Assessing the climate for sexual minority doctoral students at the University of Michigan

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I. INTRODUCTION[1,2]

Scholars from a range of academic fields have documented and described numerous challenges faced by sexual minorities[3] in higher education. Among these projects are narratives and analyses of faculty and students' experiences with discrimination and demoralization; critiques of the ways in which university communities unwittingly reproduce expectations of heterosexuality as the norm; and suggestions for making universities more welcoming and supportive of sexual minorities (e.g., Champagne, 2002; Hilton, 2005; McNaron, 1997; Mintz & Rothblum, 1997; Tierney, 1997; Wallace, 2002). Among these studies are reports of both positive and negative experiences of sexual minority faculty in the university setting (e.g., Myrick & Brown, 1998; Pugh, 1998). However, few studies have systematically investigated sexual minority doctoral students' experiences. This study explores sexual minority and non sexual minority Ph.D. students' morale, career goals, and experiences of departmental climate at the University of Michigan (UM).

This assessment of the academic environment for sexual minority doctoral students at UM parallels a recently completed investigation of the climate for women and underrepresented racial and ethnic minority doctoral students, as well as doctoral students overall at UM.[4] Data for both were drawn from the same survey. The assessment of doctoral student climate was initially inspired by a study conducted by the ADVANCE Program which had evaluated the climate for women and underrepresented minority faculty in science and engineering.[5]

Evaluations of "climate" are necessarily subjective; what is warm to one person is cold to another, even though it may be "objectively" 68 degrees Fahrenheit. 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 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

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[1] Electronic versions of this report as well as the executive summary can be found on UM ADVANCE's website (full report: http://www.umich.edu/~advproj/Sexual_Minority_Report.pdf; executive summary: http://www.umich.edu/~advproj/Sexual_Minority_Report_es.pdf)

[2] This study was conducted, and the report prepared by Janet Malley, Abigail Stewart, and Janice Habarth for the ADVANCE Program with assistance from Keith Rainwater. The study was supported by combined funding from the ADVANCE Program, the Office of the Provost and the Rackham Graduate School. We are grateful to Rackham's Interim Dean Steven Kunkel and Senior Associate Provost Lester Monts for their support for this study.

[3] The term "sexual minorities" was used in the survey on the advice of 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 this report.

[4] Electronic versions of *Assessing the Climate for Doctoral Students at the University of Michigan* can be found on UM ADVANCE's website (full report: http://www.umich.edu/~advproj/PhD_Report.pdf; executive summary: http://www.umich.edu/~advproj/PhD_Report_es.pdf).

[5] See Stewart, Stubbs & Malley (2002). *Assessing the work environment for women scientists and engineers*; and Stewart, Malley & Stubbs (2004) *Assessing the work environment for faculty of color in science and engineering.*
http://sitemaker.umich.edu/advance/reports__publications__and_grant_proposals#climate

students' judgments of the climate, with the primary goal of assessing whether that climate varied for sexual minority versus non sexual minority doctoral students.

Most analyses for this report were identical to those conducted for the original report on doctoral student experiences by gender and racial/ethnic minority status. However, one notable difference is that weighted analyses were conducted in the original report to account for discrepancies between demographic characteristics of the graduate student population as reported by Rackham and the demographics of the sample (e.g., the percentages of men and women responding to the survey did not match Rackham's demographic data). For sexual minority students there are no demographic data available from Rackham. We were unable to determine whether our sample accurately represented the ratio of sexual minority to non sexual minority students, and we therefore could not run weighted analyses.

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.[6] 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).

Sample

Of the 1454 students who initiated the survey, 1179 completed usable surveys. Two hundred twenty-two students did not report the demographic information necessary for these analyses, leaving an analyzable sample of 957 students. We suspect that the high rate of refusal to respond to demographic questions may be an indication of a substantial level of anxiety about confidentiality. Such anxiety might be particularly salient for any sexual minority students who had not already disclosed their identities to colleagues, family, or friends[7]. 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

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

[7] A recent study reported that 51% of sexual minorities in a university setting did not disclose their sexual orientation or gender identity due to fear of intimidation, and 34% specifically did not disclose to instructors or administrators due to fear of discrimination (see Rankin, S. (2002). Campus climate for lesbian, gay, bisexual, and transgender people. *The Diversity Factor, 12*, 1-7).

students (which used a very different sampling procedure) had a 43% response rate overall[8].

There were no significant differences on any of the climate indicators between students who did report demographic information and those who did not. We therefore believe that the findings in this report can be safely generalized to the larger population of Rackham students who responded.

Differences between those identified as sexual minorities and non sexual minorities might have been undetectable had we included the entire sample in these analyses (7% identified as sexual minority, and 93% did not identify as sexual minority; see Table 1a). Therefore, we used a subset of the 957 analyzable cases from the doctoral student survey sample for the purposes of these analyses. We included all students who self identified as sexual minorities (N=59) and randomly selected twice that number of students who did not self identify as sexual minorities (N=118). Non sexual minority cases were randomly selected to match the ratios of race and gender in the larger pool of 898 non sexual minority students. The total number of cases for analyses in this report is 177.

The determination of sexual minority status is of particular importance to this study. Students were not asked directly about sexual orientation; however, they were given the opportunity to identify as sexual minority students when asked various questions about the climate for sexual minorities (See survey in Appendix A, p. 65). All students who identified themselves as sexual minorities were included in the sexual minority group; those students who did not identify as such were included in the non sexual minority group from which the subsample was drawn. It is possible that some sexual minority students refrained from identifying themselves as such, and were categorized as "non sexual minority" for the purposes of these analyses. Therefore, the results summarized below might best be thought of as representing the following two groups: 1. sexual minority students and 2. heterosexual students plus any sexual minority students who may not have wished to divulge their identities on this survey. Throughout the report, we use "non sexual minority" as a shorthand label for the second group; a more accurate label, albeit more cumbersome, would be "did not identify as sexual minority."

Demographic breakdown of sample. In the sample selected for the analyses that follow, 36% of students were male and 62% were female. An additional 3 respondents, all of whom identified as sexual minorities, reported their gender as transgender (2) or non-applicable (1). Following racial and ethnic categorizations used in the original doctoral student climate report, we report here on the percentage

[8] This report, *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 5),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.

of sexual minorities who were white students originally from the U.S. (60%); students of color of U.S. origin[9] (26%); international students of color[10] (10%); and white international students (3%). One international, male, sexual minority student who did not specify race or ethnicity was also included in the analyses. (See Table 1b for a breakdown of demographic categories by sexual minority status.)

We would have liked to conduct analyses among and within lesbian, gay, bisexual, and transgender groups but this was not possible because we did not ask students to disclose their sexual identities; we asked only whether students considered themselves to be members of the overall "sexual minority" grouping. However, even if we had asked questions about sexual identity, analyses by specific groups would have been difficult due to low sample size. In the original doctoral student climate report, this was true for race/ethnicity analyses; broad groupings were adopted because the limited numbers of cases within groups did not allow for more specific analyses.

Divisional breakdown of sample. It is useful to note that the sample drew from all four of the Rackham divisions, although not equally: 26 (15%) of the respondents were enrolled in the biological/health sciences; 45 (26%) were in the physical sciences/engineering; 63 (36.4%) were in the social sciences; and 39 (22.5%) were in the humanities (X^2=31.71, p<.001). A larger proportion of sexual minority students appeared in the humanities as compared to all other divisions (See Table 1b for a breakdown of division categories by sexual minority status). 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.

Analyses

Analysis strategy. Descriptive analyses were conducted on the sample of 177; we examined differences among students by sexual minority status. In addition, analyses assessed differences within divisions by sexual minority status. There were some statistically significant findings at the divisional level, and these results are included in the appended tables. However, given the small sample sizes and large quantity of analyses conducted it is possible that some of the many within-division analyses were significant by mere chance. Therefore, we do not report on divisional analyses in the text, and we caution against over interpretation of these results.

When appropriate, we also examined other differences among the students (e.g., gender of advisor). Where we found statistically significant differences in these post hoc analyses, we report them in the text, but we do not represent 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 **Rackham division** as these variables were related to variables under investigation; specifically, sexual minority status varied significantly by ***Rackham division*** (X^2=31.71, p<.001) and ***current financial situation*** (F=5.86, p<.05), and ***current financial situation*** also positively correlated

[9]These students (n=14) identified their race/ethnicity as follows: 36% Hispanic/Latino, 36% African American/Black, 21% Asian/Asian American, and 7% Mixed.

[10] These students (n=4) identified their race/ethnicity as follows: 75% East Indian and 25% Asian.

with the instrumental subscale of the advisor support measure and the family lifestyles scale of the confidence measure. Statistically significant findings reported here account for these controls, unless otherwise noted; that is, these results cannot be accounted for by Rackham division or current financial situation.

Key variables. We begin by describing what we learned about doctoral students' overall **confidence** and **discouragement** by sexual minority status, and then turn to an account of the **climate** in their departments. These sections form the central focus of our interest: the climate for sexual 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 section we consider the data overall by sexual minority status. 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 in Appendix C of the original doctoral student climate report.

II. DOCTORAL STUDENTS' MORALE

The first issue we addressed is doctoral students' morale. We were interested in the degree to which sexual minority students compared to non sexual minority 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 for both sexual minority students (4.15) and non sexual minorities (3.93), suggesting that students overall generally thought they will "probably" pursue a career in their current field of study. There were no significant differences on this item by sexual minority status.

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 3.70 for non sexual minorities and 3.75 for sexual minority students, both means approximating the "above average" marker. Again, there were no significant differences by sexual minority status.

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).

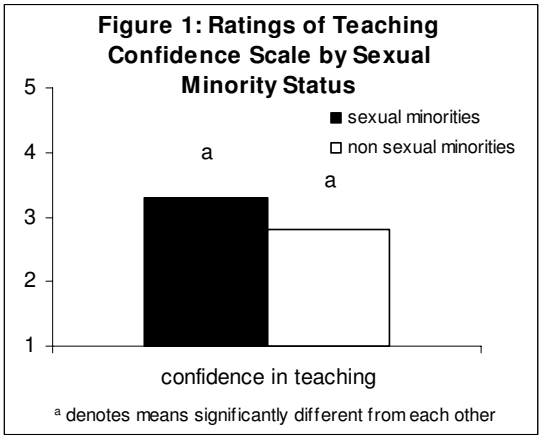
A listing of all 18 items as well as the results of analyses by sexual minority status can be found in Table 2.

To simplify these data, five scales were computed[11,12] based on factor analyses from the original doctoral student climate analyses. The five separate factors for confidence concerning career abilities were: university/research job; research; teaching; non-academic job; and family/lifestyle. Specific items comprising each scale are noted in the original doctoral climate report.

Sexual minority status differences. We found that sexual minority students were more confident than non sexual minorities in their teaching abilities (see Table 2). In addition, there was a trend ($p<.10$) toward significantly greater confidence among sexual minority students regarding their ability to obtain an academic job. When these sexual minority status differences were examined by gender of advisor[13] the mean scale differences (teaching and obtaining an academic position) held for students with both male and female advisors. However, there were trends towards significantly greater confidence of sexual minority students about family and lifestyle when the advisor was female and towards significantly greater confidence of sexual minority students in research training among those with male advisors.

Discouragement

Students were asked if they **had ever felt discouraged** about pursuing their current field of study while at UM. Approximately three-quarters of both sexual minority and non sexual minority students reported that they had. 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); see Table 3a. Overall, at least 30% of students in both sexual minority and non sexual minority groups reported that they had been discouraged about their departments' climates, interactions with advisors, and career opportunities, as well as their personal lives and financial concerns. No differences were found in overall discouragement among sexual minority and non sexual minority students nor in the individual items; see Table 3b for individual item results.



Doctoral Students' Morale: Summary

Generally, students reported a high level of confidence and expected to pursue a career in their academic field, although sexual minority students rated themselves as more confident than non sexual minority students in their teaching skills

[11] Cronbach's alphas for each scale are as follows: university/research job (.78); research (.77); teaching (.76); non-academic job (.73); and family/lifestyle (.75). Appendix C in the original report on doctoral student climate lists the items that make up each scale.

[12] All alphas in this report are based on data from the current study.

[13] One hundred eleven (63%) of the students in this sample had male advisors and 66 (37%) had female advisors. Twenty seven percent of the non sexual minority students and 58% of the sexual minority students had female advisors.

and training (see Figure 1). Most students reported some level of discouragement (in particular with departmental climate, interactions with advisors, and career opportunities) during their academic career. No differences in discouragement were found based on sexual minority status.

III. OVERALL CLIMATE OF DEPARTMENT OR AREA

Students were asked to describe the departmental 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 students' and faculty members' attitudes 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 for particular groups, students were asked to rate their departments' overall climates and openness to diversity in terms of a series of bipolar adjectives (e.g., welcoming vs. alienating; cooperative vs. competitive). 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 (2.80 for sexual minorities, 2.71 for non sexual minorities). There was no significant difference by sexual minority status (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, and students with disabilities). Consistent with results from the original doctoral climate report, 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, while fewer indicated that it was supportive for men, sexual minorities and disabled students. There were no significant differences by sexual minority status on these items (see Tables 4a through 4g). However, sexual minority students were significantly more likely to report that women felt welcomed and included in their departments.

When comparing responses by sexual minority status, we found that sexual minority students reported significantly more condescending attitudes towards men and sexual minorities by both students and faculty than non sexual minority students (see Table 4c). When analyzed by gender, we found that greater observations of condescending attitudes towards men held up only for male sexual minority students as compared to male non sexual minority students.

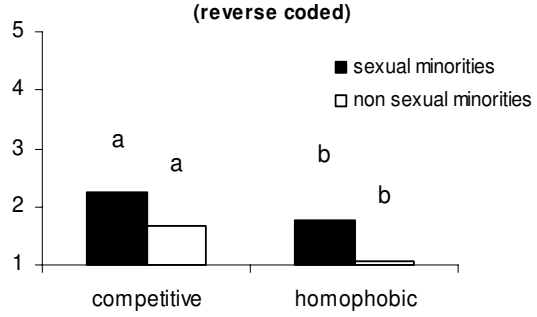
Differences in reporting of negative comments. Students were also asked how often in the past year they had heard **insensitive or disparaging comments** by faculty or students about women, men, racial-ethnic minorities, religious groups, and sexual minorities. As compared to their non sexual minority peers, sexual minority students reported hearing significantly more negative comments by both students and faculty

about sexual minorities, and they also reported hearing more negative comments made by students about religious groups (see Tables 5a and 5b).

Ratings of climate items. Students were also presented with **pairs of descriptive terms** (such as collegial/contentious; rigid/flexible; homogeneous/diverse) representing two ends of a five-point continuum and asked to rate how much their departments' climates were like either descriptive term (see Table 6 for a listing of all the paired descriptors and mean ratings). Two scales[14] were calculated: 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).

Sexual minority status differences on climate ratings. There were no significant differences by sexual minority status on the two climate scale ratings (see Table 6). However, compared with non sexual minority students, sexual minorities found their departmental climates significantly more competitive and homophobic.

Figure 2: Ratings of Departmental Homophobia & Competitiveness
(reverse coded)



[ab] denotes means significantly different from each other

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 behaviors that might reflect that. There were no significant differences by sexual minority status on this item.

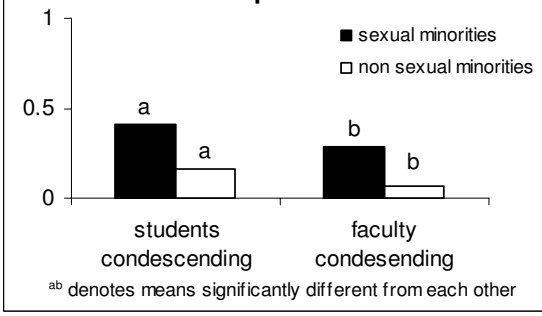
Students were also asked about the prevalence and frequency of "unwanted and uninvited sexual attention," or sexual harassment, in their own departments on a five-point scale from not at all prevalent/frequent (1) to very prevalent/frequent (5). The mean ratings for both items were relatively low (at or below 1.52 for both sexual minorities and non sexual minorities) suggesting that students viewed sexual harassment as relatively rare in their departments. There were no statistically significant differences by sexual minority status on either of these variables.

[14] Cronbach's alphas for the two scales are: openness to diversity (.79) and general climate (.93). Appendix C in the original report lists the items used to create each scale.

Overall Department Climate: Summary

While there were no significant differences on the climate rating scales, sexual minority students reported their departments to be more homophobic and competitive than non sexual minority students (see Figure 2). In addition, they reported that students and faculty in their departments were more condescending toward and made negative comments about sexual minorities than their non sexual minority peers (see Figure 3). It is also interesting to note that students generally assessed their departments as less supportive towards or comfortable for sexual minorities and disabled students than for other groups.

Figure 3: Ratings of Condescending Attitudes towards Sexual Minorities in the Department



[ab] denotes means significantly different from each other

IV. DOCTORAL STUDENTS' EXPERIENCES OF GRADUATE SCHOOL

This section documents doctoral students' experiences of graduate school because differences in these areas may be useful in understanding the differences discovered in morale and climate by sexual minority status.

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). Sexual minority students rated opportunities to present research as less important than did non sexual minorities, but in most cases the two groups reported similarly with respect to the importance of various experiences to their graduate education.

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 of both sexual minority (29%) and non sexual minority students (35%) listed only two or fewer particular experiences (out of 16) for which they had insufficient opportunities. An additional 31% of sexual minorities and 29% of non sexual minorities listed between three and five particular experiences as insufficiently provided. The remaining students from both groups identified 6 or more. Of these, most (35% of sexual minorities and 29% of non sexual minorities) listed up to 10 experiences.

Among those experiences rated by at least 25% of students as ones for which they were not given sufficient opportunity are items related to research, pedagogy, collaboration and support, and career development and preparation. Significant differences on ratings of several items were noted: sexual minority students as compared to non sexual minority students were more likely to report sufficient

opportunities for required coursework (F=4.07, p<.05) and more likely to report insufficient opportunities for study groups (F=6.90, p<.05).

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 sources, or themselves (see Table 8a for mean ratings of students reporting different groups as sources of information by topic). Sexual minority students were less likely than non sexual minority students to report learning about internal funding sources and information resources on their own. 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 sexual minority status (see Table 8b for results of these analyses; Table 8c provides counts of groups providing information by information type).

Experiences of Graduate School: Summary
Sexual minority and non sexual minority students generally reported similarly with respect to the importance of and sufficient opportunities for various graduate school experiences, although sexual minority students rated opportunities to present research as less important than did non sexual minorities, and they were less likely to report insufficient opportunities for required coursework and more likely to report insufficient opportunities for study groups than their non sexual minority peers. Few differences emerged regarding the ways in which students acquired various types of information, although sexual minority students were less likely than non sexual minorities to learn about internal funding sources or information resources 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 any discovered differences in morale and climate.

Getting Advisors and Adequacy of Advice
According to survey data, sexual minority students are more likely than non sexual minorities to have a female advisor (F=11.20, p<.01) Students were also 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). We found no difference in reported adequacy of advisor advice by sexual minority status; the mean rating for both groups was approximately 2.8, suggesting that on average, students found their advisors' advice "pretty adequate."

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). Three advisor support scales were derived by factor analysis[15]; the items comprising each scale are listed in the original doctoral student climate report.

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; see Table 9b for percentage of students ranking each item as one of the five most important. Students also rated **levels of satisfaction** with their five top rated items, on a 4-point scale from "very dissatisfied" (1) to "very satisfied" (4). Overall means of these items revealed no significant differences between sexual minority students (2.93) and non sexual minorities (3.00), suggesting students were, on average, satisfied with their top rated items.

Comments about Experiences with Advisors

In addition to rating various experiences with their advisors, students also wrote about advising relationships in response to the following open-ended questions:

> Have you changed your primary advisor since starting your current program? If yes, why?
> What has been an obstacle to your success in your department? Please explain.

Thirty-seven percent of participants (38% of non sexual minority students and 46% of sexual minority students; X^2=3.1, p<.10) responded to the question about changing advisors, and 80% of participants (78% of non sexual minority students and 83% of sexual minority students; the difference between these percentages was not statistically significant) responded to the question about obstacles to their success.

Analysis of these open-ended responses revealed two differences by sexual minority status. First, approximately 22% of sexual minority students (48% of sexual minorities who responded to this question), as compared to 8% of non sexual minority students (24% of those who responded), mentioned lack of support as a reason they changed advisors (X^2=7.5, p<.05). And second, 27% of sexual minority students (33% of sexual minorities who responded to this question), but only 14% of non sexual minority students (17% of those who responded), wrote that lack of support from their advisors had impeded their progress in graduate school (X^2=4.88, p<.05). Some of the more troubling responses from both groups of students are noted here. Non sexual minority students wrote:

> (My advisor was) unsupportive - unresponsive to meetings, emails, phone calls.
> (My advisor had) malignant narcissistic tendencies.
> I felt I was in the middle of a power struggle.
> (There was a) lack of personal guidance…commitment...personal interest and understanding.

Sexual minority students wrote:

[15] Cronbach's alphas for the three scales are: instrumental help (.90), availability (.86), and egalitarian/respect (.66). Appendix C in the original report lists the items used to create each scale.

> My assigned advisor… seemed unable to connect with me as a person, unable to relate to people who are different from himself, or even to realize that there are people different from himself.
> My first advisor actively abused me…very racist and very xenophobic…caused me to change my program.
> (My advisor was) emotionally abusive.
> (My advisor) publicly degraded me.

Fortunately, these experiences do not appear to be the norm, but when they do occur, students can have a difficult time negotiating around them. For example, one sexual minority student stated that she wished she had never come to UM due to the difficulties she faced with her primary advisor. The two groups appear to have equivalent—and extreme--types of negative experiences when they report that they lacked support from an advisor, but these experiences were reported significantly more often by sexual minority students.

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). Sexual minority and non sexual minority students alike frequently identified faculty members as a source of advice and mentorship; students as helpful with research, talking about the program, and treating ideas respectfully; and staff as supportive regarding securing funding and talking about the program (see Table 10a).

A count of the different kinds of support provided by each of the various sources was calculated for each group (staff, faculty, non-UM faculty, other students, and lab and study groups; see Table 10b). A similar count was computed for the number of groups who provide support for each of the items (see Table 10c). Again, we found no statistically significant differences between sexual minorities and non sexual minorities for either count variable.

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 friends) might provide. Family and friends and faculty were identified often as sources of support for both sexual minority and non sexual minority students (see Table 11a).

Again, counts of how many different kinds of social and emotional support were provided by each group, as well as counts of the number of different groups providing support in each area, were calculated (see Tables 11b and 11c). There were no statistically significant differences by sexual minority status on either of these counts of social and emotional support.

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 sexual minority and non sexual minority students were generally satisfied or very satisfied with all of the sources of support received, both groups noted that they were most satisfied with the support they

receive from family and friends and least satisfied with faculty support (see Table 11d).

Advising and Support: Summary
Both groups of students reported being generally satisfied with their advisors, and we found no overall differences in the adequacy or types of support provided by advisors to sexual minority and non sexual minority students. In addition, we found no differences by sexual minority status with respect to support from any source (e.g., advisors, other students, faculty, friends/family, staff). Qualitative data, however, indicate that at least some sexual minority students' progress in graduate school is impeded by conflicts resulting from advisors' lack of support or lack of tolerance for diversity.

VI. CAREER GOALS

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

Future Career Goals
Students were asked to rate, on a four-point scale from "very unattractive" (1) to "very attractive" (4), **eight potential career goals** (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 two items rated most attractive for both sexual minorities and non sexual minorities were becoming a professor in a 4-year college and having children and becoming a successful academic.

On most items there were no significant differences by sexual minority status, but sexual minority students rated industry or private sector research jobs statistically significantly lower than did non sexual minority 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. We also calculated scores for two three-item scales (family life factors and positive change/ inspire others) that had been created for the original graduate student climate report. A listing of items comprising each of these scales can be found in that report.[16]

There were no overall differences by sexual minority status on either of the scales. However, sexual minority students rated two items, faculty way of life and salaries in academia, as statistically significantly more influential than did non sexual minorities.

[16] Cronbach's alphas for the two scales are: family life factors (.74) and positive change/inspire others (.66).

Most Important Features
The respondents were also asked to identify three items from the same list that had the **largest positive effect** on their interest in becoming a faculty member and three items that had the **largest negative effect**. Research and teaching were the top two features most frequently selected as a having the largest positive effect by both sexual minority and non sexual minority students (see Table 13b). For sexual minority students, these top two were followed by: working on a college campus; faculty way of life; opportunity to make a positive impact beyond academia; makes use of my personal talents and skills; and how academia fits with my personality/ temperament. The list of frequently ranked items for non sexual minority students was similar although it did not include faculty way of life, and it did include the opportunity to inspire others about the field.

The most frequently identified negative influences for both sexual minority and non sexual minority students were (not necessarily in order): the workload I'm likely to encounter, the promotion process, and the academic job market (see Table 13c). Other frequently mentioned negative influences for both sexual minority and non sexual minority students were: the ability to balance professional and personal lives, the ability to both have children and pursue a career, and salary levels in academia. For non sexual minority students, these top ranked negative influences were closely followed by faculty way of life (note that this was the fourth ranked most *positive* item for sexual minority students).

Career Goals: Summary
Both sexual minority and non sexual minority students expressed a preference for being able to combine family life with a successful academic career, and many aspired to become a professor in a 4-year college. Career aspirations for sexual minorities and non sexual minorities generally did not differ significantly. However, non sexual minority students found getting a research job in industry or the private sector more attractive than sexual minorities did. Ratings of influential features of an academic career revealed similar patterns among sexual minority and non sexual minority students, although sexual minority students rated faculty way of life and salary level in academia as more positive.

VII. PERSONAL LIFE CONTEXT

We assessed the personal life contexts of doctoral students by sexual minority status, 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. Chi square analyses reported below cannot include controls for students' Rackham division membership or financial status.

Current Personal Life Situation
Family life. Approximately two thirds of the students (66% of sexual minorities and 65% of non sexual minorities) indicated that they were married or in a committed relationship. Of students in a committed relationship, 36% of sexual minorities and 38% of non sexual minorities reported that their partners did not live in Ann Arbor. Most (approximately 75%) of the partners were employed full or part-time, regardless of sexual minority status. Sexual minorities were more likely to be partnered with a student (78%) versus a non-student than were non sexual minorities (60%); X^2=6.34,

p<.05. Further, sexual minorities' partners (46%) were more likely than non sexual minorities' partners (23%) to be in the same field versus some other occupation; X^2=6.73, p<.05.

Eight percent of non sexual minority students and 7% of sexual minorities had children living with them. An additional 12% of the sexual minority sample and 7% of non sexual minorities had other relatives for whom they were financially responsible; this difference was not statistically significant.

Financial situation. Students were asked to rate their current financial situation using a 3-point scale, with 1 representing financial struggles and 3 indicating no problems with finances. Mean ratings on this item revealed no significant differences by sexual minority status. In contrast, over half of sexual minority students (54%), but only 33% of non sexual minority students, indicated that they still had debt from their undergraduate education (X^2=7.35, p<.01). Students with debt from their undergraduate education were also more likely to report financial struggles than were those without debt (X^2=, p<.05).

Family of Origin

Parents. Students were queried about their families of origin. Most reported that their mothers (approximately 80% for both sexual minorities and non sexual minorities) and fathers (72% for sexual minorities and 88% for non sexual minorities; X^2=8.66, p<.05) had continued their education beyond high school. Nearly one-third of fathers for both groups had doctoral degrees or were ABD. Twenty-one percent of sexual minorities' mothers and one-third of non sexual minorities' mothers had some graduate school, while 10% of sexual minorities and 8% of non sexual minorities reported their mothers as having achieved a doctorate or ABD status. In addition, approximately one-fifth of parents from both groups had been or are currently faculty members in higher education. The patterns appeared to be quite similar for both groups, and there were no statistically significant differences on parents' mean levels of education.

About two-thirds of the students in each group (68% of non sexual minorities, 59% of sexual minorities) reported that their parents were supportive of their current choice of field, but only 9% of sexual minorities and 7% of non sexual minorities said that it was the career their parents would have chosen for them. There were no statistically significant differences on these variables.

Families' and peers' financial situations. Respondents were asked to describe their families' financial situations 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 for sexual minority students (3.41) and non sexual minority students (3.64) put them between "had enough to get by but not many extras" and "had more than enough to get by." There was no statistically significant difference on this variable by sexual minority status.

In contrast, the respondents rated their peers' (graduate students in their programs) family of origin financial situations slightly higher (4.07 as rated by non sexual minority students, 4.12 as rated by sexual minorities) than their own, right at the "had more than enough to get by" level. Again, there was no statistically significant

difference on ratings between sexual minority and non sexual minority student groups.

Personal Life Context: Summary
Equivalent percentages from both groups (approximately two-thirds) were married or in a committed relationship and slightly over one-third of these had partners who lived outside of Ann Arbor. Almost all of the partners were employed or students. Sexual minority students were more likely than non sexual minorities to partner with another student (78% of sexual minorities, 60% of non sexual minorities). They were also more likely (at 46%) to partner with someone in the same field than non sexual minorities (23%). Few sexual minority and non sexual minority students (12% and 7%, respectively) were financially responsible for another relative, and under 10% of both groups had children. Neither of these items revealed statistically significant differences by sexual minority status. In addition, there were no differences by sexual minority status on students' reports of their financial situations.

Respondents' parents were highly educated (70-80% had at least some college) and about 20% of both sexual minorities and non sexual minorities reported parents who were or are faculty in higher education. Generally, parents were supportive of students' career choices, with no significant differences by sexual minority status.

VIII. SUMMARY OF FINDINGS

Findings in Context
The original graduate student climate report provides valuable information about the diversity of experiences, personal life circumstances, interests, needs, and goals of UM doctoral students, and interested readers are directed there for results pertaining to UM students overall as well as differences by race/ethnicity and gender. Several findings from that initial report are summarized here.

Overall, survey responses 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. 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 Sexual Minority Status

Morale. Generally, there were few differences between sexual minority and non sexual minority students on items related to confidence or discouragement. Sexual minorities rated themselves as more confident than non sexual minority students in their teaching skills and training, and no differences overall in discouragement were found based on sexual minority status.

Department climate. Consistent with the findings on morale, few differences emerged regarding perspectives on climate by sexual minority status. This is not to say, however, that the climate was generally rated as unproblematic; instead, non sexual minorities appeared to agree with sexual minorities in assessing that their departments were not as supportive towards or comfortable for sexual minorities and disabled students as they were for other groups. Even so, sexual minority students reported their departments to be more homophobic and competitive than did non sexual minorities. They were also more likely to report that students and faculty in their departments were condescending toward and made negative comments about sexual minorities.

Experiences of graduate school. Sexual minority students were less likely to learn about internal funding sources or information resources on their own, but overall there were few differences in opportunities or obtaining information by sexual minority status.

Advising and support. There were no differences by sexual minority status in support from advisors, other students, family and friends, or any other source of support.

Career goals. In rating the positive (and negative) aspects of academic careers, both sexual minority and non sexual minority students indicated an interest in becoming a professor in a 4-year college and in being able to combine family life with a successful academic career. Generally, both groups' career aspirations and ratings of influential features of academic careers appeared to be quite similar.

Background. Few differences emerged by sexual minority status. Sexual minorities were more likely to partner with another student and with someone who was in the same field as they were, and were more likely to have debt from their undergraduate education. There were no significant differences regarding relationship status, mean current financial situation, whether they had children, or whether their parents were supportive of their careers.

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 for both sexual minorities and non sexual minorities to examine the

relationship between these experiential factors and students' morale and career goals. 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 Rackham division.

In an attempt to compare correlational analyses based on equivalent sample sizes (recall that the sub-sample of non sexual minority students was twice as large as that of the sexual minority students), we calculated correlations based on a randomly selected subset of non sexual minority student sample (see Table 14b) of equal size to the sexual minority student group.

Similarities and Differences by Sexual Minority Status

Correlations for both sexual minority and non sexual minority students revealed numerous strong and significant relationships between students' morale and career goals and the climate, advisor, and broader experience factors, although the pattern was slightly different for the two groups. For example, for non sexual minorities, climate ratings were correlated with confidence in research; however, advisor ratings were even more consistently correlated with morale and career goals. Advisor ratings were significantly correlated with discouragement, total confidence and confidence in research and teaching, as well as wanting to be a professor in a top research university. For sexual minority students, climate ratings were the experiential variables most consistently correlated with morale and career goals. They correlated negatively with discouragement and positively with overall confidence as well as confidence in research abilities, balancing work and family obligations, and obtaining a university research position. (See Tables 14a and 14b.) These findings suggest that the climate for sexual minority doctoral students is particularly important for their morale and career aspirations and that efforts should be made to ensure that departments are sufficiently welcoming.

Most relationships among variables did not vary significantly by sexual minority status. For example, regardless of students' sexual minority status, we found that neither morale nor career goals related to family situation (partner and parent status as well as whether or not partner resides in Ann Arbor). In addition, for all students, the advisor scales of instrumentality and availability as well as satisfaction with advisor support were all positively correlated with the general climate measure (see Tables 14c and 14d). However, a difference by sexual minority status emerged among correlations between experiences with advisors and desiring to become a professor in a top university. Ratings of this career goal related significantly for non sexual minority students, but not for sexual minority students, to the three advisor

scales (adequacy of advice ($z=2.46$, $p<.05$), availability ($z=2.69$, $p<.05$), and instrumental support ($z=2.56$, $p<.05$)).

Finally, in order to make sense of the relationships we observed among advisor and climate ratings, we calculated mean correlation coefficients based on the climate and advisor ratings reported by sexual minorities (Table 14c) and non sexual minorities (Table 14d). As was true in the original report on doctoral student climate, mean correlation coefficients (.26 for non sexual minorities, and .23 for sexual minorities) suggest that students are not equating the climate with advising relationships, and that other factors beyond their advisors play an important role in how they experience the climate in their departments. For example, confidence that their research interests were considered important in their field, discouragement about interactions with other students, and satisfaction with the support they receive from UM faculty are all also highly correlated with their ratings of departmental climate.

X. IMPLICATIONS OF FINDINGS

Overall, the results described above suggest that UM sexual minority doctoral students' experiences are similar in many areas to their non sexual minority peers' experiences. The results also provide information about what aspects of graduate school may be less effective or satisfying for sexual minority students.

One of the most striking findings in the comparisons between sexual minority and non sexual minority students' responses is the similarity of their experiences, morale, and career goals. In contrast to previously reported differences based on gender, these results suggest that many experiences of sexual minority doctoral students at the University of Michigan closely match those of non sexual minority students. And despite substantial agreement among students across demographic categories that the climate is not sufficiently supportive of or welcoming towards sexual minorities, these students, on average, demonstrate confidence about and commitment to their academic careers. These results suggest that sexual minority graduate students are generally resilient in the context of less than optimal environments. However, this does not mean that negative aspects of climate have no detrimental effects. We explore the implications of homophobic and inhospitable climate conditions below.

Experiences of Departmental Climate

Consistent reports of departments being unsupportive and unwelcoming towards sexual minorities suggest that sexual minority doctoral students at the University of Michigan commonly experience discrimination and/or bias. Our data are consistent with recent studies that have reported on negative campus climate for sexual minorities (Herek, 1993; Rankin, 2003; Waldo, 1998). This information, coupled with sexual minority students in our sample rating their departments as being more homophobic than did non sexual minority students, led us to consider experiences and situations that might contribute to the marginalization of sexual minority students. We examined qualitative data from the graduate student survey to gather specific examples of experiences that might negatively affect the climate for sexual minority doctoral students.

Sexual minorities may experience significant challenges due to a range of factors, one of which is the intersection of multiple marginalized identities (e.g. racial/ethnic

minority status, coming from a working or lower class background). One sexual minority student wrote, “As a bi woman of color, I feel really disempowered and marginalized… This…university is a white straight male universe.” Another student commented on how she coped with multiple sources of discrimination:

> If I haven’t experienced much racism, sexism, etc. in recent years, it’s mostly because I’ve avoided my other home department and because I’ve surrounded myself with Women’s Studies students (and other friends) whose company I enjoy.

Sometimes it is difficult for students to identify what makes their departments feel unwelcoming. One sexual minority student reflected:

> I would identify my department as racist and homophobic, but through the follow-up questions that were asked I don't think it was clear exactly how. It isn't comments that have been made, it is more the attitude and treatment of minorities that make me believe the department as a whole doesn't treat everyone the same... When minority faculty come to the department they have often shared feelings of isolation and leave within a few years for a more welcoming environment. These make me believe the department is racist.

Another student noted that the hostility in her department is such that she does not even want to enter the building, and that she seeks out alternative venues in which to work:

> The department seems hostile to LGBT people. … We…feel very uncomfortable in our department. I usually work with a group of women's studies gay women of color at a cafe. That feels like a very supportive environment for me.

Other experiences that lead sexual minority students to describe their departments as homophobic and/or unsupportive occur in the context of departmental social events, important life transitions, and mentorship. For example, one sexual minority student shared her experience of “feeling like I don’t belong…no encouragement… no invitations to lunches and dinners with visiting faculty…no networking.”

There are also examples of discomfort and disappointment due to unintentional instances of bias; one student commented:

> It is sort of okay to be yourself, but just don’t talk about it if you are gay or trans. The constant assumptions in nearly every class and by the administration that students are straight, when they aren’t, or that students should speak up in class if they want their viewpoint stated, rather than the professors accepting the responsibility to provide information on concerns that are relevant to TBLG students, too, has made it much more difficult to feel that TBLG students are valued, or that we belong here at all.

In addition, sexual minority students may find it more difficult to seek structural support during times of personal and financial difficulty if they involve their identity (e.g., disability of a partner, loss of a partner due to death or divorce, health

complications related to a sex change operation, legal problems involving same-sex relationships). Instead of strategically choosing staff or faculty with the most access to resources and support networks, sexual minority students must first determine who in the department it is safe to talk to, and then approach these people, who may or may not be in a position to advocate for or assist the student.

Given the degree of homophobia reported by sexual minority students, it is plausible that some sexual minority students are not 'out' in their departments (i.e. do not disclose their identities to faculty, staff, and/or fellow students). A number of factors might influence students' decisions to be more or less open about their identities, including the presence (or absence) of openly gay, lesbian, bisexual, or transgender faculty; the acceptance or tolerance of derogatory comments or jokes about sexual minorities; and the degree to which presumptions of heterosexuality permeate the language and culture of the department. This last point relates to heteronormativity, which may be defined as pressure to conform to rigid expectations of gender expression and sexual behavior. Pressures to fulfill these 'normal' and idealized roles abound, and we cannot expect to eliminate all such societal influences from graduate students' experiences. However, it is possible to improve the climate for sexual minority students at the departmental level, to increase the likelihood that sexual minority students will feel welcomed and supported, and to reduce the chances of departments being perceived and experienced as homophobic.

Numerous studies suggest that heterosexism, whether subtle or overt, has significant negative impacts on sexual minorities. Beyond what we have reported here, we might expect sexual minority graduate students who feel unwelcome or marginalized, or who sense that disclosing their identities to fellow students or faculty would be detrimental, to be at a higher risk for depression and other negative physical and mental health outcomes (D'Augelli, 1992; Meyer, 1995; Larson & Chastain, 1990; DiPlacido, 1998; APA Division 44, 2000; all cited in Burn, Kadlec, & Rexer, 2005). These findings suggest the importance of striving towards improving departmental climates for sexual minority graduate students.

Improving the Climate for Sexual Minorities

Based on students' perceptions that departmental climates are often unsupportive and unwelcoming of sexual minorities, we recommend that several steps be taken to cultivate more effective and inclusive environments. First, assessments should be undertaken to determine specific features of the climate that lead sexual minorities to feel more or less welcome, supported, and able to be fully engaged members of the academic community. Our survey data suggest that climate conditions may vary by division and department. As such, an assessment targeted at the departmental or divisional level will serve as an important foundation to any efforts to improve the climate. Interested department administrators may contact the ADVANCE Program to discuss options for such assessments.

Strategies for improvement will vary depending on the particular areas of concern identified by departmental assessments. In addition to specific problem-focused interventions, we recommend that departments and divisions reflect on and implement the following guidelines aimed at reducing homophobia and enhancing inclusiveness in departmental climates:

Be inclusive, and use inclusive language. When inviting faculty, students, or staff to an event that is open to family members, use language that may be recognized by sexual minorities as inclusive of their families or partnerships. For example, an invitation or flyer might use the words "partner," or "significant other" to signify that couples are welcome regardless of sexual identity.

Respond to inappropriate or discriminatory behavior. Actions or comments that demonstrate bias against sexual minorities should be addressed as quickly and directly as possible. In some cases, communicating how and why a particular behavior is objectionable will suffice, but in other instances, particularly those involving individuals with different degrees of authority and influence, or situations that are resistant to change, interventions at the departmental level may be more effective.

Assess subtle discrimination and bias. Overt homophobia, discrimination, and negativity clearly contribute to less welcoming and supportive climates for sexual minorities. More subtle forms of discrimination and bias, however, can also be quite detrimental. For example, faculty may unwittingly omit sexual identity or sexual orientation from coursework where it would be relevant or important to discuss such topics. Alternatively, when sexuality is addressed, non-heterosexuality is often described and assessed in terms of its differences from heterosexuality in behavior, development, biology, or other aspects. Such an approach sets up heterosexuality as an assumed norm, even if this is not directly stated (see Epstein, O'Flynn, & Telford, 2001; Rankin, 2002; Hegarty & Pratto, 2004). These and other instances of subtle academic bias may contribute to a climate in which sexual minorities, or even those who study sexuality, feel marginalized.

One way to reduce the incidence of such bias within divisions, departments, or programs is to discuss how sexual identity, sexual orientation, or sexuality may be missing from required graduate coursework, and to explore what steps might be taken to develop a more inclusive curriculum. Another useful approach would be to seek out new faculty whose scholarship focuses on or relates to sexuality or sexual minorities, thus demonstrating the department's openness to such areas of research.

Additional ideas for improving the climate at the institutional level may be found in a recent report by a task force assessing climate at the University of Michigan (2004) and Rankin's (2002) report. UM has already implemented a number of these suggestions (e.g., creating an office for queer concerns, extending spousal benefits to domestic partners), but could improve in other areas, such as providing more single-stall, gender neutral restrooms, enhancing awareness of transgenderism, and integrating transgender, lesbian, gay, and bisexual issues in relevant courses. Faculty and administrators could contribute to the improvement of climate for sexual minorities by advocating for structural changes at the institutional level while also promoting positive change within departments.

Building an Inclusive Community

Recent research demonstrates the negative effects of discrimination on all members of a community, not just those who belong to a targeted group. For example, Schneider (1996) and Richman-Hirsch and Glomb (2002) reported on negative outcomes for coworkers of people experiencing sexual harassment in the workplace, and Silverchanz, Konik, Cortina, & Magley (under review) found that both

heterosexual and sexual minority university students who had witnessed heterosexual harassment reported lower ratings of well-being than students who had not witnessed such incidents. Additionally, there are particularly negative outcomes for sexual minorities who are exposed to direct or indirect heterosexism (e.g., Waldo, 1999). Improving the climate for sexual minorities may benefit a broad range of individuals, thereby enhancing the academic community's capacity for collaborative and effective production of knowledge.

Conclusions

The results of these analyses are largely encouraging. We conclude that, in general, sexual minority doctoral students at the University of Michigan likely fare as well as their non sexual minority peers with respect to opportunities, support, and morale, and that in many cases their perceptions of departmental climate closely match those of non sexual minorities. Further, we note that there appear to be no egregious, systematic disadvantages or hardships for sexual minority students. However, students overall, and sexual minority students in particular, view their departments as less than optimally welcoming or supportive of sexual minorities. We found that sexual minority students observe bias in the form of disparaging comments or condescending attitudes by faculty and fellow students, and that they characterize their departments as being more homophobic and competitive than do their non sexual minority peers. Because our data suggest that the climate for sexual minority students may vary by Rackham division, specific assessments at the level of department or division would be most useful in determining how to improve the climate for these students. In addition to implementing interventions targeted at areas of particular concern, departments would do well to consider everyday aspects of the climate such as the language used to refer to significant others, responses and reactions to bias and discrimination, and representation of sexuality and sexual minority concerns in the curriculum. We hope that the results reported here will prove useful to those who wish to engage in more specific assessments of individual climates and efforts towards the improvement of climate for sexual minority doctoral students. These efforts will likely benefit not only sexual minority students but also the larger academic community.

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Table 1a: Demographic Breakdown of Sample by Sexual Minority Status (N=898)

	TOTAL	
SEXUAL MINORITY STATUS:	N	%
sexual minority	59	7
not sexual minority	839	93

Table 1b: Demographic Breakdown of Sample by Sexual Minority Status: All Sexual Minority and Random Sample of Non- Sexual Minority Students (N=177)[†]

	TOTAL		GENDER						RACE/ETHNICITY								PARTNERED		CHILDREN		DIVISION							
			male		female		transgender or "n/a"		white US		US of color		intl of color		white intl		yes		yes		biological/ health sci		phys sci/ engineering		social sciences		humanities	
SEXUAL MINORITY STATUS:	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
sexual minority	59	33	17	29	39	66	3	5	35	60	15	26	6	10	2	3	37	66	4	7	5	9	5	9	23	39	26	44
not sexual minority	118	67	47	40	71	60	0	0	72	61	25	21	16	14	5	4	76	65	9	8	21	18	40	35	40	35	13	11

[†] Ns vary slightly by item

Table 1c: Correlations of Current Financial Situation with Several Key Indicators (N=177)†

	current financial situation
advisor instrumental subscale	0.18 *
advisor availability subscale	0.13
advisor egalitarian subscale	0.08
career features family subscale	0.05
confidence in family/lifestyle subscale	0.20 **
confidence in teaching subscale	0.08
overall rating of department climate	0.09

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
I feel confident that…	(N=172)† M	sd	(N=58)† M	sd	(N=114)† M	sd	(N=22)† M	sd	(N=40)† M	sd	(N=13)† M	sd	(N=26)† M	sd	(N=5)† M	sd	(N=21)† M	sd	(N=5) M	sd	(N=40)† M	sd
university/research job scale	0.01	0.86	0.15	0.89 t	-0.07	0.84 t	0.35	0.86 t	-0.06	0.84 t	-0.02	0.97	0.04	0.82	0.31	0.74	-0.04	0.90	0.01	0.70	-0.12	0.83
research scale	-0.12	0.82	-0.08	0.80	-0.14	0.83	0.12	0.74 t	-0.26	0.79 t	-0.29	0.87	-0.16	0.80	0.36	0.78	0.18	0.74	-0.29	0.44	-0.18	0.90
teaching scale	0.02	0.88	0.38	0.80 ***	-0.17	0.87 ***	0.44	0.77 **	-0.20	1.00 **	0.33	0.85	0.12	0.89	0.44	0.91 t	-0.41	0.89 t	0.33	0.77	-0.10	0.68
non-academic job	-0.07	0.82	-0.13	0.86	-0.04	0.80	0.10	0.89	-0.14	0.85	-0.47	0.77	-0.59	1.10	0.18	0.62	0.19	0.67	0.46	0.80	0.11	0.65
family/lifestyle scale	-0.13	0.84	-0.12	0.81	-0.13	0.86	-0.20	0.73	-0.35	0.80	-0.21	0.85	-0.22	0.90	0.68	0.42	0.01	0.85	-0.09	0.97	0.05	0.90
I can become a professor in a top research university.	2.62	1.07	2.79	1.06 t	2.53	1.07 t	3.05	1.05 t	2.54	1.00 t	2.54	1.07	2.54	0.97	2.80	0.84	2.70	1.17	3.00	1.22	2.43	1.13
I can get a research job in industry or private sector.	3.03	1.07	2.82	1.16	3.13	1.02	3.15	1.09	2.78	1.06	2.14	0.99	2.45	1.21	3.50	1.00	3.43	0.81	4.00	0.00	3.48	0.85
I can become a professor in a 4-year college.	3.31	0.88	3.41	0.88	3.26	0.88	3.59	0.80 t	3.16	0.93 t	3.23	0.99	3.38	0.77	3.80	0.45	3.24	0.94	3.20	0.84	3.33	0.86
I can get job in non-profit or government agency.	3.26	0.90	3.27	0.98	3.26	0.86	3.56	0.86	3.42	0.76	3.00	1.02	2.36	1.12	3.75	0.50	3.43	0.75	3.20	1.30	3.26	0.82
I can become a faculty administrator.	2.44	1.00	2.58	1.02	2.36	0.98	2.73	0.98	2.42	1.08	2.52	1.05	2.54	0.97	2.60	1.14	2.29	0.90	2.20	1.10	2.29	0.96
I can become an administrator/ manager in business.	2.31	1.18	2.19	1.24	2.37	1.16	2.37	1.30	2.12	1.25	1.81	1.21	2.75	1.28	2.00	0.00	2.30	1.22	3.20	0.84	2.54	1.00
I can be self-employed.	2.55	1.08	2.54	1.11	2.56	1.08	2.81	1.25	2.47	1.13	2.27	1.00	2.50	1.27	2.50	0.58	2.86	1.15	2.80	1.30	2.50	0.93
I can be successful in my field.	3.40	0.75	3.31	0.75	3.45	0.75	3.45	0.80	3.33	0.76	3.19	0.69	3.62	0.65	3.40	0.89	3.62	0.59	3.20	0.84	3.43	0.84
I can balance work & personal life to my satisfaction.	3.01	0.90	3.03	0.90	2.99	0.90	3.09	0.75	2.85	0.89	2.92	0.98	2.85	0.90	3.40	0.89	3.19	0.87	3.00	1.22	3.08	0.93
I can get academic job in appealing geographic location.	2.47	0.91	2.47	0.92	2.47	0.91	2.59	1.01	2.26	0.79	2.19	0.80	2.38	1.26	3.20	0.84	2.70	0.86	2.60	0.89	2.60	0.90
I can both have children and be a successful academic.	2.68	1.00	2.74	1.00	2.66	1.00	2.65	1.00	2.39	0.95	2.78	0.94	2.82	1.08	3.67	0.58	2.79	1.08	2.40	1.34	2.81	0.97
I can can make it financially when I get out.	3.09	0.83	3.07	0.83	3.11	0.82	2.95	0.84	2.88	0.82	2.96	0.87	3.00	0.71	3.80	0.45	3.19	0.81	3.40	0.55	3.33	0.83
I have received adequate training to be a good teacher.	2.77	1.07	3.22	0.96 ***	2.53	1.05 ***	3.14	1.08 *	2.49	1.14 *	3.23	0.91	2.92	1.04	3.40	0.89 t	2.24	1.09 t	3.40	0.89 *	2.60	0.93 *
I have received adequate training to be a good researcher.	3.19	0.89	3.31	0.82 *	3.12	0.91 *	3.36	0.85 t	2.95	0.93 t	3.19	0.90	3.00	0.71	3.60	0.55	3.57	0.60	3.40	0.55	3.10	1.03
I am in right field.	3.24	0.91	3.24	0.90	3.23	0.92	3.64	0.58 t	3.26	0.85 t	2.92	1.02	3.23	0.73	3.60	0.89	3.20	1.20	2.80	0.84	3.23	0.92
my research interests are considered important in my field.	3.09	0.87	3.14	0.89	3.07	0.87	3.14	0.99	2.93	0.92	3.04	0.87	3.08	0.95	3.60	0.89	3.43	0.81	3.20	0.45	3.03	0.79
in my ability to obtain funding as a researcher.	2.49	0.92	2.45	0.86	2.52	0.96	2.68	0.89	2.42	0.92	2.27	0.83 *	2.73	1.01 *	2.80	0.45	2.81	0.93	2.00	1.00	2.40	0.98
in my abilities as a teacher.	3.18	0.87	3.45	0.80 *	3.04	0.87 *	3.64	0.73	3.00	1.01 *	3.35	0.85	3.23	0.83	3.40	0.89	2.89	0.88	3.20	0.84	3.10	0.74

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL	SEXUAL MINORITY STATUS	
		Sexual Minority	Not Sexual Minority
	(N=177)	(N=59)†	(N=118)†
total discouragement	75%	80%	73%
course material	25%	22%	31%
course selection	20%	24%	19%
academic performance	15%	17%	14%
research	28%	27%	29%
interaction with students	20%	27%	16%
interaction with advisor	37%	44%	34%
climate in department	38%	39%	37%
career opportunities	33%	39%	30%
personal life	33%	34%	33%
financial concerns	36%	32%	44%
starting a family	18%	15%	20%
family obligations	12%	15%	10%

† Ns vary slightly by item

Table 3b: Mean Ratings for Reasons for Discouragement[a]

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=173)		(N=59)		(N=114)		(N=23)		(N=40)		(N=26)		(N=13)		(N=5)		(N=21)		(N=5)		(N=40)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
course material	0.24	0.43	0.31	0.46	0.21	0.41	0.43	0.51	0.35	0.48	0.23	0.43	0.31	0.48	0.40	0.55	0.19	0.40	0.00	0.00	0.05	0.22
course selection	0.20	0.40	0.24	0.43	0.18	0.39	0.22	0.42	0.30	0.46	0.23	0.43	0.23	0.44	0.40	0.55	0.19	0.40	0.20	0.45	0.05	0.22
academic performance	0.14	0.35	0.17	0.38	0.13	0.34	0.22	0.42	0.20	0.41	0.19	0.40	0.08	0.28	0.00	0.00	0.14	0.36	0.00	0.00	0.08	0.27
research	0.28	0.45	0.27	0.45	0.28	0.45	0.22	0.42	0.35	0.48	0.23	0.43	0.08	0.28	0.60	0.55	0.29	0.46	0.40	0.55	0.28	0.45
interaction with students	0.20	0.40	0.27	0.45	0.17	0.37	0.35	0.49 [t]	0.15	0.36 [t]	0.31	0.47	0.31	0.48	0.00	0.00	0.24	0.44	0.00	0.00	0.10	0.30
interaction with advisor	0.36	0.48	0.44	0.50	0.32	0.47	0.57	0.51	0.40	0.50	0.38	0.50	0.31	0.48	0.20	0.45	0.29	0.46	0.40	0.55	0.28	0.45
climate in department	0.38	0.49	0.39	0.49	0.38	0.49	0.57	0.51	0.45	0.50	0.35	0.49	0.46	0.52	0.00	0.00 *	0.48	0.51 *	0.20	0.45	0.23	0.42
career opportunities	0.33	0.47	0.39	0.49	0.30	0.46	0.09	0.29 *	0.30	0.46 *	0.69	0.47	0.69	0.48	0.40	0.55	0.14	0.36	0.20	0.45	0.25	0.44
personal life	0.34	0.48	0.34	0.48	0.34	0.48	0.39	0.50	0.50	0.51	0.27	0.45	0.46	0.52	0.40	0.55	0.29	0.46	0.40	0.55	0.18	0.38
financial concerns	0.37	0.48	0.44	0.50	0.33	0.47	0.39	0.50	0.38	0.49	0.46	0.51 [t]	0.54	0.52 [t]	0.40	0.55	0.24	0.44	0.60	0.55	0.28	0.45
starting a family	0.18	0.39	0.15	0.36	0.20	0.40	0.22	0.42	0.33	0.47	0.12	0.33	0.23	0.44	0.00	0.00	0.14	0.36	0.20	0.45	0.10	0.30
family obligations	0.12	0.33	0.15	0.36	0.11	0.31	0.26	0.45	0.18	0.38	0.08	0.27	0.08	0.28	0.20	0.45	0.05	0.22	0.00	0.00	0.08	0.27

[a] A score of 1 represents a response of "yes"; a score of 0 represents a response of "no."

*p<.05; **p≤.01; ***p≤.001

Table 4a: Mean Rating of Overall Department Climate

	TOTAL		SEXUAL MINORITY STATUS			
			Sexual Minority		Not Sexual Minority	
	(N=173)		(N=59)		(N=114)	
	M	sd	M	sd	M	sd
overall climate	2.74	0.88	2.80	0.89	2.71	0.88

Table 4b: Mean Rating of Overall Department Climate by Division

	Social Sciences				Humanities				Biological/Health Sciences				Physical Sciences/Engineering			
	Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=23)		(N=40)		(N=26)		(N=13)		(N=5)		(N=21)		(N=5)		(N=40)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
overall climate	2.65	0.98	2.63	0.87	2.77	0.86	3.08	0.76	3.60	0.55 *	2.57	0.81 *	2.80	0.45	2.75	0.95

*p<.05; **p≤.01; ***p≤.001

Table 4c: Mean Ratings by Sexual Minority and Non Sexual Minority Students of Department Climates for Different Groups[a]

	supportive environment for:				students are condescending toward:				faculty are condescending toward:				…feel comfortable and included			
	Sexual Minority (N=59)		Not Sexual Minority (N=114)		Sexual Minority (N=59)		Not Sexual Minority (N=114)		Sexual Minority (N=59)		Not Sexual Minority (N=114)		Sexual Minority (N=59)		Not Sexual Minority (N=114)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	0.54	0.50	0.56	0.50	0.37	0.49	0.20	0.40	0.41	0.50	0.25	0.44	0.81	0.39 **	0.61	0.49 **
men	0.54	0.50	0.45	0.50	0.15	0.36 *	0.04	0.21 *	0.08	0.28 t	0.01	0.09 t	0.86	0.35 t	0.73	0.44 t
international students	0.46	0.50	0.55	0.50	0.39	0.49	0.25	0.43	0.31	0.46	0.19	0.40	0.53	0.50	0.54	0.50
racial or ethnic minorities	0.56	0.50	0.54	0.50	0.37	0.49	0.21	0.41	0.32	0.47	0.14	0.35	0.54	0.50	0.50	0.50
disabled students	0.12	0.33	0.11	0.31	0.20	0.41	0.08	0.27	0.14	0.35	0.04	0.21	0.22	0.42	0.25	0.43
sexual minorities	0.41	0.50	0.32	0.47	0.41	0.50 **	0.16	0.37 **	0.29	0.46 **	0.07	0.26 **	0.44	0.50	0.39	0.49

Table 4d: Mean Ratings by Social Science Students of Department Climates for Different Groups[a]

	supportive environment for:				students are condescending toward:				faculty are condescending toward:				…feel comfortable and included			
	Sexual Minority (N=23)		Not Sexual Minority (N=40)		Sexual Minority (N=23)		Not Sexual Minority (N=40)		Sexual Minority (N=23)		Not Sexual Minority (N=40)		Sexual Minority (N=23)		Not Sexual Minority (N=40)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	0.57	0.51	0.50	0.51	0.39	0.50	0.23	0.42	0.61	0.50 **	0.25	0.44 **	0.74	0.45	0.60	0.50
men	0.61	0.50	0.48	0.51	0.17	0.39	0.05	0.22	0.09	0.29	0.03	0.16	0.83	0.39	0.69	0.47
international students	0.43	0.51	0.53	0.51	0.61	0.50 **	0.28	0.45 **	0.57	0.51 t	0.33	0.47 t	0.39	0.50	0.38	0.49
racial or ethnic minorities	0.52	0.51	0.63	0.49	0.57	0.51 t	0.33	0.47 t	0.57	0.51 **	0.28	0.45 **	0.39	0.50	0.43	0.50
disabled students	0.13	0.34	0.10	0.30	0.30	0.47 **	0.05	0.22 **	0.35	0.49 ***	0.03	0.16 ***	0.17	0.39	0.20	0.41
sexual minorities	0.26	0.45	0.35	0.48	0.61	0.50 **	0.23	0.42 **	0.57	0.51 ***	0.15	0.36 ***	0.30	0.47	0.40	0.50

Table 4e: Mean Ratings by Humanities Students of Department Climates for Different Groups[a]

	supportive environment for:				students are condescending toward:				faculty are condescending toward:				…feel comfortable and included			
	Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=26)		Not Sexual Minority (N=13)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	0.54	0.51	0.54	0.52	0.42	0.50	0.15	0.38	0.35	0.49	0.38	0.51	0.92	0.27 *	0.62	0.51 *
men	0.58	0.50	0.54	0.52	0.19	0.40	0.00	0.00	0.12	0.33	0.00	0.00	0.92	0.27	0.77	0.44
international students	0.46	0.51	0.46	0.52	0.35	0.49	0.23	0.44	0.19	0.40	0.23	0.44	0.54	0.51	0.46	0.52
racial or ethnic minorities	0.50	0.51	0.54	0.52	0.35	0.49	0.15	0.38	0.23	0.43	0.15	0.38	0.62	0.50	0.46	0.52
disabled students	0.12	0.33	0.23	0.44	0.19	0.40	0.31	0.48	0.00	0.00 *	0.15	0.38 *	0.15	0.37	0.23	0.44
sexual minorities	0.58	0.50	0.62	0.51	0.23	0.43	0.08	0.28	0.12	0.33	0.00	0.00	0.54	0.51	0.54	0.52

[a] A score of 1 represents a response of "yes"; a score of 0 represents a response of "no."
[†] Ns vary slightly by item
*p<.05; **p≤.01; ***p≤.001

Table 4f: Mean Ratings by Biological and Health Science Students of Department Climates for Different Groups[a]

	supportive environment for:				students are condescending toward:				faculty are condescending toward:				…feel comfortable and included			
	Sexual Minority (N=5)		Not Sexual Minority (N=21)		Sexual Minority (N=5)		Not Sexual Minority (N=21)		Sexual Minority (N=5)		Not Sexual Minority (N=21)		Sexual Minority (N=5)		Not Sexual Minority (N=21)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	0.60	0.55	0.52	0.51	0.00	0.00	0.10	0.30	0.00	0.00	0.19	0.40	0.80	0.45	0.76	0.44
men	0.40	0.55	0.38	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.45	0.76	0.44
international students	0.60	0.55	0.52	0.51	0.00	0.00	0.19	0.40	0.00	0.00	0.10	0.30	0.80	0.45	0.67	0.48
racial or ethnic minorities	0.60	0.55	0.57	0.51	0.00	0.00	0.05	0.22	0.00	0.00	0.05	0.22	0.80	0.45	0.62	0.50
disabled students	0.20	0.45	0.05	0.22	0.00	0.00	0.05	0.22	0.00	0.00	0.00	0.00	0.60	0.55	0.29	0.46
sexual minorities	0.40	0.55	0.29	0.46	0.40	0.55	0.10	0.30	0.00	0.00	0.00	0.00	0.60	0.55	0.43	0.51

Table 4g: Mean Ratings by Physical Science & Engineering Students of Department Climates for Different Groups[a]

	supportive environment for:				students are condescending toward:				faculty are condescending toward:				…feel comfortable and included			
	Sexual Minority (N=5)		Not Sexual Minority (N=40)		Sexual Minority (N=5)		Not Sexual Minority (N=40)		Sexual Minority (N=5)		Not Sexual Minority (N=40)		Sexual Minority (N=5)		Not Sexual Minority (N=40)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	0.40	0.55	0.65	0.48	0.20	0.42	0.20	0.40	0.10	0.32	0.23	0.42	0.60	0.55	0.53	0.51
men	0.20	0.45	0.43	0.50	0.00	0.00	0.05	0.22	0.00	0.00	0.00	0.00	0.80	0.45	0.75	0.44
international students	0.40	0.55	0.63	0.49	0.00	0.00 [t]	0.23	0.42 [t]	0.00	0.00	0.10	0.30	0.80	0.45	0.65	0.48
racial or ethnic minorities	0.80	0.42 [t]	0.48	0.50 [t]	0.00	0.00	0.15	0.36	0.00	0.00	0.05	0.22	0.60	0.55	0.53	0.51
disabled students	0.00	0.00	0.10	0.30	0.00	0.00	0.05	0.22	0.00	0.00	0.05	0.22	0.40	0.55	0.28	0.45
sexual minorities	0.20	0.45	0.23	0.42	0.40	0.52 *	0.13	0.34 *	0.20	0.45	0.05	0.22	0.40	0.55	0.30	0.46

[a] A score of 1 represents a response of "yes"; a score of 0 represents a response of "no."
[†] Ns vary slightly by item
*p<.05; **p≤.01; ***p≤.001

Table 5a: Mean Ratings of Negative Comments by Faculty

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
Negative comments from faculty about:	(N=172)†		(N=58)		(N=114)†		(N=22)		(N=40)		(N=13)		(N=26)		(N=5)		(N=21)		(N=5)		(N=40)†	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	1.30	0.56	1.34	0.66	1.27	0.50	1.59	0.80	1.30	0.56	1.23	0.59	1.08	0.28	1.00	0.00	1.38	0.59	1.20	0.45	1.25	0.44
men	1.24	0.54	1.31	0.63	1.21	0.49	1.45	0.74	1.28	0.60	1.31	0.62	1.54	0.66	1.00	0.00	1.10	0.30	1.00	0.00	1.10	0.30
racial or ethnic minorities	1.29	0.60	1.38	0.70	1.25	0.54	1.68	0.84	1.40	0.67	1.23	0.59	1.23	0.44	1.00	0.00	1.14	0.36	1.20	0.45	1.15	0.48
religious groups	1.25	0.56	1.34	0.64	1.20	0.52	1.45	0.74 *	1.10	0.30 *	1.35	0.63	1.62	0.87	1.20	0.45	1.38	0.67	1.00	0.00	1.08	0.35
sexual minorities	1.15	0.49	1.34	0.69 *	1.05	0.29 *	1.73	0.88 ***	1.03	0.16 ***	1.15	0.46	1.38	0.77	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00

Table 5b: Mean Ratings of Negative Comments by Students

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
Negative comments from students about:	(N=171)†		(N=58)		(N=113)†		(N=22)		(N=40)†		(N=13)		(N=26)		(N=5)		(N=21)		(N=5)		(N=39)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
women	1.71	0.78	1.95	0.83	1.59	0.73	1.91	0.87	1.58	0.75	2.08	0.84 t	1.69	0.75 t	1.60	0.89	1.71	0.72	1.80	0.45	1.51	0.72
men	1.68	0.78	1.86	0.78	1.58	0.76	1.86	0.83	1.60	0.71	1.96	0.72	1.77	0.93	1.40	0.55	1.52	0.81	1.80	1.10	1.54	0.76
racial or ethnic minorities	1.55	0.73	1.69	0.82	1.48	0.67	1.82	0.85	1.60	0.71	1.81	0.85 *	1.23	0.60 *	1.00	0.00 t	1.52	0.60 t	1.20	0.45	1.41	0.68
religious groups	1.53	0.72	1.79	0.79 *	1.40	0.65 *	1.77	0.81 *	1.35	0.58 *	1.92	0.80	1.62	0.87	1.60	0.89	1.52	0.68	1.40	0.55	1.31	0.61
sexual minorities	1.53	0.78	1.91	0.90 **	1.33	0.62 **	2.00	0.98 ***	1.31	0.57 ***	1.85	0.88	1.77	0.93	2.00	1.00	1.43	0.68	1.80	0.84 **	1.15	0.43 **

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

Table 6: Mean Ratings of Department Climate Characteristics by Item and Scales[a]

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=173)[†]		(N=59)[†]		(N=114)[†]		(N=23)[†]		(N=40)[†]		(N=26)[†]		(N=13)[†]		(N=5)		(N=21)		(N=5)		(N=40)[†]	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
general climate scale	-0.20	0.82	-0.32	0.80	-0.14	0.82	-0.46	0.81	-0.27	0.87	-0.36	0.85	-0.08	0.73	0.42	0.46 [t]	-0.15	0.65 [t]	-0.19	0.28	-0.01	0.89
openness to diversity scale	-0.15	0.82	-0.31	0.93	-0.07	0.75	-0.74	1.06 [t]	-0.29	0.85 [t]	-0.09	0.83	0.06	0.72	0.14	0.56	0.20	0.47	0.03	0.25	-0.03	0.73
alienating/welcoming	3.46	1.22	3.32	1.29	3.53	1.18	3.13	1.18	3.28	1.38	3.31	1.49	3.69	1.03	4.20	0.84	3.48	0.93	3.40	0.89	3.75	1.10
hostile/friendly	3.68	1.06	3.63	1.10	3.71	1.05	3.48	1.12	3.43	1.22	3.62	1.20	4.00	0.82	4.20	0.84	3.76	0.77	3.80	0.45	3.88	1.02
racist/non-racist	4.03	1.14	3.83	1.25	4.13	1.07	3.17	1.44 [t]	3.80	1.20 [t]	4.04	0.96	3.92	1.32	4.80	0.45	4.52	0.75	4.80	0.45	4.33	0.89
homogeneous/diverse	3.37	1.19	3.37	1.30	3.36	1.14	3.00	1.21	3.03	1.00	3.58	1.39	3.58	1.16	3.20	1.30	3.71	1.15	4.20	0.84	3.45	1.22
disrespectful/respectful	3.68	1.07	3.54	1.06	3.75	1.08	3.30	1.11	3.58	1.15	3.69	1.16	3.92	0.76	3.80	0.45	3.67	1.20	3.60	0.55	3.90	1.03
sexist/non-sexist	3.62	1.21	3.58	1.33	3.64	1.15	3.30	1.40	3.55	1.26	3.58	1.39	4.00	1.00	4.40	0.89 [t]	3.81	0.81 [t]	4.00	0.71	3.53	1.22
contentious/collegial	3.45	1.11	3.37	1.16	3.49	1.09	3.30	1.29	3.35	1.19	3.35	1.16	3.54	0.97	3.60	1.14	3.38	1.07	3.60	0.55	3.67	1.06
individualistic/collaborative	2.74	1.26	2.47	1.31	2.88	1.22	2.70	1.40	2.75	1.15	1.96	0.98	2.46	1.20	3.80	1.30	3.00	1.26	2.60	1.52	3.08	1.27
competitive/cooperative	3.13	1.23	2.76	1.33 *	3.32	1.14 *	2.87	1.32	3.18	1.13	2.62	1.42	3.38	0.96	3.60	1.14	3.52	1.08	2.20	0.84 *	3.33	1.24 *
homophobic/non-homophobic	3.69	1.20	3.24	1.34 **	3.93	1.05 **	2.65	1.50 **	3.70	1.09 **	3.81	1.10	4.23	1.01	3.60	1.14	4.24	1.00	2.60	0.55 *	3.89	1.01 *
not-supportive/supportive	3.43	1.18	3.39	1.19	3.46	1.18	3.22	1.20	3.13	1.26	3.38	1.27	3.77	1.17	4.40	0.55 [t]	3.67	0.73 [t]	3.20	0.84	3.58	1.24
rigid/flexible	3.06	1.16	3.00	1.15	3.10	1.17	2.45	1.18 [t]	3.00	1.06 [t]	3.19	1.06	3.00	1.29	3.60	1.14	3.10	1.26	3.80	0.45	3.23	1.22
threatening/protective	3.19	1.00	3.05	1.02	3.26	0.99	2.65	0.93 *	3.20	0.99 *	3.15	1.12	3.38	1.04	4.00	0.00 *	3.19	0.87 *	3.40	0.55	3.31	1.06
discouraging/encouraging	3.43	1.12	3.36	1.05	3.46	1.15	3.30	1.06	3.40	1.22	3.27	1.12	3.77	0.93	4.20	0.45 [t]	3.24	1.04 [t]	3.20	0.84	3.55	1.22
snobbish/down-to-earth	2.99	1.16	2.86	1.18	3.05	1.15	2.74	1.10	3.13	1.22	2.58	1.21	2.69	1.25	4.40	0.55 **	2.95	1.07 **	3.40	0.55	3.15	1.10

[a] 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

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=170)†		(N=58)†		(N=113)†		(N=22)†		(N=40)†		(N=26)†		(N=13)†		(N=5)†		(N=21)†		(N=5)†		(N=40)†	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
teaching/serving as GSI	3.31	0.83	3.46	0.80	3.23	0.84	3.55	0.80	3.37	0.82	3.56	0.71	3.62	0.65	2.80	0.84	3.28	0.96	3.20	1.10	2.88	0.75
required coursework	3.08	0.82	3.03	0.77	3.11	0.85	2.77	0.81 †	3.18	0.81 †	3.23	0.71	3.38	0.77	3.00	1.00	2.71	0.78	3.20	0.45	3.16	0.90
cognate courses	2.85	0.90	2.91	0.84	2.83	0.93	2.86	0.85	3.08	0.85	3.08	0.88	3.00	1.00	2.60	0.55	2.90	0.72	2.60	0.89	2.47	1.01
elective courses	3.01	0.89	3.09	0.86	2.96	0.91	3.14	0.77	3.18	0.90	3.20	1.00	3.40	0.84	2.80	0.45	2.70	0.80	2.50	0.58	2.72	0.92
prelim/qualifying exams	3.03	0.89	2.93	0.97	3.08	0.84	2.67	0.97 *	3.15	0.71 *	3.09	1.00	3.23	0.73	3.40	0.55	2.95	1.12	2.80	1.10	3.03	0.85
learning research techniques	3.67	0.63	3.56	0.69	3.73	0.59	3.76	0.62	3.83	0.45	3.29	0.75	3.42	0.79	3.80	0.45	3.90	0.30	3.80	0.45	3.62	0.72
conducting research	3.82	0.46	3.73	0.56	3.86	0.39	3.76	0.54	3.79	0.52	3.60	0.65	3.77	0.44	4.00	0.00	3.95	0.22	4.00	0.00	3.92	0.27
attending professional conferences	3.28	0.82	3.11	0.93	3.37	0.75	3.14	0.99	3.28	0.78	2.96	0.95	2.83	0.83	3.20	0.84	3.50	0.76	3.60	0.55	3.57	0.60
internships/industrial experiences	2.62	0.88	2.86	0.83	2.52	0.88	3.00	0.78 *	2.27	0.88 *	2.75	0.89	2.50	0.84	2.00	0.00	2.36	0.81	3.00	1.00	2.78	0.89
courses or training in pedagogy	2.77	0.97	3.00	0.94 †	2.61	0.96 †	3.23	0.87 †	2.78	0.94 †	2.96	1.02	2.42	1.00	2.50	1.00	2.67	1.05	2.50	0.58	2.46	0.93
opportunities to present research	3.46	0.72	3.14	0.82 **	3.62	0.62 **	3.18	0.91 †	3.56	0.68 †	3.04	0.81	3.17	0.83	3.60	0.55	3.81	0.40	3.00	0.71 **	3.70	0.52 **
department lectures, talks, etc.	2.89	0.78	2.72	0.86 †	2.97	0.73 †	2.62	0.92	2.93	0.73	2.73	0.83 †	2.92	0.64 †	3.20	1.10	3.14	0.79	2.60	0.55	2.95	0.72
meeting outside speakers	2.85	0.75	2.74	0.74	2.90	0.75	2.95	0.74	2.93	0.83	2.58	0.76 *	2.83	0.83 *	2.60	0.55	2.80	0.70	2.80	0.84	2.95	0.69
practice interview/job market help	3.02	0.89	3.18	0.85	2.94	0.90	3.30	0.73	3.31	0.63	3.33	0.86	3.09	1.04	2.00	0.82	2.88	0.81	3.00	0.71	2.52	0.97
interdisciplinary training	3.15	0.85	3.32	0.83	3.05	0.84	3.55	0.80	3.34	0.81	3.24	0.83	3.17	0.83	2.25	0.50	2.94	0.83	3.60	0.55 *	2.74	0.79 *
social events	2.33	0.79	2.33	0.85	2.33	0.76	2.24	0.83	2.38	0.71	2.27	0.87	2.42	0.79	2.60	0.89	2.48	0.81	2.80	0.84 †	2.16	0.75 †
non-department lectures, talks, etc.	2.41	0.81	2.47	0.89	2.38	0.77	2.52	0.93	2.60	0.74	2.62	0.85	2.46	0.88	2.00	0.71	2.45	0.83	2.00	1.00	2.10	0.68
study groups	2.22	0.88	2.24	0.89	2.21	0.88	2.23	0.81	2.43	0.87	2.53	0.96	1.89	0.78	1.50	0.58	2.16	0.96	1.80	0.84	2.11	0.86
support groups/organizations	2.43	0.96	2.55	1.01	2.36	0.93	2.67	0.97	2.66	0.94	2.61	1.08	2.56	0.88	1.50	0.58	2.32	0.95	2.60	0.89	2.06	0.86
collaborative research opportunities	2.99	0.87	2.98	0.94	3.00	0.84	3.19	0.93	3.08	0.78	2.63	1.02	2.44	0.88	2.80	0.45	3.05	0.85	3.40	0.89	3.03	0.86
language practice	2.64	1.05	2.69	1.04	2.62	1.06	2.88	0.99	2.86	0.86	2.75	1.00	3.00	1.07	1.00	0.00	2.75	1.29	2.50	1.29	2.24	1.00

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

Table 8a: Mean Ratings of Groups as a Source of Information by Topic[a]

	on own				other students				faculty				dept. staff				other sources			
	Sexual Minority (N=59)†		Not Sexual Minority (N=114)†		Sexual Minority (N=59)†		Not Sexual Minority (N=114)†		Sexual Minority (N=59)†		Not Sexual Minority (N=114)†		Sexual Minority (N=59)†		Not Sexual Minority (N=114)†		Sexual Minority (N=59)†		Not Sexual Minority (N=114)†	
where learned about:	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
internal funding sources	0.44	0.50 *	0.59	0.49 *	0.59	0.50	0.49	0.50	0.49	0.50 †	0.40	0.49 †	0.54	0.50	0.56	0.50	0.11	0.32	0.13	0.34
external funding sources	0.61	0.49	0.57	0.50	0.47	0.50	0.41	0.49	0.50	0.50	0.45	0.50	0.34	0.48	0.44	0.50	0.26	0.44	0.18	0.38
administrative processes	0.43	0.50	0.42	0.50	0.36	0.49	0.30	0.46	0.43	0.50	0.48	0.50	0.20	0.41	0.22	0.42	0.14	0.35	0.11	0.31
information resources	0.71	0.46 *	0.84	0.37 *	0.47	0.50	0.37	0.48	0.29	0.46	0.24	0.43	0.14	0.35	0.15	0.36	0.15	0.36 †	0.22	0.42 †
writing professional papers	0.49	0.50	0.59	0.49	0.32	0.47	0.26	0.44	0.56	0.50	0.68	0.47	0.00	0.00	0.00	0.00	0.12	0.33	0.09	0.28
finding internships	0.22	0.42	0.20	0.40	0.07	0.25	0.07	0.26	0.12	0.33	0.08	0.27	0.00	0.00	0.07	0.26	0.00	0.00	0.01	0.09
department politics	0.47	0.50	0.48	0.50	0.46	0.50	0.36	0.48	0.37	0.49	0.32	0.47	0.76	0.43	0.68	0.47	0.05	0.22	0.06	0.24
how to do interdisiplinary research	0.39	0.49	0.27	0.45	0.19	0.39	0.15	0.36	0.24	0.43	0.30	0.46	0.02	0.13	0.02	0.13	0.07	0.25	0.04	0.18
how to present work	0.53	0.50	0.55	0.50	0.41	0.50	0.39	0.49	0.44	0.50	0.54	0.50	0.03	0.18	0.02	0.13	0.07	0.25	0.05	0.22
how to run experiments	0.24	0.43	0.34	0.48	0.22	0.42	0.32	0.47	0.27	0.45	0.39	0.49	0.03	0.18	0.02	0.13	0.02	0.13	0.04	0.21
rackham requirements	0.68	0.47	0.65	0.48	0.34	0.48	0.38	0.49	0.29	0.46	0.31	0.46	0.56	0.50	0.57	0.50	0.07	0.25	0.11	0.32

[a] A score of 1 represents a response of "yes"; a score of 0 represents a response of "no."

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total (N=)		Sexual Minority (N=)		Not Sexual Minority (N=)		Sexual Minority (N=23)		Not Sexual Minority (N=40)		Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=5)		Not Sexual Minority (N=21)		Sexual Minority (N=5)		Not Sexual Minority (N=40)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
don't know	1.72	1.82	1.85	1.86	1.65	1.82	1.57	1.97	1.93	2.18	1.96	1.80	1.62	1.71	1.80	1.64	1.19	1.44	2.60	2.07	1.63	1.64
on own	5.28	2.68	5.10	2.81	5.37	2.64	6.13	2.99	5.28	2.98	4.46	2.67 †	5.85	1.68 †	4.20	2.39	5.00	2.81	4.60	2.19	5.50	2.50
other students	3.51	2.55	3.83	2.68	3.39	2.51	4.22	2.83	3.75	2.61	3.65	2.87	3.31	2.43	3.80	1.79	3.43	2.48	3.00	1.87	3.05	2.48
faculty	3.96	2.71	3.92	2.61	4.05	2.77	4.39	2.61	3.33	2.81	3.04	2.32	3.85	2.51	5.80	1.30	5.38	2.27	4.40	3.85	4.15	2.87
department staff	2.58	1.52	2.58	1.39	2.63	1.58	2.48	1.53	2.60	1.48	2.69	1.35	2.69	1.93	3.40	0.89	3.10	1.48	1.60	0.89	2.40	1.61
other sources	0.97	1.46	0.98	1.49	0.98	1.46	1.17	1.50	0.85	1.03	1.12	1.68	1.54	2.30	0.20	0.45	1.67	1.88	0.20	0.45	0.58	1.08

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/			
	Total (N=)		Sexual Minority (N=)		Not Sexual Minority (N=)		Sexual Minority (N=)†		Not Sexual Minority (N=)†		Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=5)		Not Sexual Minority (N=21)		Sexual Minority (N=5)		Not Sexual Minority (N=40)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
sources of internal funding	1.51	1.11	1.68	1.11	1.44	1.11	1.48	1.12	1.50	1.06	1.92	1.02	1.85	0.99	2.20	0.84	1.57	1.29	0.80	1.30	1.18	1.08
sources of external funding	1.38	1.15	1.47	1.18	1.35	1.15	1.48	1.08	1.50	1.20	1.62	1.27	1.38	1.26	1.80	1.30	1.62	1.20	0.40	0.55	1.05	1.01
pratical administrative processes for research	1.00	0.99	1.05	0.95 †	0.98	1.02 †	1.61	0.89 **	0.98	0.86 **	0.46	0.76	0.69	1.18	1.80	0.45	1.43	1.03	0.80	0.45	0.85	1.08
necessary informational resources	0.98	0.94	1.05	0.84	0.97	0.98	0.87	0.92	0.98	1.03	1.19	0.80	1.31	1.11	1.20	0.84	1.19	0.93	1.00	0.71	0.75	0.90
how to write professional papers for publication	1.01	0.72	1.00	0.79	1.04	0.69	1.22	0.74	1.00	0.75	0.69	0.79	0.92	0.64	1.40	0.55	1.05	0.74	1.20	0.84	1.10	0.63
how to find internships	0.21	0.54	0.19	0.47	0.23	0.58	0.13	0.34	0.10	0.44	0.27	0.60	0.23	0.83	0.00	0.00	0.19	0.51	0.20	0.45	0.38	0.63
departmental policies	1.47	0.99	1.64	1.01	1.42	0.98	1.70	1.11	1.45	0.96	1.88	0.95	1.54	0.97	1.00	0.71	1.38	0.97	0.80	0.45	1.38	1.03
how to do interdisci- plinary research at UM	0.50	0.82	0.51	0.86	0.50	0.81	0.70	1.15	0.40	0.74	0.46	0.65	0.69	0.75	0.00	0.00	0.90	1.22	0.40	0.55	0.33	0.53
how to present my work at professional meetings	0.98	0.88	0.95	0.88	1.01	0.89	1.17	0.94	0.90	0.87	0.73	0.87	0.85	0.90	0.60	0.55 †	1.29	0.96 †	1.40	0.55	1.03	0.86
how to run experiments	0.69	0.94	0.54	0.92	0.77	0.95	0.74	1.05 †	0.33	0.66 †	0.04	0.20	0.31	0.85	1.40	0.89	1.57	0.93	1.40	1.14	0.95	0.93
department/Rackham requirements for degree	1.31	1.02	1.25	0.96	1.37	1.05	1.22	1.04	1.43	1.15	1.23	0.86	1.62	0.87	2.00	1.00	1.43	0.87	0.80	0.84	1.20	1.09

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

Table 9a: Mean Levels of Agreement with Advisor Items by Item and Scales

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH				PHYSICAL SCIENCES/			
	Total (N=177)†		Sexual Minority (N=59)†		Not Sexual Minority (N=114)†		Sexual Minority (N=23)		Not Sexual Minority (N=40)†		Sexual Minority (N=26)†		Not Sexual Minority (N=13)		Sexual Minority (N=5)		Not Sexual Minority (N=21)†		Sexual Minority (N=5)		Not Sexual Minority (N=40)†	
my primary advisor:	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**	**M**	**sd**
instrumental help scale	-0.15	0.80	-0.29	0.85	-0.08	0.76	-0.14	0.92	-0.35	0.75	-0.65	0.72 *	0.02	0.83 *	0.59	0.54	0.09	0.54	0.59	0.54	0.09	0.54
general availability scale	-0.11	0.87	-0.15	0.90	-0.10	0.86	-0.13	0.91	-0.27	0.76	-0.37	0.93	-0.18	0.83	0.77	0.29 †	0.12	0.65 †	0.77	0.29 †	0.12	0.65 †
egalitarianism/respect scale	-0.04	0.75	-0.07	0.80	-0.02	0.73	-0.12	0.99	0.17	0.69	-0.07	0.71 †	0.39	0.48 †	0.26	0.73	-0.21	0.64	0.26	0.73	-0.21	0.64
helps me secure funding for my graduate studies.	2.91	1.07	2.81	1.14	2.98	1.05	3.00	1.21 *	2.38	0.95 *	2.42	1.06	3.00	1.00	3.60	0.55	3.43	0.81	3.20	1.10	3.35	1.00
is available to me when I need help with my research.	3.20	0.89	3.19	0.86	3.23	0.91	3.13	0.92	3.13	0.89	3.04	0.87	3.15	0.90	4.00	0.00	3.43	0.81	3.40	0.55	3.25	0.98
is available to me when I need to talk about the program.	3.09	0.88	3.03	0.91	3.12	0.87	3.09	0.90	2.97	0.84	2.88	0.95	3.15	0.90	3.80	0.45	3.33	0.73	2.80	0.84	3.15	0.95
teaches me the details of good research practice.	2.80	0.96	2.71	0.95	2.83	0.97	2.87	0.97	2.65	1.00	2.31	0.84	2.54	0.78	3.80	0.45 †	3.19	0.60 †	3.00	0.71	2.93	1.10
gives me regular and constructive feedback on my research.	2.89	0.96	2.80	1.01	2.95	0.94	2.78	1.04	2.77	0.93	2.58	1.06	2.85	0.90	3.60	0.55	3.19	0.68	3.20	0.45	3.03	1.07
helps me develop professional relationships with others in the field.	2.72	0.99	2.55	1.03	2.81	0.97	2.78	1.04	2.48	0.96	2.12	0.97	2.69	0.95	3.60	0.55	3.00	0.89	2.60	0.55	3.08	0.94
assists me in writing presentations or publications.	2.73	1.02	2.53	1.08	2.85	0.97	2.70	1.11	2.53	0.82	1.96	0.84 *	2.62	1.04 *	3.80	0.45	3.29	0.85	3.40	0.55	3.03	1.05
expects me to work so many hours that it is hard to have a personal life.	1.95	0.85	1.84	0.81	1.96	0.84	1.83	0.83	1.87	0.89	1.88	0.88	1.54	0.52	1.80	0.84	2.24	0.94	1.80	0.45	2.05	0.78
encourages me in my research interests and goals.	3.23	0.86	3.19	0.94	3.27	0.83	3.26	1.01	3.34	0.81	3.12	1.03	3.38	0.87	3.40	0.55	3.25	0.64	3.00	0.00	3.18	0.93
instructs me in teaching methods.	2.04	0.86	1.95	0.87	2.10	0.86	1.74	0.86	1.92	0.91	2.00	0.91	2.46	0.97	2.60	0.55	2.05	0.80	2.00	0.71	2.19	0.78
is often not available to me.	2.09	0.95	1.97	0.93	2.14	0.97	2.04	0.88	2.28	0.91	2.04	1.04	2.08	0.95	1.40	0.55	2.19	1.08	1.80	0.84	2.00	0.99
would support me in any career path I might choose.	2.94	0.80	2.78	0.89 †	3.03	0.75 †	2.74	1.01 *	3.18	0.73 *	2.62	0.80 †	3.31	0.75 †	3.60	0.89	3.05	0.59	3.00	0.00	2.78	0.80
advises about preparation for career advancement.	2.69	0.83	2.695	0.793	2.714	0.853	2.83	0.89	2.66	0.97	2.54	0.76	2.77	0.83	2.80	0.84	2.62	0.74	2.80	0.45	2.80	0.82
advises about getting my work published.	2.78	0.95	2.58	1.00	2.90	0.92	2.83	1.03	2.54	0.88	2.04	0.77 *	2.77	0.93 *	3.40	0.89	3.24	0.77	3.40	0.55	3.13	0.92
advises about departmental politics.	2.51	0.91	2.42	0.95	2.57	0.90	2.61	1.03	2.50	0.95	2.08	0.84 **	3.08	0.86 **	3.00	0.71	2.52	0.87	2.80	0.84	2.50	0.85
treats my ideas with respect.	3.23	0.83	3.14	0.88	3.29	0.80	3.04	0.93 †	3.39	0.75 †	3.19	0.98	3.54	0.66	3.40	0.55	3.19	0.68	3.00	0.00	3.18	0.93
provides information about career paths open to me.	2.44	0.82	2.32	0.84	2.53	0.80	2.43	0.90	2.46	0.87	2.15	0.83 †	2.62	0.77 †	2.60	0.89	2.35	0.59	2.40	0.55	2.65	0.83
sees me as a source of labor to advance his/her career.	1.79	0.86	1.66	0.88	1.84	0.85	1.70	1.11	1.59	0.72	1.54	0.71	1.46	0.52	1.80	0.84	2.10	0.94	2.00	0.71	2.08	0.92
teaches me to write grants/research proposals.	2.40	0.91	2.31	0.94	2.47	0.90	2.48	0.99	2.26	0.79	1.88	0.67 †	2.54	1.13 †	3.80	0.45 *	2.71	0.90 *	2.20	0.45	2.513	0.914

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL	SEXUAL MINORITY STATUS	
		Sexual Minority	Not Sexual Minority
	(N=172)	(N=59)	(N=113)
helps me secure funding for my graduate studies.	38.4%	40.7%	37.2%
is available to me when I need help with my research.	69.2%	64.4%	71.7%
is available to me when I need to talk about the program.	19.2%	16.9%	20.4%
teaches me the details of good research practice.	44.2%	42.4%	45.1%
gives me regular and constructive feedback on my research.	75.0%	74.6%	75.2%
helps me develop professional relationships with others in the field.	27.9%	32.2%	25.7%
assists me in writing presentations or publications.	28.5%	27.1%	29.2%
expects me to work so many hours that it is hard to have a personal life.	5.8%	3.4%	7.1%
encourages me in my research interests and goals.	49.4%	59.3%	44.2%
instructs me in teaching methods.	4.1%	5.1%	3.5%
is often not available to me.	4.1%	5.1%	3.5%
would support me in any career path I might choose.	8.7%	8.5%	8.8%
advises about preparation for career advancement.	19.8%	20.3%	19.5%
advises about getting my work published.	26.2%	23.7%	27.4%
advises about departmental politics.	6.4%	5.1%	7.1%
treats my ideas with respect.	41.9%	49.2%	38.1%
provides information about career paths open to me.	6.4%	8.5%	5.3%
sees me as a source of labor to advance his/her career.	1.2%	0.0%	1.8%
teaches me to write grants/research proposals.	18.6%	6.8%	24.8%

† Ns vary slightly by item

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

	STAFF			U-M FACULTY			NON U-M FACULTY			OTHER STUDENTS			LAB/STUDY GROUP		
	Total (N=175)	Sexual Minority (N=59)	Not Sexual Minority (N=116)	Total (N=175)	Sexual Minority (N=59)	Not Sexual Minority (N=116)	Total (N=175)	Sexual Minority (N=59)	Not Sexual Minority (N=116)	Total (N=175)	Sexual Minority (N=59)	Not Sexual Minority (N=116)	Total (N=175)	Sexual Minority (N=59)	Not Sexual Minority (N=116)
helps me find funding for my graduate studies.	45%	49%	43%	49%	48%	50%	9%	7%	10%	32%	36%	30%	10%	5%	13%
is available to me when I need help with my research.	6%	3%	7%	66%	70%	65%	19%	25%	16%	55%	54%	56%	31%	19%	38%
is available to me when I need to talk about my program.	43%	42%	44%	52%	51%	53%	12%	10%	13%	75%	80%	72%	23%	14%	28%
teaches me the details of good research practice.	3%	3%	3%	54%	56%	53%	19%	27%	15%	34%	37%	33%	23%	14%	28%
gives me regular and constructive feedback on my research.	2%	2%	3%	59%	66%	55%	15%	20%	12%	33%	41%	28%	31%	22%	36%
helps me develop professional relationships with others in the field.	6%	9%	4%	52%	53%	52%	25%	27%	23%	24%	22%	25%	8%	5%	10%
assists me in writing presentations or publications.	4%	3%	4%	47%	46%	47%	13%	14%	13%	34%	37%	33%	26%	20%	29%
teaches me to write grants/research proposals.	8%	14%	5%	36%	37%	35%	9%	10%	8%	18%	24%	16%	23%	9%	8%
provides information about career paths open to me.	23%	22%	23%	38%	32%	41%	19%	20%	18%	37%	29%	41%	11%	7%	14%
encourages me in my research interests and goals.	10%	10%	10%	66%	70%	65%	26%	31%	23%	55%	66%	50%	27%	22%	29%
would support me in any career path I might choose.	21%	24%	19%	46%	41%	48%	25%	25%	24%	62%	70%	58%	22%	20%	23%
advises about getting my work published.	5%	3%	5%	52%	48%	54%	15%	22%	11%	27%	25%	28%	22%	15%	25%
advises about departmental politics.	29%	29%	28%	40%	49%	35%	7%	15%	3%	60%	68%	56%	14%	10%	16%
treats my ideas with respect.	24%	22%	25%	70%	71%	69%	29%	32%	28%	71%	78%	68%	33%	24%	38%

*p<.05; **p≤.01; ***p≤.001

Table 10b: Mean Counts of Kinds of Advice and Support Provided by Group Sources

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total (N=175)		Sexual Minority (N=59)		Not Sexual Minority (N=112)		Sexual Minority (N=23)		Not Sexual Minority (N=40)		Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=5)		Not Sexual Minority (N=20)		Sexual Minority (N=5)		Not Sexual Minority (N=39)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
UM staff	2.27	2.52	2.36	2.78	2.25	2.38	3.00	3.58	2.10	2.23	2.04	1.93	2.62	2.22	2.80	3.11	2.65	3.07	0.60	1.34	2.08	2.23
UM faculty	7.26	4.62	7.36	4.61	7.27	4.66	8.57	4.92	8.18	4.53	7.27	4.19	9.15	3.89	6.00	5.34	5.85	3.86	3.60	2.88	6.44	5.12
non-UM faculty	2.41	3.82	2.86	4.29	2.18	3.54	4.09	5.00	2.73	3.93	2.50	4.07	3.77	4.87	1.80	2.49	1.45	2.61	0.20	0.45	1.46	2.80
other students	6.18	3.97	6.66	3.91	5.98	4.04	8.22	3.85	7.13	4.42	6.00	3.68	7.31	2.75	4.40	3.91	5.65	4.18	5.20	3.83	4.54	3.52
lab/study groups	2.91	4.21	2.05	3.71	3.46	4.43	3.26	4.13	2.08	3.75	0.58	1.77	2.54	4.52	4.80	6.61	6.00	4.35	1.40	3.13	3.90	4.60

Table 10c: Mean Counts of Kinds of Advice and Support across Different Groups by Item

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total (N=175)		Sexual Minority (N=59)		Not Sexual Minority (N=112)		Sexual Minority (N=23)		Not Sexual Minority (N=40)		Sexual Minority (N=26)		Not Sexual Minority (N=13)		Sexual Minority (N=5)		Not Sexual Minority (N=20)		Sexual Minority (N=5)		Not Sexual Minority (N=39)	
	M	sd	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.	1.46	1.07	1.44	1.12	1.48	1.05	1.65	1.27	1.60	1.08	1.54	0.95 t	2.08	1.04 t	0.80	1.30	1.50	1.00	0.60	0.55	1.15	0.96
is available to me when I need help with my research.	1.78	1.04	1.71	1.10	1.85	1.02	1.96	1.26	1.75	1.03	1.58	0.86	1.85	0.80	1.80	1.64	2.10	0.97	1.20	0.84	1.82	1.10
is available to me when I need to talk about my program.	2.06	1.17	1.97	1.16	2.12	1.17	2.22	1.35	1.90	1.06	1.81	0.85 *	2.85	1.21 *	2.60	1.52	2.40	1.14	1.00	0.71	1.95	1.19
teaches me the details of good research practice.	1.33	1.02	1.37	1.11	1.32	0.98	2.00	1.17 *	1.35	1.03 *	1.00	0.75	1.15	1.07	1.20	1.64	1.45	1.15	0.60	0.55	1.28	0.83
gives me regular and constructive feedback on my research.	1.40	0.95	1.51	1.02	1.38	0.90	2.00	1.17	1.60	1.01	1.23	0.71	1.62	0.87	1.20	1.30	1.50	0.61	1.00	0.71	1.00	0.83
helps me develop professional relationships with others in the field.	1.14	0.99	1.15	1.06	1.15	0.96	1.48	1.41	1.23	0.92	1.08	0.74	1.62	1.33	0.60	0.55	1.00	0.79	0.60	0.55	1.00	0.92
assists me in writing presentations or publications.	1.25	1.01	1.20	0.96	1.29	1.04	1.74	1.14	1.58	1.22	0.92	0.63	1.23	1.09	0.60	0.89	1.30	0.92	0.80	0.45	1.03	0.81
teaches me to write grants/research proposals.	0.79	0.95	0.93	1.05	0.73	0.90	1.13	1.22	1.00	1.01	0.88	0.95	1.08	1.12	0.80	1.10	0.75	0.72	0.40	0.55	0.33	0.62
provides information about career paths open to me.	1.27	1.20	1.10	1.20	1.38	1.19	1.52	1.47	1.40	1.10	0.73	0.78 t	1.62	1.39 t	1.40	1.52	1.25	1.16	0.80	0.84	1.33	1.24
encourages me in my research interests and goals.	1.84	1.25	1.98	1.28	1.79	1.21	2.52	1.34 t	1.88	1.24 t	1.81	0.80	2.15	1.14	1.80	2.17	1.90	1.17	0.60	0.89	1.51	1.21
would support me in any career path I might choose.	1.75	1.36	1.80	1.34	1.74	1.38	2.39	1.34	2.00	1.30	1.50	1.14	1.85	1.41	1.80	1.79	1.40	1.27	0.60	0.55	1.62	1.50
advises about getting my work published.	1.21	1.04	1.14	1.07	1.25	1.03	1.57	1.34	1.28	1.06	0.88	0.77	1.31	1.03	0.80	0.84	1.30	1.13	0.80	0.84	1.18	0.97
advises about departmental politics.	1.50	1.11	1.71	1.15	1.39	1.08	2.04	1.30 **	1.25	0.98 **	1.54	0.90 t	2.38	1.33 t	2.20	1.30	1.60	1.14	0.60	0.55	1.10	0.85
treats me ideas with respect.	2.27	1.30	2.27	1.26	2.28	1.32	2.91	1.28	2.40	1.28	1.88	0.77 t	2.62	1.26 t	2.20	2.17	2.15	1.18	1.40	1.14	2.10	1.47

*p<.05; **p≤.01; ***p≤.001

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

	STAFF			STUDENTS			U-M FACULTY			ADVISOR			FAMILY/ FRIENDS		
	Total (N=176)	Sexual Minority (N=59)	Not Sexual Minority (N=117)	Total (N=176)	Sexual Minority (N=59)	Not Sexual Minority (N=117)	Total (N=176)	Sexual Minority (N=59)	Not Sexual Minority (N=117)	Total (N=176)	Sexual Minority (N=59)	Not Sexual Minority (N=117)	Total (N=176)	Sexual Minority (N=59)	Not Sexual Minority (N=117)
provides emotional support when I need it	20%	27%	16%	69%	75%	67%	24%	31%	21%	30%	34%	28%	93%	92%	93%
is easy to discuss ideas with	11%	7%	13%	80%	81%	79%	47%	58%	41%	51%	53%	50%	57%	58%	56%
treats me as a colleague	15%	15%	15%	77%	81%	75%	40%	36%	43%	43%	31%	50%	21%	20%	21%
talks about conflicting demands between work and family	6%	7%	5%	50%	44%	53%	19%	25%	15%	13%	17%	11%	47%	46%	48%
advocates for me with others when necessary	20%	24%	18%	32%	31%	33%	46%	58%	40%	57%	61%	56%	34%	32%	34%
generally respects opinions of others in the department	33%	39%	30%	53%	64%	48%	59%	66%	55%	56%	56%	56%	12%	14%	11%
treats me as a whole person–not just a scholar	27%	34%	23%	68%	71%	67%	40%	44%	38%	48%	42%	51%	77%	81%	75%
inspires me intellectually	6%	7%	6%	56%	63%	52%	65%	76%	60%	65%	63%	66%	42%	48%	39%
builds my confidence	19%	24%	16%	60%	63%	59%	43%	53%	38%	45%	42%	47%	68%	66%	69%
serves as a role model	7%	15%	3%	39%	49%	33%	59%	71%	52%	53%	49%	56%	43%	46%	41%

*p<.05; **p≤.01; ***p≤.001

Table 11b: Mean Counts of Social and Emotional Support from Different Groups

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=176)		(N=59)		(N=113)		(N=23)		(N=40)		(N=26)		(N=13)		(N=5)		(N=21)		(N=5)		(N=39)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
UM staff	1.63	2.38	1.98	2.74 t	1.47	2.19 t	2.87	3.48 t	1.50	1.99 t	1.27	1.61	1.54	2.54	3.20	3.56	1.81	2.79	0.40	0.89	1.23	1.97
other students	5.85	3.00	6.22	2.98	5.67	3.05	6.52	3.17	6.43	3.23	6.35	2.78	5.62	3.31	6.20	3.96	5.86	2.57	4.20	1.79	4.82	2.88
UM faculty	4.40	3.26	5.17	3.27	4.08	3.21	6.22	3.34	4.98	3.50	4.73	2.97	5.23	3.19	6.00	3.67 t	3.24	2.43 t	1.80	1.30	3.23	3.00
non-UM faculty	2.03	2.92	2.49	3.20	1.79	2.72	3.43	3.73	2.15	2.99	2.12	2.85	2.54	3.60	1.40	3.13	0.86	1.74	1.20	1.30	1.67	2.49
primary advisor	4.62	3.22	4.46	3.27	4.81	3.19	5.39	3.38	5.03	3.61	3.15	2.88 t	5.23	3.22 t	7.00	2.65	5.00	2.43	4.40	3.05	4.36	3.15
family/friends	4.93	2.64	5.02	2.83	4.85	2.56	5.22	2.76	4.80	2.52	4.73	2.79	5.62	2.79	6.00	2.92	4.43	2.18	4.60	3.78	4.87	2.75

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=176)		(N=59)		(N=113)		(N=23)		(N=40)		(N=26)		(N=13)		(N=5)		(N=21)		(N=5)		(N=39)	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
provides emotinal support when I need it.	2.20	1.13	2.47	1.25	2.08	1.05	3.00	1.41	2.45	1.11	2.23	0.95	2.46	1.27	2.60	1.34	1.95	0.80	1.20	0.45	1.64	0.87
is easy to discuss ideas with.	2.13	1.15	2.27	1.13	2.05	1.17	2.65	1.30	2.18	1.17	2.04	1.00	2.46	1.13	2.40	0.89	1.76	0.77	1.60	0.55	1.95	1.34
treats me as a colleague	1.76	1.16	1.80	1.14	1.73	1.15	2.13	1.32	1.83	1.20	1.54	0.86	1.77	1.42	2.40	1.34	1.52	1.03	1.00	0.71	1.72	1.10
talks about conflicting demands between academic & starting/managing family	1.30	1.09	1.34	1.24	1.28	1.02	1.65	1.34	1.55	1.04	1.08	0.98	1.38	1.12	2.20	1.79 t	1.19	0.87 t	0.40	0.55	1.03	1.01
advocates for me with others when necessary	1.45	1.37	1.59	1.42	1.40	1.37	1.83	1.47	1.65	1.46	1.46	1.21	1.85	1.57	2.60	1.95	1.38	1.47	0.20	0.45	1.00	1.05
generally respects opinions of others in the department	1.70	1.47	2.02	1.55 t	1.54	1.39 t	2.09	1.59 t	1.40	1.30 t	2.04	1.43	1.77	1.59	2.20	1.64	1.57	1.21	1.40	2.19	1.59	1.53
treats me as a whole person--not just a scholar	2.34	1.44	2.53	1.34	2.23	1.49	2.91	1.35	2.50	1.41	2.38	1.27	2.54	1.71	3.00	1.00	2.05	1.28	1.00	1.00	1.95	1.59
inspires me intellectually	2.03	1.31	2.39	1.43	1.87	1.22	2.61	1.41	2.28	1.24	2.35	1.29	2.08	1.12	2.00	1.87	1.71	1.27	2.00	2.00	1.46	1.10
builds my confidence	2.11	1.34	2.29	1.35	2.04	1.34	2.70	1.52	2.20	1.32	2.12	1.11	2.15	1.68	2.20	1.79	1.76	1.09	1.40	0.89	1.97	1.37
serves as a role model	1.81	1.32	2.19	1.44 t	1.65	1.22 t	2.70	1.43	1.83	1.06	1.96	1.25	2.08	1.44	1.20	1.30	1.29	1.15	2.00	2.12	1.51	1.30

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=171)†		(N=56)†		(N=111)†		(N=20)†		(N=39)†		(N=25)†		(N=13)†		(N=5)†		(N=21)†		(N=5)†		(N=39)†	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
staff	3.23	0.70	3.24	0.74	3.25	0.69	3.12	0.86	3.19	0.65	3.40	0.60	3.31	0.63	3.20	0.45	3.44	0.51	3.00	1.15	3.16	0.82
students	3.41	0.67	3.34	0.68	3.44	0.68	3.25	0.79	3.46	0.72	3.38	0.65	3.38	0.65	3.75	0.50	3.50	0.61	3.20	0.45	3.40	0.69
UM faculty	2.84	0.91	2.75	1.06	2.91	0.81	3.00	1.08	2.87	0.93	2.52	1.08	3.00	0.58	3.40	0.55	2.89	0.74	2.00	0.82 *	2.94	0.79 *
non-UM faculty	3.21	0.63	3.22	0.75	3.19	0.56	3.45	0.52	3.14	0.73	3.25	0.62	3.25	0.46	4.00	0.00	3.29	0.49	2.00	1.00 **	3.19	0.40 **
primary advisor	2.98	0.95	2.85	0.92	3.07	0.96	3.00	0.97	3.03	1.01	2.57	0.90	3.08	0.95	3.60	0.55	3.16	0.60	2.75	0.50	3.06	1.08
family friends	3.69	0.53	3.55	0.54	3.75	0.53	3.43	0.51 *	3.74	0.50 *	3.56	0.58	3.54	0.52	3.80	0.45	3.76	0.54	3.80	0.45	3.82	0.56

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority		Sexual Minority		Not Sexual Minority	
	(N=176)†		(N=59)†		(N=114)†		(N=23)†		(N=40)†		(N=26)†		(N=13)		(N=5)		(N=21)†		(N=5)		(N=40)†	
	M	sd	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	2.79	1.07	2.90	1.01	2.77	1.09	2.87	1.10	2.75	1.13	2.88	0.99	3.08	0.95	3.20	0.84 †	2.19	1.12 †	2.80	1.10	3.00	1.00
get a research job in industry or private sector	2.51	0.96	2.22	0.96 *	2.65	0.94 *	2.26	0.92	2.40	1.03	2.12	0.93	2.31	0.95	1.60	0.89 *	2.76	1.00 *	3.20	0.84	2.95	0.72
become a professor in a 4-year college	3.07	0.89	3.27	0.83	2.96	0.92	3.22	0.67	3.00	0.92	3.50	0.86	3.31	0.75	3.40	0.55	2.43	1.12	2.20	0.84 *	3.10	0.74 *
teach in a 2-year college	2.01	0.82	2.16	0.83	1.92	0.80	2.27	0.98	1.93	0.76	2.23	0.76	2.08	0.49	1.80	0.45	1.86	0.91	1.60	0.55	1.90	0.87
work independently (e.g., consulting, writing)	2.65	0.93	2.76	0.82	2.59	0.98	2.96	0.64 *	2.45	1.06 *	2.58	0.90	2.92	0.86	2.40	1.14	2.85	0.81	3.20	0.45	2.50	0.99
get a job in a non-profit or government agency	2.82	0.85	2.76	0.88	2.85	0.85	2.91	0.90	3.08	0.83	2.73	0.83	2.23	1.01	2.40	1.14	3.10	0.70	2.60	0.89	2.70	0.79
become a faculty administrator in a college/univ.	2.34	0.95	2.57	0.92	2.26	0.95	2.64	0.85	2.23	1.01	2.50	1.03	2.77	0.93	2.80	0.45 *	1.86	0.85 *	2.40	1.14	2.33	0.89
both have children and be a successful academic	3.32	0.89	3.10	1.06 †	3.44	0.78 †	3.13	1.18	3.46	0.76	2.96	1.04	3.38	0.87	3.60	0.89	3.30	1.03	3.20	0.84	3.50	0.64

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL SAMPLE						SOCIAL SCIENCES				HUMANITIES/ ARTS				BIOLOGICAL/ HEALTH SCIENCES				PHYSICAL SCIENCES/ ENGINEERING			
	Total (N=176)†		Sexual Minority (N=59)†		Not Sexual Minority (N=114)†		Sexual Minority (N=23)		Not Sexual Minority (N=40)†		Sexual Minority (N=26)†		Not Sexual Minority (N=13)		Sexual Minority (N=5)		Not Sexual Minority (N=21)†		Sexual Minority (N=5)†		Not Sexual Minority (N=40)†	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
research	4.27	1.08	4.34	1.03	4.25	1.09	4.35	1.27	4.20	1.32	4.27	0.96	4.38	0.87	4.80	0.45	4.14	1.11	4.20	0.45	4.30	0.91
teaching	4.28	1.00	4.46	0.93 t	4.19	1.04 t	4.74	0.54 *	4.20	1.04 *	4.31	1.05	4.23	1.30	4.60	0.55	3.95	1.36	3.80	1.64	4.30	0.72
working on college campus	4.35	0.82	4.44	0.88	4.32	0.78	4.70	0.47	4.54	0.64	4.42	0.90	4.23	1.24	4.60	0.55	4.14	0.65	3.20	1.48 *	4.23	0.77 *
salary levels in academia	2.81	1.03	3.05	1.11 *	2.70	0.99 *	3.09	1.08	2.68	0.94	2.92	1.13	2.77	1.01	3.60	1.14	3.60	1.14	3.00	1.22	2.78	0.97
academic job market	2.26	1.08	2.28	1.17	2.25	1.04	2.48	1.04	2.13	1.07	2.00	1.30	1.69	0.75	2.60	1.14	2.57	1.16	2.50	1.00	2.40	0.96
faculty way of life	3.36	1.27	3.66	1.31 *	3.24	1.23 *	3.87	1.25 *	3.18	1.34 *	3.54	1.30	2.92	1.44	3.60	1.67	2.81	1.17	3.40	1.52	3.63	0.98
promotion process	2.17	0.93	2.26	1.00	2.14	0.90	2.09	0.95	1.90	0.81	2.35	1.09	2.38	0.87	2.60	0.89	2.05	0.97	2.25	0.96	2.35	0.92
security of tenure	3.66	1.05	3.75	0.99	3.62	1.08	3.91	1.12	3.45	1.22	3.58	1.03	3.69	1.03	4.00	0.00	3.71	1.23	3.60	0.55	3.73	0.85
workload I'm likely to encounter	2.47	1.06	2.58	1.12	2.43	1.03	2.57	1.20	2.18	1.03	2.73	1.08	2.85	0.99	2.00	0.71	2.43	1.08	2.40	1.34	2.56	0.99
ability to have children and pursue career	2.68	1.23	2.72	1.23	2.66	1.25	2.83	1.30	2.36	1.14	2.68	1.14	2.85	1.28	2.40	0.89	2.71	1.45	2.80	1.79	2.88	1.22
ability to balance professional/personal lives	2.79	1.31	2.86	1.48	2.79	1.22	2.70	1.43	2.40	1.13	2.92	1.49	3.08	1.12	3.00	1.41	2.76	1.37	3.20	2.05	3.10	1.17
compatility with partner's career	2.92	1.13	2.93	1.24	2.92	1.07	3.39	1.31 **	2.51	1.05 **	2.54	1.21	3.23	1.01	2.60	0.89	2.90	0.94	3.20	0.84	3.23	1.07
how academia fits my personality/temperament	3.93	1.20	4.12	1.13	3.85	1.24	4.00	1.17	3.83	1.30	4.19	1.06	4.00	1.08	4.80	0.45 *	3.29	1.42 *	3.60	1.67	4.13	1.04
opportunity to inspire others about field	4.30	0.85	4.37	0.85	4.27	0.87	4.57	0.73	4.25	0.98	4.23	0.95	4.54	0.66	4.00	1.00	4.10	1.04	4.60	0.55	4.30	0.69
makes use of my personal talents and skills	4.34	0.91	4.44	0.91	4.29	0.92	4.52	0.90	4.33	1.02	4.35	1.06	4.38	0.87	4.40	0.55	4.05	1.02	4.60	0.55	4.35	0.77
amount of encouragement I receive from faculty	3.24	1.08	3.36	1.27	3.21	0.95	3.57	1.27	3.15	0.98	3.27	1.34	3.46	0.78	3.60	0.89	3.10	1.00	2.60	1.14	3.25	0.98
my parents' desire for me to pursue this career	3.03	0.62	3.07	0.72	3.01	0.57	3.04	0.64	2.95	0.75	3.04	0.87	2.85	0.38	3.20	0.45	3.10	0.44	3.20	0.45	3.08	0.47
opportunity to make changes in the field	3.94	0.83	4.03	0.89	3.90	0.80	4.39	0.72 *	3.93	0.66 *	3.85	1.01	4.08	0.95	3.20	0.45	3.90	0.89	4.20	0.45	3.83	0.84
opportunity to make impact beyond academia	4.05	1.13	4.10	1.21	4.02	1.09	4.30	1.15	4.18	1.15	4.04	1.37	4.00	1.29	3.60	0.55	4.00	1.12	4.00	1.22	3.88	0.97

† Ns vary slightly by item

*p<.05; **p≤.01; ***p≤.001

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

	TOTAL	SEXUAL MINORITY STATUS	
		Sexual Minority	Not Sexual Minority
	(N=168)†	(N=58)	(N=110)†
research	48.2%	48.3%	48.2%
teaching	47.6%	46.6%	48.2%
working on college campus	32.3%	41.4%	27.5%
salary levels in academia	3.6%	3.4%	3.7%
academic job market	4.2%	1.7%	5.5%
faculty way of life	19.8%	27.6%	15.6%
promotion process	0.0%	0.0%	0.0%
security of tenure	9.0%	3.4%	11.9%
workload I'm likely to encounter	0.6%	1.7%	0.0%
ability to have children and pursue career	4.8%	10.3%	6.4%
ability to balance professional/personal lives	7.8%	0.0%	6.4%
compatibility with partner's career	3.0%	2.4%	4.6%
how academia fits my personality/temperament	23.4%	22.4%	23.9%
opportunity to inspire others about field	21.6%	13.8%	25.7%
makes use of my personal talents and skills	28.1%	25.9%	29.4%
amount of encouragement I receive from faculty	2.4%	1.7%	2.8%
my parents' desire for me to pursue this career	1.2%	1.7%	0.9%
opportunity to make changes in the field	14.4%	15.5%	13.8%
opportunity to make impact beyond academia	27.4%	27.6%	27.3%

† Ns vary slightly by item

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

	TOTAL	SEXUAL MINORITY STATUS	
		Sexual Minority	Not Sexual Minority
	(N=170)†	(N=58)†	(N=112)†
research	8.6%	7.3%	9.3%
teaching	4.3%	1.8%	5.6%
working on college campus	1.2%	3.6%	0.0%
salary levels in academia	27.1%	27.3%	27.0%
academic job market	40.6%	39.3%	41.3%
faculty way of life	16.0%	7.3%	20.6%
promotion process	42.1%	42.1%	42.1%
security of tenure	9.3%	9.1%	9.3%
workload I'm likely to encounter	46.6%	50.0%	44.9%
ability to have children and pursue career	30.2%	21.8%	34.6%
ability to balance professional/personal lives	32.5%	37.8%	29.9%
compatibility with partner's career	15.4%	14.5%	15.9%
how academia fits my personality/temperament	8.0%	10.9%	6.5%
opportunity to inspire others about field	0.0%	0.0%	0.0%
makes use of my personal talents and skills	2.5%	5.5%	0.9%
amount of encouragement I receive from faculty	7.4%	9.1%	6.5%
my parents' desire for me to pursue this career	5.3%	5.2%	5.4%
opportunity to make changes in the field	1.9%	3.6%	0.9%
opportunity to make impact beyond academia	4.9%	7.3%	3.7%

† Ns vary slightly by item

Table 14a: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: Sexual Minority Students (N=55)†

	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	-0.33 *	0.37 **	0.27 *	0.43 ***	0.16	0.13	0.33 *	-0.02	0.17
openness to diversity scale	-0.29 *	-0.04	-0.06	0.10	-0.13	-0.18	0.21	0.19	0.14
general climate scale	-0.31 *	0.21	0.17	0.25 t	-0.02	0.02	0.34 **	0.12	0.16
ADVISOR									
instrumentality scale	-0.18	0.20	0.25 t	0.33 *	0.15	-0.03	-0.06	0.07	0.20 t
availability scale	-0.10	0.24 t	0.19	0.25 t	0.39 **	0.03	0.10	0.02	0.08
egalitarianism/respect scale	-0.25 t	0.16	0.19	0.11	0.21	0.00	0.22	0.10	0.17 t
adequacy of advisor's advice	-0.12	0.14	0.17	0.16	0.25 t	-0.04	-0.03	0.05	0.12
satisfaction with advisor's social/emotional support	-0.27 t	0.15	0.18	0.21	0.12	-0.08	0.13	0.01	0.13
STUDENT EXPERIENCES									
count of lack of opportunities	0.09	-0.22	-0.13	-0.29 *	-0.03	-0.15	-0.03 *	-0.31 *	0.00
satisfaction with UM faculty social/emotional support	-0.27 t	0.23	0.23	0.27 t	-0.04	0.19	0.03	-0.06	0.30 *

Table 14b: Correlations of Measures of Discouragement, Confidence and Career Goals with Climate, Advisor and Experience Measures: Non Sexual Minority Students (N=56)† ‡

	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	-0.09	0.25 t	0.17	0.41 **	0.22	-0.07	0.20	0.25	0.11
openness to diversity scale	-0.05	0.26 t	0.23 t	0.34 *	0.17	-0.02	0.16	0.10	-0.20
general climate scale	-0.21	0.27 *	0.19	0.31 *	0.30 *	0.03	0.21	0.15	0.07
ADVISOR									
instrumentality scale	-0.34 *	0.27 t	0.11	0.37 ***	0.31 *	0.08	0.20	0.51 ***	0.17
availability scale	-0.36 **	0.35 *	0.16	0.42 ***	0.21	0.20	0.20	0.49 ***	0.10
egalitarianism/respect scale	-0.04	0.10	0.07	0.21	-0.11	0.10	-0.06	0.19	-0.05
adequacy of advisor's advice	-0.23 t	0.31 *	0.18	0.40 **	0.30 *	0.16	0.08	0.48 ***	-0.08
satisfaction with advisor's social/emotional support	-0.22	0.28 t	0.14	0.47 ***	0.21	0.13	0.03	0.38 **	-0.01
STUDENT EXPERIENCES									
count of lack of opportunities	0.18	-0.43 ***	-0.31 *	-0.45 ***	-0.37 **	-0.24	-0.21	-0.14	0.06
satisfaction with UM faculty social/emotional support	-0.47 ***	0.26 t	0.14	0.35 *	0.32 *	0.16	0.06	0.21	0.12

† Ns vary slightly by item

‡ randomly selected 50% of non sexual minority students

*p<.05; **p≤.01; ***p≤.001

Table 14c: Correlations of Measures of Climate with Advisor Ratings: Sexual Minority Students (N=59)†

	general climate	openness to diversity	overall climate scale
instrumentality scale	0.29 *	0.07	0.17
availability scale	0.31 *	0.11	0.28 *
egalitarianism/respect scale	0.21	0.17	0.30 *
adequacy of advisor's advice	0.25 t	0.05	0.23 t
satisfaction with advisor's social/emotional support	0.48 ***	0.11	0.40 **

Table 14d: Correlations of Measures of Climate with Advisor Ratings: Non- Sexual Minority Students (N=56)†

	general climate	openness to diversity	overall climate scale
instrumentality scale	0.40 **	0.20	0.34 *
availability scale	0.32 *	0.19	0.27 t
egalitarianism/respect scale	0.30 *	0.33 *	0.24 t
adequacy of advisor's advice	0.23 t	0.20	0.20
satisfaction with advisor's social/emotional support	0.32 *	0.16	0.16

† Ns vary slightly by item

‡ randomly selected 50% of non sexual minority students

*p<.05; **p≤.01; ***p≤.001

XII. APPENDICES

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
□ Course selection
□ Academic performance
□ Research
□ Interaction with other students
□ Interaction with my advisor
□ Climate in the department
□ Career opportunities
□ Personal life
□ Financial concerns
□ Concerns about starting a family
□ 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	15	58
Natural sciences, biology, kinesiology, SNRE, immunology	10	38
Biological engineering, biopsychology, bioanthropology, etc.	1	4
	26	
Physical Sciences and Engineering		
Engineering	24	53
Math, statistics, accounting	5	11
Physical sciences, geology, physics, astronomy, chemistry	11	24
Computer science, information technology	3	7
Other (e.g., kinesiology, SNRE, architecture)	2	4
	45	
Social Sciences		
LSA social science fields, social work, public policy	34	61
Education	13	23
Info technology, SNRE, business, orgs, urban planning, linguistics	8	14
Health, biopsychology, bioanthropology, etc.	1	2
	56	
Humanities and Arts		
LSA humanities fields	31	84
Music, art, theater	4	11
Architecture/urban planning	2	5
	37	