Appendix 4: The Strategic Plan Questionnaire for Students and Graduates of Biostatistics

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Introduction

The Strategic Plan Questionnaire for Students and Graduates of Biostatistics was an online survey conducted during the 2001-2002 academic year designed to evaluate the training, guidance, and career preparation practices of the doctoral program in Biostatistics. The evaluation serves as a complimentary element of the Johns Hopkins Bloomberg School of Public Health (JHBSPH) Biostatistics departmental self study, carried out for the 5-year strategic plan.

The majority of the online survey was patterned after and drawn from The 2000 National Doctoral Program Survey (NDPS), conducted as an assessment of educational practices in doctoral programs in the U.S. and Canada by the National Association of Graduate-Professional Students (NAGPS). Additional information on the National Doctoral Program Survey can be found at http://survey.nagps.org/ . Casting the JHBSPH Biostatistics Questionnaire in the same form as the NDPS allows comparisons between the opinions of students in our program and those of students in a variety of disciplines across North America..

Survey Methods

Administration of the online survey consisted of email petitions to current students and recent graduates for opinions on departmental experiences. Requests for responses were sent via email four times from April 5, 2002 to October 30, 2002, during which period the instrument was made continuously available for access. No incentives save the intrinsic reward of assisting the department in continual improvement were offered.

The survey instrument was comprised of 48 questions from the NDPS (described below) as well as 7 free response questions aimed at gauging issues outside of those outlined in the NDPS. Detailed descriptions of the NDPS instrument may be found at http://survey.nagps.org/about/ , a brief summary of which follows:

The survey consisted of 48 questions in nine areas relevant to doctoral education:

   I. information for prospective students,
   II. curricular breadth and flexibility,
   III. teaching,
   IV. professional development,
   V. career guidance and placement services,
   VI. time to degree,
   VII. faculty mentoring,
   VIII. program climate, and
   IX. overall satisfaction.

Each section contained a set of multiple choice questions with the following possible answers:

   a. Strongly Agree,
   b. Agree,
   c. Don't Know,
   d. Disagree,
   e. Strongly Disagree, and
   f. Not Applicable.

Each section also contained a free response box to allow respondents to expand upon their responses to any questions in that section.

The survey instrument may be found at

http://biosun01.biostat.jhsph.edu/~courses/gradsurvey/survey.html

To ensure validity of responses, participants were randomly assigned a three digit access number, which was sent via email and prompted for on the instrument. For confidentiality purposes, the ties between email addresses and random digits were then removed. The random digits were checked prior to data analysis to confirm that all respondents were part of the study sample and that no participant had responded more than once. All participants were notified that the random digits were to be used purely for data checking purposes and confidentiality was guaranteed.

Survey Sample

The response rate was 61%, with 33 of the 54 current students and recent graduates contributing. Caution is advised in relating the observed responses to the opinions of the entire population of interest, due to the high degree of non-response. Nevertheless, there is important information concerning views on departmental policies contained in the survey responses, and we believe that the observations represent fairly global opinions rather than the musings of a negative but vocal few.

Demographics for the respondents, such as gender, current status (graduate or continuing student), nationality when the respondent was a student (international student or domestic student), years taken to complete the program / year in program and current/expected job classification (academia, industry, other, or unknown) are presented in Table 1. For political reasons, classification into the Master's / Ph.D. program was not included in the survey instrument.

Table 1. Respondent Demographics

	Status		
	graduate	student	Total
Gender			
female	6 (46%)	11 (61%)	17 (55%)
male	7 (54%)	7 (39%)	14 (45%)
Nationality			
international	6 (46%)	9 (50%)	15 (48%)
domestic	7 (54%)	9 (50%)	16 (52%)
Year			
1	0 (0%)	4 (25%)	4 (14%)
2	0 (0%)	3 (19%)	3 (10%)
3	0 (0%)	4 (25%)	4 (14%)
4	1 (8%)	1 (6%)	2 (7%)
5	5 (38%)	4 (25%)	9 (31%)
6+	7 (54%)	0 (0%)	7 (24%)
Job			
academia	10 (77%)	6 (33%)	16 (52%)
industry	1 (8%)	4 (22%)	5 (16%)
other	2 (15%)	0 (0%)	2 (6%)
unknown	0 (0%)	8 (45%)	8 (26%)
Total	13 (42%)	18 (58%)	31 (100%)

Items of note include:
- 92% of the graduates who responded took at least 5 years to complete their degree, and the majority (54%) took at least 6 years.
- 77% of the graduates who responded currently work in academia while only 33% of the current students who responded foresee themselves taking academic positions.

Results

Frequencies and cross-tabulations for individual categorical response questions may be found at http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/eda_frame.htm
All free form responses may be viewed at
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/longsurvey_results.htm
We present simple quantitative summaries for the categorical responses and simple qualitative summaries of the free form responses below, by section.

I.   **Information for Prospective Students:**
      Categorical responses summary:
      Categorical responses for each question have been summarized using bar charts. Shown in Figure 1, (as an illustration), is a summary of the response for question I.1.a. There are 6 possible responses denoted by the letters "a" (strongly agree) through "f" (not applicable), which represent the Likert scale measurements described previously in the Survey Methods section. In the subsequent combined sectional bar chart summaries the letter labels are not displayed, but are read in the same manner as in Figure 1. The responses are further divided according to whether the respondents were graduates (blue) or current students (yellow), for comparison.
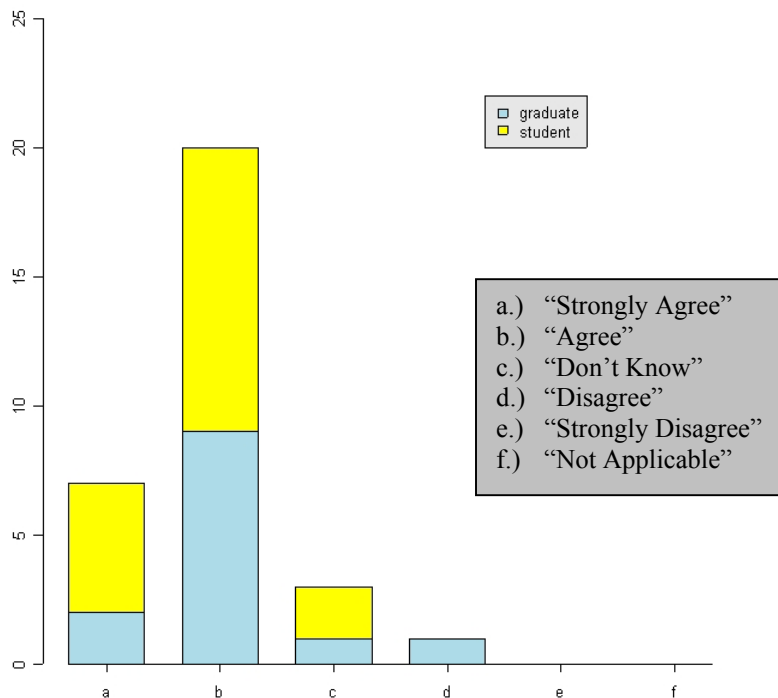

a.)   "Strongly Agree"
b.)   "Agree"
c.)   "Don't Know"
d.)   "Disagree"
e.)   "Strongly Disagree"
f.)   "Not Applicable"

Figure 1. A bar chart of Likert scale responses for question I.1.a: (below)

"I.1. My doctoral program provided me with the following information during my
      application and admissions process:
   a. Accurate information about the costs (total of tuition, fees, and living expenses)
      of the program."

Figure 2. below summarizes the response to all the questions pertaining to information for prospective students, section I.1 of the survey. Overall, the department provided sufficient information to the prospective students on matters such as the costs, realistic assessment of financial support, and the requirements and expectations of the program to make an informed decision about pursuing a PhD degree in Biostatistics at Hopkins. However, many felt that information was not provided on the completion rate of students in the doctoral program and on the list of places where recent program graduates were employed.
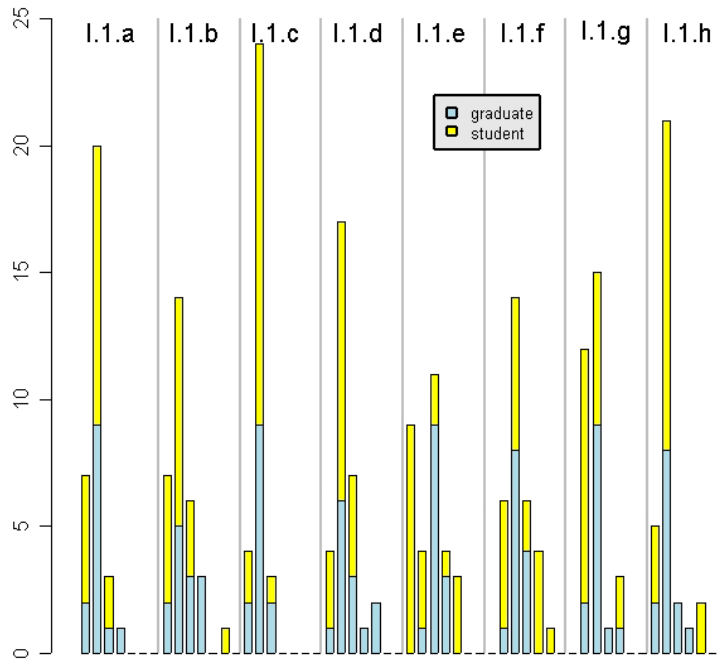
Figure 2. Summary of responses to questions in section I . on information for prospective students. Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
• Current students feel they had better information on employment of recent graduates
• Current students feel they had better information on average time to completion

Free form response summary:
When asked what specifically could have been done (or could be done) to better prepare students for life after graduate school, in terms of information for prospective students, respondents noted the following as needing more emphasis:

• Types of jobs that exist (for both Ph.D. and Master's)
• Student handbook
• Details on stipend support, expected hours of work, sources of support, TA responsibilities

II.   Preparation for a Broad Range of Careers

Categorical responses summary:

Figure 3 below summarizes the response to all the questions pertaining to preparation for a broad range of careers, in section II of the survey. Overall, the program prepared the students sufficiently well for undertaking a broad range of careers, both academic and non-academic.
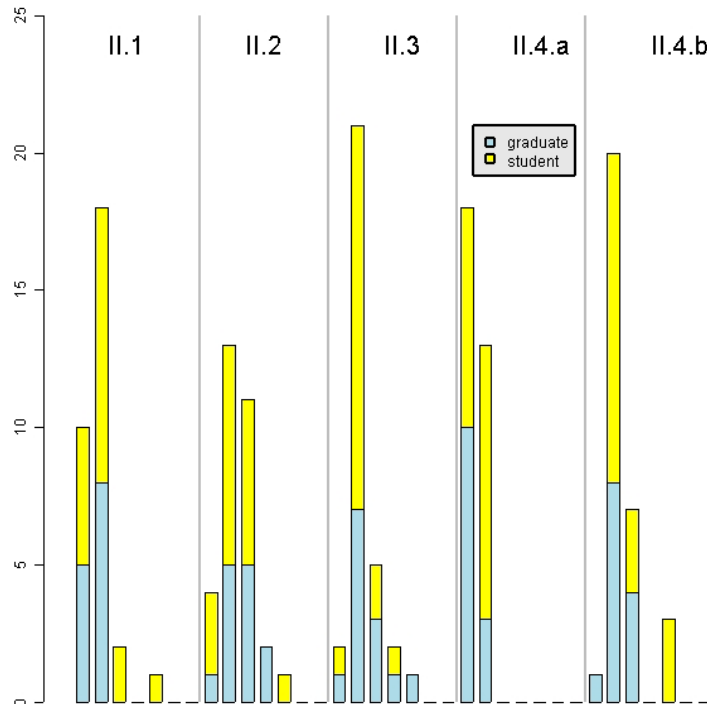

Figure 3. Summary of responses to questions in section II on preparation for a broad range of careers. Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- Graduates felt very strongly that the program prepared them well for academic careers while current students were split half and half between agreeing, and strongly agreeing.

Free form response summary:
When asked what could have been done in terms of preparation for a broad range of careers, respondents noted the following as needing more emphasis:

- Practical problem solving , communication with people outside the field and industry related seminars
- Consulting course
- Training on teaching skills
- guidance

III.   Teaching and TA Preparation
Categorical responses summary:

Figure 4 below summarizes the response to all the questions pertaining to teaching and TA preparation, in section III of the survey. The survey participants expressed satisfaction with the preparation the teaching assistants received for fulfilling their responsibilities. However, there was some indication that the needs and interests of the doctoral students were not given sufficient consideration in determining the courses that they teach. Some of the respondents also indicated that the teaching experience available through the program was not adequate to prepare them for an academic/teaching career.
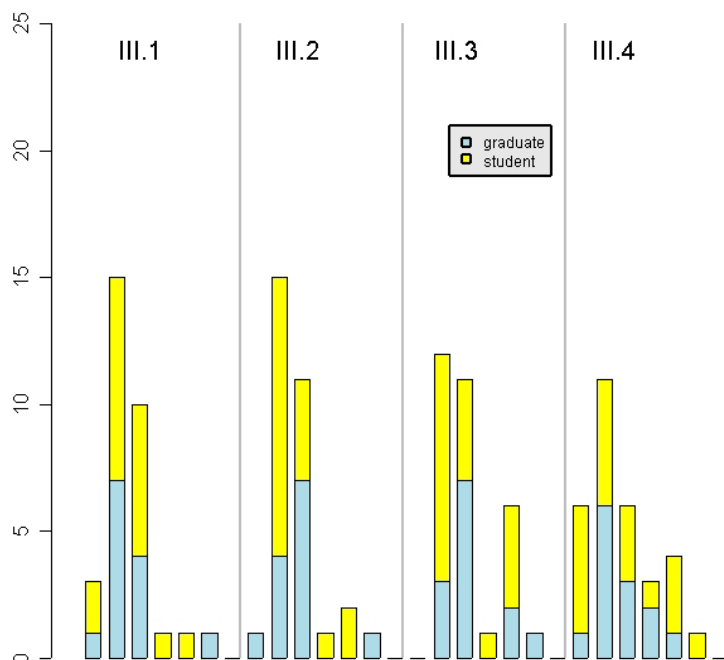

Figure 4. Summary of responses to questions in section III on teaching and TA preparation. . Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- Current students feel they have better supervision to help improve TA skills
- Current students felt better about consideration of their needs in TA assignments, but only half agreed that the consideration was at an appropriate level.

Free form response summary:
When asked what could have been done in terms of teaching and TA preparation, respondents noted the following as needing more emphasis:

- More training / training workshops
- Students should not TA the same course repeatedly
- Students should give lectures in courses they TA when possible
- Time needs to be reconsidered, more than 5 hours per week is spent

IV.   **Professional Development**

Categorical responses summary:
Figure 5 below summarizes the response to all the questions pertaining to professional development, in section IV of the survey. Although the overall response was favorable, there was some indication that the doctoral students did not receive adequate training in professional skills such as public speaking, grant writing, and working in teams.
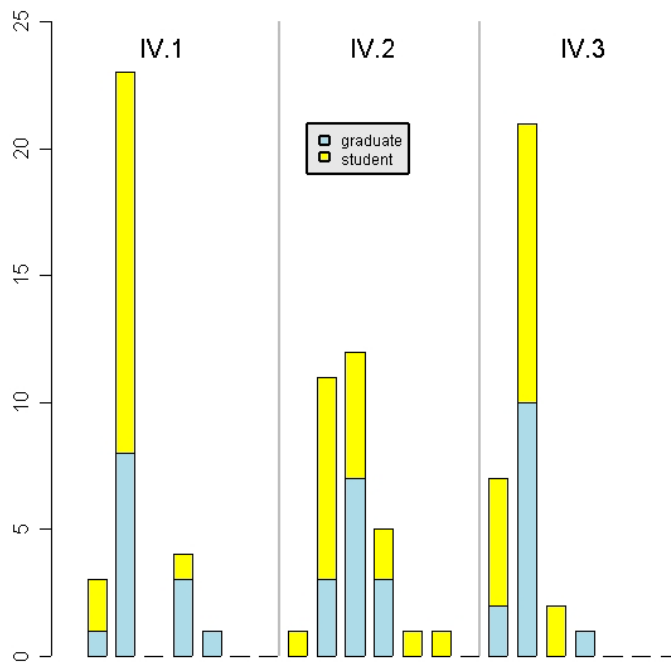

Figure 5. Summary of responses to questions in section IV on professional development. . Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- Current students felt better about their training in public speaking, grant writing, and working in teams, but almost half of the current students still felt that this training was lacking.

Free form response summary:
When asked what could have been done in terms of professional development,
respondents noted the following as needing more emphasis:

- Grant writing and the grant process
- Computer accessibility and administrative support is lacking
- Training in public speaking & working in teams

V.   Career Guidance and Placement Service
Categorical responses summary:
Figure 6 below summarizes the response to all the questions pertaining to career
guidance and placement services, in section V of the survey. In general, a number of
the respondents expressed dissatisfaction in this category. In particular, the current
doctoral students felt that they do not receive effective placement assistance and job
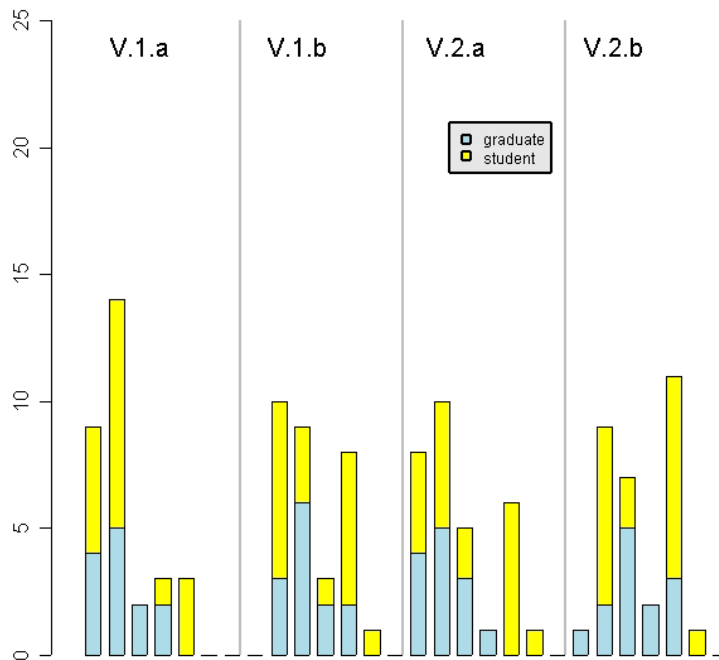search support.

Figure 6. Summary of responses to questions in section V on career guidance and
placement services. . Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- Graduates felt there was not enough guidance in career planning

<u>Free form response summary:</u>
When asked what could have been done in terms of career guidance and placement services, respondents noted the following as needing more emphasis:

- More guidance and support from advisors and non-advisors
- Student seminar series on possibilities

VI. **Controlling Time to Degree**
<u>Categorical responses summary:</u>
Figure 7 below summarizes the response to all the questions pertaining to controlling time to degree, in section VI of the survey. Once again, as in the case of career guidance and placement services, a number of the respondents, both graduates and current students expressed dissatisfaction with regards to the support provided by the program to ensure that the doctoral students completed their thesis research in a timely manner. In particular, insufficient funding was indicated as an important factor contributing to the prolonged graduation times.
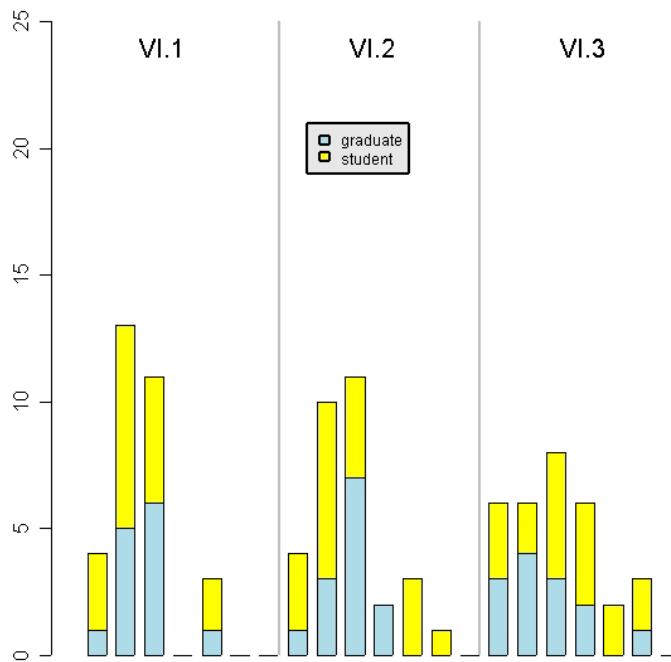

Figure 7. Summary of responses to questions in section VI on controlling time to degree. . Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

<u>Cross-tabulation with Current Status summary:</u>
- Current students felt better about the amount of feedback on research progress

Free form response summary:
When asked what could have been done in terms of controlling time to degree, respondents noted the following as needing more emphasis:

- Assistance in picking thesis advisors
- Feedback throughout the year
- Honesty in reporting average time to degree
- Interaction with faculty on research projects early in the program

VII.   Mentoring

Categorical responses summary:
Figure 8 below summarizes the response to all the questions pertaining to mentoring, in section VII of the survey. Overall, the respondents felt that they receive a high quality of mentoring by the faculty in the program. They also felt that it would be helpful to have a person or a committee to turn to in the event that they perceived abuse or misconduct by their advisor or by a thesis committee member.
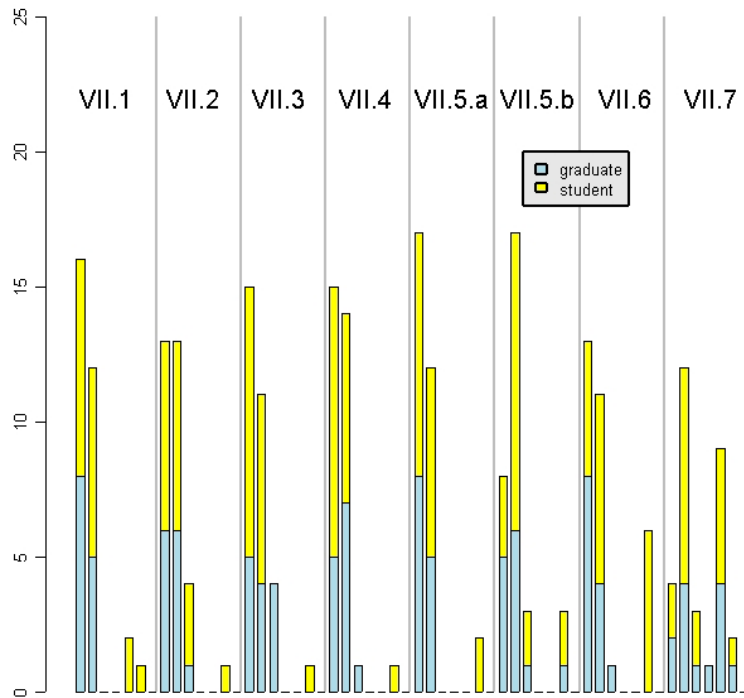

Figure 8. Summary of responses to questions in section VII on mentoring. .
Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- Nearly all respondents felt good about the amount and quality of time spent with their advisor.

When asked what could have been done in terms of mentoring, respondents noted the following as needing more emphasis:

- More feedback
- Training for younger faculty
- Nothing

VIII. **Program Climate**

Categorical responses summary:

Figure 9 below summarizes the response to all the questions pertaining to program climate, in section VIII of the survey. Overall, the respondents were quite favorable about the friendly and supportive climate that exists in the program. It is interesting to note that a majority of them (both graduates and current students) responded with a "don't know," to the question as to whether the faculty in the program believed that the students are there primarily to help fulfill their (faculty's) goals.
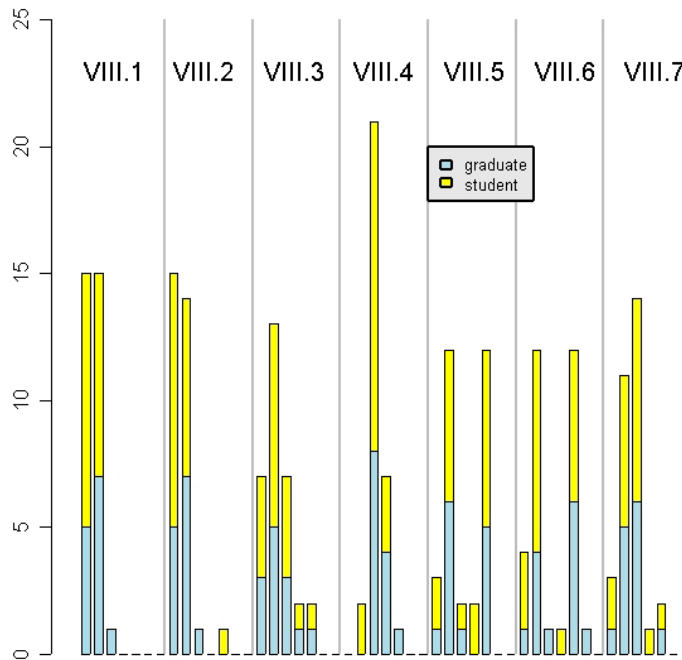

Figure 9. Summary of responses to questions in section VIII on program climate. Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- All but 1 respondent felt there was a supportive student community

Free form response summary:
When asked what could have been done in terms of program climate, respondents noted the following as needing more emphasis:

- Student needs are not properly considered
- More respect for Master's students

IX.   Overall Satisfactions

Categorical responses summary:
Figure 10 below summarizes the response to all the questions pertaining to overall satisfaction, in section IX of the survey. An overwhelming majority of the respondents expressed their overall satisfaction with the courses, the advisor, and the program, and indicated that they would strongly recommend the Biostatistics program to prospective students.
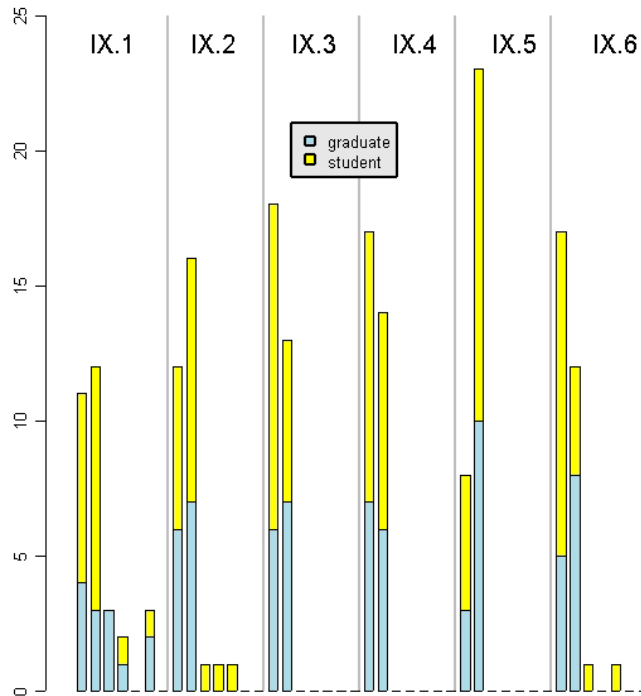

Figure 10. Summary of responses to questions in section IX on overall satisfaction. Individual questions may be viewed at:
http://biosun01.biostat.jhsph.edu/~mgriswol/students/survey/survey_questions.htm

Cross-tabulation with Current Status summary:
- Current students were more likely to strongly recommend the program to prospective students

<u>Free form response summary:</u>
When asked what could have been done in terms of the overall program, respondents noted the following as needing more emphasis:

- Coursework in
    - design of experiments
    - clinical trials
    - observational studies
    - stochastic theory
    - missing data

In addition to the 48 previous questions patterned after the 2000 National Doctoral Program Survey, another 7 free form questions were included on the instrument; 4 directed at graduates and 3 directed at current students.

Questions directed at Graduates Only:
1. In general, what aspects of the program helped the most in preparing you for life after graduate school?
   - Variety of Courses
   - People
   - Teaching Assistantships
   - Real life research

2. What did you like most about the program?
   - Supportive people
   - Balance between theory and application
   - Traditions, faculty, updated computing, research atmosphere

3. What did you like least about the program?
   - Unclear / unfair financial support & funding concerns
   - Competition amongst students
   - Real analysis and probability theory in math dept.

4. How well did the course materials reflect the body of knowledge that your current position requires?
   - Basic courses are good, theory courses are too short
   - Method applications and consulting course would be beneficial
   - More missing data work

Questions directed at Current Students Only:

1. What do you like most about the program?
   - Small student to faculty ratio
   - Laid-back and friendly environment
   - Faculty (accessibility, knowledge, support, camaraderie)

2. What do you like least about the program?
   - Not enough time to do everything
   - Spread out coursework (too packed into the first two years)
   - Arbitrary department policies
   - No funding for Master's students
   - Need more Biostat appropriate courses (LDA, survival,…)
   - Epi classes are weak
   - Most interesting courses are only offered in the last two terms

3. What additional materials / subjects would you like to see added to the program most?
   - Courses: Consulting, Times Series, GLMM
   - Statistics in Medicine topic overview
   - Student Handbook
   - Training in how to teach
   - Additional information about faculty research interests