



A Report on Departmental Climate  
in the Sciences  
at the University of Maine

Sponsored by National Science Foundation ADVANCE-IT Award # HRD-1008498

## Departmental Climate in STEM & SBS at UMaine Executive Summary

In March 2012 a survey was distributed to 23 departments and schools at the University of Maine, focusing on those in STEM (science, technology, engineering, and mathematics) and SBS (social-behavioral science) fields. The link to the online survey was sent to all faculty and staff in each of these 23 units (N=490), which included 26 questions related to departmental climate.

In the survey, *climate* was defined as the following:

"The atmosphere or ambience of an organization as perceived by its members. An organization's climate is reflected in its structures, policies, and practices; the demographics of its membership; the attitudes and values of its members and leaders; and the quality of personal interactions" (University of Wisconsin Committee on Women in the University's Work Group on Climate, 2002).

Of the 490 possible respondents, a total of 243 faculty and staff completed the survey or 49.6%. Out of 151 possible staff members, 62 responded (41.1%); whereas out of 339 possible faculty members, 159 responded (46.9%), with 22 individuals not providing information on their position. Within each individual department, response rates varied from a low of 12% in one department to a high of 100% in another; the average response rate across all 23 departments was 53.1%.

Overall, when asked to rate their departmental climate on a scale of 1 to 5 (where 1 was very negative and 5 was very positive), both faculty and staff indicated a mean rating of 3.81, suggesting that most faculty and staff found their departments moderately positive.

While no significant differences were found between staff and faculty nor between men and women, when considered by racial group, faculty and staff of color rated their departments' climates less positively (M=3.00, SD=1.08) than their non-faculty of color counterparts (M=3.82, SD=1.12). This result was significant ( $p=0.02$ ) but caution is warranted given the unequal sample sizes and extremely small sample size for faculty of color.

Utilizing the mean response and the standard deviation, a total of 5 departments could be interpreted as having an above average-rated climate, whereas a total of 9 departments would be rated below average.

In their open-ended responses to questions about the attributes that made their departments' climate positive and/or negative, respondents from departments rated most positively emphasized how (a) respect and (b) collegiality were a common part of their climate, whereas individuals in the departments rated most negatively emphasized (a) uneven workloads, (b) divisions and tensions in the department, and (c) the negative role played by the department chair or director.

Regardless of departmental climate rating, however, all departments emphasized how a lack of resources, resulting in fewer faculty lines, an increased workload, a declining physical plant, and an uneven workload were negative aspects of their departments. In other words, the most often discussed negative aspects of the departmental climate in these 23 departments owed to forces outside the control of the department.

## Departmental Climate in STEM & SBS at UMaine

An organization's climate can be defined as "the atmosphere or ambience of an organization as perceived by its members. An organization's climate is reflected in its structures, policies, and practices; the demographics of its membership; the attitudes and values of its members and leaders; and the quality of personal interactions" (Women in Science and Engineering Leadership Institute at the University of Wisconsin-Madison, 2008).

Within higher education organizations, a faculty member's department is his or her organizational, disciplinary, and academic home (Becher & Trowler, 2001). Departments become the source from which most hiring decisions are made as well as promotion and tenure deliberations (Miller, 1987). It is perhaps not surprising, then, that the departmental climate is the focus of much study in higher education environments. Indeed, the climate of one's department has been found to play a significant role in faculty decisions to stay or leave the institution, particularly among women (August & Waltman, 2004). As such, the department's climate has been found to be a key indicator in faculty job satisfaction (Hagedorn, 2000).

Funded by the National Science Foundation's ADVANCE Rising Tide Center at the University of Maine (NSF Award # HRD-1008498), the following report details the results from a 2012 survey related to organizational climate in 23 STEM and Social-Behavioral Science departments and schools.

### Survey Respondents

In March 2012, an online survey was distributed to the faculty and staff in 23 STEM and SBS academic units at the University of Maine (UMaine), a total of 490 individuals. Of these 490, a total of 243 individuals completed the survey, resulting in a 49.6% response rate.

Among these 243, a total of 62 staff and 158 faculty members responded. Table 1 provides details on the survey respondents.

Table 1: *Survey Respondents by Position and Rank*

Position/Rank	Staff Member	Instructor/Lecturer	Assistant Professor	Associate Professor	(Full) Professor
<b>Total Respondents (% of total)</b>	62 (25.5%)	19 (17.8%)	28 (11.5%)	48 (19.8%)	64 (26.3%)

*22 individuals, or 9.1% of all respondents, did not indicate position or rank*

Within the 23 departments surveyed, response rates varied but averaged 53.1%, ranging from a low of 12% in Mechanical Engineering to a high of 100% in Sociology. Table 2 provides an overview of response rates by departments surveyed.

Table 2: Response Rate by Department/School/Unit

Department	Response Rate
Animal and Veterinary Sciences	73%
Anthropology	60%
Biology and Ecology	63%
Chemical Engineering	48%
Chemistry	50%
Civil and Environmental Engineering	67%
Computing and Information Science	20%
Earth Sciences	47%
Economics	56%
Electrical and Computer Engineering	60%
Engineering Technology	58%
Food Science and Human Nutrition	64%
Forest Resources	41%
Marine Sciences	38%
Mathematics and Statistics	40%
Mechanical Engineering	12%
Molecular and Biomedical Sciences	86%
Physics and Astronomy	30%
Plant Soil and Environmental Sciences	43%
Political Science	78%
Psychology	52%
Sociology	100%
Wildlife Ecology	36%

In addition, respondents were asked to indicate gender. Of those who responded to these prompts were 126 men (51.9% of total) and 106 women (43.6% of total), with 11 individuals, or 4.5%, choosing not to respond. From possible respondents in this population, women had a higher response rate (59.2%) compared to that of men (41.0%).

Racial group was also requested in the survey, with 13 individuals or 5.3% responding that they identified as a person of color and 220 or 90.5% responding that they did not identify with this group (10 people, or 4.1%, did not indicate racial group). Given the self-identification option in this response, it is difficult to compare to larger population numbers on campus. Table 3 provides an overview of these statistics.

Table 3: Survey Respondents by Gender and Racial Group

Group	Men	Women	People of Color
<b>Total Respondents</b>	126	106	13
<b>(% of total)</b>	(51.9%)	(43.6%)	(5.3%)

*11 people, or 4.5%, did not indicate gender and 10 people, or 4.1%, did not indicate racial group*

Given the small numbers of staff, people of color, and women in many units, demographics beyond the aggregate are not provided here to protect anonymity.

## Overall Climate

Faculty and staff were asked to respond to the following prompt:  
“On a scale from 1 (very negative) to 5 (very positive),  
please rate the climate in your department.”

Both faculty and staff indicated a mean rating of 3.81, suggesting that most faculty and staff found their departments moderately positive.

Considered by racial group, faculty and staff of color rated their departments' climates less positively ( $M=3.00$ ,  $SD=1.08$ ) than their non-faculty of color counterparts ( $M=3.82$ ,  $SD=1.12$ ). While this result was significant ( $p=0.02$ ), caution is warranted given the extreme difference in sample sizes. Figure 1 provides an overview of these results.

Figure 1: *Mean Overall Departmental Climate by Position, Gender, and Racial Group*

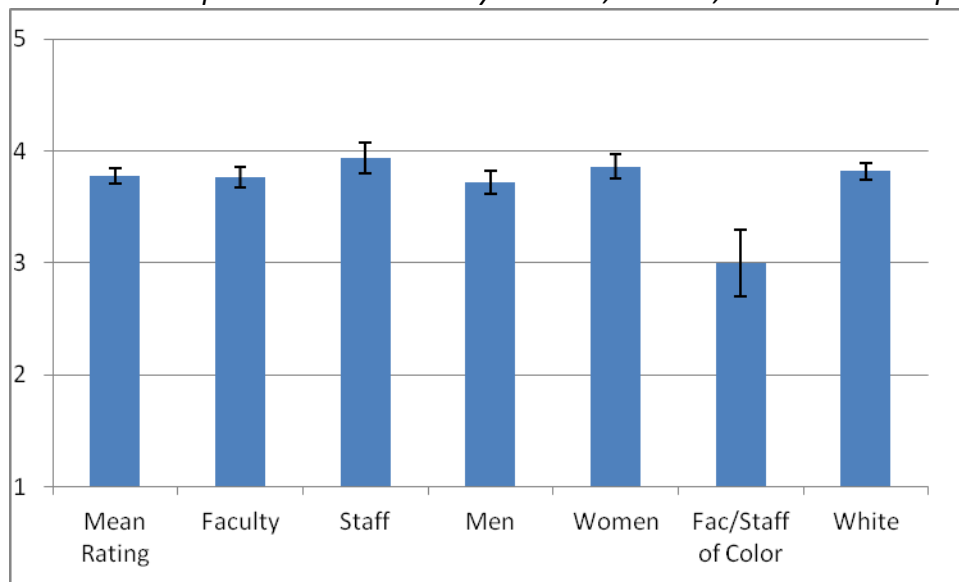
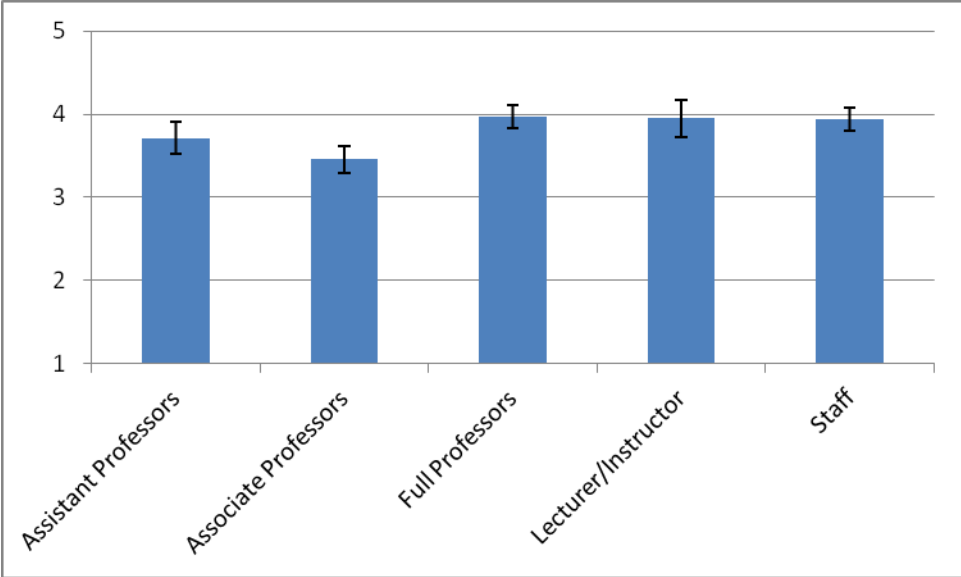


Figure 2: Mean Overall Departmental Climate by Rank



## Indicators of Departmental Climate

Faculty and staff were asked to indicate several factors contributing to their department's climate, using a scale of 1-5, where 1 was strongly disagree and 5 was strongly agree. Table 4 presents each item along with mean scores by rank. In general, full professors expressed higher levels of agreement in positive areas of climate. Significant differences are noted where they exist (\* $p < 0.05$ , Means with different subscripts in the same row are significantly different from each other).

**Table 4: Indicators of Departmental Climate by Rank**

Item	Staff (n=62)	SD	Instructor/ Lecturer (n=19)	SD	Assistant Professors (n=28)	SD	Associate Professors (n=48)	SD	Full Professors (n=64)	SD
My department is a welcoming place to work.	4.13	1.03	3.95	.85	3.89	1.10	3.63	1.16	4.09	1.19
I understand my role and responsibilities as a member or employee in the department.	4.21a	.87	4.16a	.76	3.86a,b	.97	4.21a	.90	4.48a,c	.98
I have the resources I need to be productive in my job.	3.95a,b	.95	3.79a,b	.71	3.11a,c	1.17	3.11a,d	1.18	3.28a,e	1.20
I feel appreciated for the work I do in the department.	3.73a	1.15	3.95a	.91	3.57a	1.10	3.19a,b	1.18	3.79a,c	1.18
The Chair of the department or my supervisor respects my opinions and contributions.	4.06	1.02	4.26	.81	4	.94	3.89	1.22	4.11	1.25
Others in the department respect my opinions.	3.77	.97	4	.75	3.68	.72	3.65	.98	4.02	.99
I trust the people who make decisions that affect me.	3.67	1.03	3.47	.96	3.43	1.03	3.15	1.22	3.45	1.22
I am able to influence the decisions that are made in the department.	3.05a,b	1.09	3.37a	1.07	3.21a	1.07	3.58a	1.15	3.86a,c	1.16
The Chair of the department appropriately consults or delegates decisions to a group or	3.63	.88	3.61	1.42	3.54	1.07	3.45	1.35	3.78	1.28
I feel safe voicing my feelings in front of others in the department.	3.56a,b	1.13	3.84a	.96	3.43a,c	1.14	3.71a	1.07	4.20a,d	1.03
My work contributes to the mission or purpose of my department.	4.34	.70	4.26	1.05	4.39	.69	4.5	.74	4.54	.84
Others recognize how my work contributes to the mission or purpose of my department.	3.94	.92	3.84	.83	3.64	.95	3.67	1.02	4.08	1.03
I am happy with the professional relationships I've formed with others in the department.	3.98	.93	4	.94	3.71	1.05	3.58	1.20	4.13	1.08
There is somebody in the department who promotes my professional development.	3.18a	1.09	3.26a	1.10	3.71a,b	1.01	2.92a,c	1.41	2.87a,d	1.28
Resources and other benefits are allocated fairly within the department.	3.24	1.05	3.42	.77	3.04	1.23	3.27	1.25	3.53	1.22
Even though other people are around, I feel isolated.	2.06	1.23	1.89	.94	2.63	1.39	2.69	1.32	2.11	1.23
My work is commensurate with my training and experience.	3.76a,b	.95	3.82a	1.13	3.93a	.94	4.1a	1.06	4.30a,c	1.06
I have the same amount of responsibilities as my peers in the department.	3.15	1.12	3.33	.84	2.93	.98	3.13	1.31	3.48	1.41
I experience subtle or overt forms of harassment or discrimination due to my gender, race, or other personal attributes.	1.72	1.14	1.58	.75	1.81	1.18	1.75	1.18	1.57	.91
I feel reasonably accommodated when personal and professional responsibilities are in conflict.	3.85	.96	3.84	.69	3.78	.97	3.64	.90	3.91	.89
I am aware of places or people to go to if I am faced with a problem or issue in the department.	4.03	.83	3.89	.94	3.61	1.23	3.81	.94	3.95	1.16
Differences among people are valued in the department.	3.5	.97	3.63	.96	3.32	1.09	3.33	1.10	3.69	1.15
Differences among people are valued in the department.	3.5	.97	3.63	.96	3.32	1.09	3.33	1.10	3.69	1.15



Table 5 presents an overview of the climate indicators by gender. Significant differences between groups (men and women; faculty/staff of color and white faculty/staff) are indicated where they exist (\* $p < 0.05$ ).

Table 5: *Indicators of Departmental Climate by Gender*

Item	Men (n=126)	SD	Women (n=106)	SD
My department is a welcoming place to work.	3.88	1.11	4.03	1.12
I understand my role and responsibilities as a member or employee in the department.	4.29	.82	4.22	.96
I have the resources I need to be productive in my job.	3.28*	1.12	3.70*	1.11
I feel appreciated for the work I do in the department.	3.55	1.10	3.73	1.22
The Chair of the department or my supervisor respects my opinions and contributions.	4.06	1.05	4.06	1.10
Others in the department respect my opinions.	3.75	.97	3.82	.93
I trust the people who make decisions that affect me.	3.37	1.07	3.54	1.17
I am able to influence the decisions that are made in the department.	3.56*	1.08	3.25*	1.18
The Chair of the department appropriately consults or delegates decisions to a group or committee.	3.6	1.16	3.62	1.11
I feel safe voicing my feelings in front of others in the department.	3.93*	1.01	3.57*	1.17
My work contributes to the mission or purpose of my department.	4.5	.78	4.39	.69
Others recognize how my work contributes to the mission or purpose of my department.	3.86	.98	3.88	.97
I am happy with the professional relationships I've formed with others in the department.	3.84	1.13	3.97	.98
There is somebody in the department who promotes my professional development.	2.98*	1.40	3.31*	1.18
Resources and other benefits are allocated fairly within the department.	3.34	1.13	3.29	1.12
Even though other people are around, I feel isolated.	2.38	1.23	2.24	1.36
My work is commensurate with my training and experience.	4.20*	.95	3.88*	1.06
I have the same amount of responsibilities as my peers in the department.	3.35	1.23	3.1	1.20
I experience subtle or overt forms of harassment or discrimination due to my gender, race, or other personal attributes.	1.62	1.00	1.77	1.13
I feel reasonably accommodated when personal and professional responsibilities are in conflict.	3.69*	.89	3.93*	.90
I am aware of places or people to go to if I am faced with a problem or issue in the department.	3.9	.99	3.92	1.02
Differences among people are valued in the department.	3.55	1.08	3.44	1.07

Table 6 provides an overview of differences by gender, noting significant differences ( $p < .05$ ) where they exist, with the note of the extreme differences in sample size.

Table 6: *Indicators of Departmental Climate by Racial Group*

Item	Faculty & Staff of Color (n=13)	SD	White Faculty & Staff (n=220)	SD
My department is a welcoming place to work.	2.85*	.99	3.99*	1.12
I understand my role and responsibilities as a member or employee in the department.	4	1.15	4.26	.89
I have the resources I need to be productive in my job.	3.38	1.26	3.47	1.14
I feel appreciated for the work I do in the department.	2.92	1.26	3.66	1.16
The Chair of the department or my supervisor respects my opinions and contributions.	3.31*	1.18	4.07*	1.09
Others in the department respect my opinions.	3.23*	.73	3.81*	.99
I trust the people who make decisions that affect me.	2.92	.95	3.45	1.15
I am able to influence the decisions that are made in the department.	2.77*	1.01	3.45*	1.15
The Chair of the department appropriately consults or delegates decisions to a group or committee.	2.54*	1.05	3.67*	1.14
I feel safe voicing my feelings in front of others in the department.	3.23	1.01	3.79	1.12
My work contributes to the mission or purpose of my department.	4.38	1.12	4.44	.76
Others recognize how my work contributes to the mission or purpose of my department.	3.23*	1.01	3.90*	.99
I am happy with the professional relationships I've formed with others in the department.	3.31	1.11	3.91	1.09
There is somebody in the department who promotes my professional development.	3.31	1.25	3.14	1.23
Resources and other benefits are allocated fairly within the department.	2.85	1.07	3.35	1.14
Even though other people are around, I feel isolated.	2.46	.88	2.29	1.31
My work is commensurate with my training and experience.	3.42*	1.00	4.08*	1.02
I have the same amount of responsibilities as my peers in the department.	2.77	1.24	3.25	1.23
I experience subtle or overt forms of harassment or discrimination due to my gender, race, or other personal attributes.	2.75*	1.22	1.63*	1.03
I feel reasonably accommodated when personal and professional responsibilities are in conflict.	3	1.04	3.85	.90
I am aware of places or people to go to if I am faced with a problem or issue in the department.	3.31	1.25	3.93	1.00
Differences among people are valued in the department.	2.77*	1.17	3.53*	1.08

## Open Responses

Finally, faculty and staff were asked to provide details related to 5 items that contributed to a positive climate in their departments and 5 items that contributed to a negative climate.

When viewed as a whole, commonalities were seen in these responses only in relation to the negative attributes. For example, individuals from 23 of the 26 departments indicated a lack of resources stemming from budget cuts resulting in fewer faculty lines and a declining physical plant. A few comments below illustrate these points:

### Lack of Funding

- “Budget cuts and frozen salaries. This is bigger than the department but it is a source of negative feelings. Rising enrollment with diminishing faculty positions. Investing considerable time and effort to recruit more students but given no additional resources to accommodate them.”
- “There is a lack of resources and funding overall. Faculty are not being replaced and bringing in more students and more grants are not rewarded. This campus does not incentivize or reward productivity. We are all cut the same amount no matter how productive or inventive we are.”
- “Massive pressure to increase student numbers without support to handle increased numbers.”

### Unfilled Faculty Positions Leading to Unreasonable Workloads

- “Too few faculty members for too many students. Too small of a budget to facilitate academics and research.”
- “Lack of faculty. Lack of resources. Overworked. Small faculty with fewer people to share responsibilities.”
- “The policy of the university system is that if a professor leaves his position, the position will not be filled.”
- “We have lost nearly half of our department in a five-year period and have no idea what the future holds for us.”
- “Workload has doubled in the last 10 years.”
- “Like many academic departments, we are spread very thinly, with more demands on our time, coupled with inadequate resources. Things have gotten to a point that education experiences have been greatly diminished for both graduate and undergraduate students.”
- “Very high student to faculty ratio. Inadequate and unsafe laboratory facilities. No technical support for laboratories.”

- “I hesitate to say that these are features of the department but obviously declining classroom infrastructure. ‘Doing more with less’ can have an impact upon morale and increase stress levels.”

### **Declining Physical Plant**

- “Inadequate and unsafe laboratory facilities and no technical support for them.”
- “Tiny offices, paint peeling off the walls, leaking ceilings, financial limitations.”
- “There are ongoing maintenance, safety, etc. issues that can sometimes make it difficult to conduct my work. Having reliable phones, internet, heat, and even water (all of which have failed more than once in the past calendar year) are fundamental, yet fail to be adequately maintained. I would not expect that this department will be able to retain quality faculty if these conditions aren’t looked at from a long-term perspective and proactively addressed.”

Those departments in which climate was rated most positively, however, shared commonalities in these responses related to the positive attributes provided. Specifically, these 5 departments discussed how respect and collegiality were what made their climates positive, noting that the department chair or unit director often played a role in such an environment:

- “Everyone is appreciative of others. Our director is fantastic and creates a very positive climate for all.”
- “Collegiality, common sense of purpose and responsibility, consensus on professionalism.”
- “Few personal disagreements. Respect for everyone’s contribution.”
- “Friendliness. Support of each other. Social activities.”
- “Very family friendly with many faculty members who carry or have carried childcare responsibilities. We all respect each others’ work.”
- “We respect each others’ opinions, we help each other when asked, we like each others’ company.”
- “Leadership has positive attitude and outlook. Leadership goes to bat for the department.”
- “There are no divas in my department; we respect each other.”
- “Respect. Autonomy. Democratic. Supportive.”

## Resources

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