

College of Agricultural Sciences



2009

Graduate Student Survey

In February 2009, the College of Agricultural Sciences administered the second bi-annual Graduate Student Survey. This report presents an overview of the survey results.

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INTRODUCTION

Background

Driven by the land-grant based mission – to create, analyze, and share knowledge that improves the lives of people in Pennsylvania, the nation and the world – the College of Agricultural Sciences is ranked as one of the largest agricultural colleges in the country.

The College of Agricultural Sciences offers 16 graduate programs to train the next generation of colleagues in academic, industry, and government positions. College programs are administered through 12 departments:

- Agricultural and Biological Engineering
- Agricultural Economics and Rural Sociology
- Agricultural and Extension Education
- Crop and Soil Sciences
- Dairy and Animal Science
- Entomology
- Food Science
- School of Forest Resources
- Horticulture
- Plant Pathology
- Poultry Science
- Veterinary and Biomedical Sciences

In addition, student may choose to enroll in one of several intercollege and dual-title degree programs, supported by faculty advisors in the College of Agricultural Sciences.

Graduate education in the agricultural sciences has evolved over the last century, in response to changes in the political economy of higher education and to societal changes in the food system. As higher education is increasingly looked upon as a service industry, understanding the expectations and preferences of graduate students is a critical part of attracting and retaining graduate students. Such an understanding can help to ensure that the College of Agricultural Sciences is delivering relevant educational programs and services to prepare our graduate students for success. However, the future of research and graduate education at land-grant universities also will depend on the ability of colleges of agricultural sciences to train students to address critical issues relevant to three interrelated systems - food and fiber system, ecosystem, and socioeconomic system.

About the Study

In February 2009, the Office for Graduate Education administered the second bi-annual Graduate Student Survey to all graduate students advised by faculty of the College of Agricultural Sciences. The objective of this research was to provide us with a better understanding of:

1. The extent to which the College of Agricultural Sciences is meeting expectations and preferences of graduate students for program quality.
2. How graduate students in the College of Agricultural Sciences assess departmental collegiality.
3. The extent to which graduate students in the College of Agricultural Sciences are contributing to the land-grant university mission of engagement and outreach.

This report is a summary overview of the results of the 2009 Graduate Student Survey.

Overview of the Survey Methods

In spring 2007, researchers in the Office for Graduate Education designed and administered the first bi-annual Graduate Student Survey. After thorough analysis and consideration of the 2007 Graduate Student Survey, several changes were made to the format of the 2009 Graduate Student Survey. These changes included reducing the number of questionnaire items and revising the program quality and departmental collegiality scales. This year, program quality was measured using a composite scale with sub-scales for the quality of teaching, education and extension/outreach within a program. Departmental collegiality also was measured using a composite scale with the sub-scales of faculty-student collegiality and student-student collegiality. Please refer to Appendices A and B, respectively, for detailed information about the development of these scales.

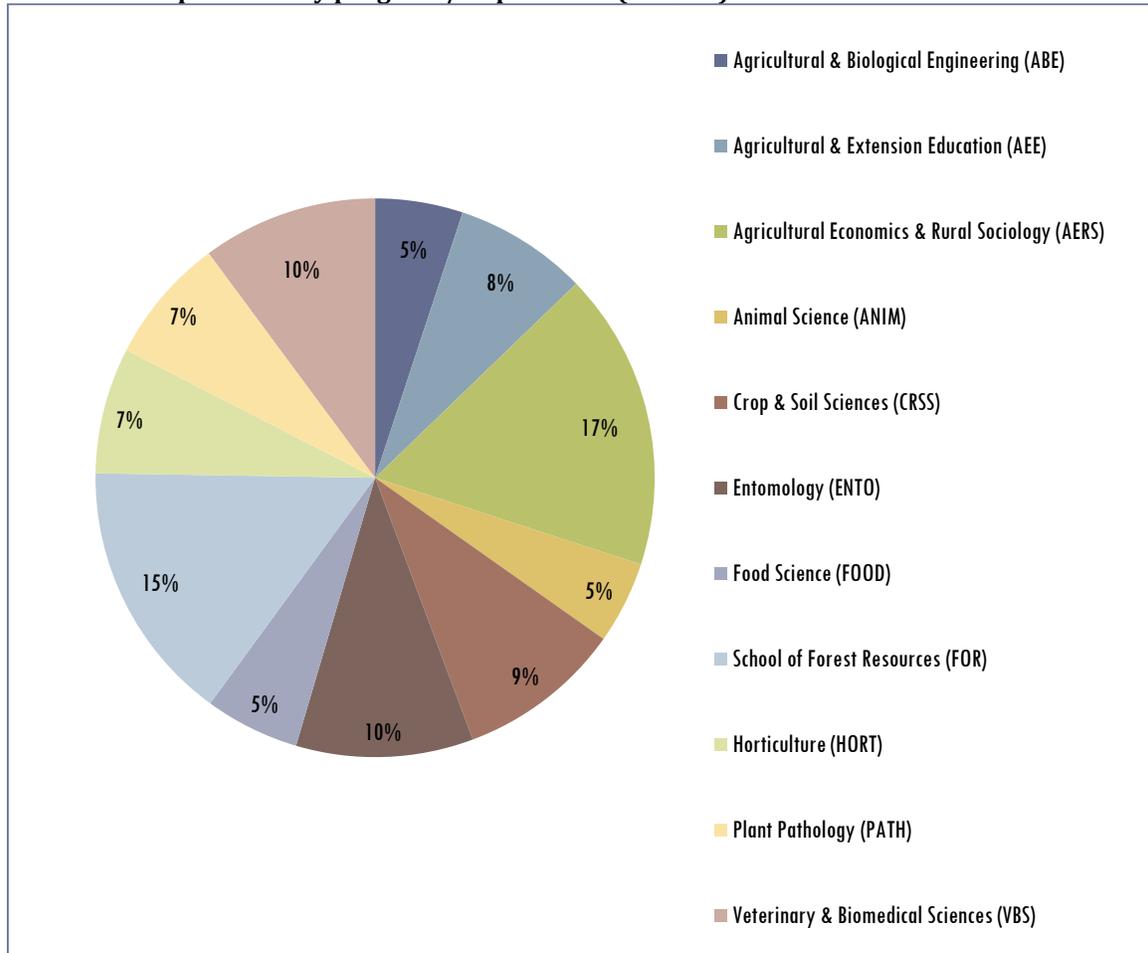
The final version of the survey was composed of five sections designed to collect data about students' perceptions of their graduate program, departmental collegiality, professional development values and activity, extension, outreach and international involvement, and demographics. Members of the College's graduate coordinators committee reviewed the survey and provided feedback for change. The Institutional Review Board (IRB) of the Office for Research and Protection (ORP) reviewed and approved this research (IRB #24559).

All current graduate students advised by faculty in the College of Agricultural Sciences (N = 518) were invited to participate in the survey. One week before the survey was administered a pre-survey notification was sent to graduate students via the College Graduate Student Listserv. Graduate students then received an email message with a link to the online survey made available through www.surveymonkey.com and completed the survey online during an eight week time period from mid-February to mid-April 2009. Graduate students who did not respond to the survey received weekly e-mail reminders.

RESPONSE RATE

Two-hundred and ninety-six graduate students participated in the survey. However, only 278 surveys were deemed usable for a 54 percent response rate. Usable surveys were surveys in which at least 40 percent of the questions were completed. Responses from students in intercollege programs are included in the department in which their College of Agricultural Sciences advisor is a member. Data for the Departments of Dairy and Animal Science and Poultry Science are reported jointly as Animal Science. Figure 1 shows the percent of respondents by department.

Figure 1
Percent of Respondents by program / department (n = 278)



Demographic Profiles

Demographic data was collected for age, citizenship, gender, degree type, status, discipline, and ethnicity, as well as whether a student was enrolled in an intercollege degree program. The demographics of the Graduate Student Survey respondents are not significantly different from the demographics of the graduate student population in the College of Agricultural Sciences.

Table 1
Demographic Profile of College of Agricultural Sciences Graduate Student Population and 2009 Graduate Student Survey Respondents

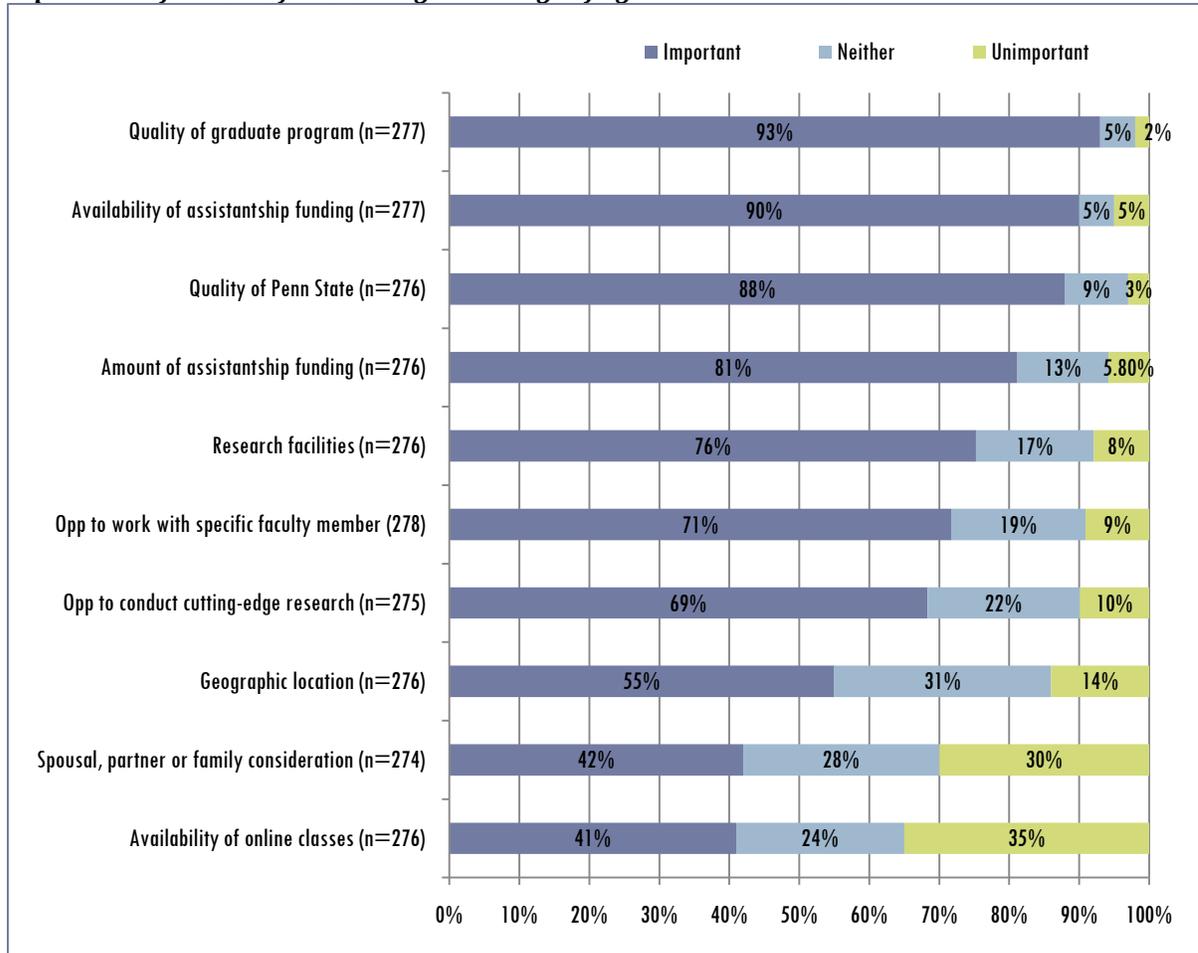
Demographic Category	Percentage of College of Agricultural Sciences (N = 518)	Percent of Graduate Student Survey Respondents (n = 278)
Age		
20-29	63	66
30-39	28	26
40-49	5	4
50-59	2	3
Missing	1	1
Gender		
Female	53	54
Male	47	46
Citizenship		
US Citizen	62	66
International Student	36	33
Missing	2	1
College Status		
College Program	81	82
Intercollege Program	19	18
Missing	0	0
Degree Type		
MS	34	46
PhD	66	54
Missing	0	0
Discipline		
Natural Science	75	75
Social Science	25	25
Missing	0	0
Enrollment Status		
Full-time	77	83
Part-time	22	15
Missing	1	2
Race / Ethnicity		
US Underrepresented	6	6
US Other	53	59
International Student	36	33
Missing	5	2

ABOUT THE STUDENTS

Reasons for Choosing the College of Agricultural Sciences

Graduate students reported that the most important factor in their decision to enter a graduate program in the College of Agricultural Sciences at Penn State was the quality of the program. The least important factor in their decision was the availability of online classes.

Figure 2
Importance of Reasons for Choosing the College of Agricultural Sciences



Pursue Job in Which Sector

Overall, a majority of graduate students in the College of Agricultural Sciences (41.5%) intend to pursue a job in academia. However, there are significant differences between master's and doctoral students with regards to which sector they intend to pursue a job.

Figure 3
Sectors in Which Graduate Students Intend to Pursue a Job upon Completion of Degree (n=277)

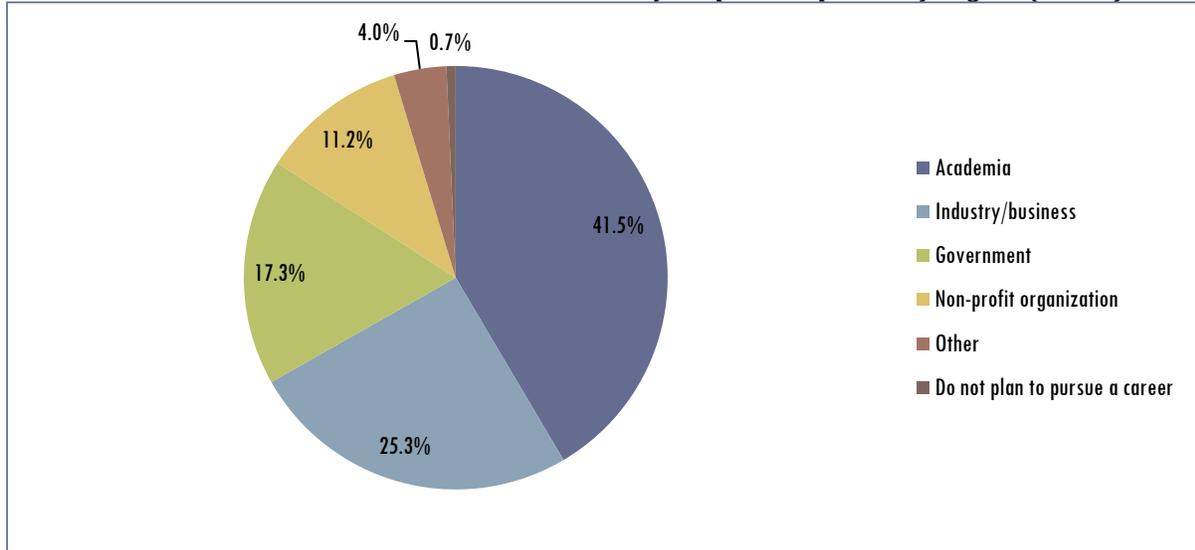
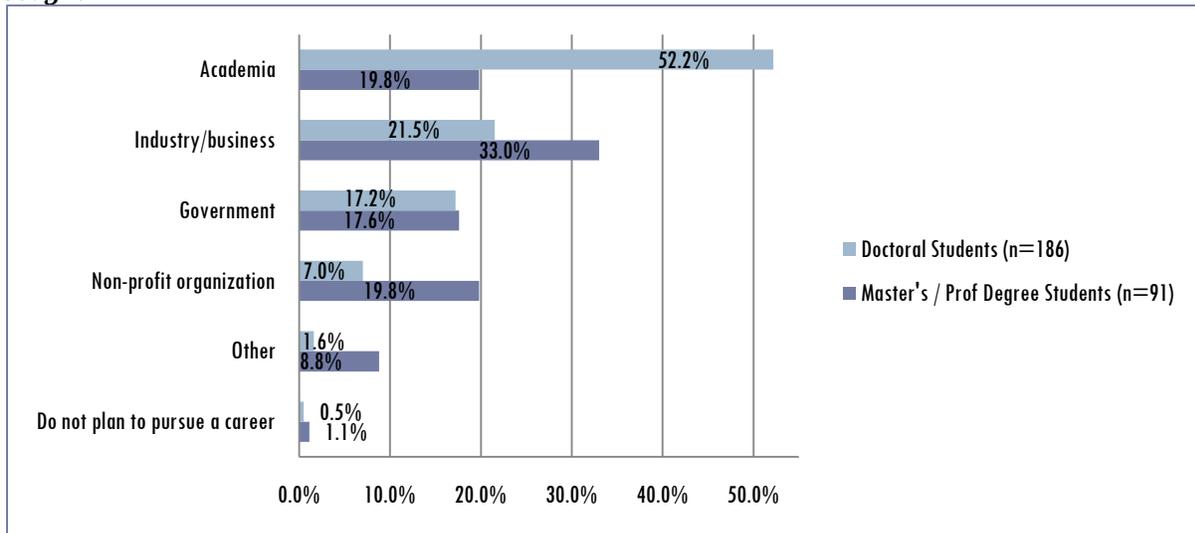


Figure 4
Sectors in Which Graduate Students Intend to Pursue a Job upon Completion of Degree by Degree Sought



Funding and Attrition

Only 17 percent of graduate students in the College of Agricultural Sciences feel uncertain about whether they will have funding throughout the duration of their graduate studies at Penn State. However, nearly one-third of graduate students in the College of Agricultural Sciences (32%) have considered leaving their graduate program early.

There is a significant difference among graduate students who have considered leaving their program ($M = 3.39, SD = 1.32$) and graduate students who have not considered leaving their program ($M = 3.96, SD = 1.03$) with regards to the extent to which they feel (un)certain about their funding ($t[274] = 3.59, p < 0.001$). Additionally, there are no significant differences between master's and doctoral students with regards to funding (un)certainty nor thoughts about leaving a graduate program early.

Figure 5
Extent to Which Graduate Students Feel Certain about their Funding

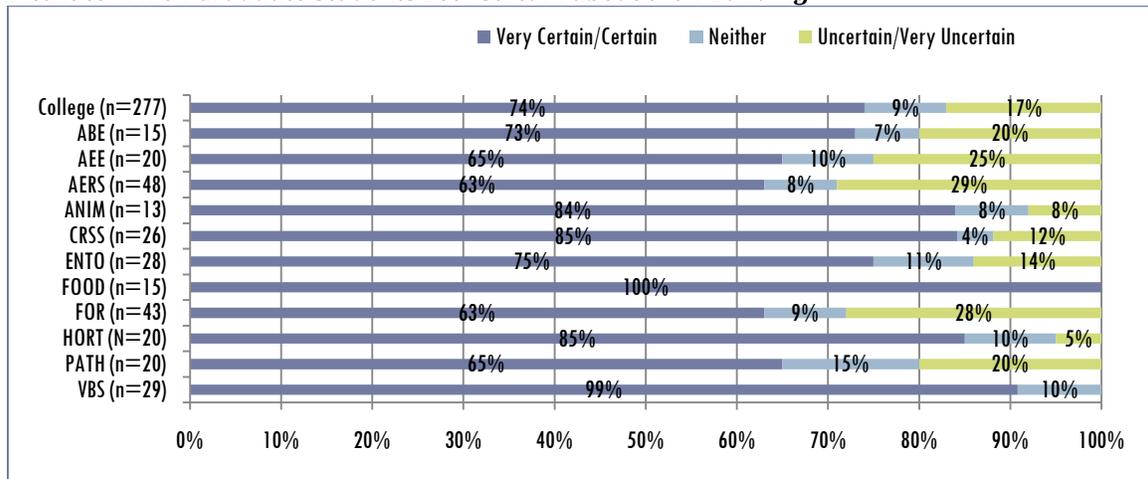
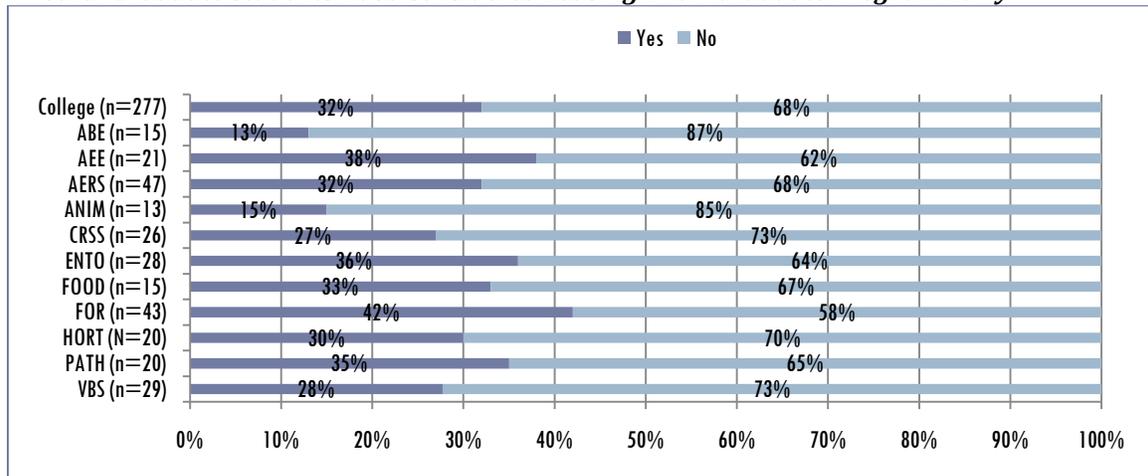


Figure 6
Whether Graduate Students Have Considered Leaving Their Graduate Program Early



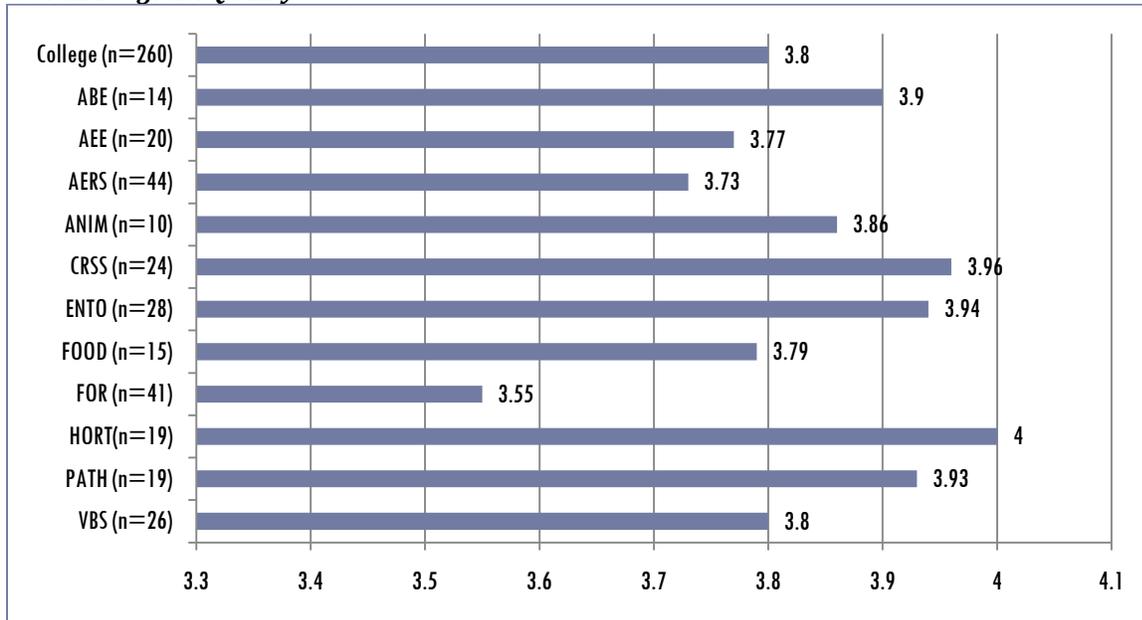
PROGRAM QUALITY

In this section, we consider our first research question: to what extent is the College of Agricultural Sciences meeting expectations and preferences of graduate students for program quality?

Overall Program Quality

To analyze better the dimensions underlying program quality, we created a program quality scale composed of 17 five-point Likert-type items measured on a 5-point scale (1 = very inadequate, 2 = inadequate, 3 = neither inadequate nor adequate, 4 = adequate, and 5 = very adequate). The 17 items were grouped into three subscales to reflect the university's tripartite mission and program quality of teaching, research and outreach. Reliability for the program quality scale and subscales was measured using Cronbach's alpha. Cronbach's alpha value for the overall program quality scale was 0.88 and > 0.70 for the subscales. Refer to Appendix A for detailed information about the development of the program quality scale and subscales. The mean score for overall program quality for the college was 3.81 with a standard deviation of 0.53. No department received a score lower than 3.50, but only the Department of Horticulture received a mean score of 4.0 (adequate) or better. There are no significant differences in overall program quality scores by demographic group. On the whole, program quality scores increased from the 2007 Graduate Student Survey.

Figure 7
Overall Program Quality Scores



Note: Criteria were measured on a five-point Likert scale (1 = very inadequate to 5 = very adequate)

Research Quality

The mean score for the quality of supportive research guidance for the college was 3.97 with a standard deviation of 0.37. No department received a score lower than 3.69, and half of the departments received a mean score of 4.0 (adequate) or better. There are no significant differences in the research quality subscale scores by demographic group.

Teaching Quality

The mean score for the quality of teaching for the college was 3.92 with a standard deviation of 0.53. No department received a score lower than 3.69, and four departments received a mean score of 4.0 (adequate) or better. There are no significant differences in the teaching quality subscale scores by demographic group.

Outreach Quality

The mean score for the quality of outreach for the college was 3.50 with a standard deviation of 0.69. No department received a score lower than 3.22, but no department received a mean score of 4.0 (adequate) or better. There are no significant differences in the teaching quality subscale scores by demographic group.

Figure 8
Program Quality Subscale Scores by Department

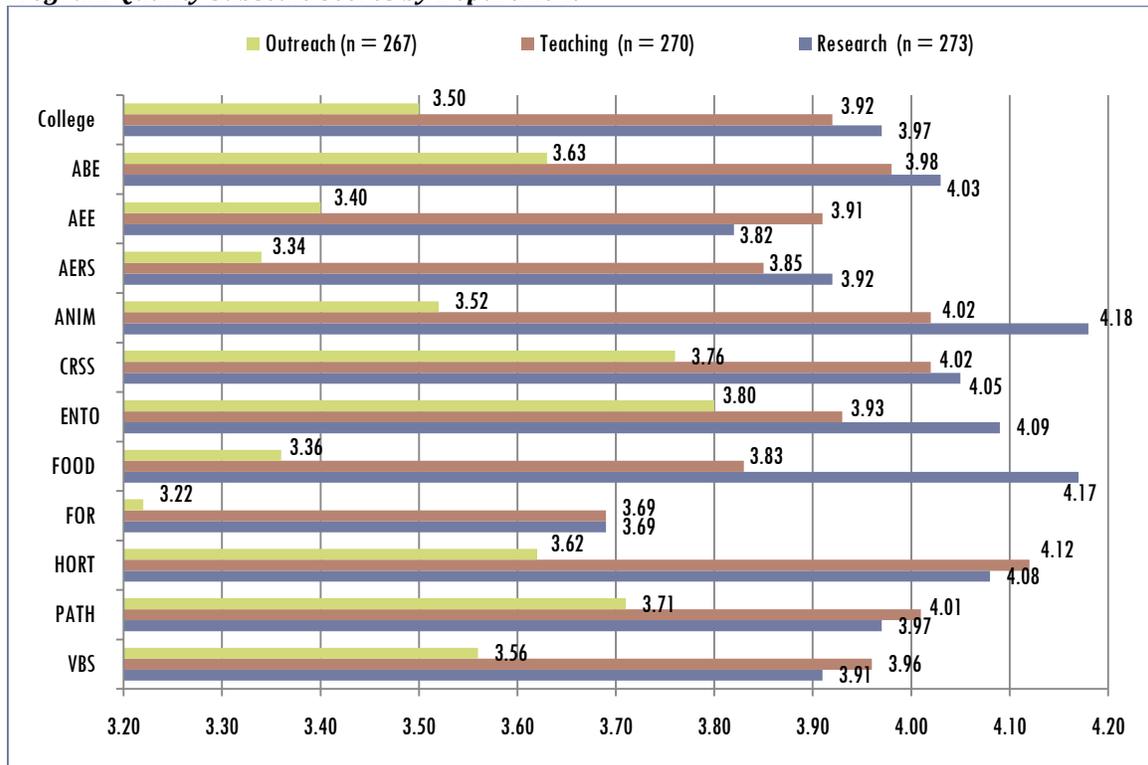


Figure 9
Research Quality Subscale for the College of Agricultural Sciences (n = 273)

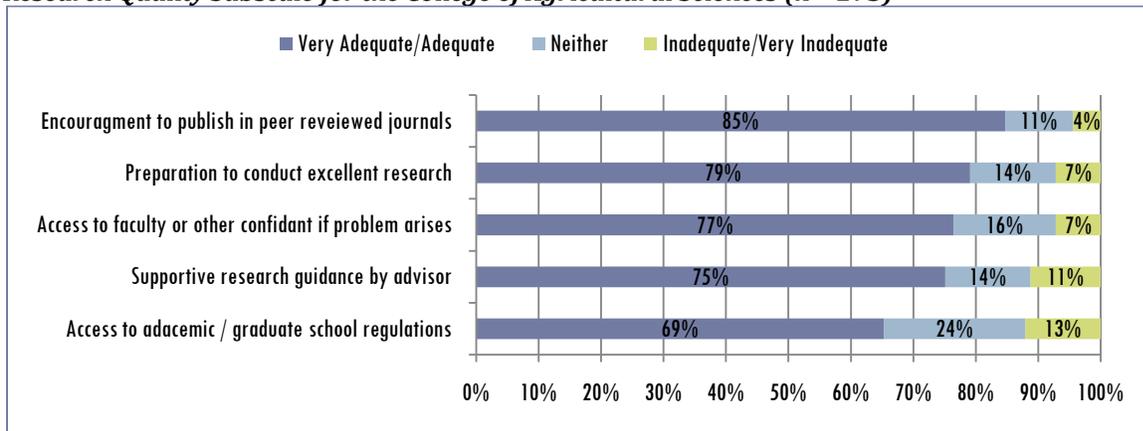


Figure 10
Teaching Quality Subscale for the College of Agricultural Sciences (n = 270)

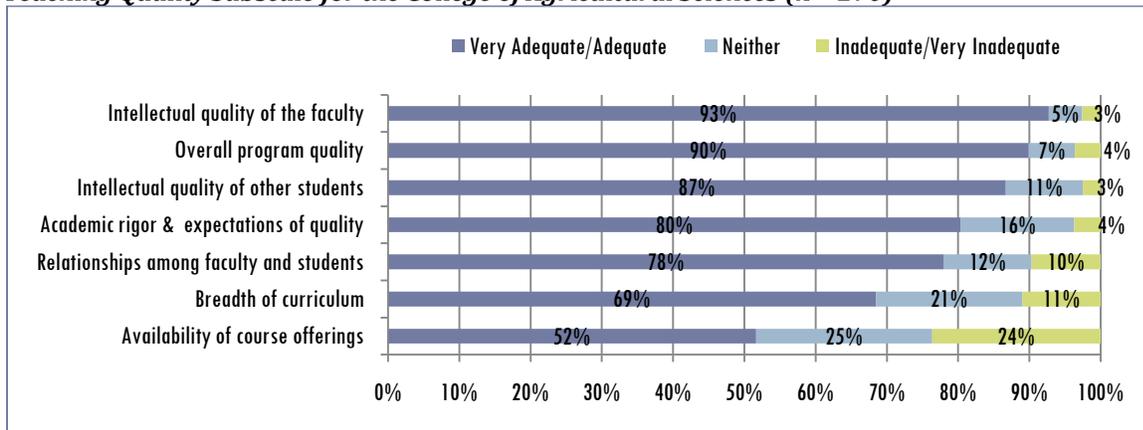
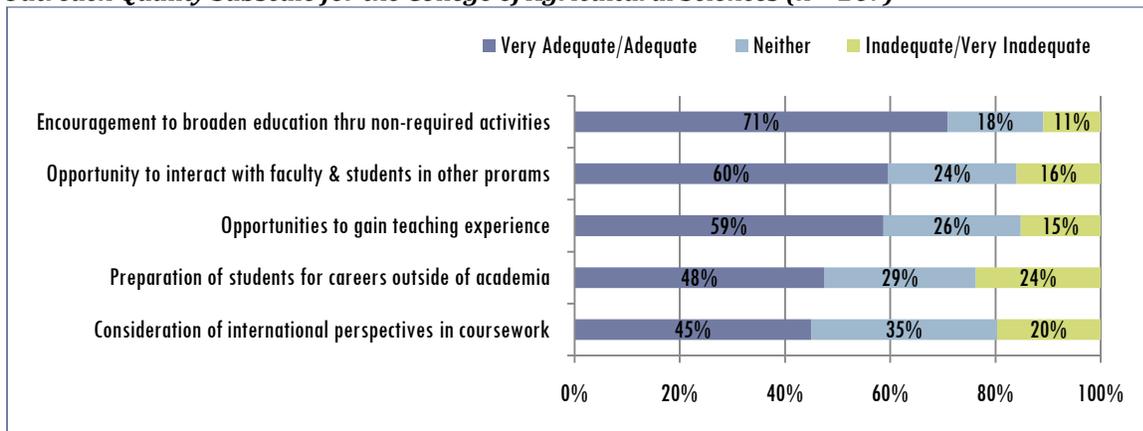


Figure 11
Outreach Quality Subscale for the College of Agricultural Sciences (n = 267)



COLLEGIAL ENVIRONMENT

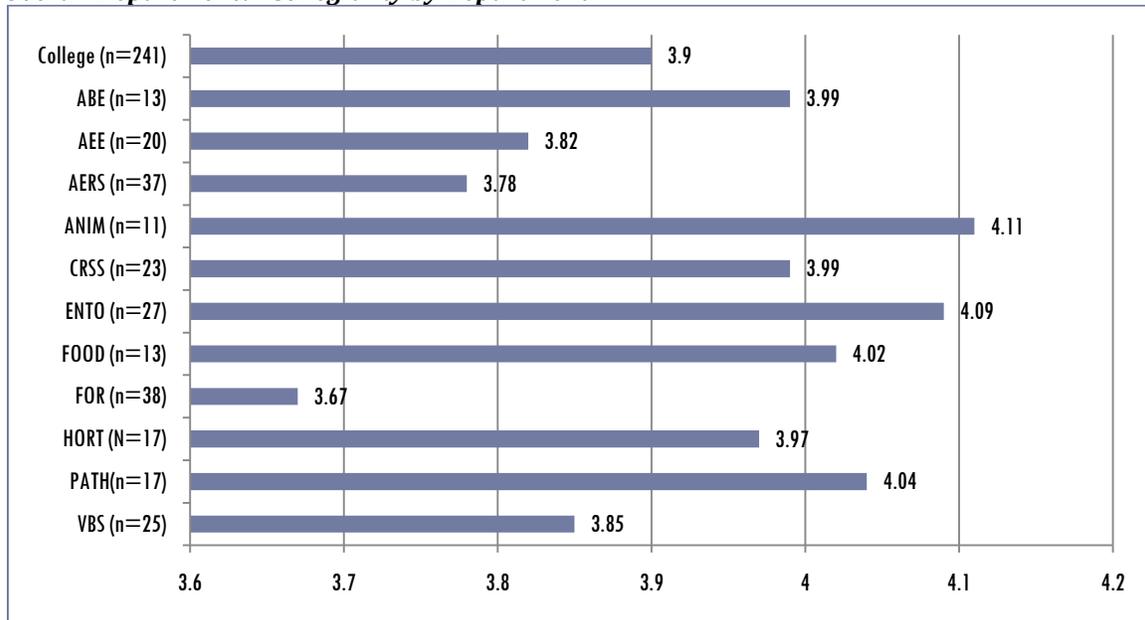
In this section, we consider our second research question: how graduate students in the College of Agricultural Sciences assess departmental collegiality?

Departmental Collegiality

Graduate students were asked to use a five-point Likert scale to indicate their level of agreement (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree) with 18 statements regarding their relations with faculty and with other students. The 18 items contribute to an overall departmental collegiality score and were grouped into two subscales to reflect the collegiality of faculty-student relations and of student-student relations. Reliability for the program quality scale and subscales was measured using Cronbach's alpha. Cronbach's alpha value for the overall departmental collegiality scale was 0.92 and > 0.90 for the subscales. Refer to Appendix B for detailed information about the development of the departmental collegiality scale and subscales.

The mean score for overall departmental collegiality for the college was 3.90 with a standard deviation of 0.56. No department received a score lower than 3.60, but only four departments received a mean score of 4.0 (adequate) or better. There are no significant differences in overall program quality scores by demographic group.

Figure 12
Overall Departmental Collegiality by Department



Note: Criteria were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A higher score indicates greater satisfaction with collegiality.

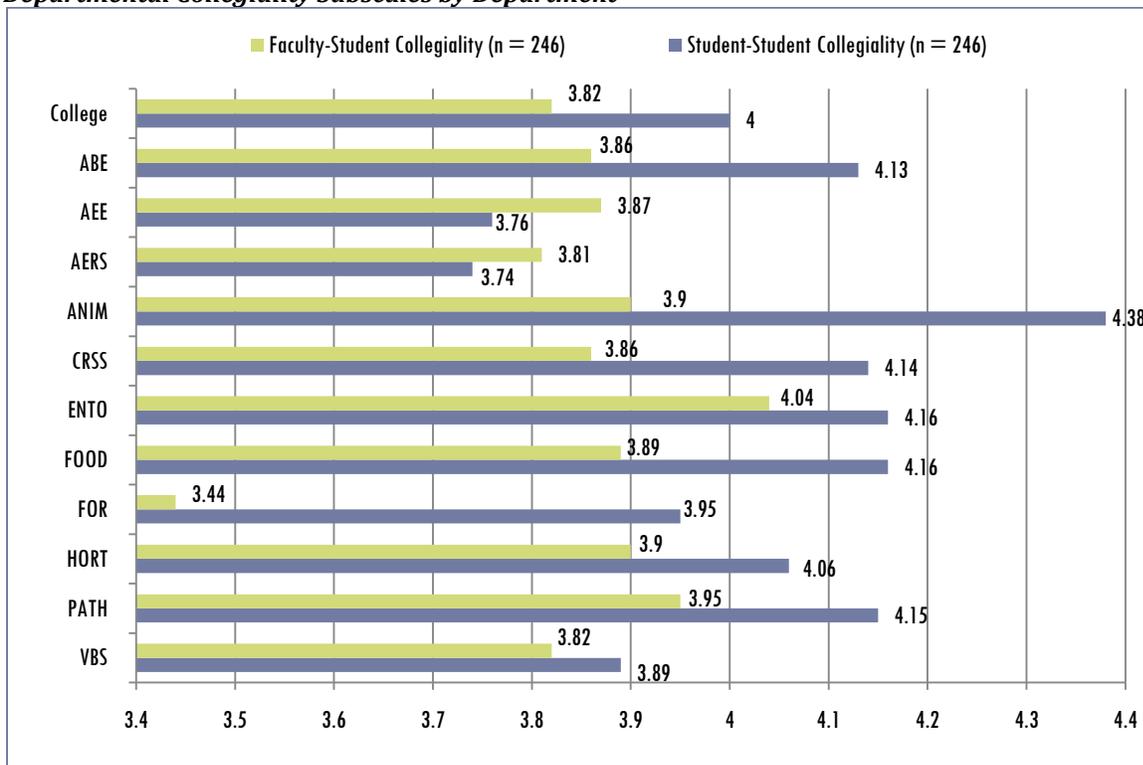
Faculty – Student Collegiality

The mean score for faculty-student relations for the college was 3.82 with a standard deviation of 0.68. No department received a score lower than 3.40, but only the Department of Entomology received a mean score of 4.0 (adequate) or better. There are no significant differences in the faculty-student collegiality subscale scores by demographic group.

Student-Student Collegiality

The mean score for student-student relations for the college was 4.00 with a standard deviation of 0.62. No department received a score lower than 3.70, and over half of the departments received a mean score of 4.0 (adequate) or better. There are no significant differences in the student-student collegiality subscale scores by demographic group.

Figure 13
Departmental Collegiality Subscales by Department



Note: Criteria were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A higher score indicates greater satisfaction with collegiality.

Figure 14
Faculty-Student Collegiality Subscales for the College of Agricultural Sciences (n = 246)

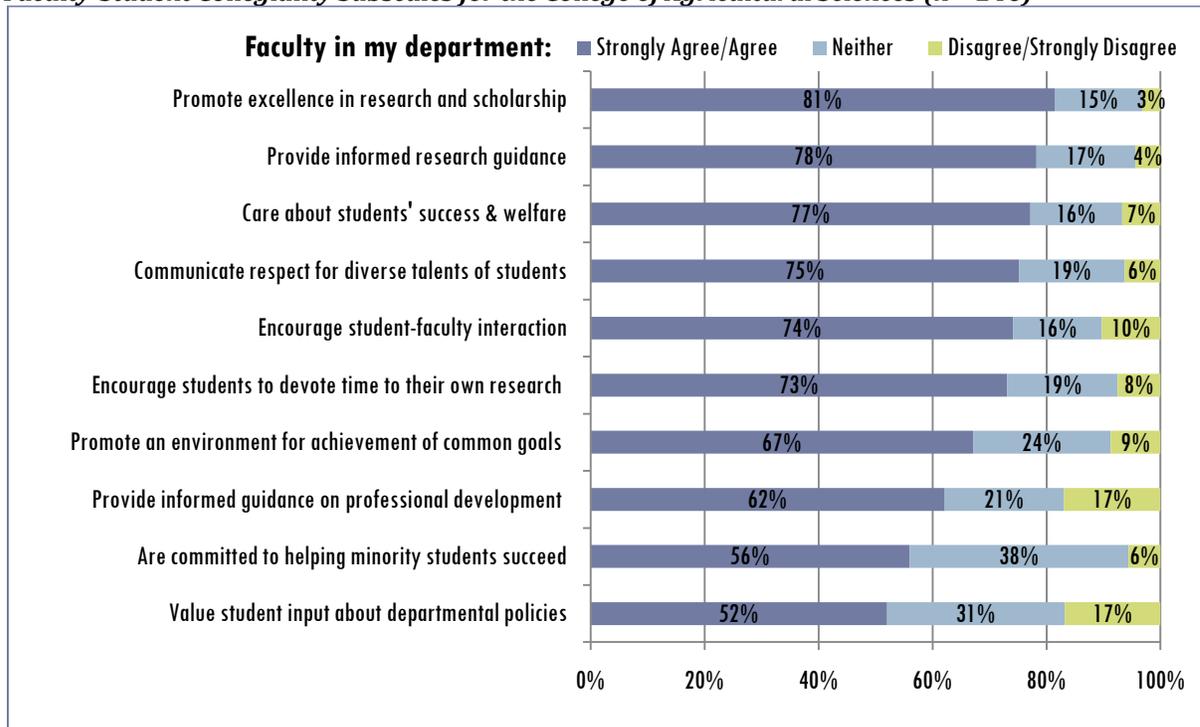
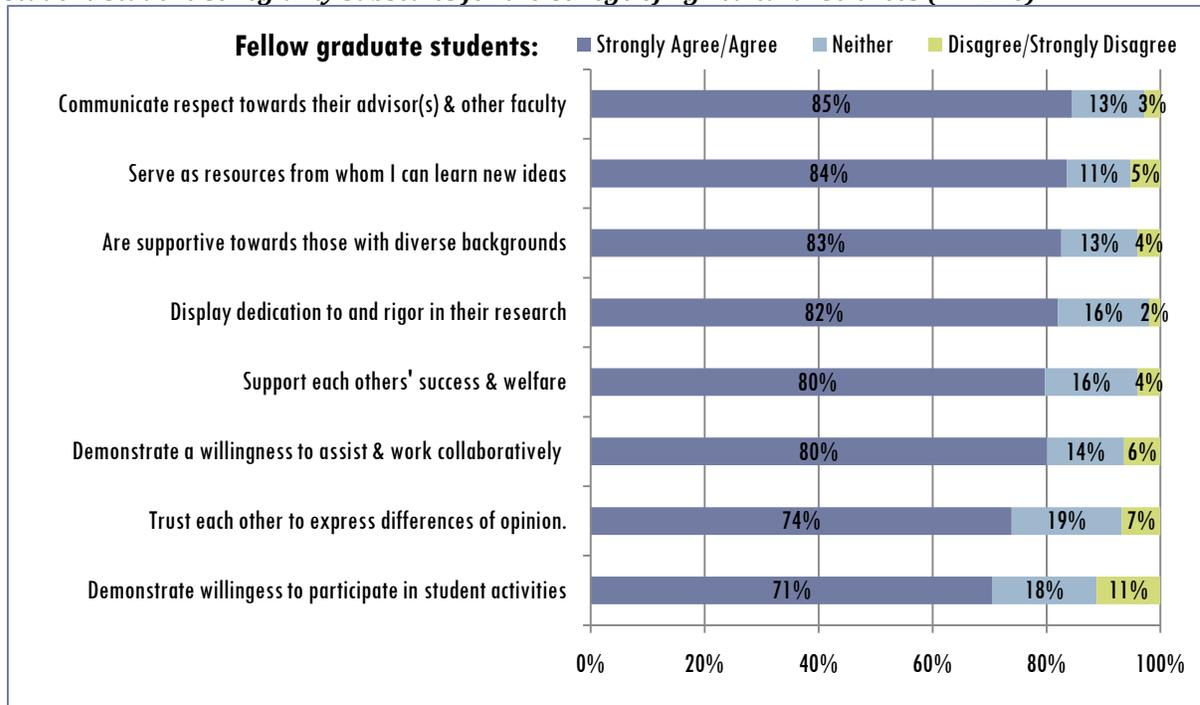


Figure 15
Student-Student Collegiality Subscales for the College of Agricultural Sciences (n = 246)



ENGAGEMENT AND OUTREACH

In this section, we consider our third research question: to what extent are graduate students in the College of Agricultural Sciences at Penn State contributing to the land-grant university mission of engagement and outreach?

Interest and Involvement in Extension and Outreach

Almost one-third (31%) of graduate students in the College of Agricultural Sciences have been involved in Penn State Extension activities. Graduate students who have been involved in Extension activities are most likely to have participated in a program offered by an Extension program.

Of the graduate students who have not been involved in Penn State Extension activities, 65 percent are interested in being involved and 35 percent are not interested in being involved in Extension activities.

There are significant differences in involvement in Extension activities by ethnicity ($\chi^2 = 23.708, p < 0.00$), citizenship ($\chi^2 = 24.181, p < 0.000$) and enrollment status ($\chi^2 = 6.296, p = 0.012$). US underrepresented students and international students are significantly less likely to have been involved in Extension activities than other US students. Regardless of ethnicity, international students are less likely to be involved in Extension activities than graduate students who are US citizens. And, part-time graduate students are significantly less likely to be involved in Extension activities than full-time graduate students.

Figure 16
Graduate Student Involvement in Extension

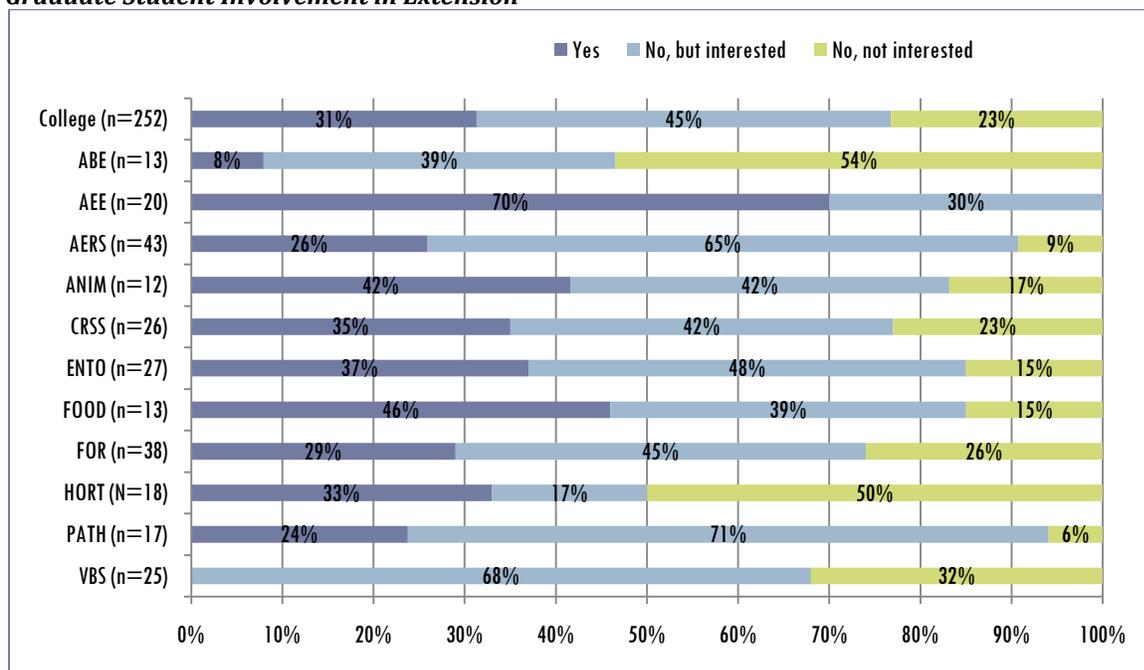
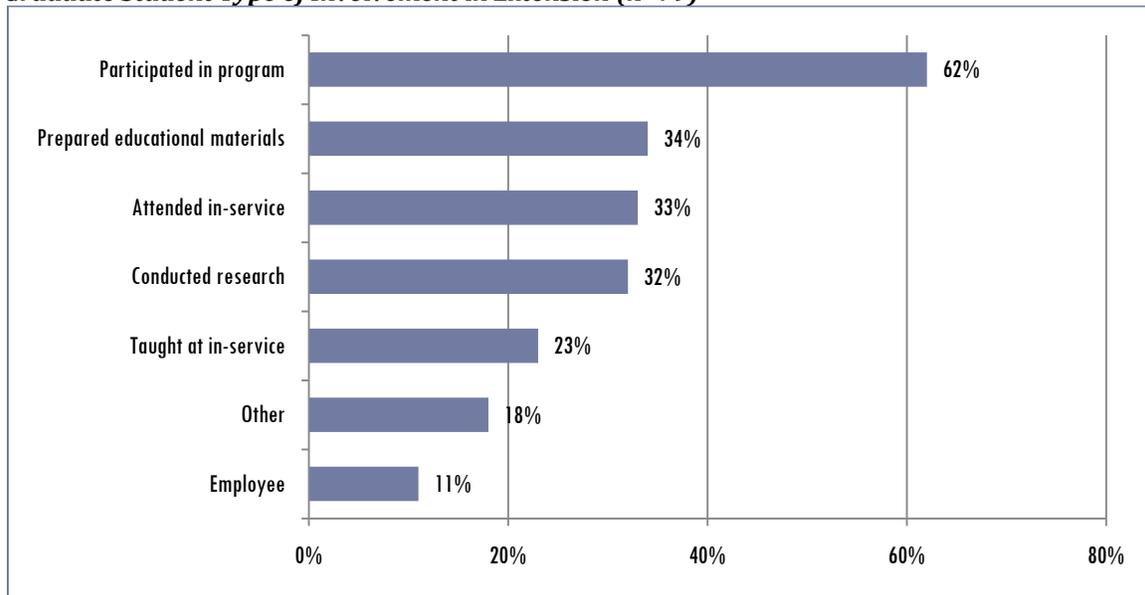
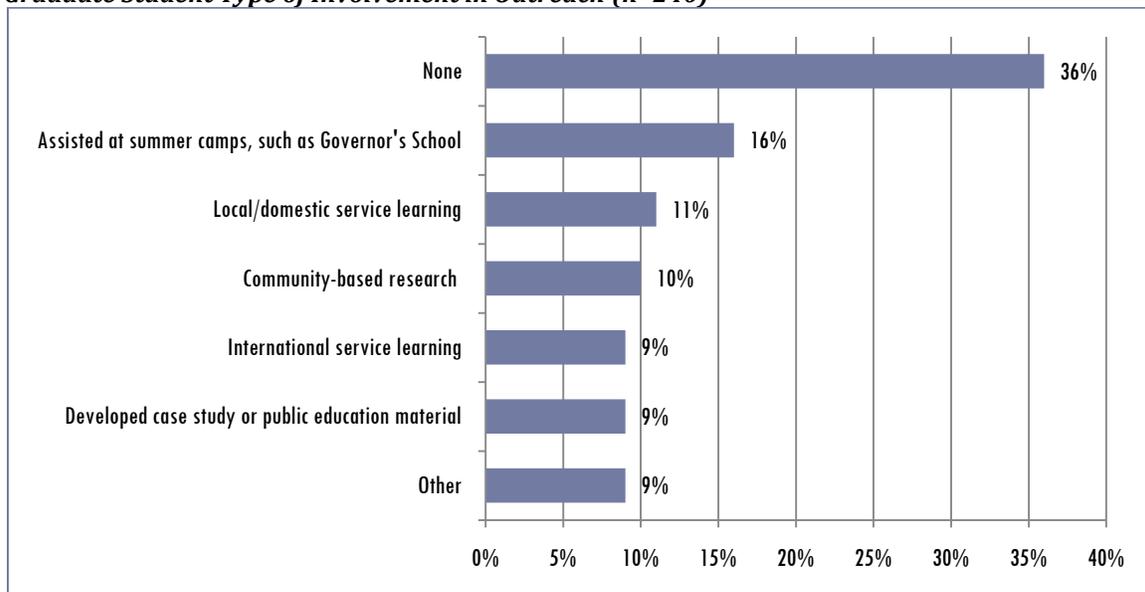


Figure 17
Graduate Student Type of Involvement in Extension (n=79)



Almost two-thirds (64%) of graduate students in the College of Agricultural Sciences have been involved in outreach activities. Graduate students who have been involved in Extension activities are most likely to have assisted at a summer learning camp, such as Pennsylvania Governor’s School. There are significant differences in involvement in outreach activities by degree sought ($\chi^2 = 7.414$, $p = 0.006$). Doctoral students are significantly more likely to have participated in an outreach activity than other master’s students.

Figure 18
Graduate Student Type of Involvement in Outreach (n=240)

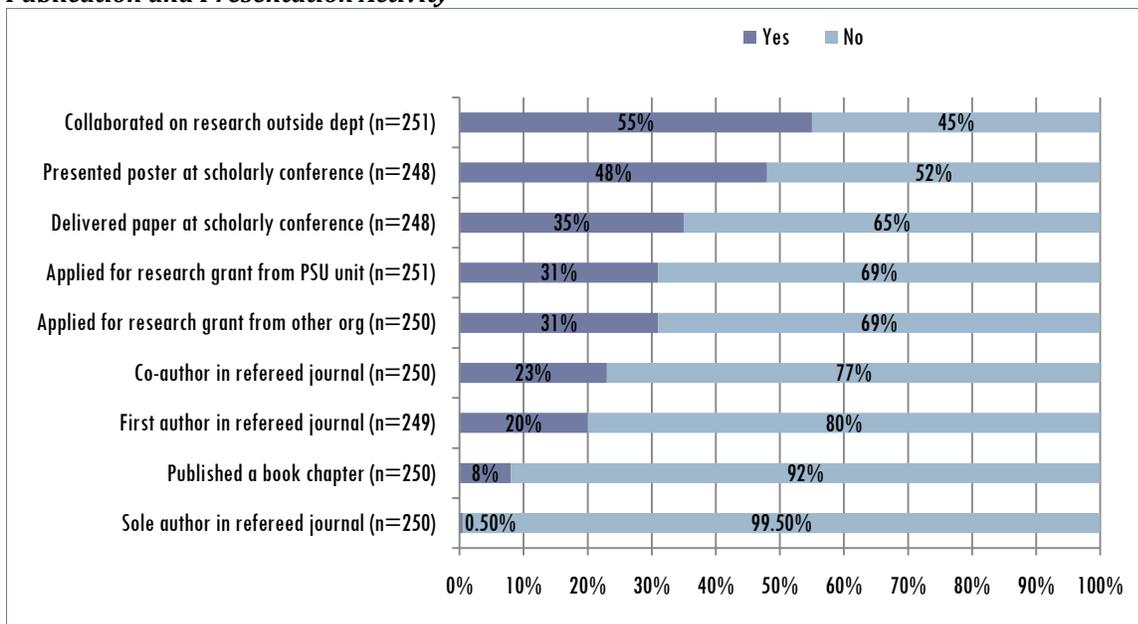


Professional Activity

Graduate students in the College of Agricultural Sciences are most likely to have collaborated on a research project with researchers outside of their department (55%) or presented a poster at a scholarly conference (48%). They are least likely to have published as a sole author in a refereed journal (0.05%).

There are significant differences in professional activity by degree sought ($\chi^2 = 24.929$, $p < 0.000$) and graduate program ($\chi^2 = 6.533$, $p = 0.011$). Doctoral students are significantly more likely to have participated in five or more professional activities than master's students. Student in graduate programs in the College of Agricultural Sciences are significantly more likely to have participated in five or more professional activities than students in intercollege programs.

Figure 19
Publication and Presentation Activity

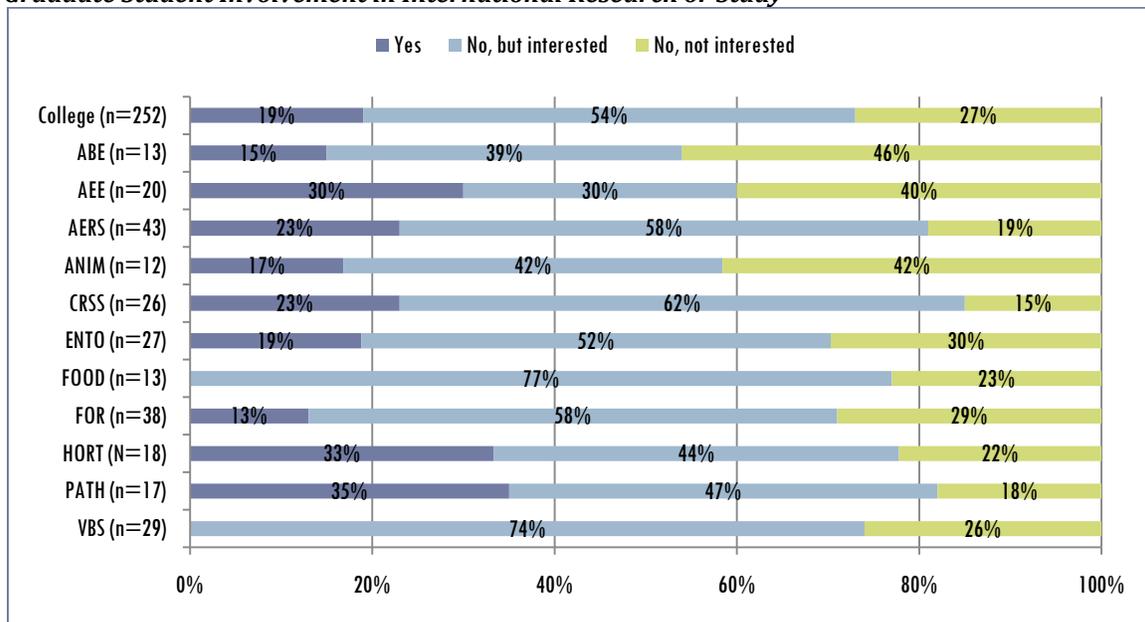


Involvement in International Research or Study

Almost twenty percent of graduate students in the College of Agricultural Sciences have had the opportunity to participate in an international research project or study abroad program. There are significant differences with regards to whether a graduate student has had the opportunity to participate in an international research project or study abroad program by demographic groups.

Of the approximately 80 percent of graduate students who have not had the opportunity to participate in an international research project or study abroad program, two-thirds (67%) are interested in the opportunity and one-third (33%) are not interested in the opportunity. Sixty-eight percent of graduate students who have not had but are interested in the opportunity to be involved in an international research or study abroad program reported that a lack of financial resources is a barrier. Fifty-three percent indicated that they do not know about such opportunities. Fifty-two percent reported that time constraints are a barrier and 18 percent reported that a lack of support from their advisor is a barrier.

Figure 20
Graduate Student Involvement in International Research or Study



OPEN-ENDED QUESTIONS

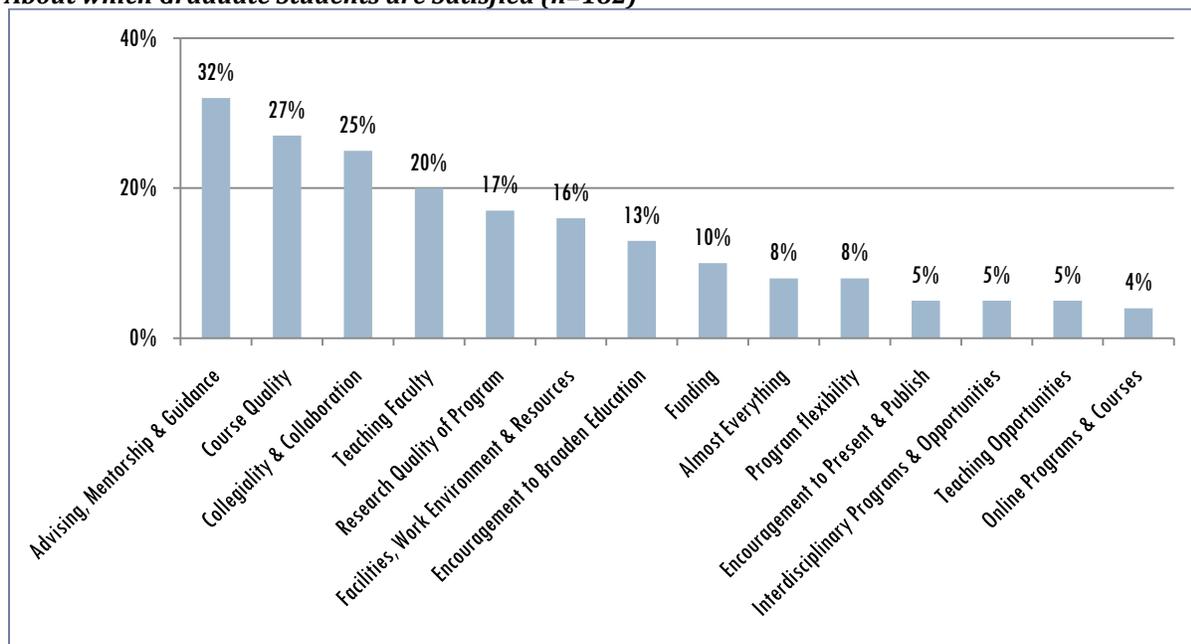
In this section we consider the graduate student responses to the following open-ended questions:

1. With what aspects of your graduate program are you satisfied?
2. With what aspects of your graduate program are you dissatisfied?
3. Please provide additional comments about your graduate program.

About Which Graduate Students are Satisfied

One-hundred eighty-two graduate students provided comments about aspects of their graduate education with which they are satisfied. The aspects of their graduate education in the College of Agricultural Sciences about which graduate students are satisfied cluster around fourteen main themes. The fourteen themes are presented in order from most to least frequently cited.

Figure 21
About which Graduate Students are Satisfied (n=182)



Advising, Mentorship and Guidance

Thirty-two percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the level of advising, mentorship and guidance that they receive. Faculty advisors are accessible and supportive. Examples of graduate student comments regarding advising, mentorship and guidance include the following:

"I am totally with my advisor. His office is always open for students and whenever asked, he gives proper advice. Additionally, other faculty members and staff are always ready to help grad students."

“My advisor and graduate committee are exceptional. They mentor me in my academic and professional growth, respect me as a peer, include me in current and ongoing research and are supportive and helpful to me as I work on my own research.”

“I am very happy with my academic/assistantship advisor. I find working with her intellectually challenging and feel that she pushes me to produce high quality work.”

Course Quality

Twenty-seven percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the breadth and depth of course content and their program curricula. Graduate students feel prepared to conduct strong experiments and apply their knowledge. Examples of graduate student comments regarding course quality include the following:

“We have a wide breadth of courses and faculty knowledge... I feel like I have a well-rounded program that has provided me with knowledge in both basic and applied areas of my field.”

“[I am satisfied with] the quality of the curriculum...and the depth of the educational experience. The program is a little more difficult than I anticipated based on previous graduate studies, but the quality of the education and the increase in my knowledge is exceeding what I expected. This is a very good program.”

“I am satisfied with the integration of classes that focused on the basics of developing hypotheses and conducting sound experiments.”

Collegiality and Collaboration

Twenty-five percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the level of collegiality and collaboration among faculty, staff and students in their programs and departments. Examples of graduate student comments regarding collegiality and collaboration include the following:

“I’m satisfied with the overall attitude of grad students, faculty and staff of our department. I like that there seems to be a niche for everyone in our department.”

“I feel that the department has really gone above and beyond in both expanding student experiences and promoting a very cohesive department.”

“[I am satisfied with] the intellectual, professional, and social interactions among faculty, staff and students.”

Teaching Faculty

Twenty percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the quality of the teaching faculty and level of instruction that they receive. Examples of graduate student comments regarding teaching faculty include the following:

"[The faculty teach] up-to-date methodologies and develop critical thinking skills."

"Professors I have had were very creative and provided quality courses."

"I am also very satisfied with the knowledge of the professors. They have a lot of experience conducting real world research and influencing policies at the state and in some cases federal level. This knowledge of how to impact the system and work in the trenches is important to validate their credibility and improve my understanding of the course materials."

Research Quality of Program

Seventeen percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the research quality of their program. Graduate students are involved in cutting-edge research. Examples of graduate student comments regarding the research quality of their programs include the following:

"I have had exceptional opportunities to participate as a researcher in primary survey research and the first-hand experiences gained as a result are invaluable."

"I feel like there are some fantastic researchers here on campus in my program."

"I am satisfied with the opportunities that I am given to do conduct my research. Since my lab is well funded, I am able do to experiments in a timely manner."

Facilities, Work Environment and Research Resources

Sixteen percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with their work environment and the facilities and research resources available to them. Graduate students feel prepared to conduct strong experiments and apply their knowledge. Examples of graduate student comments regarding facilities, work environment and research resources include the following:

"Graduate students have ample space to do research. Computer accessibility is good and the technology is up-to-date."

"I am satisfied with the great library and good online access to the library."

"I am satisfied with the excellent laboratories."

Encouragement to Present and Publish Research

Thirteen percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the encouragement that they receive to present and publish their research. Examples of graduate student comments regarding preparation to present and publish their research include the following:

"The rigorous approach to helping students publish in professional journals is effective."

"I am satisfied with the opportunities to present research (professional talks or posters) within and outside of the university."

"There are many opportunities to present work."

Funding

Ten percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with funding for assistantships and professional development. Examples of graduate student comments regarding funding include the following:

"I never felt I would be without financial support from my program."

"I am satisfied with the financial support offered by the department to attend national meetings."

"I am satisfied with the opportunity for continued and summer funding."

Almost Everything

Eight percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with almost everything. Examples of graduate student comments regarding satisfaction with almost everything include the following:

"Overall, I am satisfied with most aspects of my graduate program."

"I wouldn't hesitate to recommend my program to prospective students."

"I am satisfied with pretty much everything."

Program Flexibility

Eight percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the flexibility that their program affords them with regards to course selection, research choice, and time management. Examples of graduate student comments regarding flexibility include the following:

"I am satisfied with the freedom to do research and decide my own research problems."

"My program offer the opportunity for the students to choose their courses, either offered by the department or not."

"I am satisfied with the diversity of things that I do everyday – from classes to working with undergrads in the lab, to doing my own research to running a study, to developing our lab programs, to seminars. I'm never bored."

Encouragement to Broaden Education

Five percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with support that they receive to participate in activities to broaden their educational experience. Such opportunities include international research and study, skills training, and internships. Examples of graduate student comments regarding encouragement to broaden educational experiences include the following:

"I am most satisfied with the opportunities to travel and conduct research internationally."

"I especially like the professional development courses that will make us effective scientists in whatever career path we choose. I feel that I am supported even though I don't want a career in academia, but government instead. From talking to other students in different universities, I understand that this is not always the case and I am thankful for the support at Penn State."

"I I enjoy the opportunity to work with the extension groups in the department. It allows for a better understand of how research is used in real-world settings."

Interdisciplinary Opportunities

Five percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the interdisciplinary opportunities available to them both through college and intercollege programs. Examples of graduate student comments regarding interdisciplinary opportunities include the following:

"The interdisciplinary nature of my program allows for learning opportunities in multiple fields and is much appreciated."

"I am satisfied with the opportunity to interact with faculty and students from other programs."

"In seeking a dual degree, I have been able to connect to ideas and people who share similar research interests and concern for the issues that I am interested in."

Teaching Opportunities

Five percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the opportunities to gain teaching experience. Examples of graduate student comments regarding teaching opportunities include the following:

"Teaching opportunities abound."

"I have found opportunities to build my teaching portfolio, which is important to my career goals."

"I am satisfied with teaching experience. I was a teaching assistant for both lectures and labs."

Online Programs and Courses

Four percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with online programs and courses. Examples of graduate student comments regarding online programs and courses include the following:

"I am satisfied with the online programming. The fact that the program is completely online is very important to me because I live two hours from campus and my work schedule would prohibit me from being able to pursue this program on campus."

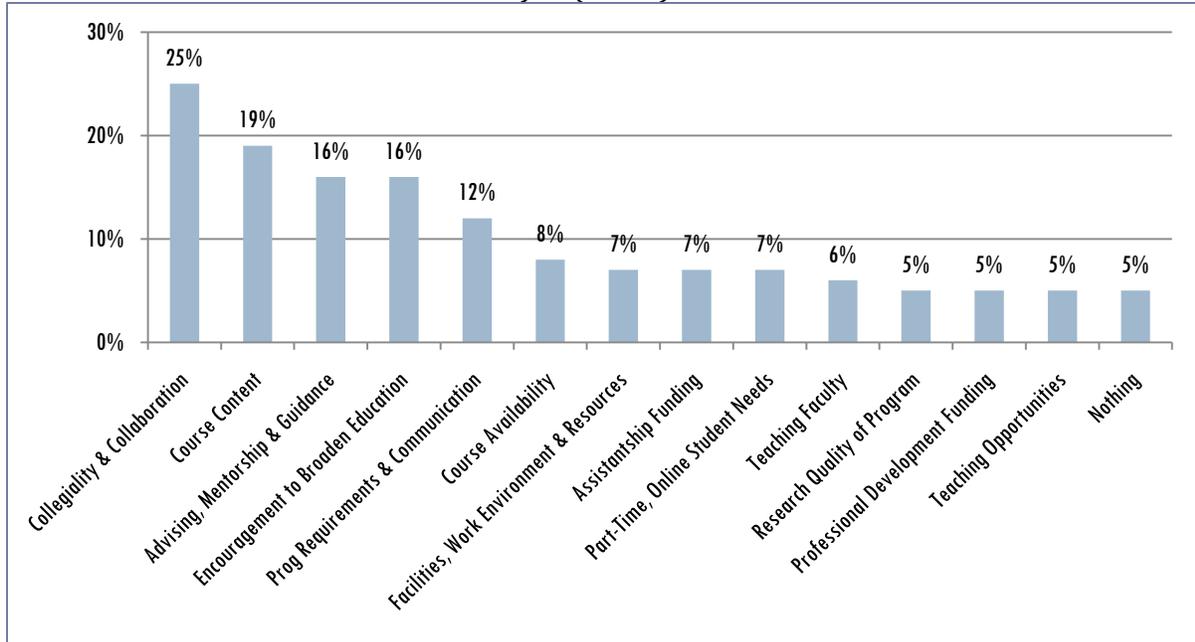
"Web-based courses are perfect - - please make more available!"

"I like the distance education opportunities."

About Which Graduate Students are Dissatisfied

One-hundred seventy-six graduate students provided comments about aspects of their graduate education with which they are dissatisfied. The aspects of their graduate education in the College of Agricultural Sciences about which graduate students are dissatisfied cluster around fourteen main themes. The fourteen themes are presented in order from most to least frequently cited.

Figure 22
About which Graduate Students are Dissatisfied (n=176)



Collegiality and Collaboration

Twenty-five percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the level of collegiality and collaboration among faculty, staff and students in their programs and departments. Examples of graduate student comments regarding their dissatisfaction with collegiality and collaboration include the following:

“Our program seems to be very narrow-minded and isn’t always accepting of others who conduct research outside of the typical areas in our department.”

“I am dissatisfied with the amount of petty “politics” that plague the department.”

“I am disappointed that our lab never works with any other lab, even though we may be working on similar projects. It seems to me that some labs limit their collaboration to prevent others from using their ideas. I find this philosophy to go squarely against my idea of science trying to gather knowledge for the betterment of society.”

Course Content and Curricula

Nineteen percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the breadth and depth of course content and their program curricula, particularly the lack of applied statistical courses in the college and 500-level courses. Examples of graduate student comments regarding their dissatisfaction with course quality include the following:

"I am disappointed with the lack of applied statistical analysis courses. There needs to be a course offered within the college that teaches students how to analyze their data."

"There are very few 500-level courses that are relevant to my research."

"I am dissatisfied with the breadth of courses offered."

Advising, Mentorship and Guidance

Twenty-nine percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the level of advising, mentorship and guidance that they receive. Graduate students feel as though there are unfair expectations for workloads. Examples of graduate student comments regarding their dissatisfaction with advising, mentorship and guidance include the following:

"I am dissatisfied with the unfair expectations for graduate students. Some faculty are dedicated to furthering their students' progress. Other faculty are dedicated to using graduate students for their own work."

"Most of the faculty members in my department only care about their own funding and do not care much about their students' futures."

"I wish there was more accountability for advisors. Advisor student relationships are not well governed...and access to someone to whom students can bring their concerns is lacking."

Encouragement to Broaden Education

Sixteen percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the support that they receive to participate in activities to broaden their educational experience. Such opportunities include non-academic career preparation, international research and study, and extension and outreach opportunities. Examples of graduate student comments regarding their dissatisfaction with encouragement to broaden educational experiences include the following:

"It would be nice if there were a bit more emphasis in my program on career areas that are not "traditional," like private-sector and entrepreneurship jobs. There also has not been an emphasis on really moving beyond the academic "publish-or-

perish” environment into the creation of new in-house activities that serve the public and the land-grant mission.”

“Except in my case in which I pushed to get more international experience, there isn’t much internationalization in the curricula. There is a need for more support for international work.”

“I don’t feel like my department encourages the professional development activities for students that my advisor does. The atmosphere implies that anything not directly related to research to complete your degree is a waste of time.”

Program Requirements and Communication about Policies

Twelve percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the program requirements and communication about graduate school policies. Examples of graduate student comments regarding their dissatisfaction with program requirements and communication about policies include the following:

“There is little structure for major exams and little support in preparing for candidacy, comprehensive exams, and defense presentations.”

“The graduate school and departmental requirements are difficult to find. Have you ever tried reading the graduate guide? It is too long. There is too much red tape. We need a summary of requirements.”

“The bureaucratic aspects (hoops to jump through) of getting a degree are daunting and inflexible.”

Course Availability and Offerings

Eight percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the availability and frequency of course offerings. Examples of graduate student comments regarding their dissatisfaction with course availability include the following:

“The availability of courses seems rather limited. It’s very difficult to take required classes that are only offered every other year when you’re only going to be here for two years.”

“Several courses that I wanted to take were either canceled or not offered.”

“Classes that are offered are not conducive to working professionals in that they are scheduled over 2-3 days per week on widely separated days.”

Facilities, Work Environment and Research Resources

Seven percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with their work environment and the facilities and research resources available to them. Examples of graduate student comments regarding their dissatisfaction with facilities, work environment and research resources include the following:

“The resources that are used for certain classes are out-dated and provide minimal perspective. Online courses should utilize more innovative ways to communicate.”

“I wish I had more space an analytical instruments in the lab and greenhouse.”

“Standards for work environment are not set or met. I had to sit for three years on a chair from the trash. My desk is small and I had to buy my own laptop to be able to do my work. There are not even enough internet connections in the grad room. But, I am glad that our department head is working on this and we got better chairs this year.”

Assistantship Funding

Seven percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with funding for assistantships. Examples of graduate student comments regarding their dissatisfaction with assistantship funding include the following:

“I am dissatisfied that new graduate students get higher assistantship amounts and older graduate students get lower amounts.”

“Funding is tenuous from year to year. This adds unnecessary stress to graduate school.”

“I think graduate stipends in our program are the lowest across the university and are not adequate.”

Part-time and Online Student Needs

Seven percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with support for part-time and online student learners. Examples of graduate student comments regarding their dissatisfaction with support include the following:

“Generally, I found PSU to be not conducive for professionals seeking to obtain a higher degree. This was surprising to me for a large university. Just one example is the requirement for a full year of residency on site. While this may be beneficial to a 22-yr old for full immersion in graduate programs, this is a true impediment to any returning professional--and had I been married it would have been an impossible hurdle. I would hope that the Graduate School will take a look at this question and the question of how returning professionals may augment their programs and bring interest and perspectives to their 20-something students that

they now target. I would suggest that offering flexibility to selected returning professionals could be a new market for the schools and one that does not need support for coursework only flexibility."

"Courses which are required are not offered enough for those who are enrolled part-time and mainly take classes during the academic year online or for the one-week long classes in the summer."

"When I was enrolled in the World Campus, I liked the convenience. But, I felt out of touch with support staff. I never knew who my advisor was or if I had one."

Teaching Faculty

Six percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the teaching faculty. Examples of graduate student comments regarding their dissatisfaction with the teaching faculty include the following:

"It seems like most of the professors are less worried about teaching and more worried about grants and writing. I think as a professor, your graduate students (and undergrads) should be your top priority. I have felt pushed aside at times when asking questions or when I needed advice."

"Professor Feed Back: In 3/4 of the courses I've taken, the professors have been great about providing constructive feedback on projects that are submitted, on posts in the discussion forums, and responding to direct emails. In the other 1/4, I felt like I was pulling teeth, it would take close to a month to get a grade on an assignment and there would be no feedback regarding why you got the grade and more importantly, how it could have been improved. I'm carrying over a 3.9 QPA in the program, so it's not a matter of not doing the work, its wanting to know how to improve."

"Teaching quality of faculty was sometimes below-par."

Research Quality of Program

Five percent of graduate students who identified aspects of their graduate program with which they are satisfied indicated that they are satisfied with the research quality of their program. Examples of graduate student comments regarding their dissatisfaction with the research quality of their programs include the following:

"Overall it was a positive experience. However, I was disappointed in the lack of breadth of knowledge in the department. Many of the faculty study the same things. I was also disappointed with the amount of agricultural-related research. Students interested in agricultural areas only have 2-3 faculty to work with in a department that has over 30 faculty members. For an agricultural college, that's a shame."

"There is not enough emphasis placed on research rigor, particularly at the doctorate level. The research is always very cutting-edge."

“Overall, faculty specializations are deficient in some areas.”

Professional Development Funding

Five percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with funding for professional development. Examples of graduate student comments regarding their dissatisfaction with professional development funding include the following:

“There is not enough money available from department for outreach projects. There also is a lack of funding for things like workshops and conferences that require more traveling.”

“The availability of internal funding for activities such as travel is, when compared to other departments and colleges at Penn State, and at other universities, very poor. A maximum of \$500 once in a graduate student's tenure is laughable when compared to many other colleges at Penn State who can receive travel funds every year. If a student is working in the COAS for 4-5 years, they should be able to attend at least 2-3 conferences. If their faculty adviser has limited funds, they might not be able to attend any. I'm fortunate that my adviser is well funded and that I have had these opportunities, but I know many others who have been less fortunate. In addition, there are very few, if any, internal merit scholarships available to COAS students. The relative absence of both such funding opportunities combine to give COAS a competitive disadvantage, and are a disservice to its students.”

“It would be nice to have a more regular source of funding for our seminar series, but who doesn't want more funding?”

Teaching Opportunities and Preparation to Teach

Five percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with the opportunities to gain teaching experience, as well as preparation for teaching. Examples of graduate student comments regarding dissatisfaction for teaching opportunities include the following:

“What I have been most disappointed in is the lack of opportunity to teach. I have had to look outside of the department for these opportunities. Fortunately I had a relationship with the department that I taught for, this was a foot in the door enabling me to gain teaching experiences. I found and arranged this opportunity on my own, but it would be helpful for faculty to establish opportunities for teaching outside of the department for those who don't have existing relationships.”

“I felt unprepared to teach and not equipped to perform to my full potential as a teaching assistant.”

“I would like to see more teaching opportunities.”

Nothing

Five percent of graduate students who identified aspects of their graduate program with which they are dissatisfied indicated that they are dissatisfied with nothing. Examples of graduate student comments include the following:

"I am dissatisfied with nothing."

"I just started here last fall, and everything is going well so far."

DISCUSSION

Comparison of 2007 and 2009 Graduate Student Survey Issues

Based on the 2007 Graduate Student Survey, the Office for Graduate Education identified the following college-level action items on which to focus to improve graduate programming:

- Address the needs of adult and part-time learners
- Address the needs of US underrepresented students
- Provide increased interdisciplinary opportunities
- Integrate students in the social and natural sciences

Because changes were made to improve the format of the 2009 GSS that included reducing the number of questionnaire items and revising the program quality and departmental climate scales, exact comparisons cannot be made between the 2007 and 2009 GSS. However data from the 2009 Graduate Student Survey suggests that improvement has been made in the areas of addressing the needs of older and part-time learners and in addressing the needs of US underrepresented students. However, improvement to provide interdisciplinary opportunities and to integrate students must continue.

Addressing the needs of adult and part-time learners

Data from the 2007 GSS indicated that older students had significantly lower scores than younger students for the scales *program quality*, *overall collaborative climate*, *student climate* and *overall satisfaction*. Data from the 2009 GSS indicate that there are no significant differences among older and younger students with regards to the new scales used in the 2009 GSS for *program quality and collegiality*, nor with regards to the subscale *student-student collegiality*.

2009 GSS Item	Mean Score 20-29	Mean Score 30-39	Mean Score 40-49	Mean Score 50-59	F- value	P- value
Program Quality Scale	3.795	3.858	3.728	3.815	0.296	0.829
Collegiality Scale	3.927	3.826	3.963	4.040	0.637	0.592
Student-Student Collegiality Subscale	4.07	3.82	3.88	4.09	0.149	0.700

Data from the 2007 GSS indicated that part-time students had significantly lower scores than full-time students for the scale *advising and mentoring*. The 2009 GSS did not include all of the items that comprised the 2007 GSS scale *advising and mentoring*. However, data from the 2009 GSS does indicate that there is no significant difference among part-time and full-time students for the question “*Faculty in my graduate program care about students’ success and welfare?*”, nor is there a significant different among part-time students and full-time students with regards to the mean score for the sub-scale *faculty-student collegiality*.

2009 GSS Item	Mean Score Part-time Students	Mean Score Full-time Students	T- value	P- value
Faculty care about students' success and welfare	4.11	3.97	0.836	0.404
Faculty-Student Collegiality Subscale	3.91	3.81	1.023	0.310

Addressing the needs of US underrepresented students

Data from the 2007 GSS indicated that US underrepresented students had significantly lower scores than other US students and international students for the scale informed about policies. The 2009 GSS did not include all of the items that comprised the 2007 GSS scale informed about policies. However, data from the 2009 GSS indicates that there is no significant difference among US underrepresented students, other US students and international students for the question "To what extent are you satisfied with access to academic/graduate school regulations?"

2009 GSS Item	Mean Score US Underrepresented	Mean Score Other US	Mean Score International	F- value	P- value
Access to regulations	4.06	3.68	3.76	1.989	0.139

Providing increased interdisciplinary opportunities

Data from the 2007 GSS indicated that intercollege students had significantly higher scores than other students for the scale *opportunity for interdisciplinary work*. The 2009 GSS did not include all of the items that comprised the 2007 GSS scale *opportunity for interdisciplinary work*. Data from the 2009 GSS indicate that there remains a significant difference between intercollege students and other students for the question "How adequate are the opportunities to interact with faculty and students in other programs?" However, there is no significant difference between intercollege students and other students with regards to whether students have collaborated on a research project with someone outside their department. This suggests that more could be done to create opportunities for graduate students to interact with faculty and students in other programs with which they do not have relations for a particular research project.

2009 GSS Item	Mean Score Intercollege	Mean Score Other	T- value	P-value
Opportunity to interact with faculty and students in other programs	3.80	3.48	2.102	0.036

	% Yes Intercollege	% Yes Other	T- value	P-value
Collaborated on a research project with someone outside your department.	54%	61%	0.833	0.408

Integrating students in the social and life sciences

Data from the 2007 GSS indicated that students in social science programs had significantly lower scores than students in life and physical sciences for the scale *student climate*. Data from the 2009 GSS indicates that there is a significant difference between students in social science programs and students in life science programs for the subscale *student-student collegiality*. This suggests that more could be done to foster a collegial climate among graduate students within their own departments.

2009 GSS Item	Mean Score Social Sciences	Mean Score Life & Physical Sciences	T- value	P-value
Student-Student Collegiality Subscale	3.748	4.077	3.652	<0.000

Review of Open-ended Questions

Analysis of responses to open-ended questions in the 2007 and 2009 Graduate Student Surveys reveals that graduate students are

- Less satisfied with advising and mentorship
- Less satisfied with collegiality
- Similarly satisfied with opportunities to broaden their education through involvement with Extension and international research, for example, and
- More satisfied with course quality (content) and quality of instruction (teaching).

Advising and mentorship. In 2007, 55 percent of students who provided comments to open-ended questions were satisfied with advising and mentorship, as compared to 32 percent in 2009. In addition, another 16 percent of students who provided comments in 2009 indicated that they are dissatisfied with advising and mentorship.

Collegiality. In 2007, 31 percent of students who provided comments to open-ended questions were satisfied with collegiality and collaboration, as compared to 25 percent in 2009. In addition, another 25 percent of students who provided comments in 2009 indicated that they are dissatisfied with collegiality and collaboration in the College.

Opportunities to broaden education. In 2007, 7 percent of students who provided comments to open-ended questions were satisfied with opportunities and encouragement to broaden their education, as compared to 13 percent in 2009. However, another 16 percent of students who provided comments in 2009 indicated that they are dissatisfied with opportunities to broaden education.

Quality of courses and instruction. In 2007, 5 percent of students who provided comments to open-ended questions were satisfied with the quality of instruction, as compared to 20 percent in 2009. There are no fewer nor more comments indicating dissatisfaction about the quality of courses and instruction in 2009.

2009 Graduate Student Survey College-Level Action Items

The Office for Graduate Education consulted with the Graduate Student Advisory Council (GSAC) to identify action items based on the 2009 GSS data results. GSAC is organized by graduate students in the College of Agricultural Sciences for graduate students in the College of Agricultural Sciences. The goal of GSAC is to enhance the graduate student experience for graduate students in the College of Agricultural Sciences.

GSAC members are particularly concerned about the 2009 Graduate Student Survey data for collegiality and collaboration, advising and mentorship, and engagement and outreach. As such, GSAC members identified the following action items to improve the graduate student experience in the College of Agricultural Sciences.

1. Promote positive student-faculty relationships. GSAC members believe that graduate students and faculty are partners in the goal of conducting research to enhance and sustain the agricultural and natural resource systems. For graduate students and faculty to reach these goals together in a positive and productive manner, graduate students and faculty must *share* the responsibility for good mentorship.

To develop a shared mentorship approach, GSAC recommends that faculty consider the topic of good mentorship each fall at the College of Agricultural Sciences' all-faculty meeting. GSAC also recommends that graduate students commit to communication with their faculty mentors.

To help achieve this goal, GSAC will begin to conduct exit interviews with all graduating graduate students at the end of each summer, fall and spring semester. GSAC members will compile 'lessons learned' from these interviews and share them faculty at the fall all-faculty meeting.

2. Improve cross-departmental communication. Like promoting a shared mentorship approach, GSAC members similarly believe that faculty and graduate students in social and life and physical science programs share the common goal and responsibility of conducting research to solve interrelated systems problems in agriculture and natural resources. Such interdisciplinary work can only be accomplished through cross-departmental communication.

To improve cross-department communication, GSAC recommends that faculty involve graduate students with the five strategic initiative teams for the areas of energy; entrepreneurship; food, diet and health; pest predication and response; and water quality and quantity. GSAC also recommends that graduate students make more use of the college graduate student listerv to share opportunities and connect with students outside of their own programs.

To help achieve this goal, GSAC supports the creation of virtual institutes for the five strategic initiative areas and will attempt to coordinate departmental "Open House" coffee hours.

3. Highlight the land grant mission by promoting applied and community-based research activities. The 2009 Graduate Student Survey data indicate that graduate students want more applied and community-based research opportunities. GSAC members believe such opportunities are an important part of the educational experience of a graduate student in the agricultural sciences.

To highlight the land grant mission, GSAC recommends that faculty with extension appointments communicate opportunities for graduate student involvement in applied and community-based research activities (activities which could be one day presentations to semester-long research projects). GSAC also recommends that graduate students be pro-active and make themselves acquainted with extension faculty with similar research interests.

To help achieve this goal, GSAC will encourage extension faculty and graduate students to share applied and community-based research opportunities through the graduate student listserv. GSAC also will try to organize for graduate students applied research tours to communities

CONCLUSION

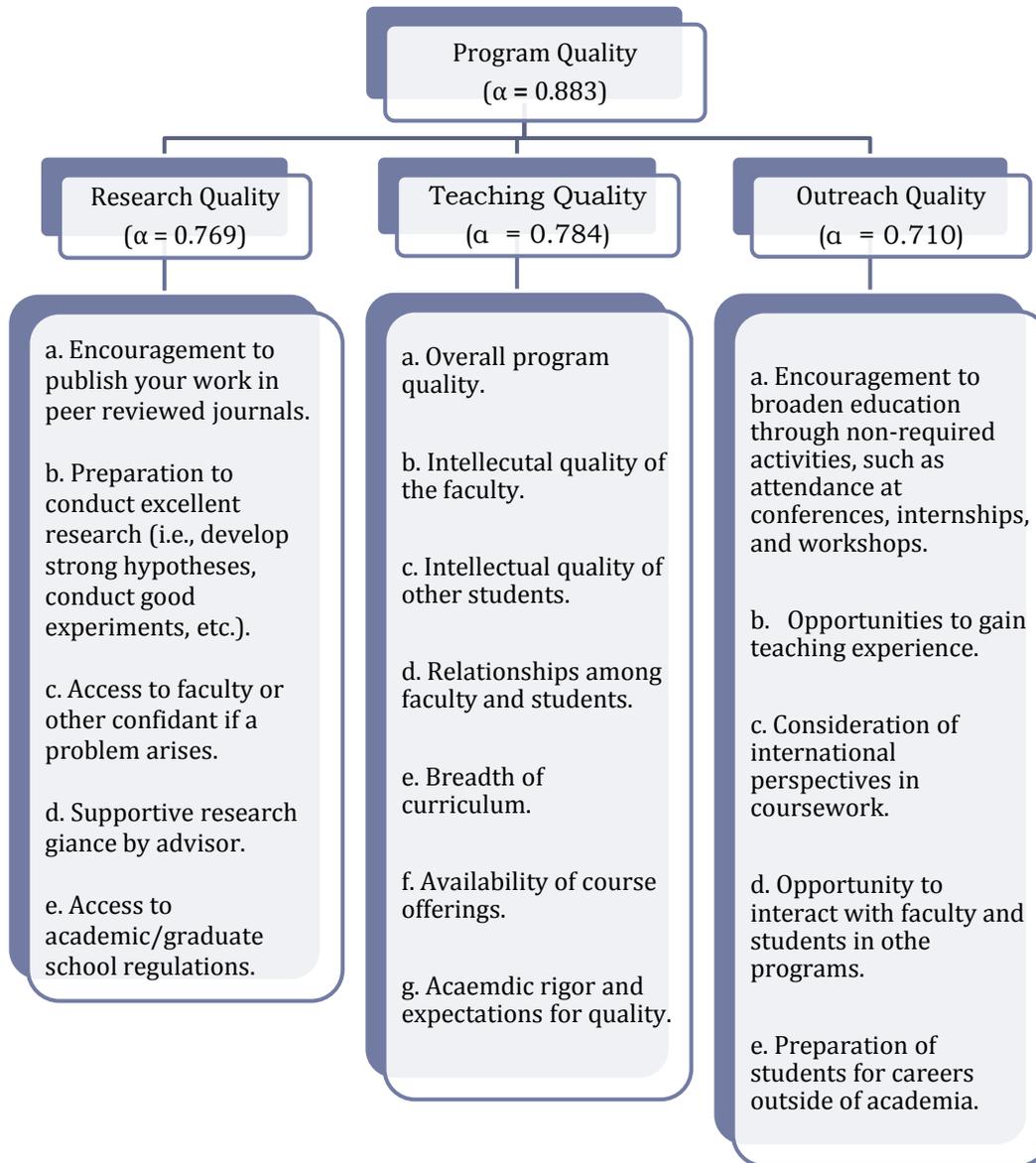
In outlining items for improving the graduate student experience in the College of Agricultural Sciences based on the results of the Graduate Student Survey, we also acknowledge that there are additional measures that can be or have been taken to improve the graduate student experience and which may not be captured necessarily by the presentation of this report. Specifically, the Office for Graduate Education also has affirmed its commitment to provide increased graduate student opportunities for teaching, involvement in Extension and outreach, and international research.

An example of an expanded opportunity in these areas includes the development of the Penn State Public Scholars in Action (PS Action) online directory. This online directory provides a link between community organizations throughout Pennsylvania that with a research need and graduate students in the College of Agricultural Sciences who wish to conduct community-based research. Additionally, faculty who are working on international activities should consider applying for Tag Along funding from the International Programs Office. Tag Along funding is made available to introduce “tag-alongers”, such as graduate students, to international experiences.

The Office for Graduate Education strongly believes that the future of land-grant universities will depend on the ability of colleges of agricultural sciences to train graduate students to conduct quality research, work collaboratively across agricultural disciplines, and be dedicated to public engagement and will work diligently to put into place the action items and additional recommendations put forth in this report.

APPENDIX A

Program Quality Scale and Sub-Scale Development



APPENDIX B

Departmental Collegiality Scale and Sub-Scale Development

