# Iowa State University

# Graduate Student Activity Report

Calendar Year 2011


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## Introduction

The Graduate College at Iowa State University enrolls more than 4,500 graduate students every year. Graduate students at ISU pursue doctoral degrees in 82 subject areas, master degrees in 109 subject areas, and certificates in 36 fields. Graduate education at ISU is a vital component of the university and documenting our students' contribution to scholarship is a way of enhancing the visibility of graduate students' accomplishments.

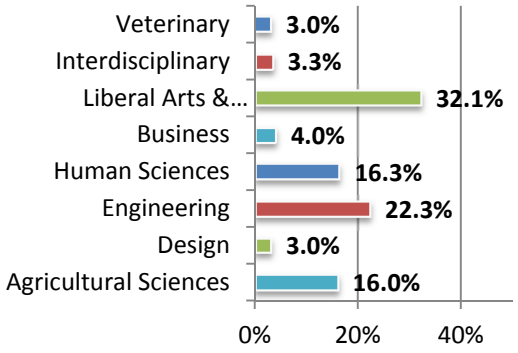
This report presents findings from the 2011 Graduate Student Activity Survey, which describes the peer-reviewed and non-peer reviewed scholarly productivity, conference attendance and presentations, teaching, as well as outreach and extension service of Iowa State University's graduate students. The information provided in the tables and graphs in this report give insight to the self-reported data of ISU graduate students during the 2011 calendar year.

We also report trends in how scholarship differs between colleges and divisions of the Graduate College, while examining whether there is any difference between the activity of men and women, as well as international and domestic graduate students.

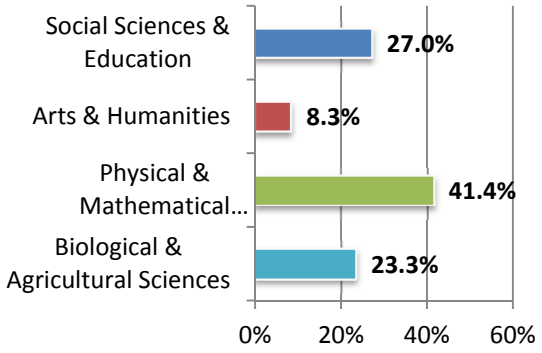
The Graduate Student Activity Survey was administered during the spring 2012 semester. The purpose of the survey was to gain a comprehensive view of the endeavors of ISU's graduate students during the 2011 calendar year.

The sampling frame for the survey was the population of all graduate students—those pursuing master's degrees, doctorates, and certificates—at ISU. The survey was completed by 30 percent of the total graduate student population during the spring 2012 semester, resulting in a final sample of 1,532 students.

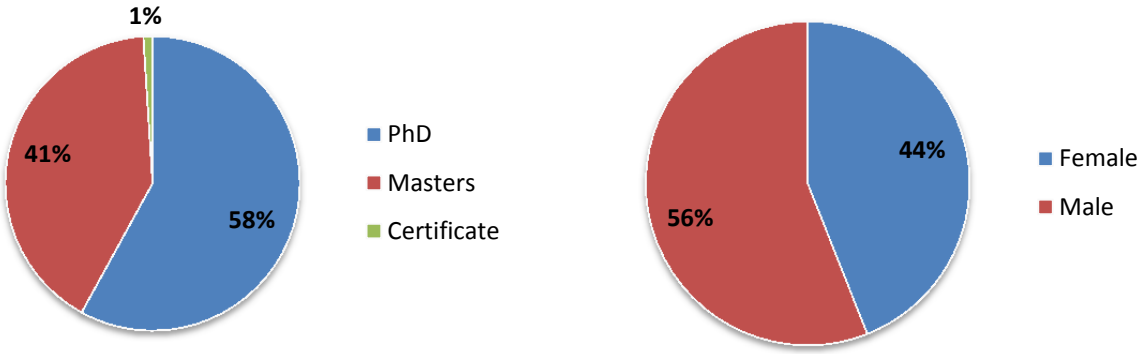
**Percentage of Respondents, by College**




**Percentage of Respondents, by Graduate Division**



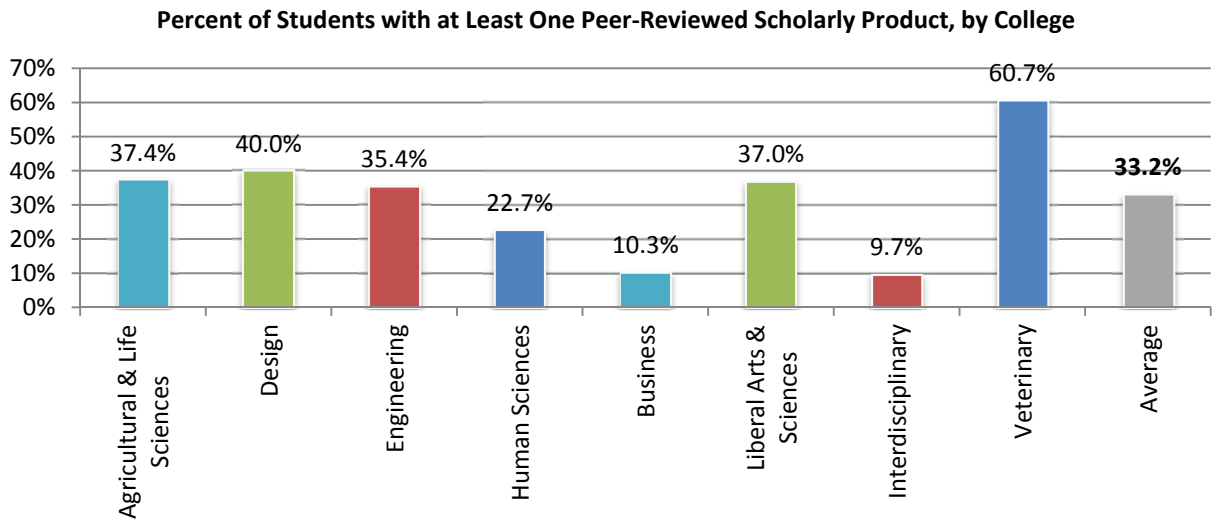
**Characterisitcs of the final sample**




## Selected Findings

### *Peer-reviewed scholarship*

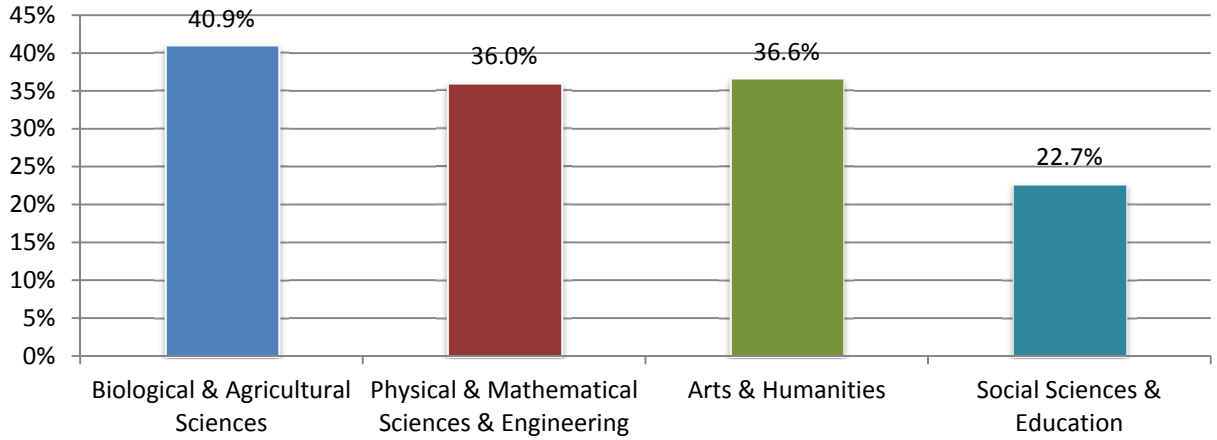
- 33 percent of respondents produced at least one peer-reviewed scholarly product[1] that was published, exhibited, or performed during 2011. The graph below shows how this varies by college




[1] Peer reviewed scholarship included books, chapters in books, refereed journal articles ,refereed extension or outreach materials, refereed conference proceedings , peer reviewed or curated exhibitions, juried music, drama or dance productions or performances, design competitions, art or literary publications, and peer reviewed teaching materials

- This variation can also be examined by Graduate College Division. Graduate students in the Division of Biological and Agricultural Sciences are more likely than students in other divisions to produce a peer-reviewed scholarly product.

**Percent of Students with at Least One Peer-Reviewed Scholarly Product, by Graduate Division**



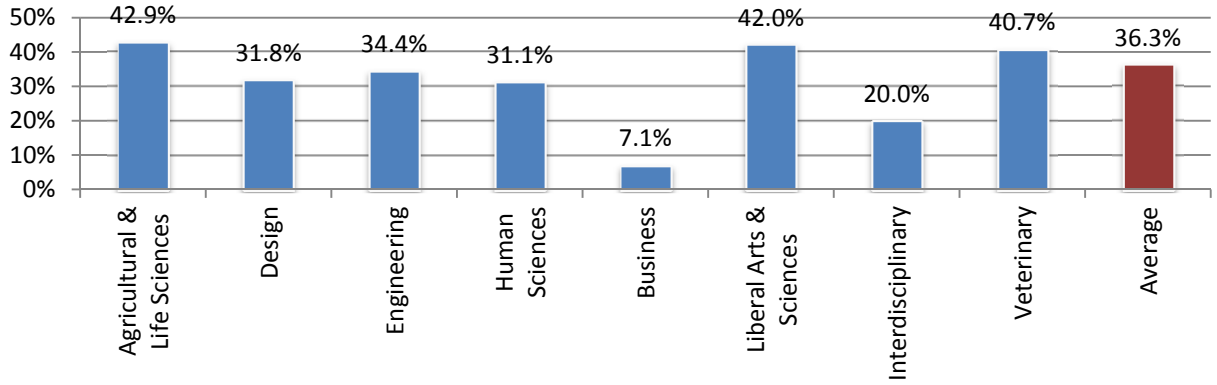

- Across ISU, 254 graduate students reported publishing, exhibiting, or performing at least one peer-reviewed scholarly products in 2011
- This resulted in a total of 711 scholarly products for an average of 2.8 peer-reviewed works per respondent
- Female graduate students (3.2 works per student) accounted for a statistically significant larger portion of peer reviewed scholarship than male graduate students (2.5 works per student)
- International graduate students (3.1 works per student) accounted for a statistically significant larger portion of peer reviewed scholarship than domestic graduate students (2.6 works per student)

## *Non peer-reviewed scholarship*

- 36 percent of respondents had at least one non peer-reviewed scholarly product[2] that was published, exhibited, or performed. The graph below shows how this varies by college

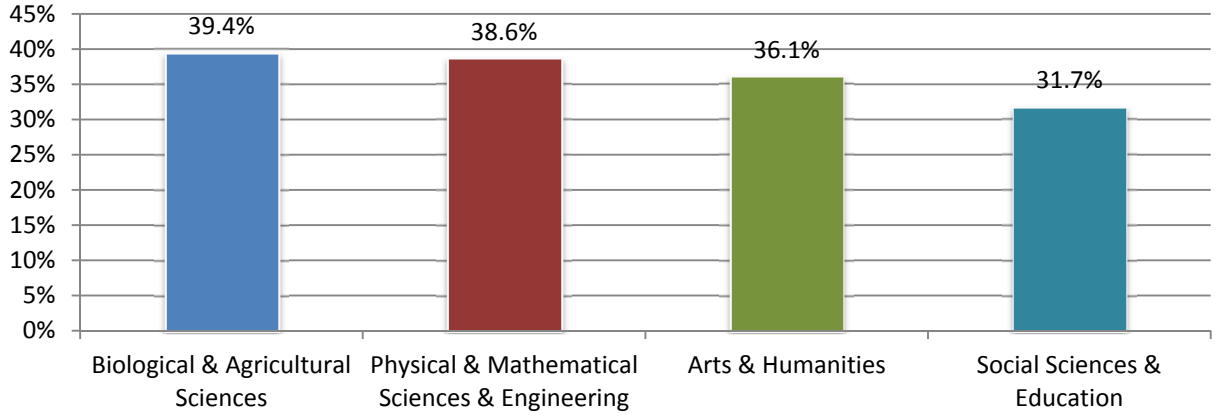
[2] Non peer-reviewed scholarly products include non-refereed journal articles, non-refereed extension or outreach publications, non-refereed conference proceedings, publicly-available software, electronic products/technical hardware, new plant varieties, non-juried creative activities such as art, design, installations, music, literature, drama or dance, professional reports, grant proposals, published letters or comments to the editor, published book reviews, teaching manuals, factsheets, or innovative teaching techniques/materials/websites

**Percent of Students with at Least One Non Peer-Reviewed Scholarly Product, by College**




- This variation can also be examined by Graduate College Division. Graduate students in the Divisions of Biological and Agricultural Sciences and Physical and Mathematical Sciences and Engineering were more likely to produce peer-reviewed scholarly products.

**Percent of Students with at Least One Non Peer-Reviewed Scholarly Product, by Graduate Division**

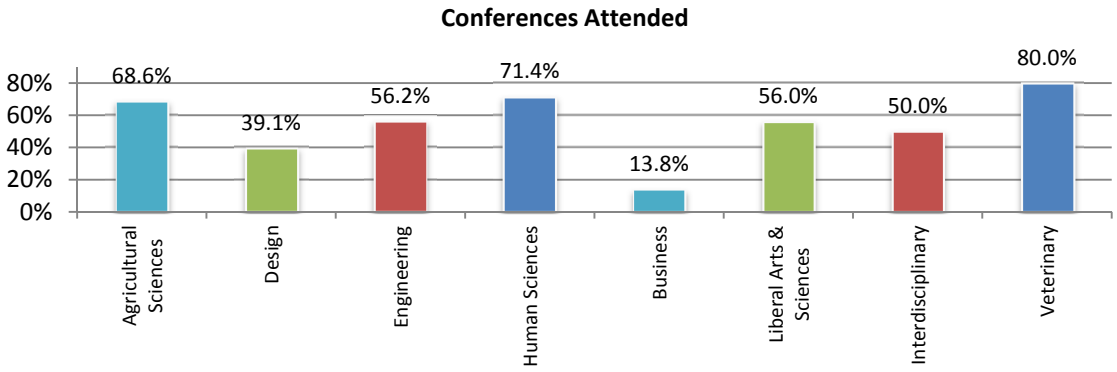


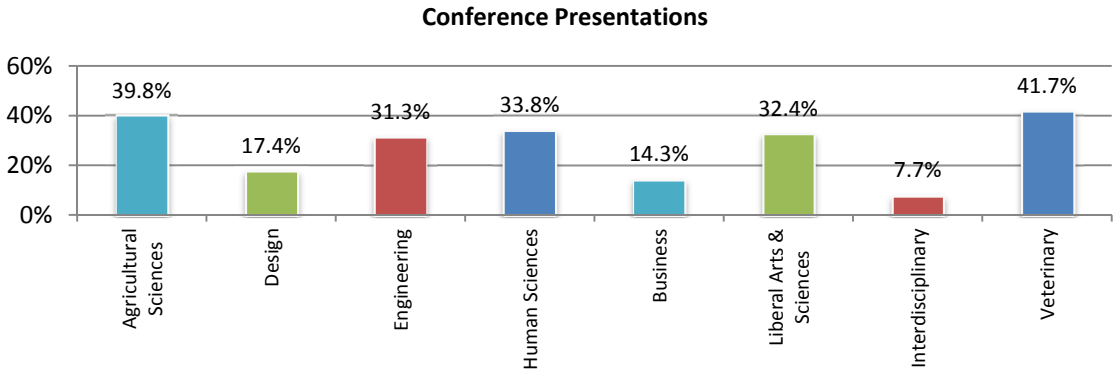

- Across ISU, 253 graduate students reported publishing, exhibiting, or performing at least one non peer-reviewed scholarly product in 2011
- This resulted in a total of 827 scholarly products for an average of 3.3 non peer-reviewed works per respondent
- Female graduate students (3.4 works per student) accounted for a larger portion of non peer-reviewed scholarship than male graduate students (3.2 works per student): this difference is not strictly statistically significant.
- Domestic graduate students (3.3 works per student) accounted for a larger portion of non peer-reviewed scholarship than international graduate students (3.1 works per student): this difference is not strictly statistically significant.

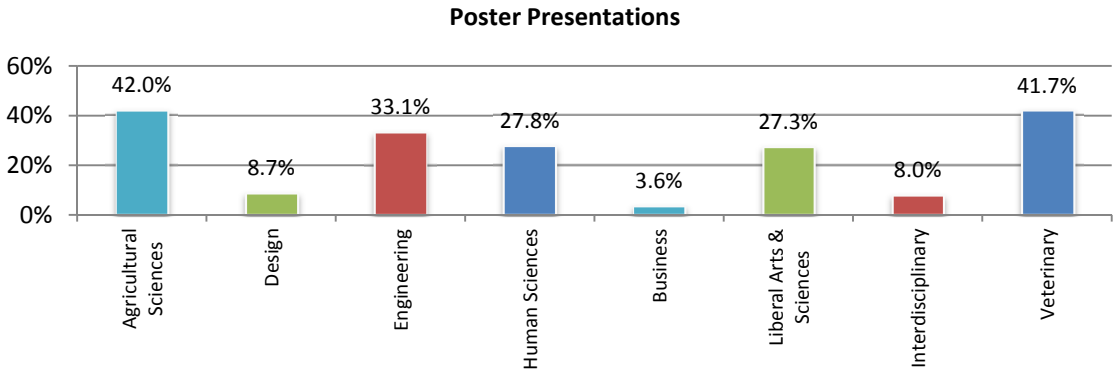
## *Conferences attended, presentations, and poster sessions*

- 60 percent of graduate students attended at least one national, regional, and/or local conference
- 32 percent of graduate students delivered at least one presentation at national, regional, and/or local conferences
- 29 percent of graduate students presented at least one poster at national, regional, and/or local conferences

The variations of the percentage of graduate students who attended at least one conference, delivered at least one conference presentation, and at least one poster presentation can be examined by college. The graphs below show how this varies.

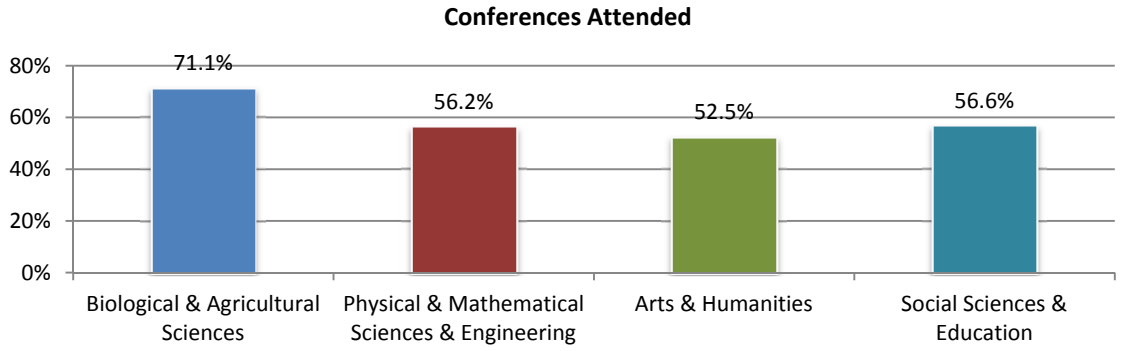


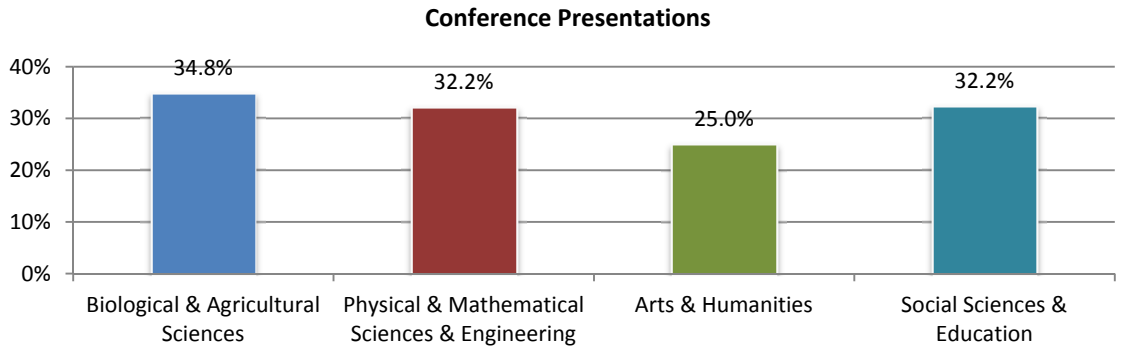



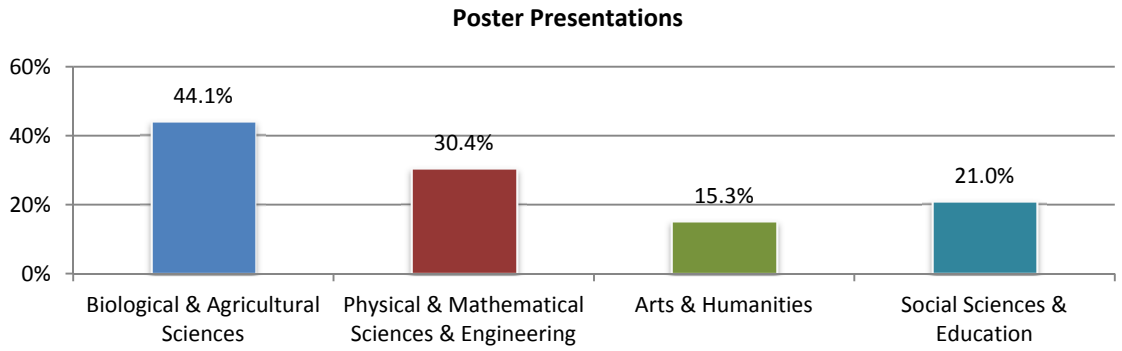



- Of graduate students attending at least one national, regional, and/or local conference in 2011, each:
  - Attended 2.4 conferences
  - Delivered 2.0 research presentations
  - Presented 1.6 poster sessions
- International graduate students (1.8 posters per student) accounted for a statistically significant larger portion of poster sessions delivered than domestic graduate students (1.5 posters per student)

The variations of the percentage of graduate students who attended at least one conference, delivered at least one conference presentation, and at least one poster presentation can also be examined within each division of the Graduate College. The graphs below show how this varies by division.



## *Technology transfer*

- 1.3 percent of graduate students (8 total) had at least one patent, royalty, or license issued
- Of the eight graduate students who reported one patent, five are from the College of Engineering
- Of the eight graduate students who reported one patent, five are male and three are female
- Five international students had at least one patent, royalty, or license issued, four are males

## *Teaching in and beyond the classroom*

- The average ISU graduate student had 5.1 course contact hours per week during the 2011 calendar year
- There is a tremendous variation in the teaching hours across the different colleges. Graduate students in the College of Liberal Arts and Sciences reported the highest number of course contact hours per week at 8.3 per graduate student, followed by the College of Human Sciences at 5.7 per graduate student. Engineering students had 3.5 and those in the College of Liberal Arts and Sciences had 3.0 contact hours per week.
- 39 percent of ISU graduate students work with at least one undergraduate student on research or creative activities, or 1.78 undergraduates per graduate student.
- 31 percent of ISU graduate students advise or mentor at least one undergraduate student, or 4.62 undergraduates per graduate student.
- 20 percent of ISU graduate students advise or mentor at least one fellow graduate student, or 0.63 graduates mentored per graduate student.
- Male graduate students engage in teaching 5.3 course contact hours per week and female graduate students in 4.9 course contact hours per week: this difference is not strictly statistically significant.
- We calculated *Teaching Beyond the* Classroom by combining the number of undergraduate students working with graduate students on research or creative activities, the number of undergraduates advising or mentoring, the number of graduates students advising or mentoring, and the number of co-curricular student groups graduate students work with.
- Female graduate students accounted for a statistically significant larger portion of teaching beyond the classroom activities than male graduate students. (5.09 students and groups per female graduate student, 4.46 students and groups per male graduate student).

## *Outreach, extension, and professional practice*

- The average ISU graduate student interacted with 1.9 organizations, schools, or clients *within the state of Iowa*, dedicating 59 hours of annual service and interaction.
- The average ISU graduate student interacted with 0.85 organizations, schools, or clients *outside of Iowa*, dedicating 34hours of annual service and interaction.
- ISU graduate students worked with an average of 1.2 local professional service groups for a total 18.3 hours of annual service and interaction.
- Female graduate students accounted for a statistically significant larger portion of interaction with organizations, schools, or clients *within the state of Iowa* (2.2 per female graduate student)
- The average ISU graduate student participated in 0.34 statewide, regional, or national service activities, dedicating 5.3 hours of annual service.

# Tables and Figures

## *Research, Scholarship, & Creative Activity*

**Table 1: Percent distribution of graduate students with at least one publication, conferences, and presentations, by College**

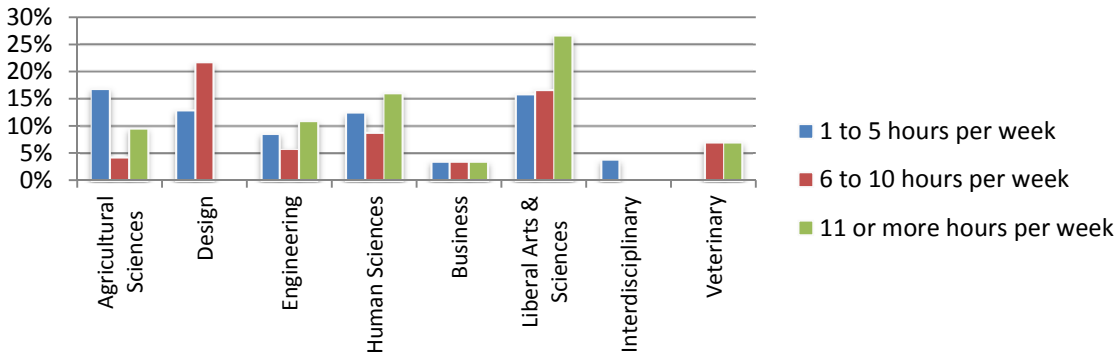
| *College* | Peer-Reviewed Publications | Non Peer-Reviewed Publications | Conferences Attended | Conference Presentations | Poster Presentations | *Percentage of Respondents by College* |
|---|---|---|---|---|---|---|
| Agricultural & Life Sciences | 20.5% | 21.3% | 21.5% | 22.9% | 26.3% | *16.0%* |
| Design | 3.9% | 2.8% | 2.1% | 1.7% | 1.0% | *3.0%* |
| Engineering | 20.5% | 17.4% | 17.6% | 18.2% | 21.1% | *22.3%* |
| Human Sciences | 11.8% | 15.0% | 21.7% | 19.0% | 16.7% | *16.3%* |
| Business | 1.2% | 0.8% | 0.9% | 1.7% | 0.5% | *4.0%* |
| Liberal Arts & Sciences | 34.3% | 36.4% | 28.8% | 31.2% | 28.7% | *32.1%* |
| Interdisciplinary | 1.2% | 2.0% | 3.0% | 0.9% | 1.0% | *3.3%* |
| Veterinary | 6.7% | 4.3% | 4.6% | 4.3% | 4.8% | *3.0%* |
| Total | 100% | 100% | 100% | 100% | 100% | *100%* |

## *Teaching in the classroom*

**Table 2: Percent distribution of graduate students' course teaching hours per week, by range of hours and college**

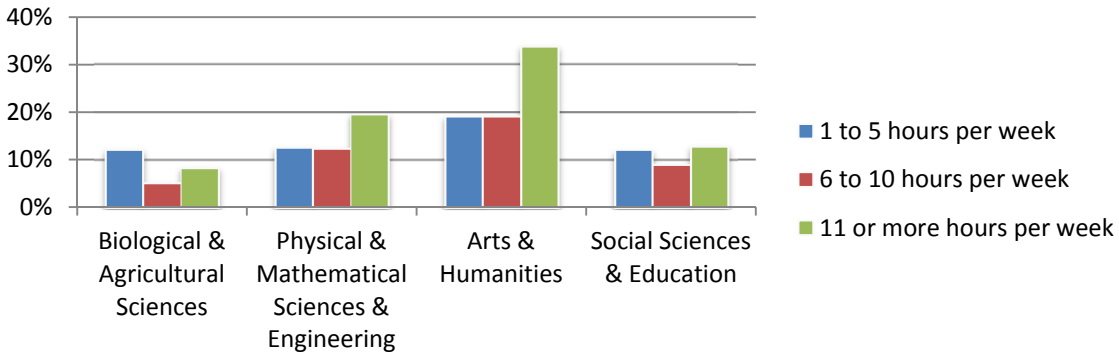
| *College* | Total Respondents | Average Hours per Week | Hours per week | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 1 to 5 | 6 to 10 | 11 or more | Total |
| Agricultural & Life Sciences | 136 | 2.99 | 69.1% | 16.9% | 4.4% | 9.6% | 100.0% |
| Design | 23 | 1.74 | 65.2% | 13.0% | 21.7% | 0.0% | 100.0% |
| Engineering | 137 | 3.51 | 74.5% | 8.8% | 5.8% | 10.9% | 100.0% |
| Human Sciences | 136 | 5.71 | 62.5% | 12.5% | 8.8% | 16.2% | 100.0% |
| Business | 28 | 0.86 | 89.3% | 3.6% | 3.6% | 3.6% | 100.0% |
| Liberal Arts & Sciences | 269 | 8.28 | 40.5% | 16.0% | 16.7% | 26.8% | 100.0% |
| Interdisciplinary | 26 | 0.12 | 96.2% | 3.8% | 0.0% | 0.0% | 100.0% |
| Veterinary | 28 | 2.04 | 85.7% | 0.0% | 7.1% | 7.1% | 100.0% |
| *Total* | *783* | *5.13* | *61.2%* | *12.8%* | *10.1%* | *16.0%* | *100.0%* |

**Graph 1: Percent distribution of graduate student course teaching hours per week, by College**




| *Graduate Division* | **Total Respondents** | **Average Hours per Week** | **Hours per week** | | | | |
|---|---|---|---|---|---|---|---|
| | | | **0** | **1 to 5** | **6 to 10** | **11 or more** | **Total** |
| Biological & Agricultural Sciences | 190 | 2.7 | 74.2% | 12.1% | 5.3% | 8.4% | 100% |
| Physical & Mathematical Sciences & Engineering | 291 | 6.61 | 55.3% | 12.7% | 12.4% | 19.6% | 100% |
| Arts & Humanities | 68 | 8.24 | 27.9% | 19.1% | 19.1% | 33.8% | 100% |
| Social Sciences & Education | 224 | 4.56 | 66.1% | 12.1% | 8.9% | 12.9% | 100% |
| *Total* | *773* | *5.53* | *60.7%* | *12.9%* | *10.2%* | *16.2%* | *100%* |

**Graph 2: Percent distribution of graduate student course teaching hours per week, by Graduate Division**



## *Beyond the classroom*

**Table 3: Percent distribution of graduate students working with undergraduate students on research or creative activities, by range of number of undergraduates**

| *College* | **Total Respondents** | **Percent of graduate students by range of undergraduate students** | | | | |
|---|---|---|---|---|---|---|
| | | **0** | **1 to 5** | **6 to 10** | **11 or more** | **Total** |
| Agricultural & Life Sciences | 162 | 42.6% | 52.5% | 4.9% | 0.0% | 100% |
| Design | 27 | 81.5% | 14.8% | 0.0% | 3.7% | 100% |
| Engineering | 173 | 49.1% | 46.8% | 2.9% | 1.2% | 100% |
| Human Sciences | 142 | 70.4% | 20.4% | 4.9% | 4.2% | 100% |
| Business | 29 | 86.2% | 10.3% | 0.0% | 3.4% | 100% |
| Liberal Arts & Sciences | 270 | 67.4% | 25.6% | 4.1% | 3.0% | 100% |
| Interdisciplinary | 28 | 75.0% | 25.0% | 0.0% | 0.0% | 100% |
| Veterinary | 33 | 66.7% | 30.3% | 3.0% | 0.0% | 100% |
| *Total* | *864* | *60.9%* | *33.3%* | *3.7%* | *2.1%* | *100%* |

**Table 4: Percent distribution of graduate students advising undergraduate students, by range of number of undergraduates advised**

| *College* | **Total Respondents** | **Percent of Undergraduate Students by Range** | | | | |
|---|---|---|---|---|---|---|
| | | **0** | **1 to 5** | **6 to 10** | **11 or more** | **Total** |
| Agricultural & Life Sciences | 151 | 61.6% | 34.4% | 1.3% | 2.6% | 100% |
| Design | 27 | 81.5% | 7.4% | 0.0% | 11.1% | 100% |
| Engineering | 157 | 63.1% | 33.8% | 0.0% | 3.2% | 100% |
| Human Sciences | 145 | 64.1% | 11.7% | 4.8% | 19.3% | 100% |
| Business | 29 | 86.2% | 3.4% | 0.0% | 10.3% | 100% |
| Liberal Arts & Sciences | 260 | 73.8% | 20.0% | 1.5% | 4.6% | 100% |
| Interdisciplinary | 26 | 84.6% | 15.4% | 0.0% | 0.0% | 100% |
| Veterinary | 30 | 73.3% | 23.3% | 0.0% | 3.3% | 100% |
| *Total* | *825* | *68.8%* | *22.8%* | *1.6%* | *6.8%* | *100%* |

**Table 5: Percent distribution of graduate students mentoring/advising other graduate students, by range of number of students mentored/advised**

| *College* | **Total Respondents** | **Percent of Graduate Students Advised/Mentored by Range** | | | | |
|---|---|---|---|---|---|---|
| | | **0** | **1 to 5** | **6 to 10** | **11 or more** | **Total** |
| Agricultural & Life Sciences | 138 | 82.6% | 17.4% | 0.0% | 0.0% | 100% |
| Design | 25 | 92.0% | 8.0% | 0.0% | 0.0% | 100% |
| Engineering | 147 | 82.3% | 16.3% | 0.7% | 0.7% | 100% |
| Human Sciences | 137 | 73.0% | 23.4% | 0.7% | 2.9% | 100% |
| Business | 29 | 93.1% | 6.9% | 0.0% | 0.0% | 100% |
| Liberal Arts & Sciences | 259 | 77.6% | 22.0% | 0.0% | 0.4% | 100% |
| Interdisciplinary | 26 | 96.2% | 3.8% | 0.0% | 0.0% | 100% |
| Veterinary | 28 | 75.0% | 25.0% | 0.0% | 0.0% | 100% |
| *Total* | *789* | *80.1%* | *18.9%* | *0.3%* | *0.8%* | *100%* |

**Table 6: Percent distribution of graduate students working with co-curricular groups, by range of number of groups**

| *College* | **Total Respondents** | **Percent of Graduate Students Advised/Mentored by Range** | | | | |
|---|---|---|---|---|---|---|
| | | **0** | **1 to 5** | **6 to 10** | **11 or more** | **Total** |
| Agricultural & Life Sciences | 161 | 44.1% | 54.7% | 0.6% | 0.6% | 100% |
| Design | 30 | 43.3% | 53.3% | 0.0% | 3.3% | 100% |
| Engineering | 160 | 53.8% | 45.6% | 0.0% | 0.6% | 100% |
| Human Sciences | 149 | 42.3% | 48.3% | 2.7% | 6.7% | 100% |
| Business | 31 | 58.1% | 38.7% | 3.2% | 0.0% | 100% |
| Liberal Arts & Sciences | 275 | 55.6% | 42.9% | 0.4% | 1.1% | 100% |
| Interdisciplinary | 26 | 73.1% | 26.9% | 0.0% | 0.0% | 100% |
| Veterinary | 32 | 40.6% | 56.3% | 0.0% | 3.1% | 100% |
| *Total* | *864* | *50.5%* | *46.8%* | *0.8%* | *2.0%* | *100%* |