2.60	1.23 [a]	2.33	0.87 [a]	2.31	0.87 [a]	2.29	1.06 [b]	2.88	1.33 [ab]	2.54	1.10 [a]	2.67	1.04 [b]	2.51	0.98 [c]	1.83	0.82 [abc]
faculty way of life	3.35	1.30	3.44	1.47 [a]	3.23	1.18 [a]	3.26	1.18	3.29	1.41	3.53	1.55	3.11	1.32	3.42	1.33	3.48	1.21	3.39	1.26
promotion process	2.37	0.92	2.53	1.08 [a]	2.19	0.77 [a]	2.24	0.78 [a]	2.15	0.91 [b]	2.73	1.19 [ab]	2.37	0.92	2.51	1.00 [ab]	2.23	0.83 [a]	2.24	0.77 [b]
security of tenure	3.64	1.16	3.70	1.34	3.57	1.02	3.68	0.94	3.68	1.31	3.54	1.62	3.68	1.14	3.65	1.29	3.58	1.11	3.62	0.96
workload I'm likely to encounter	2.59	1.04	2.77	1.20 [a]	2.37	0.89 [a]	2.48	0.91 [a]	2.44	1.10 [b]	2.87	1.31 [ab]	2.56	1.03	2.61	1.17	2.57	0.92	2.69	0.96
ability to have children and pursue career	2.94	1.24	3.19	1.32 [a]	2.63	1.13 [a]	2.73	1.09 [a]	2.88	1.34 [b]	3.32	1.47 [ab]	2.81	1.28	3.02	1.31	2.92	1.16	2.94	1.09
ability to balance professional/personal lives	3.00	1.27	3.26	1.39 [a]	2.69	1.13 [a]	2.80	1.12 [a]	3.01	1.36 [b]	3.33	1.55 [ab]	2.95	1.24	3.15	1.34	2.82	1.17	3.02	1.22
compatility with partner's career	3.10	1.16	3.24	1.29 [a]	2.94	1.05 [a]	2.98	1.06 [a]	3.03	1.16 [b]	3.34	1.40 [ab]	3.12	1.10	3.20	1.25	3.04	1.10	2.89	1.10
how academia fits my personality/temperament	3.81	1.20	3.82	1.40	3.80	1.05	3.90	1.05	3.58	1.37	3.79	1.45	3.60	1.26 [a]	3.83	1.22 [b]	3.84	1.14	4.10	1.06 [ab]
opportunity to inspire others about field	4.19	0.82	4.14	0.96	4.25	0.72	4.27	0.73 [a]	4.29	0.76 [b]	4.01	1.10 [ab]	4.10	0.83	4.17	0.87	4.22	0.77	4.33	0.83
makes use of my personal talents and skills	4.27	0.86	4.26	0.99	4.28	0.77	4.36	0.74 [ab]	4.18	0.95 [a]	4.16	1.12 [b]	4.13	0.85 [ab]	4.23	0.93 [c]	4.35	0.80 [a]	4.45	0.82 [bc]
amount of encouragement I receive from faculty	3.48	0.97	3.47	1.07	3.49	0.89	3.45	0.89	3.50	0.99	3.51	1.19	3.44	0.84	3.43	1.02	3.55	0.95	3.57	1.05
my parents' desire for me to pursue this career	3.06	0.71	3.11	0.77 [a]	2.99	0.66 [a]	3.02	0.51	3.06	0.78	3.12	1.13	3.05	0.57	3.08	0.75	2.98	0.74	3.13	0.72
opportunity to make changes in the field	3.94	0.85	3.91	1.03	3.96	0.72	3.88	0.70	4.05	0.75	3.95	1.31	3.94	0.77	3.86	0.99	4.06	0.77	3.94	0.81
opportunity to make impact beyond academia	3.98	1.03	3.92	1.22 [t]	4.06	0.90 [t]	3.96	0.92	4.10	1.03	3.96	1.37	3.84	1.05	3.94	1.07	4.15	0.99	4.04	1.03

[†] Ns vary slightly by item

[abcd] Matching symbols identify groups that are significantly different from each other at the $p \leq .05$ level of significance regardless of significance of overall F-test.

Table 13b: Percent Identifying Each Career Feature as One of Three Most Positive

	TOTAL	GENDER		RACE/ETHNICITY			DIVISION			
		males (N=277)	females (N=437)	white US (N=466)	US of color (N=121)	int'l of color (N=127)	biological/ health sci (N=157)	phys sci/ engineer (N=233)	social sciences (N=193)	humanities (N=112)
research	49%	50%	50%	49%	38%	54%	48%	53%	48%	37%
teaching	40%	43%	35%	48%	45%	22%	37%	41%	32%	56%
working on college campus	29%	30%	28%	30%	30%	25%	29%	28%	29%	28%
salary levels in academia	4%	4%	4%	3%	3%	7%	7%	4%	3%	1%
academic job market	4%	4%	4%	4%	1%	6%	2%	2%	8%	5%
faculty way of life	15%	17%	13%	13%	17%	18%	17%	16%	16%	11%
promotion process	1%	2%	0%	0%	0%	4%	1%	2%	0%	0%
security of tenure	15%	20%	10%	10%	15%	23%	20%	20%	5%	10%
workload I'm likely to encounter	1%	2%	10%	1%	1%	3%	3%	1%	0%	1%
ability to have children and pursue career	5%	3%	8%	5%	7%	3%	8%	5%	5%	3%
ability to balance professional/personal lives	10%	10%	9%	6%	13%	14%	9%	13%	6%	9%
compatibility with partner's career	4%	3%	4%	3%	4%	5%	4%	5%	3%	2%
how academia fits my personality/temperament	25%	26%	23%	26%	19%	25%	24%	22%	26%	32%
opportunity to inspire others about field	23%	19%	28%	26%	24%	18%	26%	26%	18%	20%
makes use of my personal talents and skills	29%	26%	33%	34%	25%	24%	26%	24%	35%	38%
amount of encouragement I receive from faculty	3%	2%	4%	3%	2%	4%	2%	1%	5%	6%
my parents' desire for me to pursue this career	2%	2%	2%	1%	0%	5%	0%	2%	2%	1%
opportunity to make changes in the field	17%	19%	16%	13%	19%	23%	15%	17%	21%	16%
opportunity to make impact beyond academia	25%	22%	29%	26%	35%	17%	23%	19%	38%	16%

Table 13c: Percent Identifying Each Career Feature as One of Three Most Negative

	TOTAL	GENDER		RACE/ETHNICITY			DIVISION			
		males (N=277)	females (N=437)	white US (N=466)	US of color (N=121)	int'l of color (N=127)	biological/ health sci (N=157)	phys sci/ engineer (N=233)	social sciences (N=193)	humanities (N=112)
research	6%	5%	8%	7%	7%	5%	6%	8%	7%	4%
teaching	6%	6%	7%	4%	7%	11%	9%	7%	4%	3%
working on college campus	3%	3%	2%	3%	3%	2%	2%	2%	4%	2%
salary levels in academia	31%	35%	26%	27%	37%	34%	39%	28%	28%	34%
academic job market	39%	39%	39%	45%	32%	34%	32%	34%	39%	62%
faculty way of life	17%	19%	16%	16%	19%	18%	22%	16%	17%	13%
promotion process	44%	48%	40%	48%	40%	40%	44%	42%	52%	40%
security of tenure	13%	14%	11%	7%	10%	25%	9%	18%	12%	6%
workload I'm likely to encounter	42%	43%	41%	41%	48%	41%	35%	47%	39%	39%
ability to have children and pursue career	27%	16%	38%	31%	29%	17%	41%	24%	23%	19%
ability to balance professional/personal lives	30%	25%	35%	33%	26%	26%	26%	30%	31%	29%
compatibility with partner's career	16%	14%	17%	18%	11%	15%	10%	16%	19%	19%
how academia fits my personality/temperament	10%	11%	8%	8%	11%	11%	24%	9%	6%	11%
opportunity to inspire others about field	1%	1%	0%	0%	0%	2%	0%	2%	0%	0%
makes use of my personal talents and skills	2%	3%	2%	1%	5%	3%	4%	2%	1%	3%
amount of encouragement I receive from faculty	7%	8%	6%	6%	3%	10%	4%	8%	7%	8%
my parents' desire for me to pursue this career	6%	8%	3%	4%	4%	11%	2%	8%	9%	4%
opportunity to make changes in the field	4%	6%	1%	3%	3%	5%	4%	4%	3%	3%
opportunity to make impact beyond academia	5%	6%	4%	5%	9%	4%	9%	4%	5%	6%

Table 14a: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures (N=457)

	ever felt discouraged	total confidence	confidence in univ/res job	confidence in research	confidence in teaching	confidence in non-acad. job	confidence in family/life style	career goal professor in top univ	career goal professor in 4yr college
CLIMATE									
overall climate	-0.24 ***	0.31 ***	0.21 ***	0.41 ***	0.17 ***	0.04	0.21 ***	0.21 ***	0.10
openness to environment scale	-0.16 ***	0.16 ***	0.06	0.20 ***	0.08 *	0.01	0.18 ***	0.13 ***	-0.05
general climate scale	-0.33 ***	0.27 ***	0.15 ***	0.34 ***	0.15 ***	0.05	0.22 ***	0.20 ***	-0.01
ADVISOR									
instrumentality scale	-0.26 ***	0.29 ***	0.14 ***	0.41 ***	0.14 ***	0.09 *	0.18 ***	0.16 ***	-0.05
availability scale	-0.28 ***	0.25 ***	0.10 **	0.35 ***	0.12 **	0.09 *	0.16 ***	0.11 **	-0.07
egalitarianism/respect scale	-0.21 ***	0.19 ***	0.16 ***	0.20 ***	0.13 **	-0.02	0.19 ***	0.12 **	0.07
adequacy of advisor's advice	-0.26 ***	0.28 ***	0.14 ***	0.39 ***	0.13 **	0.05	0.19 ***	0.10 *	-0.04
satisfaction with advisor's social/emotional support	-0.27 ***	0.31 ***	0.18 ***	0.40 ***	0.14 ***	0.07	0.23 ***	0.20 ***	0.03
STUDENT EXPERIENCES									
count of lack of opportunities	0.22 ***	-0.29 ***	-0.19 ***	-0.30 ***	-0.19 ***	-0.09 *	-0.21 ***	-0.02	0.01
satisfaction with UM faculty social/emotional support	-0.29 ***	0.31 ***	0.17 ***	0.33 ***	0.14 ***	0.09 *	0.21 ***	0.16 ***	0.03

*p<.05; **p≤.01; ***p≤.001

Table 14b: Correlations of Measures of Climate with Advisor Ratings (N=655)

	general climate	openness to diversity	overall climate
instrumentality scale	0.27 ***	0.46 ***	0.43 ***
availability scale	0.31 ***	0.42 ***	0.41 ***
egalitarianism/respect scale	0.21 ***	0.30 ***	0.33 ***
adequacy of advisor's advice	0.27 ***	0.40 ***	0.41 ***
satisfaction with advisor's social/emotional support	0.24 ***	0.42 ***	0.51 ***

***p<.001

Table 14c: Correlations of Measures of Climate with Advisor Ratings Grouped by Years at UM (N=457)

	at UM less than 3 years[†] (N=294)			at UM 3 years or more[†] (N=418)		
	general climate	openness to diversity	overall climate	general climate	openness to diversity	overall climate
instrumentality scale	0.37 ***	0.29 ***	0.39 ***	0.53 ***	0.30 ***	0.45 ***
availability scale	0.36 ***	0.24 ***	0.39 ***	0.51 ***	0.39 ***	0.44 ***
egalitarianism/respect scale	0.33 ***	0.23 ***	0.38 ***	0.31 ***	0.23 ***	0.31 ***
adequacy of advisor's advice	0.36 ***	0.24 ***	0.41 ***	0.44 ***	0.30 ***	0.40 ***
satisfaction with advisor's social/emotional support	0.37 ***	0.22 ***	0.53 ***	0.46 ***	0.27 ***	0.51 ***

***p<.001

Table 14d: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: Males (N=226)

	ever felt discouraged	total confidence	confidence in univ/res job	confidence in research	confidence in teaching	confidence in non-acad. job	confidence in family/life style	career goal professor in top univ	career goal professor in 4yr college
CLIMATE									
overall climate	-.25 ***	.38 ***	.29 ***	.43 ***	.20 **	.09	.24 ***	.24 ***	.16 *
openness to environment scale	-.11	.18 **	.10	.19 **	.08	.06	.16 *	.11	-.04
general climate scale	-.32 ***	.30 ***	.16 *	.34 ***	.13 *	.13 *	.21 **	.22 ***	-.01
ADVISOR									
instrumentality scale	-.23 ***	.35 ***	.15 *	.44 ***	.20 **	.14 *	.21 **	.07	-.05
availability scale	-.25 ***	.27 ***	.14 *	.36 ***	.15 *	.09	.14 *	.05	-.02
egalitarianism/respect scale	-.23 ***	.24 ***	.21 ***	.23 ***	.19 **	-.04	.21 **	.12	.11
adequacy of advisor's advice	-.24 ***	.31 ***	.16 *	.39 ***	.11	.09	.20 **	.05	-.02
satisfaction with advisor's social/emotional support	-.30 ***	.37 ***	.22 ***	.45 ***	.17 **	.12	.24 ***	.21 **	.07
STUDENT EXPERIENCES									
count of lack of opportunities	.22 ***	-.25 ***	-.18 **	-.25 ***	-.20 **	-.06	-.18 **	-.07	-.05
satisfaction with UM faculty social/emotional support	-.35 ***	.30 ***	.20 **	.29 ***	.11	.10	.22 ***	.13	.09

Table 14e: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: Females (N=354)

	ever felt discouraged	total confidence	confidence in univ/res job	confidence in research	confidence in teaching	confidence in non-acad. job	confidence in family/life style	career goal professor in top univ	career goal professor in 4yr college
CLIMATE									
overall climate	-.22 ***	.21 ***	.12 *	.36 ***	.13 *	-.05	.17 **	.18 ***	.08
openness to environment scale	-.19 ***	.10	.01	.20 ***	.06	-.07	.15 **	.12 *	-.01
general climate scale	-.33 ***	.22 ***	.14 **	.34 ***	.14 **	-.04	.20 ***	.15 **	.03
ADVISOR									
instrumentality scale	-.28 ***	.19 ***	.11 *	.38 ***	.05	.00	.09	.22 ***	-.01
availability scale	-.30 ***	.19 ***	.06	.34 ***	.06	.05	.14 **	.15 **	-.11 *
egalitarianism/respect scale	-.19 ***	.14 **	.10	.17 ***	.08	-.00	.18 ***	.11 *	.05
adequacy of advisor's advice	-.27 ***	.22 ***	.11 *	.39 ***	.14 **	-.02	.14 **	.13 *	-.03
satisfaction with advisor's social/emotional support	-.24 ***	.22 ***	.12 *	.36 ***	.09	.01	.19 ***	.18 ***	-.01
STUDENT EXPERIENCES									
count of lack of opportunities	.21 ***	-.33 ***	-.20 ***	-.39 ***	-.18 ***	-.13 **	-.25 ***	.05	.07
satisfaction with UM faculty social/emotional support	-.21 ***	.27 ***	.14 **	.38 ***	.14 **	.08	.18 ***	.17 **	-.02

*p<.05; **p<.01; ***p<.001

Table 14f: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: White US (N=381)

	ever felt discouraged	total confidence	confidence in univ/res job	confidence in research	confidence in teaching	confidence in non-acad. job	confidence in family/life style	career goal professor in top univ	career goal professor in 4yr college
CLIMATE									
overall climate	-.28 ***	.37 ***	.30 ***	.41 ***	.22 ***	.13 **	.19 ***	.23 ***	.10 *
openness to environment scale	-.18 ***	.17 ***	.07	.17 ***	.14 **	-.00	.20 ***	.13 **	-.04
general climate scale	-.31 ***	.34 ***	.21 ***	.35 ***	.22 ***	.14 **	.23 ***	.19 ***	.02
ADVISOR									
instrumentality scale	-.17 ***	.38 ***	.24 ***	.46 ***	.16 **	.22 ***	.15 **	.16 **	-.07
availability scale	-.20 ***	.32 ***	.16 **	.38 ***	.14 **	.20 ***	.15 **	.10 *	-.11 *
egalitarianism/respect scale	-.21 ***	.25 ***	.16 ***	.26 ***	.18 ***	.06	.23 ***	.19 ***	.03
adequacy of advisor's advice	-.23 ***	.30 ***	.16 **	.39 ***	.14 **	.14 **	.13 **	.14 **	-.05
satisfaction with advisor's social/emotional support	-.23 ***	.37 ***	.23 ***	.41 ***	.15 **	.20 ***	.21 ***	.21 ***	-.03
STUDENT EXPERIENCES									
count of lack of opportunities	.22 ***	-.33 ***	-.16 ***	-.33 ***	-.21 ***	-.14 **	-.27 ***	-.09	.10 *
satisfaction with UM faculty social/emotional support	-.23 ***	.33 ***	.21 ***	.32 ***	.18 ***	.13 **	.26 ***	.14 **	-.04

Table 14g: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: US of Color (N=97)

	ever felt discouraged	total confidence	confidence in univ/res job	confidence in research	confidence in teaching	confidence in non-acad. job	confidence in family/life style	career goal professor in top univ	career goal professor in 4yr college
CLIMATE									
overall climate	-.33 ***	.27 **	.10	.45 ***	.24 *	-.11	.26 **	.18	.16
openness to environment scale	-.27 **	.29 **	.16	.33 ***	.20 *	.06	.31 **	.16	.09
general climate scale	-.31 **	.21 *	.11	.33 ***	.19	-.10	.23 *	.17	.16
ADVISOR									
instrumentality scale	-.43 ***	.28 **	.09	.39 ***	.27 **	-.04	.25 **	.18	.00
availability scale	-.36 ***	.24 *	.08	.33 ***	.22 *	.00	.25 *	.03	-.03
egalitarianism/respect scale	-.30 **	.18	.18	.06	.23 *	-.04	.22 *	.00	.08
adequacy of advisor's advice	-.41 ***	.34 ***	.16	.45 ***	.33 ***	-.02	.29 **	.13	.05
satisfaction with advisor's social/emotional support	-.38 ***	.30 **	.15	.36 ***	.28 **	-.01	.26 **	.13	.11
STUDENT EXPERIENCES									
count of lack of opportunities	.23 *	-.24 *	-.01	-.40 ***	-.16	-.00	-.18	.02	.12
satisfaction with UM faculty social/emotional support	-.34 ***	.32 **	.10	.51 ***	.30 **	-.01	.22 *	.26 **	.22 *

*p<.05; **p≤.01; ***p≤.001

Table 14h: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: Of Color International (N=102)

	ever felt discouraged	total confidence	confidence in univ/res job	confidence in research	confidence in teaching	confidence in non-acad. job	confidence in family/life style	career goal professor in top univ	career goal professor in 4yr college
CLIMATE									
overall climate	-.10	.24 *	.12	.38 ***	.02	-.04	.23 *	.24 *	.08
openness to environment scale	-.03	.07	-.03	.17	-.08	-.02	.12	.13	-.15
general climate scale	-.34 ***	.25 **	.12	.34 ***	.04	.04	.22 *	.22 *	-.04
ADVISOR									
instrumentality scale	-.26 **	.20 *	.04	.36 ***	.04	-.05	.19	.10	.04
availability scale	-.28 **	.15	.06	.34 ***	.06	-.05	.13	.17	.00
egalitarianism/respect scale	-.15	.03	.04	.18	-.05	-.22 *	.06	.13	.06
adequacy of advisor's advice	-.20 *	.21 *	.10	.38 ***	-.02	-.08	.21 *	-.00	-.07
satisfaction with advisor's social/emotional support	-.25 **	.22 *	.13	.43 ***	.03	-.09	.22 *	.20 *	.14
STUDENT EXPERIENCES									
count of lack of opportunities	.27 **	-.24 *	-.27 **	-.28 **	-.20 *	.01	-.19	-.16	.06
satisfaction with UM faculty social/emotional support	-.33 ***	.23 *	.18	.27 **	-.03	.09	.16	.13	.05

*p<.05; **p≤.01; ***p≤.001

Appendix A

GRADUATE STUDENT SURVEY OF
ACADEMIC CLIMATE AND EXPERIENCES

The survey is organized in sections that ask about the skills and training you are receiving at UM, the mentoring you are receiving, your career plans and goals, the overall climate of your department or area, and some demographic facts.

Please note that you do not need to complete this survey in one sitting. If at any time you need to stop, you may click on the SAVE RESPONSES button on the lower lefthand side of your screen, and your responses will be automatically retained. You can return to your own incomplete survey by logging in again to the [survey URL] and following the instructions for re-accessing your own survey.

Please complete the questions as they appear, bearing in mind that you are free not to answer any question that makes you uncomfortable.

Once you are satisfied that you have completed the survey, please be sure to click on the SUBMIT button at the bottom of the last screen. At this point your data will be submitted to the secure server space, separate from any information about you. You will then be given instructions about how to enter the lottery for $50.

A. Skills, Training and Learning Experiences

How many semesters of guaranteed funding did you receive when you first came to UM?

How many semesters are you required to teach as part of your program or funding package?

How many semesters have you taught at UM to date?

When teaching, how many hours per week do you devote to class preparation?
     Is this sufficient?   □ yes   □ no

When teaching, how many office hours per week do you hold?

On average, how many times in a semester do you meet with students outside of office hours?
     □ never
     □ once or twice
     □ three to five
     □ more (how many?):

When you meet with students outside of office hours, what are the reasons? **Check all that apply**.
     □ Feedback on papers or tests
     □ Student needs extra academic help
     □ Student's emotional difficulties
     □ Student has family problems
     □ Other:

How many semesters have you had paid funding?

How many summers have you had paid funding?

How many committees did you serve on at UM last year?

Are students required to serve on committees in your department?   □ yes   □ no   □ I don't know

Please check the box that indicates how important **to you personally** each of the following experiences is **and** whether or not you have had sufficient opportunities for such experiences at UM; check "not applicable" if the experience is something irrelevant to your graduate program. Be sure to add any experiences that are not listed but that you believe are important.

	Importance rating:					Have you had sufficient opportunities for this at UM?
	waste of time	somewhat important	quite important	extremely important	not applicable	
Teaching or serving as a GSI	□	□	□	□	□	yes □ no □
Required coursework	□	□	□	□	□	yes □ no □
Cognate courses	□	□	□	□	□	yes □ no □
Elective courses	□	□	□	□	□	yes □ no □
Prelim or qualifying exams	□	□	□	□	□	yes □ no □
Learning research techniques	□	□	□	□	□	yes □ no □
Conducting research	□	□	□	□	□	yes □ no □
Attending professional conferences	□	□	□	□	□	yes □ no □
Internships or industrial experiences	□	□	□	□	□	yes □ no □
Courses or training in pedagogy	□	□	□	□	□	yes □ no □
Opportunities to present your research	□	□	□	□	□	yes □ no □
Departmental lectures, talks, brown bags or seminars	□	□	□	□	□	yes □ no □
Meeting outside speakers	□	□	□	□	□	yes □ no □
Practice interviews and/or job market help	□	□	□	□	□	yes □ no □
Interdisciplinary training	□	□	□	□	□	yes □ no □
Receptions, parties, and other social events	□	□	□	□	□	yes □ no □
Non-departmental lectures, talks, brown bags or seminars	□	□	□	□	□	yes □ no □
Study groups	□	□	□	□	□	yes □ no □
Support groups/support organizations	□	□	□	□	□	yes □ no □
Opportunities to participate in group or collaborative research	□	□	□	□	□	yes □ no □
Language practice	□	□	□	□	□	yes □ no □
Others (please indicate):	□	□	□	□	□	yes □ no □
	□	□	□	□	□	yes □ no □

How have you learned about each of the following? **Please check all that apply; if the item is irrelevant to your graduate training, check "not applicable":**

	I don't know much about this	on my own	other students	faculty	department staff	other sources	not applicable
sources of internal funding (e.g., fellowships)	□	□	□	□	□	□	□
sources of external funding (e.g., grants)	□	□	□	□	□	□	□
practical administrative processes necessary for research (e.g., safety issues, animal care, IRB)	□	□	□	□	□	□	□
necessary informational resources (e.g., archives, libraries, databases)	□	□	□	□	□	□	□
how to write professional papers for publication	□	□	□	□	□	□	□
how to find an internship	□	□	□	□	□	□	□
departmental policies	□	□	□	□	□	□	□
how to do interdisciplinary research at UM	□	□	□	□	□	□	□
how to present my work at professional meetings or conferences	□	□	□	□	□	□	□
how to run experiments	□	□	□	□	□	□	□
department and Rackham requirements for my training and degree	□	□	□	□	□	□	□

B. Advising and Mentoring

Some students have one main or primary advisor/mentor. Other students develop advising and mentoring relationships with more than one faculty member. If you have more than one advisor/mentor, please choose one to refer to as your primary advisor. Usually this faculty member will be from your home department and/or will offer the majority of guidance and direction regarding your research. If you are unable to decide which advisor is "primary," then for this survey please choose the one with whom you have the most contact.

Is your primary advisor: male   □   female   □
                            tenured □   untenured □

Do you have other advisors/mentors? yes □   no □

    if yes, how many? _____
    Are they all at UM?   yes □   no □

In your program, are advisors assigned before you arrive at graduate school?   yes □   no □

    if no, how hard was it to get a primary advisor that you were satisfied with?
        □ very hard
        □ somewhat hard
        □ fairly easy
        □ very easy

Have you changed your primary advisor since starting your current program?   yes □   no □

If yes, why:

What kind of effect has this change had on your time to degree?
      □ no effect
      □ slowed it down
      □ speeded it up

How adequate is the level of advice that you are receiving from your primary advisor?
      □ not at all adequate
      □ somewhat adequate
      □ pretty adequate
      □ very adequate

For your current primary advisor, please check the appropriate column for each of the following statements.

My primary advisor:	strongly disagree	disagree	agree	strongly agree
1. helps me secure funding for my graduate studies.	□	□	□	□
2. is available to me when I need help with my research.	□	□	□	□
3. is available to me when I need to talk about other aspects of my program.	□	□	□	□
4. teaches me the details of good research practice .	□	□	□	□
5. gives me regular and constructive feedback on my research.	□	□	□	□
6. helps me develop professional relationships with others in the field.	□	□	□	□
7. assists me in writing presentations or publications.	□	□	□	□
8. expects me to work so many hours that it is hard to have a personal life.	□	□	□	□
9. encourages me in my research interests and goals.	□	□	□	□
10. instructs me in teaching methods.	□	□	□	□
11. is often not available to me.	□	□	□	□
12. would support me in any career path I might choose.	□	□	□	□
13. advises about preparation for career advancement.	□	□	□	□
14. advises about getting my work published.	□	□	□	□
15. advises about department politics.	□	□	□	□
16. treats my ideas with respect.	□	□	□	□
17. provides information about career paths open to me.	□	□	□	□
18. sees me as a source of labor to advance his/her career.	□	□	□	□
19. teaches me to write grants/research proposals.	□	□	□	□

Referring to the chart above, **please list by number the three items** that are most important to you, that you are **most** satisfied with.
               first
               second
               third

Referring to the chart above, **please list by number the three items** that are most important to you, that you are **least** satisfied with.
               first
               second
               third

In addition to your primary advisor, other people can provide advice and mentorship in a variety of different areas. In the chart below please indicate who, beyond your primary advisor, if anyone, provides this kind of support to you. "UM faculty" can refer to your secondary advisors or mentors if you have them, or to any UM faculty from whom you have received encouragement or advice. Some students also have faculty mentors from other universities besides UM. For "my lab or study group," you can refer to any group that meets regularly and provides support (e.g., dissertation writing group). **Please check all that apply.**

	UM staff	UM faculty	non-UM faculty	other students	my lab or study group
helps me find funding for my graduate studies.	□	□	□	□	□
is available to me when I need help with my research.	□	□	□	□	□
is available to me when I need to talk about other aspects of my program.	□	□	□	□	□
teaches me the details of good research practice.	□	□	□	□	□
gives me regular and constructive feedback on my research.	□	□	□	□	□
helps me develop professional relationships with others in the field.	□	□	□	□	□
assists me in writing presentations or publications.	□	□	□	□	□
teaches me to write grants/research proposals.	□	□	□	□	□
provides information about career paths open to me.	□	□	□	□	□
encourages me in my research interests and goals.	□	□	□	□	□
would support me in any career path I might choose.	□	□	□	□	□
advises about getting my work published.	□	□	□	□	□
advises about department politics.	□	□	□	□	□
treats my ideas with respect.	□	□	□	□	□

If you checked lab or study group for any item above, what kind(s) of group(s) is it/are they?

Besides advice and support regarding academic and career goals, some students also value non-academic kinds of support they receive from others, including faculty, other graduate students, family and friends. Please indicate below which, if any, of the following types of people provide the support indicated. **Please check all that apply; leave blank if not applicable.**

	other students	UM faculty	Non-UM faculty	primary advisor	family/ friends
provides emotional support when I need it.	□	□	□	□	□
is easy to discuss ideas with.	□	□	□	□	□
treats me as a colleague.	□	□	□	□	□
talks with me about the conflicting demands between academia and starting/managing a family.	□	□	□	□	□
advocates for me with others when necessary.	□	□	□	□	□
generally respects opinions of others in department.	□	□	□	□	□
treats me as a whole person – not just a scholar.	□	□	□	□	□
inspires me intellectually.	□	□	□	□	□
builds my confidence.	□	□	□	□	□
serves as a role model.	□	□	□	□	□

In general, how satisfied are you with the non-academic support you receive from each of these groups? **Leave blank if not applicable (i.e., you do not receive non-academic support from anyone in this group).**

	very dissatisfied	dissatisfied	satisfied	very satisfied
other students	☐	☐	☐	☐
UM faculty	☐	☐	☐	☐
non-UM faculty	☐	☐	☐	☐
primary advisor	☐	☐	☐	☐
family and friends	☐	☐	☐	☐

If you had to guess, what do you think your primary advisor would like his/her students to accomplish in the field? **Please check all that apply.**

☐ Finish their degrees.
☐ Extend advisor's research in new directions.
☐ Represent the field at a major research institution.
☐ Achieve students' own goals.
☐ Be an innovative influence in the field.
☐ Create positive change in or beyond the academy.
☐ Stay in academia.

Which of the above would **you** like to accomplish in the field?

☐ Finish your degree.
☐ Extend advisor's research in new directions.
☐ Represent the field at a major research institution.
☐ Achieve your own goals.
☐ Be an innovative influence in the field.
☐ Create positive change in or beyond the academy.
☐ Stay in academia.

C. Career Planning and Goals
Below are goals that many graduate students have for their future. Please rate **how attractive** each of these goals is **to you personally**.

	very unattractive	unattractive	attractive	very attractive
Become a professor in a top research university.	☐	☐	☐	☐
Get a research job in industry or the private sector.	☐	☐	☐	☐
Become a professor in a 4-year college.	☐	☐	☐	☐
Teach in a 2-year college.	☐	☐	☐	☐
Work independently (e.g., consulting, writing).	☐	☐	☐	☐
Get a job in a non-profit or government agency.	☐	☐	☐	☐
Become a faculty administrator in a college or university (e.g., department chair, dean, etc.).	☐	☐	☐	☐
Both have children and be a successful academic.	☐	☐	☐	☐
Other (describe):	☐	☐	☐	☐

Listed below are some features of academia that influence people's interest in becoming a faculty member. For each item please indicate how much the item either increases or decreases your desire to become an academic according to the following scale. **If the item is not applicable, please check "3" (neutral).**

1= Might make me seek out other careers
2= It's a negative, but I can deal with it
3= Neutral, *or not applicable to me*
4= It's a positive, but not enough to decide my direction
5= This definitely attracts me to academia

	1	2	3	4	5
1. research	☐	☐	☐	☐	☐
2. teaching	☐	☐	☐	☐	☐
3. working on a college campus	☐	☐	☐	☐	☐
4. salary levels in academia	☐	☐	☐	☐	☐
5. academic job market	☐	☐	☐	☐	☐
6. faculty members' way of life	☐	☐	☐	☐	☐
7. promotion process	☐	☐	☐	☐	☐
8. security of tenure	☐	☐	☐	☐	☐
9. workload I'm likely to encounter	☐	☐	☐	☐	☐
10. ability to both have children and pursue a career	☐	☐	☐	☐	☐
11. ability to balance professional and personal lives	☐	☐	☐	☐	☐
12. compatibility with spouse's/partner's career needs and options	☐	☐	☐	☐	☐
13. how academia fits with my personality/temperament	☐	☐	☐	☐	☐
14. opportunity to inspire others about the field	☐	☐	☐	☐	☐
15. makes use of my personal talents and skills	☐	☐	☐	☐	☐
16. amount of encouragement I receive from faculty	☐	☐	☐	☐	☐
17. my parents' desire for me to pursue this career					
18. opportunity to make changes in the field	☐	☐	☐	☐	☐
19. opportunity to make positive impact beyond academia	☐	☐	☐	☐	☐

Of the 18 items listed previously, please identify by number the **three** factors that have the largest **positive effect** on your interest in becoming a faculty member:

first [ ]
second [ ]
third [ ]

Please identify by number the **three** factors that have the largest **negative effect** on your interest in becoming a faculty member:

first [ ]
second [ ]
third [ ]

Please indicate below your level of agreement with each of the following statements, regardless of whether or not the item is something you are actually interested in pursuing after you complete your degree. **Please rate how confident you feel today, not how confident you plan to feel when you graduate.**

I feel confident:	not at all true	a little true	somewhat true	very true
that I can become a professor in a top research university.	□	□	□	□
that I can get a research job in industry or the private sector.	□	□	□	□
that I can become a professor in a 4-year college.	□	□	□	□
that I can get a job in a non-profit or government agency.	□	□	□	□
that I can become a faculty administrator (e.g., department chair, dean) in a college or university.	□	□	□	□
that I can become an administrator/manager in business.	□	□	□	□
that I can be self-employed (e.g., consulting, writing).	□	□	□	□
that I can be successful in my field.	□	□	□	□
that I can balance work and personal life to my satisfaction.	□	□	□	□
that I can get a job as an academic in an appealing geographic location.	□	□	□	□
that I can both have children and be a successful academic.	□	□	□	□
that I can make it financially when I get out.	□	□	□	□
that I have received adequate training to be a good teacher.	□	□	□	□
that I have received adequate training to be a good researcher.	□	□	□	□
that I am in the right field.	□	□	□	□
that my research interests are considered important in my field.	□	□	□	□
in my ability to obtain funding as a researcher.	□	□	□	□
in my abilities as a teacher.	□	□	□	□

D. Overall Climate of Your Department or Area

Many things can influence whether a work environment feels friendly or hostile, helpful or competitive. In this section we would like you to focus on the work environment that you think most affects you (e.g., your department or area). We are interested in how it **feels to you**, not how you think others might respond.

Please rate your department or area climate on the following items by **checking the appropriate box**.

Welcoming	□	□	□	□	□	Alienating
Friendly	□	□	□	□	□	Hostile
Racist	□	□	□	□	□	Non-racist
Homogeneous	□	□	□	□	□	Diverse
Disrespectful	□	□	□	□	□	Respectful
Collegial	□	□	□	□	□	Contentious
Non-sexist	□	□	□	□	□	Sexist
Collaborative	□	□	□	□	□	Individualistic
Cooperative	□	□	□	□	□	Competitive
Homophobic	□	□	□	□	□	Non-homophobic
Not-supportive	□	□	□	□	□	Supportive
Rigid	□	□	□	□	□	Flexible
Threatening	□	□	□	□	□	Protective
Encouraging	□	□	□	□	□	Discouraging
Snobbish	□	□	□	□	□	Down-to-earth

Please rate your overall satisfaction with the current climate in your work environment:
> □ very dissatisfied
> □ dissatisfied
> □ satisfied
> □ very satisfied

Have you ever felt discouraged about pursuing your current field of study while at UM?   yes □   no □

If yes, please check the main reasons you felt discouraged. **Please check all that apply***:*

□ Course material	□ Climate in the department
□ Course selection	□ Career opportunities
□ Academic performance	□ Personal life
□ Research	□ Financial concerns
□ Interaction with other students	□ Concerns about starting a family
□ Interaction with my advisor	□ Family obligations

E. Dynamics and Climate

Within the past year at UM, have you experienced any unwanted and uninvited sexual attention (defined as including unwanted sexual teasing, jokes, remarks or questions; unwanted pressure for dates; unwanted letters, phone calls, email; unwanted touching, leaning over, cornering, pinching; unwanted pressure for sexual favors; stalking; rape or assault)?   □yes   □no

   If yes*,* did you make an official report of it to anyone?   □yes   □no

Why/why not?

In some departments, unwelcome sexual attention or innuendo is widespread; that is, several or more people engage in it, though they may do so frequently or infrequently. In some other departments, only one or two people might engage in such behavior, but they may do so frequently. In your department*,* how prevalent/widespread (regardless of frequency) and how frequent (regardless of prevalence) are instances of unwanted and uninvited sexual attention? **Please circle the appropriate number.**

Not at all prevalent	1	2	3	4	5	Very prevalent
Not at all frequent	1	2	3	4	5	Very frequent

How often within the past year at UM have you overheard insensitive or disparaging comments about the following types of people in general, or about particular people as a member of that group, made by faculty or students?   [This does not refer to comments about an individual as an individual.]   **Please check one column for each row. Check never if not applicable.**

		never/ NA	once or twice	three or more times
about women in general, or about particular women as "typical" of women	faculty			
	students			
about men in general, or about particular men as "typical" of men	faculty			
	students			
about racial/ethnic minorities, or about particular persons of color as "typical" of a racial/ethnic group	faculty			
	students			
about a religious group or about particular persons as "typical" of a religious group	faculty			
	students			
about sexual minorities, or about particular persons as "typical" of a sexual minority	faculty			
	students			

For most of the items below, please indicate for which of the following groups *you think* each item is true. The first item is an indicator of which groups of people are represented in your department or area. **If there are no members of a particular group represented in your department, check that column.** The second row asks you to indicate which of the groups you belong to; **please check all that apply**. For the remaining questions, if you feel you can't guess how the environment is for groups you don't personally belong to, you can check the "I don't know" column for those items/groups. However, we would like to know **your best guess** about how the environment is for each of the following groups.

In my department or area:	men	women	inter-national students	racial/ ethnic minorities	sexual minorities	disabled
I belong to this group.	□	□	□	□	□	□
as far as I know, there are **NO** students who belong to this group.	□	□	□	□	□	□
there is a supportive student community for these graduate students.	□	□	□	□	□	□
some graduate students have a condescending attitude toward members of this group.	□	□	□	□	□	□
some faculty members have a condescending attitude toward members of this group.	□	□	□	□	□	□
the department environment is one in which these graduate students feel comfortable and are included.	□	□	□	□	□	□
these graduate students voice their ideas in meetings and classes as often as students not belonging to this group.	□	□	□	□	□	□
faculty members expect more from these graduate students than from others.	□	□	□	□	□	□
faculty members expect less from these graduate students than from others.	□	□	□	□	□	□

F. Background Information

We are asking the following questions for demographic reasons only. Because of the anonymity built into this survey, there is no way we or anyone else can identify you based on your answers. Neither Rackham nor your department will have access to the raw data from this survey. Your answers will be entered as data in a database that will then be analyzed statistically ONLY by research staff at IRWG who will be aggregating data across many individuals. A hard copy of this survey will never exist. However, if you are uncomfortable answering any of the following questions, please leave them blank.

Please indicate how you describe your racial or ethnic identity:

Sex:

Birth Year:
□ Before 1960
□ 1960 – 1969
□ 1970 – 1979
□ 1980 or later

Are you a US citizen? □ yes   □ no

If you are not a US citizen, how many years have you lived in this country?

Are both your parents US citizens? □ yes   □ no

What is the last year of school or highest level of education your father obtained?

What is the last year of school or highest level of education your mother obtained?

Have either of your parents ever been faculty members at a higher education institution?　　□ yes　□ no

How supportive of your career choice are your parents? If your parents are deceased or are not part of your life, include anyone with whom you have a parent-child relationship. **Please check all that apply:**

　　□ They would support me no matter what career I choose.
　　□ If it were up to them, this is the career they would choose for me.
　　□ They have been very supportive of my current choice of field.
　　□ One has been supportive, the other does not like my choice.
　　□ They would prefer that I chose a different path.
　　□ They actively encouraged me **NOT** to pursue this career path.
　　□ I do not have a parent relationship with anyone in my life.

Are you married or in a committed relationship?　　　　□ yes　□ no

　　If yes, does this person live in Ann Arbor?　　　□ yes　□ no

　　Is this person employed?　　　　□ no　□ part-time　　□ full-time
　　Is this person a student?　　　　□ no　□ part-time　　□ full-time
　　Is this person in the same field as you?　□ yes　□ no

Do you have children living with you?　□ yes　□ no
Are there other relatives or family members for whom you are financially responsible? □ yes　□ no

How would you characterize your current financial situation? **Please check one:**
　　□ It's a financial struggle
　　□ It's tight, but I'm doing fine
　　□ Finances aren't really a problem

Did you come to your current graduate school program with personal debt from your undergraduate education?
　　□ yes　□ no

Which of the following statements best describes your family situation growing up? **Please check one:**

　　□ Very poor, not enough to get by
　　□ Barely enough to get by
　　□ Had enough to get by but not many "extras"
　　□ Had more than enough to get by
　　□ Well to do
　　□ Extremely well to do

Which of the following statements do you think best describes, in general, the families of origin of the graduate students in your department? **Please check one:**

　　□ Very poor, not enough to get by

□ Barely enough to get by
□ Had enough to get by but not many "extras"
□ Had more than enough to get by
□ Well to do
□ Extremely well to do

How would you classify your division? **Please check one:**
　　□ Social Science/Education
　　□ Science/Engineering/Health Sciences
　　□ Humanities/Arts

Which department(s) or program(s) are you in?

What year did you begin your graduate education at UM?

Given the opportunity, how likely are you to pursue a career in your current field?
　　□ Almost certainly I won't
　　□ It's possible, but I have some reservations
　　□ Maybe
　　□ Probably I will
　　□ Definitely

At what age did your interest in your field begin?

Looking back, are there other interests/fields you wish you had explored?　　　yes □　no □

If yes, which one(s)?

Before starting graduate school, did you pursue other interests or fields?　yes □　no □
　If yes, which one(s)?

How well do you think you are doing in graduate school? **Please check the response that best describes your situation***:*
　　□ Extremely well, one of the best in my cohort.
　　□ Above average
　　□ Average
　　□ Below average
　　□ Not sure I'll make it

What has been important in helping you succeed in your department?　**Please explain:**

What has been an obstacle to your success in your department? **Please explain:**

Is there anything we haven't asked, that you feel has been particularly important in your graduate school experiences?

Appendix B: Number and Percent of Students in Departmental Groupings within Division

	N	%
Biological and Health Sciences		
Health, medical, neurosciences, pharmacology, pharmacy	110	64
Natural sciences, biology, kinesiology, SNRE, immunology	45	26
Biological engineering, biopsychology, bioanthropology, etc.	17	10
	172	
Physical Sciences and Engineering		
Engineering	148	56
Math, statistics, accounting	16	6
Physical sciences, geology, physics, astronomy, chemistry	86	32
Computer science, information technology	10	4
Other (e.g., kinesiology, SNRE, architecture)	6	2
	266	
Social Sciences		
LSA social science fields, social work, public policy	119	58
Education	53	26
Info technology, SNRE, business, orgs, urban planning, linguistics	23	11
Biopsychology, Bioanthropology, etc.	11	5
	206	
Humanities and Arts		
LSA humanities fields	92	81
Music, art, theater	15	13
Architecture/urban planning	7	6
	114	

Note: Ns differ from those found on Tables 1a and 1b due to missing department information.

Appendix C: Items Comprising Scales

CONFIDENCE SCALES:

<u>University/Research Job</u>
  Confident
  …..I can be a professor at a top research university
  …..I can be a professor at a 4-yr college
  …..I can be a faculty administrator in a university

<u>Research</u>
  Confident
  …..I have received adequate training to be a good researcher
  …..I am in the right field
  …..my research interests are considered important in the field
  …..in my abilities to obtain funding as a researcher

<u>Teaching</u>
  Confident
  …..I have received adequate training to be a good teacher
  …..in my abilities as a teacher

<u>Non-Academic Job</u>
  Confident
  …..I can do research in industry/private sector
  …..I can get a job in non-profit or government agency
  …..I can become an administrator/manager in business
  …..I can be self-employed

<u>Family/lifestyle</u>
  Confident
  …..I can balance work and personal life
  …..I can both have children and be an academic
  …..I can make it financially

CLIMATE SCALES:

<u>Openness to Diversity (semantic differential items)</u>
    Homogeneous (1) and diverse (5)
    Sexist (1) to non-sexist (5)
    Homophobic (1) to non-homophobic (5)
    Racist (1) to non-racist (5)

General Climate (semantic differential items)
   Alienating (1) and welcoming (5)
   Hostile (1) and friendly (5)
   Disrespectful (1) to respectful (5)
   Contentious (1) to collegial (5)
   Individualistic (1) to collaborative (5)
   Competitive (1) to cooperative (5)
   Non-supportive (1) to supportive (5)
   Rigid (1) to flexible (5)
   Threatening (1) to protective (5)
   Discouraging (1) to encouraging (5)
   Snobby (1) to down-to-earth (5)

ADVISOR SUPPORT SCALES:
Instrumentality
   My primary advisor:
   Helps me secure funding
   Assists with networking
   Assists with writing publications and presentations
   Instructs in teaching methods
   Advises about prep for career advancement
   Advises about getting work published
   Advises about dept politics
   Gives info about career paths open to me
   Teaches me to write grant proposals

Availability
   My primary advisor:
   Is available to help with my research
   Is available to talk about other aspects of program
   Gives regular and constructive feedback
   Is often not available to me (reverse coded)

Egalitarianism/Respect
   My primary advisor:
   Expects me to work so many hours it's hard to have personal life (reverse coded)
   Seems me as source of labor (reverse coded)
   Treats my ideas with respect
   Would support any career path

INFLUENTIAL FEATURES OF ACADEMIA SCALES:
Positive Change
   Opportunity to create change in field
   Opportunity to have positive impact in academy and beyond
   Opportunity to inspire others about the field

Family Factors
   Ability to have both children and a career
   Ability to balance personal and professional lives
   Compatibility with spouse's career options