2016 Data Buddies Department Report

[YOUR INSTITUTION NAME HERE]

The Computing Research Association's (CRA) Data Buddies surveys are designed to assess experiences of students engaged in the computing community. This includes students who are pursuing a computing degree, as well as students who are simply taking computing courses while pursuing other degrees.

The current report presents data collected at two points in time. First, data collected during the Fall 2015 academic semester are presented; this survey was distributed to students at all levels of their degree program, and assessed students' experiences in the computing community. Second, data collected during the Spring 2014 and 2015 academic semesters are presented; these surveys were sent to students who were graduating from their degree program during the academic year of the survey, and measured plans for the future. Data from Spring 2014 and Spring 2015 were aggregated in order to increase sample sizes in this report.

Data are presented by semester of survey, and student population (i.e. undergraduate and graduate). If your institution did not have more than 4 respondents, did not distribute a particular survey to its students, or does not have a particular student population (e.g., graduate students), there will be no content reported for that section.

The tables in this report include aggregated data for your students compared to data for students at institutions that are similar to your own institution. **YOUR COMPARISON GROUP INCLUDES STUDENTS FROM OTHER INSTITUTIONS WHOSE COMPUTING DEPARTMENTS AWARD PH.D.S.** For each survey question, either a mean + standard deviation (SD) or a proportion (in percentage) is reported for each student group. Sample sizes within each table are notated with 'n', and indicate the number of students who responded to that specific section of the survey; sample sizes may vary across tables, given that all survey questions were voluntary.

Tables also include inferential statistics assessing differences between your students' responses vs. a comparison group's responses. The reader should exercise caution when interpreting inferential statistics pertaining to one or more groups with a small sample size (e.g., $n < 10$). Small sample sizes tend to yield a high degree of error variance (i.e., unreliable estimate of the population), relative to moderate (e.g., n = 10 - 30) or large sample sizes (e.g., $n > 30$).

Independent samples t tests were used to assess group differences in means (For more information on this type of test see http://en.wikipedia.org/wiki/Student's_t-test). A two-proportion z test with unpooled variance was used to assess differences in proportions across groups (see http://en.wikipedia.org/wiki/Statistical_hypothesis_testing for more information on this type of test); if the product of either group's sample size and its respective proportion was less than five, then the assumptions for the two-proportion z test were not met, and a test was not conducted.

The following notation is used to indicate statistically significant group differences:

- (*) groups are significantly different at the $p \leq .05$ level.
- A blank cell indicates that the difference between groups is not significantly different.
- (-) fewer than 5 students completed a given question OR the criteria to calculate a two-proportion z test (see above) were not met.

Past Data Buddies data are also displayed on a data visualization page on the CRA's Center for Evaluating the Research Pipeline's (CERP) website (http://cra.org/cerp/data-visualization). Thank you for contributing data to the CRA's Data Buddies Project. Your students' data help the computing community better understand correlates of persistence and success among a diverse set of student populations.

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Part I

Fall 2015 Semester: Continuing Students

Chapter 1

Undergraduate Students

1.1 Background

What is your current class standing?

	Your Institution (%)	Comparison Group (%)	Sig.
First year	20%	20%	
Second year	29%	22%	*
Third year	27%	26%	
Fourth year	19%	22%	*
Fifth year	3%	6%	*
Sixth year or more	1%	2%	
Other	1%	2%	
n	874	7050	

Are you a computing major?

Note: we define "computing major" as computer science, computer engineering, computing information systems, or any other major with a strong computing component

	Your Institution (%)	Comparison Group (%)	Sig.
No	9%	10%	
Yes	90%	88%	
Have not declared a major	1%	2%	*
n	867	6926	

For computing majors: Over the past year, have you seriously considered changing to a non-computing major?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	15%	13%	
n	776	6116	

Have you ever attended community college?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	35%	26%	*
n	653	5651	

How are you paying for your education? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Federal student loans	44%	44%	
Private student loans	12%	14%	
Personal savings	37%	34%	
Scholarship/fellowship you applied for	55%	43%	*
Full-time work	11%	6%	*
Part-time work	33%	34%	
Spouse or partner support	3%	2%	*
Parent or other family support	57%	69%	*
Other	6%	6%	
n	754	6250	

Have you experienced any economic hardships during your college education that led to a leave of absence?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	8%	5%	*
n	729	6081	

1.2 Computing Identity

How much do you agree or disagree with the following?
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
I see myself as a computing person	4.12 (0.99)	4.00 (1.02)	*
I feel like I belong in computing	3.95 (1.09)	3.87 (1.09)	*
I feel like an outsider in the computing community	2.46 (1.25)	2.49 (1.22)	
I am interested in learning more about what I can do with computing	4.36 (0.85)	4.34 (0.82)	
Computing is a big part of who I am	3.91 (1.10)	3.79 (1.10)	*
I feel welcomed in the computing community	3.80 (1.06)	3.73 (0.99)	
Using computers to solve problems is interesting	4.55 (0.73)	4.58 (0.66)	
I do not have much in common with the other students in my computing classes	2.78 (1.19)	2.78 (1.18)	
I care about doing well in computing	4.53 (0.73)	4.49 (0.72)	
n	837	6811	

1.3 Confidence

I am confident that I can:
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
find employment in my area of computing interest	4.24 (0.97)	4.22 (0.93)	
become a leader in the field of computing	3.25 (1.14)	3.15 (1.11)	*
win a computing-related contest (e.g., programming contest, robotics contest, hackathon)	3.04 (1.19)	3.04 (1.15)	
get admitted to a graduate computing program	3.78 (1.10)	3.61 (1.08)	*
complete my undergraduate degree in computing	4.52 (0.87)	4.51 (0.84)	
quickly learn a new programming language on my own	3.99 (1.06)	3.99 (1.02)	
clearly communicate technical problems and solutions to a range of audiences	3.94 (0.98)	3.90 (0.95)	
n	831	6773	

1.4 Perceptions of the Professional Environment

To what extent do you disagree or agree with the following: I believe:
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
People have a certain amount of computing ability that really can't be changed.	2.31 (1.08)	2.45 (1.12)	*
People can't really change how good they are in computing.	1.85 (0.86)	1.94 (0.93)	*
People can learn new things, but they can't change their basic ability to do computing.	2.18 (1.05)	2.25 (1.07)	
n	785	6558	

What are your perceptions of people in computing?
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Although some women might be good at computing, women in general tend to be better at other things	2.13 (1.15)	2.15 (1.14)	
Computing fits men's personalities better than women's	2.02 (1.12)	2.03 (1.11)	
Computing seems to come more naturally to women than men	2.14 (0.96)	2.18 (0.95)	
n	785	6510	

How do you feel about the computing courses you have taken at your current institution?
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	4.00 (1.04)	4.01 (1.02)	
Overall, I am satisfied with the computing program at my institution	3.86 (1.12)	3.91 (1.06)	
I am glad that I chose to study computing	4.37 (0.90)	4.36 (0.89)	
n	815	6690	

1.5 Support Structures

Rate how you feel about the environment of the department of your computing program.

(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
The department is not very supportive of its students	2.51 (1.13)	2.42 (1.10)	*
I feel a sense of community in my department.	3.46 (1.07)	3.54 (1.06)	*
My department cares about its students.	3.67 (1.03)	3.75 (1.00)	
The environment in my department inspires me to do the best job that I can.	3.52 (1.03)	3.52 (1.04)	
n	815	6705	

Within your computing department and/or classes, how often do you feel that:

(1) Never - (5) Always

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	1.79 (1.09)	1.81 (1.08)	
You are talked down to by classmates, instructors, or advisors.	1.80 (1.06)	1.85 (1.07)	
Your ideas or opinions are minimized or ignored.	1.82 (1.07)	1.82 (1.03)	
n	783	6543	

Who do you consider to be a mentor? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
A professor within my department	33%	41%	*
A professor at my college/university who is outside of my department	15%	15%	
An individual I met through a formal mentoring program sponsored by an outside organization	18%	16%	
No one	41%	36%	*
Someone else	20%	21%	
n	796	6540	

To what extent do you have a mentor who:
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
helps you improve your computing skills.	2.41 (1.39)	2.44 (1.40)	
shows compassion for concerns and feelings you discussed with them.	2.90 (1.51)	2.88 (1.50)	
shares personal experiences as an alternative perspective to your problems.	2.83 (1.52)	2.81 (1.50)	
explores career options with you.	2.63 (1.49)	2.61 (1.46)	
n	780	6484	

To what extent is each of the following kinds of support available to you from other computing students if you need it?
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Someone to hang out with.	3.25 (1.37)	3.48 (1.24)	*
Someone to confide in or talk to about your problems.	2.91 (1.37)	3.06 (1.35)	*
Someone to get class assignments for you if you were sick.	3.29 (1.35)	3.50 (1.29)	*
Someone to help you understand difficult homework problems.	3.39 (1.29)	3.56 (1.24)	*
n	788	6570	

Think about the type of support you receive from your family and rate the degree to which each of the following is true.
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
My family encourages me to pursue my computing degree.	4.19 (0.99)	4.16 (1.02)	
My family questions why I am pursuing a computing degree.	2.00 (1.14)	2.00 (1.15)	
My family wonders why I invest so much time and effort into earning a computing degree.	1.95 (1.12)	1.99 (1.15)	
My family emphasizes the value of earning a computing degree.	3.79 (1.09)	3.73 (1.11)	
n	756	6320	

1.6 Career Values

How important to you is it that your future career allows you to do the following?
(1) Not at all important - (5) Very important

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Make a lot of money	3.78 (0.90)	3.73 (0.91)	
Give back to my community	3.46 (1.07)	3.43 (1.05)	
Bring honor to my family	3.11 (1.33)	3.06 (1.35)	
Be in charge	3.07 (1.16)	2.98 (1.16)	*
Work collaboratively with others	3.58 (1.09)	3.56 (1.06)	
Spend a lot of time with my family	3.63 (1.09)	3.57 (1.08)	
Have a social impact	3.54 (1.13)	3.52 (1.09)	
Decide for myself what I will work on	3.67 (1.01)	3.63 (1.00)	
Serve humanity	3.42 (1.12)	3.40 (1.13)	
Take time off work to care for my family	3.61 (1.15)	3.60 (1.09)	
Make important decisions at work	3.69 (0.98)	3.61 (1.01)	*
Be a role model for people in my community	3.51 (1.17)	3.42 (1.19)	*
Become well-known in my field	3.33 (1.22)	3.21 (1.27)	*
Help others	3.86 (1.01)	3.86 (1.02)	
Have a lot of responsibility at work	3.51 (1.02)	3.46 (1.01)	
n	846	6834	

In your opinion, to what extent would a career in computing allow you to do the following?
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Serve humanity	3.81 (1.01)	3.69 (1.00)	*
Be in a position of influence in society	3.75 (1.05)	3.69 (1.04)	
Spend time with family	3.52 (0.99)	3.38 (1.00)	*
n	854	6851	

1.7 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?

(1) Very disinterested - (5) Very interested

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
College/University professor in computing field	2.52 (1.39)	2.55 (1.33)	
Computing researcher in industry or government lab	3.16 (1.32)	3.14 (1.32)	
High school computing teacher	1.99 (1.24)	2.10 (1.23)	*
A non-research position in the computing industry	3.97 (1.13)	3.94 (1.09)	
Position applying computing research to another area (e.g. digital media, support of research in medicine or other sciences)	3.67 (1.15)	3.65 (1.14)	
Non-research position applying your computing knowledge in another area (e.g. business applications, government)	3.78 (1.13)	3.72 (1.13)	
Entrepreneur (computing related)	3.51 (1.30)	3.46 (1.28)	
Non-computing career	2.38 (1.32)	2.44 (1.28)	
n	841	6827	

1.8 Highest Degree Plans

What is the highest degree you plan to attain?

	Your Institution (%)	Comparison Group (%)	Sig.
Associate's degree	0%	0%	
Bachelor's degree	39%	40%	
Master's degree	38%	35%	
Doctoral degree	10%	10%	
Professional degree (MD, JD, DDS, Ed.D, etc)	2%	3%	
Uncertain	9%	12%	*
Other	0%	0%	
n	854	6895	

In which field do you plan to attain your highest degree? Please select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Computing related field	89%	87%	
Non-computing field	21%	26%	*
n	850	6862	

1.9 Activities

During the past year, were you involved in any of the following groups or activities? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Visiting lectures in your department related to computing	53%	63%	*
Computing-related student groups	43%	53%	*
Computing-related contests (hacking, robotics competitions, etc.)	25%	34%	*
Computing-related online social networking (listservs, etc.)	29%	38%	*
Professional societies related to computing	18%	23%	*
Technical conferences related to computing	23%	22%	
Outreach to K-12 students related to computing	15%	15%	
Trainings or workshops in computing (other than conferences)	18%	20%	
Summer institutes or short courses (other than summer research programs)	24%	18%	*
Study support in computing (e.g. Supplemental Instruction (SI), pair programming)	21%	24%	
n	765	5934	

During your undergrad career to date, have you participanted in any of the following conferences? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Grace Hopper Celebration of Women in Computing	10%	6%	*
Regional 'Hoppers' or Celebrations of Women in Computing	3%	2%	
Richard Tapia Conference	3%	2%	
n	778	6415	

Since September 2014, have you participated in any of the following research activities? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Formal undergraduate research at my home institution	14%	14%	
Formal undergraduate research at another institution	3%	3%	
A research internship in an industry or government lab	3%	4%	
None of the above	81%	81%	
n	779	6444	

1.10 Introductory Courses

Are you currently enrolled in an introductory computer science course?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes, I am enrolled in an introductory computing course	57%	47%	*
I was enrolled in an introductory computing course, but I dropped it	3%	1%	*
No I am not enrolled in an introductory computing course	40%	52%	*
n	398	3958	

Students who dropped their introductory computing course: Why did you drop your introductory computing course? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
It did not meet my expectations	9%	6%	
It was too challenging	45%	47%	
It was not challenging enough	9%	17%	
I am no longer interested in computer science	9%	31%	
It was no longer a requirement for my degree	27%	8%	
I did not enjoy the professor's teaching style	27%	31%	
I had a scheduling conflict	18%	14%	
Other	9%	28%	
n	11	36	

Why did you enroll in an introductory computing class? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
It was required for my major/minor	91%	89%	
Curiosity or interest in computers	32%	41%	*
My parents encouraged me to	2%	6%	*
A teacher or other mentor encouraged me to	3%	9%	*
n	215	1820	

How frequently do your introductory course instructors use the following?

(1) Never - (5) Always

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Class discussion	2.63 (1.29)	3.19 (1.27)	*
Group work	2.25 (1.30)	2.77 (1.35)	*
Lecturing	4.41 (1.02)	4.53 (0.76)	
Paired programming	1.93 (1.18)	2.51 (1.41)	*
Use of real world problems involving relevant social issues	2.49 (1.27)	2.75 (1.24)	*
Use of examples involving women	1.90 (1.13)	2.11 (1.14)	*
Use of examples involving people of color	1.79 (1.10)	2.02 (1.12)	*
Student presentations	1.56 (1.00)	1.67 (1.06)	
Grading on a curve	1.95 (1.25)	2.19 (1.24)	*
Discussions addressing misconceptions about the field of computer science	2.16 (1.19)	2.49 (1.20)	*
Grouping students by level of computer science experience	1.47 (1.00)	1.70 (1.11)	*
Peer instruction	2.10 (1.24)	2.50 (1.31)	*
Working through examples or problems as a class	3.47 (1.26)	3.76 (1.16)	*
Student choice in activities and assignments	1.79 (1.19)	2.20 (1.23)	*
Interdisciplinary connections to computer science (e.g., biology and computer science)	1.85 (1.10)	2.21 (1.16)	*
Rubric-based assessment of your work	3.47 (1.41)	3.30 (1.40)	
n	214	1822	

On average, how frequently do you communicate with introductory course faculty in the following ways?

(1) Never (2) Less than once per month (3) 1-3 times per month (4) 1-3 times per week (5) More than 3 times a week

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
In class	2.14 (1.23)	2.80 (1.27)	*
At office hours	1.64 (0.97)	1.92 (1.09)	*
By email	2.05 (0.96)	2.14 (1.02)	
By phone call	1.19 (0.66)	1.19 (0.65)	
By text messages	1.18 (0.70)	1.18 (0.65)	
Via course website (e.g., Blackboard)	2.17 (1.36)	2.18 (1.35)	
In informal meetings (e.g., coffee with a professor)	1.20 (0.69)	1.26 (0.72)	
n	213	1811	

Experiences with faculty and administrators in computer science

(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Introductory course faculty are inclusive and supportive of women	3.71 (0.94)	3.98 (0.92)	*
Introductory course faculty are inclusive and supportive of students of color	3.72 (0.90)	3.94 (0.93)	*
Introductory course faculty are interested in helping me when I come to them with questions	3.75 (0.95)	4.07 (0.90)	*
Introductory course faculty are responsive to questions in class	3.94 (0.92)	4.18 (0.85)	*
Introductory course faculty are responsive to email communication	3.71 (1.03)	3.97 (0.91)	*
Computer science administrators (e.g., the department chair) care about diversity	3.48 (0.90)	3.74 (0.91)	*
n	212	1816	

Chapter 2

Graduate Students

2.1 Background

In what type of degree program are you currently enrolled?

	Your Institution (%)	Comparison Group (%)	Sig.
Joint Bachelor's/Master's	4%	5%	
Master's only	55%	39%	*
Master's (intending Ph.D.)	10%	9%	
Ph.D.	31%	47%	*
n	277	2178	

In what field is your graduate program?

	Your Institution (%)	Comparison Group (%)	Sig.
Computer Science	76%	76%	
Computer Engineering or Electrical and Computer Engineering	8%	8%	
Computing Information Systems or Information Systems	0%	6%	*
Other computing field	13%	8%	*
Non-computing field	3%	1%	
n	277	2177	

What year are you in your current degree program?

	Your Institution (%)	Comparison Group (%)	Sig.
First year	33%	32%	
Second year	45%	31%	*
Third year	7%	12%	*
Fourth year	6%	9%	
Fifth year	5%	8%	
Sixth year	3%	4%	
Seventh year	1%	2%	
Greater than seventh year	0%	1%	
n	224	1849	

Have you ever attended community college?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	10%	12%	
n	178	1648	

How are you paying for your education? Please select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Federal student loans	7%	12%	*
Private student loans	19%	14%	*
Personal savings	33%	22%	*
Scholarship/fellowship you applied for	25%	43%	*
Full-time work	24%	12%	*
Part-time work	15%	24%	*
Spouse or partner support	4%	4%	
Parent or other family support	27%	31%	
Other	11%	10%	
n	254	2037	

Have you experienced any economic hardships during your graduate program that led to a leave of absence?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	2%	4%	
n	252	2025	

2.2 Computing Identity

How much do you agree or disagree with the following?
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
I see myself as a "computing person."	4.23 (0.84)	4.11 (0.93)	*
I feel like I belong in computing.	4.13 (0.95)	4.01 (0.97)	
I feel like an outsider in the computing community.	2.05 (1.11)	2.16 (1.18)	
I am interested in learning more about what I can do with computing.	4.37 (0.78)	4.29 (0.82)	
Computing is a big part of who I am.	4.10 (0.95)	4.00 (0.98)	
Using computers to solve problems is interesting.	4.55 (0.62)	4.51 (0.68)	
I do not have much in common with the other students in my computing classes.	2.72 (1.09)	2.81 (1.11)	
Computing is not very important to me.	1.80 (1.04)	1.85 (1.07)	
I feel welcomed in the computing community.	3.99 (0.90)	3.92 (0.93)	
n	262	2105	

2.3 Confidence

I am confident that I can:
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Become an expert in my field.	4.20 (0.86)	4.13 (0.89)	
Complete my department's milestones towards earning my degree in a timely manner	4.43 (0.79)	4.29 (0.89)	*
Publish in the top journals in my field	3.52 (1.17)	3.59 (1.15)	
Discuss theory with senior members of your field	3.77 (1.08)	3.76 (1.04)	
Articulate thoughtful answers to theoretical questions about your work during a presentation	4.02 (0.91)	3.98 (0.93)	
n	264	2106	

2.4 Perceptions of the Professional Environment

To what extent do you disagree or agree with the following:
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
I would NOT recommend the graduate computing program at my institution to a friend.	1.90 (1.10)	2.07 (1.10)	*
I am glad that I chose to do a graduate degree at my institution.	4.15 (0.86)	4.05 (0.92)	
I am satisfied with how well my graduate computing program has prepared me for a career in computing.	3.84 (0.93)	3.78 (0.93)	
n	269	2150	

Within your computing department and/or classes, how often do you feel that:
(1) Never - (5) Always

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	1.85 (1.06)	1.91 (1.09)	
You are talked down to by classmates, instructors, or advisors.	1.66 (0.97)	1.77 (1.05)	
Your ideas or opinions are minimized or ignored.	1.68 (0.92)	1.77 (0.99)	
n	268	2144	

To what extent do you disagree or agree with the following: I believe:
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
people have a certain amount of computing ability that really can't be changed.	2.40 (1.17)	2.38 (1.12)	
people can't really change how good they are in computing.	1.98 (0.99)	1.99 (0.97)	
people can learn new things, but they can't change their basic ability to do computing.	2.24 (1.13)	2.20 (1.08)	
n	264	2112	

What are your perceptions of people in computing?
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Although some women might be good at computing, women in general tend to be better at other things.	2.04 (1.16)	1.96 (1.12)	
Computing fits men's personalities better than women's.	1.92 (1.10)	1.86 (1.08)	
Computing seems to come more naturally to women than men.	1.96 (0.96)	2.03 (1.00)	
n	263	2104	

2.5 Support Structures

How do you feel about the environment of the department of your computing program?

(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
I feel a sense of community in my department.	3.61 (1.05)	3.51 (1.04)	
My department cares about its students.	3.80 (1.02)	3.81 (0.96)	
The environment in my department inspires me to do the best job that I can.	3.65 (0.97)	3.63 (0.99)	
My department provides resources to help its students succeed (lab spaces, computers, etc.)	4.00 (0.97)	4.06 (0.89)	
n	266	2141	

Who do you consider to be a mentor? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
A professor within my department (not my advisor)	32%	38%	
My advisor	43%	63%	*
A professor at my college/university who is outside of my department	10%	13%	
An individual I met through a formal mentoring program sponsored by an outside organization	7%	10%	
No one	33%	15%	*
Someone else	14%	15%	
n	267	2157	

To what extent do you have a mentor who:

(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Shows compassion for concerns and feelings you discussed with them?	3.09 (1.52)	3.43 (1.30)	*
Shares personal experiences as an alternative perspective to your problems?	2.85 (1.46)	3.28 (1.34)	*
Informed you about opportunities that would help you build skills or enhance your CV?	3.06 (1.55)	3.36 (1.35)	*
n	247	2089	

How often is each of the following kinds of support available to you from other students in your computing program if you need it?

(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Someone to confide in or talk to about your problems.	3.05 (1.27)	3.28 (1.18)	*
Someone to get class assignments for you if you were sick.	3.12 (1.40)	3.23 (1.34)	
Someone to help you solve difficult technical problems.	3.26 (1.15)	3.35 (1.15)	
n	259	2122	

Think about the type of support you receive from your FAMILY and rate the degree to which each of the following is true:

(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
My family encourages me to pursue my computing degree.	4.51 (0.80)	4.50 (0.86)	
My family questions why I am pursuing a computing degree.	2.04 (1.19)	2.03 (1.20)	
My family wonders why I invest so much time and effort into earning a computing degree.	2.14 (1.29)	2.06 (1.22)	
My family emphasizes the value of earning a computing degree.	3.97 (1.06)	3.88 (1.09)	
n	250	2055	

2.6 Publication Record

Which of the following professional experiences have you had during your graduate training? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Author on a journal publication	21%	26%	
Author on a refereed conference paper	31%	38%	*
Author on a non-refereed conference paper	15%	16%	
Author on a paper or presentation currently in progress	40%	45%	
n	270	2140	

2.7 Career Values

How important to you is it that your future career allows you to do each of the following?

(1) Not at all important - (5) Very important

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Make a lot of money	3.69 (0.94)	3.61 (0.96)	
Give back to my community	3.67 (1.04)	3.73 (0.99)	
Bring honor to my family	3.24 (1.35)	3.26 (1.41)	
Be in charge	3.36 (1.16)	3.37 (1.17)	
Work collaboratively with others	3.84 (1.02)	3.87 (1.01)	
Spend a lot of time with my family	3.93 (0.92)	3.77 (1.02)	*
Have a social impact	3.86 (1.06)	3.83 (1.05)	
Decide for myself what I will work on	3.96 (0.95)	3.95 (0.91)	
Serve humanity	3.71 (1.09)	3.75 (1.07)	
Take time off work to care for my family	3.89 (1.00)	3.79 (1.05)	
Make important decisions at work	3.84 (1.01)	3.83 (0.95)	
Be a role model for people in my community	3.52 (1.24)	3.60 (1.20)	
Become well-known in my field	3.44 (1.28)	3.52 (1.21)	
Help others	3.97 (0.97)	4.02 (0.98)	
Have a lot of responsibility at work	3.64 (1.03)	3.54 (1.04)	
n	272	2155	

In your opinion, to what extent would a career in computing allow you to do the following?

(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Serve humanity	3.83 (0.97)	3.78 (0.99)	
Be in a position of influence in society	3.78 (1.05)	3.77 (1.01)	
Spend time with family	3.54 (1.01)	3.39 (1.01)	*
n	274	2154	

2.8 Career Interests

How interested are you in having the types of jobs listed below after you finish you highest degree?

(1) Very disinterested - (5) Very interested

	Your Institution Mean (SD)	Comparison Group Mean (SD)	Sig.
Tenured faculty in a computing department at a research university	3.26 (1.48)	3.34 (1.44)	
Tenured faculty in a computing department at a teaching college	2.84 (1.37)	2.93 (1.37)	
Non-tenured computing researcher at a university	2.62 (1.30)	2.75 (1.27)	
Non-tenured computing teaching faculty at a college/university	2.39 (1.22)	2.51 (1.27)	
Computing researcher in industry	4.00 (1.22)	3.97 (1.21)	
Computing researcher in a government lab	3.40 (1.33)	3.54 (1.27)	
Non-research position in industry	3.59 (1.32)	3.44 (1.29)	
Non-research position in a government lab	2.92 (1.32)	2.89 (1.27)	
Entrepreneur (computing related)	3.64 (1.33)	3.49 (1.32)	
Non-computing career	2.04 (1.20)	2.04 (1.19)	
Middle/high school computing teacher	2.15 (1.24)	2.11 (1.21)	
n	272	2119	

2.9 Highest Degree Plans for Terminal M.S. Students

What is the highest degree you plan to attain?

	Your Institution (%)	Comparison Group (%)	Sig.
Master's degree	78%	76%	
Doctoral degree	21%	22%	
Professional degree (MD, JD, DDS, Ed.D, etc)	1%	1%	
Other	1%	1%	
n	164	964	

In which field do you plan to attain your highest degree? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Computing related field	94%	95%	
Non-computing field	9%	10%	
n	163	956	

2.10 Activities

During the past year, were you involved in any of the following groups or activities? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Visiting lectures related to computing	59%	69%	*
Computing-related student groups	47%	53%	
Computing-related contests (hacking, robotics competitions, etc.)	34%	34%	
Computing-related online social networking (listservs, Facebook groups, etc.)	44%	48%	
Professional societies related to computing	40%	41%	
Conferences related to computing	51%	53%	
Outreach to K-12 students	12%	20%	*
n	266	2113	

Have you attended any career mentoring programs or workshop? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Run by your own institution	42%	42%	
At a conference	17%	19%	
As a stand-alone workshop	25%	23%	
n	252	1948	

During your graduate career to date, have you participated in any of the following conferences or programs? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Grace Hopper Celebration of Women in Computing	8%	9%	
Regional Hoppers or Celebrations of Women in Computing	2%	3%	
Richard Tapia Conference	2%	3%	
n	262	2088	

Part II

Spring 2014 and 2015 Semesters: Graduating Students

Chapter 3

Undergraduate Students

3.1 Graduate School

During this school year, did you apply to graduate school?

	Your Institution (%)	Comparison Group (%)	Sig.
Applied to one or more Master's programs	12%	17%	
Applied to one or more Ph.D. programs	3%	5%	
Applied to both Master's and Ph.D. programs	0%	3%	
Did not apply to any graduate programs	84%	75%	
n	58	451	

Among students who applied to a graduate program: If what field did you apply to graduate school?

	Your Institution (%)	Comparison Group (%)	Sig.
Computing (computer science, computer engineering, computing information systems, information systems)	67%	85%	
Math or applied math	0%	4%	
Non-computing field	33%	10%	
n	9	115	

Among students who applied to a graduate program: Did you apply for a graduate fellowship to fund your education? (Do not include applications for teaching/research assistantships).

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	67%	47%	
n	9	114	

Among students who applied for graduate fellowships: Did you receive any of the graduate fellowships you applied for?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	60%	44%	
No	20%	41%	
Decision still pending	20%	15%	
n	5	39	

3.2 Plans For The Fall After Graduation

What will you be doing this coming fall? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Attending graduate school in a computing field	7%	21%	*
Attending graduate or professional school in a non-computing field	9%	3%	
Working in a computing-related job	81%	68%	
Working in a non-computing job	3%	2%	
I am not sure because I am waiting to hear about grad school or job applications	3%	13%	
Other	0%	2%	
n	58	442	

3.3 Questions For Students Who Will Be Attending Graduate School In The Fall

What type of degree will you be pursuing?

	Your Institution (%)	Comparison Group (%)	Sig.
Master's continuation of a joint BS/MS program	33%	31%	
Terminal Master's	22%	25%	
Master's (intend a Ph.D.)	0%	15%	
Ph.D.	22%	25%	
Other	22%	3%	
n	9	106	

What type of aid was offered to you at your chosen school? Select all that apply.

	Your Institution (%)	Comparison Group (%)	Sig.
Research Asisstantship	12%	40%	
Teaching Assistantship	0%	38%	
Fellowship from the institution	38%	21%	
No aid was offered to me	12%	25%	
No aid was needed because I had an outside scholarship or fellowship	25%	7%	
Other	25%	8%	
n	8	99	

3.4 Questions For Students Who Will Be Working In The Fall

In what type of position will you be working?

	Your Institution (%)	Comparison Group (%)	Sig.
Research position in academic setting	0%	1%	
Non-research position in academic setting (e.g., at a university or college)	0%	3%	
Research position in industry or government	2%	6%	
Non-research position in industry or government	98%	86%	*
Other	0%	4%	
n	49	302	

What is your starting annual salary for your position?

	Your Institution (%)	Comparison Group (%)	Sig.
Less than 50,000 USD	12%	12%	
50,000 to 75,000 USD	36%	38%	
75,000 USD or more	52%	50%	
n	42	209	

How much, if any, were you provided for a signing bonus?

	Your Institution (%)	Comparison Group (%)	Sig.
Less than 5,000 USD	20%	14%	
5,000 to 10,000 USD	28%	29%	
10,000 USD or more	52%	57%	
n	25	95	

Will you (or did you) have to relocate to a new geographic location for your position?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	65%	55%	
n	48	297	

How much were you provided for moving expenses?

	Your Institution (%)	Comparison Group (%)	Sig.
Less than 5,000 USD	48%	34%	
5,000 to 10,000 USD	43%	39%	
10,000 USD or more	9%	27%	
n	23	97	

Chapter 4

Graduate Students

4.1 Future Plans

What will you be doing this coming fall?

	Your Institution (%)	Comparison Group (%)	Sig.
A postdoc	12%	6%	
Working	38%	49%	
Pursuing a graduate or professional degree in a non-computing field	44%	39%	
Other	6%	6%	
n	16	293	

4.2 Questions For Students Who Will Be Working In The Fall

In what field will you be working?

	Your Institution (%)	Comparison Group (%)	Sig.
Computing	100%	98%	
Non-computing	0%	2%	
n	6	144	

In what setting will you be working?

	Your Institution (%)	Comparison Group (%)	Sig.
Academia, PhD-granting institution	0%	6%	
Academia, non-PhD-granting institution	0%	4%	
Industry	100%	80%	
Government	0%	8%	
Other	0%	2%	
n	6	143	

Will you (or did you) have to relocate to a new geographic location for the position?

	Your Institution (%)	Comparison Group (%)	Sig.
Yes	83%	66%	
n	6	143	

What is your starting annual salary for the position?

	Your Institution (%)	Comparison Group (%)	Sig.
Less than 50,000 USD	-	14%	-
50,000 to 75,000 USD	-	25%	-
75,000 USD or more	-	61%	-
n	4	100	