



**CERP**

Computing Research Association  
Evaluation

**2017 Data Buddies Department Report  
Sample University**

## REPORT INFORMATION

This report presents data collected via The Computing Research Association's (CRA) Data Buddies survey during the end of the Fall 2017 and the beginning of the Spring 2018 academic semesters. The 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.

### Report structure

This report compares data collected from your students to data from students at similar institutions. In this report, **"similar institutions"** are those whose computing departments award Ph.D.s. Data are presented by student population (i.e. undergraduate and graduate). For each population, we present:

- An executive summary page containing key findings about students in your department
- Detailed comparative tables for:
  - Your students and students at similar institutions
  - Women and men at your institution and at similar institutions
  - Students from underrepresented racial/ethnic (URM) groups versus students who are from majority groups<sup>1</sup> at your institution and at other institutions.

If your institution did not have at least 5 respondents for a particular student group and/or does not have a particular student population (e.g., graduate students), there will be no content reported for that chapter.

### Table layout

For each survey question, either a mean + standard deviation (SD) or a proportion (in percentage) is reported, depending on the type of survey question. Sample sizes within each table are notated with '*n*' in the bottom row of each table; '*n*' indicates the number of students who responded to that specific chapter of the survey. Sample sizes may vary across tables because all survey questions were voluntary. Tables also present the results of inferential statistics assessing group differences (column labeled Sig.).

### Statistical tests and reporting

Independent samples *t*-tests were used to assess group differences in means. A two-proportion *z*-test with unpooled variance was used to assess differences in proportions across groups.

For each statistical test, we indicate whether a comparison between two groups is "significant". Significance is determined using a two-step process. First, we assessed whether group differences meet the conventional  $p \leq .05$  threshold for inferential statistics. Then, if the  $p \leq .05$  threshold was met, we observed the effect size for the two-group comparison using Cohen's *d* for the independent samples *t*-tests and Cohen's *h* for the two-proportion *z*-tests. In the current report, group comparisons are only deemed "significant" if they reach the  $p \leq .05$  threshold and their effect size is  $\geq .30$  (indicating an effect size of "medium" or greater). For an explanation of why we use this two-step process and more information on how to interpret inferential statistics, see the Appendix.

### More CERP data

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 computing students.*

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<sup>1</sup>"URM" includes students who identify as African American/Black, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Arab/Middle Eastern/Persian, Mexican American/Chicano/Puerto Rican/Other Latino, and students who identify with one or more of these groups. "Majority" includes racial/ethnic groups who are in the majority in computing, which are White/Caucasian; East Asian; Southeast Asian; South Asian, Other Asian.

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**Part I**

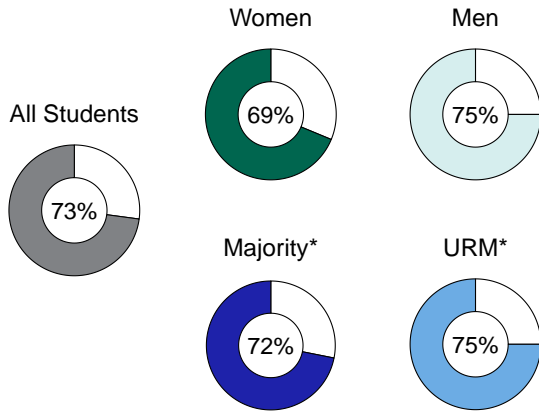
**Undergraduate Students**

# Your Institution at a Glance: Undergraduate Students

April 19, 2018

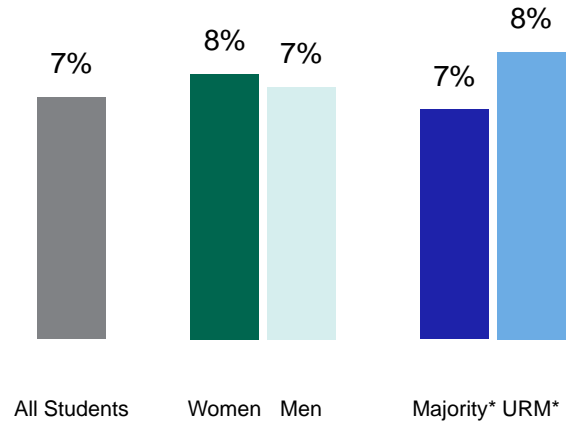
## Satisfaction with the computing program

At your institution, the following are satisfied with the computing program\*\*:



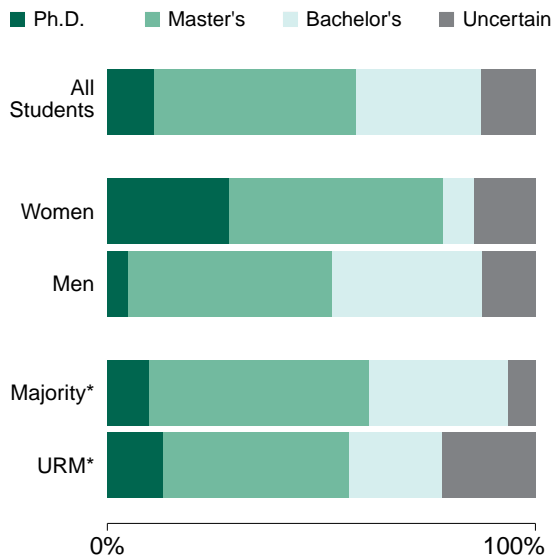
## Thought about leaving computing major

At your institution, the following thought about leaving their computing major\*\*:



## Highest degree plans of your students

Your students' highest intended degree\*\*:



## Career interests of your students

Top 5 career paths reported by your students:

1. A non-research position
2. Applied research, non-computing
3. Applied research, computing
4. Computing researcher
5. Entrepreneurship (computing related)

**See full report for benchmarking on these topics and more!**

\* **URM**: "Underrepresented minority" in computing; students who identify as African American/Black; American Indian/Alaska Native; Arab, Middle Eastern, or Persian; Mexican American/Chicano; Native Hawaiian/Pacific Islander; Puerto Rican, Other Latino. **Majority**: Students who identify with a racial/ethnic group in the majority in computing, including White/Caucasian and/or Asian.

**N/A**:  $n < 5$  for the group for the specific question.

+ The calculations are independent for All Students, for Women/Men, and for Majority/URM.

# Chapter 1

## Undergraduate Students: General Results

### 1.1 Student Background

Does your major (or one of your majors, if you are a double major) have a computing component?

	Your Institution (%)	Similar Institutions (%)	Sig.
No	7%	4%	N/A
Yes	93%	95%	N/A
Have not declared a major	0%	1%	N/A
<i>n</i>	61	8063	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

In what year do you expect to complete your current undergraduate degree?

	Your Institution (%)	Similar Institutions (%)	Sig.
2017	11%	3%	*
2018	44%	24%	*
2019	30%	27%	
2020	15%	46%	*
2021	0%	0%	N/A
2022 or later	0%	0%	N/A
<i>n</i>	61	8058	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

During your college career so far, have you participated in any formal research experiences?

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes	23%	23%	
<i>n</i>	56	7526	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

**Have you ever attended community college?**

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes	51%	19%	*
<i>n</i>	59	7343	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution (%)	Similar Institutions (%)	Sig.
Federal student loans	48%	34%	
Private student loans	8%	11%	
Personal savings	28%	33%	
Scholarship, fellowship, grant, or aid	57%	46%	
Full-time work	16%	5%	*
Part-time work	38%	28%	
Family support	33%	60%	*
Credit	5%	4%	N/A
Research Assistantship	7%	2%	N/A
Teaching Assistantship	2%	3%	N/A
Employer support	3%	1%	N/A
Military/Veterans benefits/assistance	5%	2%	N/A
Other	0%	1%	N/A
<i>n</i>	61	8063	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 1.2 Confidence

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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
find employment in my area of computing interest	4.20 (1.05)	4.25 (0.93)	
become a leader in the field of computing	3.37 (1.30)	3.43 (1.12)	
win a computing-related contest (e.g., programming contest, robotics contest, hackathon)	3.76 (1.37)	4.09 (1.21)	
get admitted to a graduate computing program	3.37 (1.13)	3.12 (1.17)	
complete my undergraduate degree in computing	4.05 (1.21)	3.50 (1.24)	*
quickly learn a new programming language on my own	4.22 (0.98)	4.01 (1.00)	
clearly communicate technical problems and solutions to a range of audiences	3.95 (1.18)	3.94 (0.96)	
<i>n</i>	59	8006	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 1.3 Perceptions of the Professional Environment

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)	Similar Institutions Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	3.80 (1.16)	4.05 (0.98)	
Overall, I am satisfied with the computing program at my institution	3.76 (1.13)	3.93 (1.04)	
I am glad that I chose to study computing	4.44 (0.93)	4.38 (0.86)	
<i>n</i>	59	7678	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

Rate how you feel about the environment of the department of your computing program.  
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
The department is not very supportive of its students	3.10 (1.28)	3.17 (1.20)	
I feel a sense of community in my department.	3.54 (1.06)	3.67 (1.04)	
My department cares about its students.	3.68 (1.02)	3.63 (1.03)	
The environment in my department inspires me to do the best job that I can.	2.78 (1.05)	2.69 (1.18)	
<i>n</i>	59	7692	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met



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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	1.64 (0.92)	1.78 (1.05)	
You are talked down to by classmates, instructors, or advisors.	1.69 (0.88)	1.86 (1.08)	
Your ideas or opinions are minimized or ignored.	1.66 (0.76)	1.78 (1.02)	
<i>n</i>	59	7688	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 1.4 Support Structures

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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
helps you improve your computing skills.	2.60 (1.37)	2.41 (1.33)	
shows compassion for concerns and feelings you discussed with them.	2.74 (1.42)	2.79 (1.41)	
shares personal experiences as an alternative perspective to your problems.	2.52 (1.53)	2.67 (1.41)	
explores career options with you.	2.52 (1.41)	2.52 (1.39)	
<i>n</i>	56	7549	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

**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)	Similar Institutions Mean (SD)	Sig.
Someone to hang out with.	3.02 (1.42)	3.44 (1.26)	*
Someone to confide in or talk to about your problems.	2.67 (1.48)	3.02 (1.36)	
Someone to get class assignments for you if you were sick.	3.14 (1.48)	3.47 (1.29)	
Someone to help you understand difficult homework problems.	2.96 (1.39)	3.55 (1.23)	*
<i>n</i>	57	7559	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 1.5 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?  
(1) Very uninterested - (5) Very interested

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
College/University professor in computing field	2.89 (1.50)	2.64 (1.35)	
Computing researcher in industry or government lab	3.36 (1.43)	3.15 (1.32)	
High school computing teacher	1.98 (1.20)	1.99 (1.18)	
A non-research position in the computing industry	3.90 (1.27)	3.98 (1.05)	
Position applying computing research to another area (e.g. digital media, support of research in medicine or other sciences)	3.77 (1.24)	3.68 (1.13)	
Non-research position applying your computing knowledge in another area (e.g. business applications, government)	3.85 (1.29)	3.70 (1.13)	
Entrepreneur (computing related)	3.33 (1.51)	3.41 (1.28)	
Non-computing career	2.15 (1.29)	2.43 (1.26)	
<i>n</i>	60	7980	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 1.6 Degree Plans

What is the highest degree you plan to attain?

	Your Institution (%)	Similar Institutions (%)	Sig.
Associate's degree	2%	0%	N/A
Bachelor's degree	29%	37%	
Master's degree	46%	33%	
Doctoral degree	9%	11%	
Professional degree (MD, JD, Ed.D, etc)	2%	4%	N/A
Uncertain	12%	15%	
Other	0%	0%	N/A
<i>n</i>	56	7518	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution (%)	Similar Institutions (%)	Sig.
Computing related field	84%	81%	
Non-computing field	26%	27%	
<i>n</i>	61	8063	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes	7%	10%	N/A
<i>n</i>	57	7623	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## Chapter 2

# Undergraduate Students: Results by Gender

Data for individuals who do not identify as either a woman or a man are not included in this report due to small samples sizes.

### 2.1 Student Background

**Does your major (or one of your majors, if you are a double major) have a computing component?**

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
No	19%	2%	N/A	6%	3%	
Yes	81%	98%	N/A	92%	96%	
Have not declared a major	0%	0%	N/A	2%	1%	
<i>n</i>	16	42		2555	4694	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**In what year do you expect to complete your current undergraduate degree?**

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
2017	6%	14%	N/A	3%	4%	
2018	44%	48%		24%	24%	
2019	38%	26%		28%	26%	
2020	12%	12%	N/A	45%	46%	
2021	0%	0%	N/A	0%	0%	N/A
2022 or later	0%	0%	N/A	0%	0%	N/A
<i>n</i>	16	42		2553	4694	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**During your college career so far, have you participated in any formal research experiences?**

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes	13%	25%	N/A	26%	21%	
<i>n</i>	15	40		2538	4647	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**Have you ever attended community college?**

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes	56%	50%		18%	20%	
<i>n</i>	16	42		2507	4586	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Federal student loans	44%	52%		33%	39%	
Private student loans	0%	12%	N/A	10%	13%	
Personal savings	25%	31%	N/A	33%	37%	
Scholarship, fellowship, grant, or aid	69%	57%		52%	49%	
Full-time work	19%	17%	N/A	3%	6%	
Part-time work	38%	40%		30%	30%	
Family support	31%	33%		69%	63%	
Credit	0%	7%	N/A	4%	5%	
Research Assistantship	0%	10%	N/A	2%	2%	
Teaching Assistantship	0%	2%	N/A	4%	3%	
Employer support	0%	5%	N/A	1%	1%	
Military/Veterans benefits/assistance	0%	7%	N/A	1%	2%	
Other	0%	0%	N/A	2%	1%	
<i>n</i>	16	42		2555	4694	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 2.2 Confidence

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
find employment in my area of computing interest	4.00 (1.20)	4.32 (0.96)		4.12 (0.99)	4.34 (0.87)	
become a leader in the field of computing	3.67 (1.63)	3.29 (1.15)		3.22 (1.17)	3.55 (1.07)	*
win a computing-related contest (e.g., programming contest, robotics contest, hackathon)	3.43 (1.55)	3.80 (1.33)		3.83 (1.34)	4.21 (1.12)	*
get admitted to a graduate computing program	3.20 (1.37)	3.49 (1.00)		2.86 (1.16)	3.27 (1.15)	*
complete my undergraduate degree in computing	3.87 (1.36)	4.20 (1.10)		3.34 (1.29)	3.62 (1.19)	
quickly learn a new programming language on my own	3.93 (1.28)	4.39 (0.80)		3.80 (1.07)	4.14 (0.92)	*
clearly communicate technical problems and solutions to a range of audiences	3.53 (1.60)	4.15 (0.96)		3.78 (1.02)	4.03 (0.91)	
<i>n</i>	15	41		2549	4674	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 2.3 Perceptions of the Professional Environment

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	3.50 (1.15)	3.98 (1.10)		4.02 (0.99)	4.09 (0.96)	
Overall, I am satisfied with the computing program at my institution	3.62 (1.31)	3.88 (1.02)		3.90 (1.03)	3.97 (1.03)	
I am glad that I chose to study computing	3.94 (1.44)	4.70 (0.52)		4.27 (0.93)	4.46 (0.79)	
<i>n</i>	16	40		2532	4644	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**Rate how you feel about the environment of the department of your computing program.  
(1) Strongly disagree - (5) Strongly agree**

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
The department is not very supportive of its students	3.19 (1.22)	3.08 (1.31)		3.09 (1.20)	3.21 (1.20)	
I feel a sense of community in my department.	3.62 (1.09)	3.48 (1.09)		3.65 (1.01)	3.71 (1.04)	
My department cares about its students.	3.81 (0.98)	3.67 (1.00)		3.60 (1.03)	3.67 (1.02)	
The environment in my department inspires me to do the best job that I can.	2.69 (1.14)	2.75 (1.03)		2.72 (1.14)	2.67 (1.19)	
<i>n</i>	16	40		2537	4652	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	2.00 (0.97)	1.48 (0.82)		1.99 (1.13)	1.64 (0.97)	*
You are talked down to by classmates, instructors, or advisors.	1.88 (0.89)	1.55 (0.78)		2.12 (1.14)	1.69 (0.98)	*
Your ideas or opinions are minimized or ignored.	1.81 (0.75)	1.52 (0.64)		2.03 (1.08)	1.62 (0.92)	*
<i>n</i>	16	40		2535	4653	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met



## 2.4 Support Structures

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
helps you improve your computing skills.	2.47 (1.55)	2.55 (1.28)		2.44 (1.34)	2.41 (1.32)	
shows compassion for concerns and feelings you discussed with them.	2.60 (1.59)	2.70 (1.34)		2.97 (1.41)	2.72 (1.40)	
shares personal experiences as an alternative perspective to your problems.	2.40 (1.59)	2.46 (1.48)		2.79 (1.43)	2.62 (1.40)	
explores career options with you.	2.47 (1.41)	2.44 (1.39)		2.62 (1.41)	2.49 (1.37)	
<i>n</i>	15	39		2531	4626	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
Someone to hang out with.	3.07 (1.58)	3.02 (1.37)		3.47 (1.31)	3.46 (1.23)	
Someone to confide in or talk to about your problems.	2.67 (1.54)	2.67 (1.47)		3.14 (1.38)	2.97 (1.34)	
Someone to get class assignments for you if you were sick.	3.33 (1.72)	3.10 (1.39)		3.56 (1.28)	3.45 (1.29)	
Someone to help you understand difficult homework problems.	3.20 (1.61)	2.90 (1.30)		3.59 (1.23)	3.56 (1.22)	
<i>n</i>	15	40		2533	4634	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 2.5 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?  
(1) Very uninterested - (5) Very interested

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
College/University professor in computing field	2.62 (1.86)	2.98 (1.35)		2.45 (1.34)	2.73 (1.34)	
Computing researcher in industry or government lab	2.62 (1.63)	3.67 (1.24)	*	2.94 (1.36)	3.26 (1.28)	
High school computing teacher	1.56 (1.15)	2.10 (1.19)		2.00 (1.22)	1.97 (1.15)	
A non-research position in the computing industry	3.12 (1.71)	4.17 (0.97)	*	3.91 (1.12)	4.04 (0.99)	
Position applying computing research to another area (e.g. digital media, support of research in medicine or other sciences)	3.19 (1.52)	4.05 (1.01)	*	3.75 (1.15)	3.65 (1.11)	
Non-research position applying your computing knowledge in another area (e.g. business applications, government)	3.06 (1.65)	4.14 (1.05)	*	3.73 (1.15)	3.70 (1.11)	
Entrepreneur (computing related)	2.75 (1.81)	3.60 (1.34)		3.13 (1.31)	3.57 (1.24)	*
Non-computing career	2.47 (1.64)	1.95 (1.13)		2.63 (1.30)	2.29 (1.22)	
<i>n</i>	15	42		2544	4659	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 2.6 Degree Plans

What is the highest degree you plan to attain?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Associate's degree	7%	0%	N/A	0%	0%	N/A
Bachelor's degree	7%	35%	N/A	35%	37%	
Master's degree	47%	48%		34%	34%	
Doctoral degree	27%	2%	N/A	10%	12%	
Professional degree (MD, JD, Ed.D, etc)	0%	2%	N/A	4%	3%	
Uncertain	13%	12%	N/A	16%	13%	
Other	0%	0%	N/A	0%	0%	
<i>n</i>	15	40		2542	4650	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Computing related field	69%	93%	N/A	80%	89%	
Non-computing field	44%	21%		34%	26%	
<i>n</i>	16	42		2555	4694	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes	8%	7%	N/A	14%	8%	
<i>n</i>	13	41		2352	4511	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## Chapter 3

# Undergraduate Students: Results by Race/Ethnicity

### 3.1 Student Background

Does your major (or one of your majors, if you are a double major) have a computing component?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
No	6%	8%	N/A	4%	4%	
Yes	94%	92%	N/A	95%	95%	
Have not declared a major	0%	0%	N/A	2%	1%	
<i>n</i>	32	26		6179	1109	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

In what year do you expect to complete your current undergraduate degree?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
2017	16%	8%	N/A	4%	3%	
2018	50%	42%		25%	22%	
2019	28%	31%		27%	29%	
2020	6%	19%	N/A	45%	45%	
2021	0%	0%	N/A	0%	0%	N/A
2022 or later	0%	0%	N/A	0%	0%	N/A
<i>n</i>	32	26		6177	1109	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**During your college career so far, have you participated in any formal research experiences?**

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Yes	19%	25%		22%	23%	
<i>n</i>	31	24		6123	1104	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**Have you ever attended community college?**

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Yes	50%	54%		18%	27%	
<i>n</i>	32	26		6067	1079	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Federal student loans	44%	58%		36%	44%	
Private student loans	6%	12%	N/A	12%	12%	
Personal savings	25%	35%		37%	31%	
Scholarship, fellowship, grant, or aid	50%	73%		48%	64%	*
Full-time work	22%	12%	N/A	5%	5%	
Part-time work	34%	46%		30%	33%	
Family support	38%	27%		68%	53%	*
Credit	6%	4%	N/A	4%	6%	
Research Assistantship	6%	8%	N/A	2%	2%	
Teaching Assistantship	0%	4%	N/A	3%	3%	
Employer support	6%	0%	N/A	1%	1%	
Military/Veterans benefits/assistance	6%	4%	N/A	2%	2%	
Other	0%	0%	N/A	1%	2%	
<i>n</i>	32	26		6179	1109	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 3.2 Confidence

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
find employment in my area of computing interest	4.44 (0.88)	3.96 (1.16)		4.26 (0.92)	4.26 (0.93)	
become a leader in the field of computing	3.47 (1.24)	3.29 (1.37)		3.41 (1.11)	3.54 (1.13)	
win a computing-related contest (e.g., programming contest, robotics contest, hackathon)	3.77 (1.36)	3.62 (1.44)		4.07 (1.22)	4.10 (1.20)	
get admitted to a graduate computing program	3.41 (1.13)	3.42 (1.10)		3.11 (1.17)	3.19 (1.19)	
complete my undergraduate degree in computing	4.06 (1.32)	4.17 (0.96)		3.50 (1.24)	3.60 (1.20)	
quickly learn a new programming language on my own	4.44 (0.72)	4.04 (1.20)		4.02 (0.99)	4.01 (1.00)	
clearly communicate technical problems and solutions to a range of audiences	4.00 (1.30)	3.96 (1.04)		3.94 (0.96)	3.94 (0.96)	
<i>n</i>	32	24		6159	1105	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 3.3 Perceptions of the Professional Environment

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	3.72 (1.20)	4.00 (1.02)		4.07 (0.97)	3.97 (1.03)	
Overall, I am satisfied with the computing program at my institution	3.81 (1.09)	3.79 (1.14)		3.96 (1.01)	3.81 (1.14)	
I am glad that I chose to study computing	4.62 (0.66)	4.29 (1.20)		4.40 (0.84)	4.36 (0.90)	
<i>n</i>	32	24		6116	1103	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**Rate how you feel about the environment of the department of your computing program.  
(1) Strongly disagree - (5) Strongly agree**

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
The department is not very supportive of its students	3.09 (1.25)	3.12 (1.33)		3.17 (1.20)	3.15 (1.22)	
I feel a sense of community in my department.	3.56 (0.88)	3.46 (1.32)		3.70 (1.03)	3.62 (1.09)	
My department cares about its students.	3.62 (0.94)	3.83 (1.05)		3.65 (1.02)	3.60 (1.09)	
The environment in my department inspires me to do the best job that I can.	2.72 (1.05)	2.75 (1.07)		2.68 (1.18)	2.69 (1.19)	
<i>n</i>	32	24		6127	1103	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	1.69 (0.93)	1.54 (0.83)		1.76 (1.04)	1.82 (1.10)	
You are talked down to by classmates, instructors, or advisors.	1.59 (0.80)	1.71 (0.86)		1.84 (1.06)	1.91 (1.12)	
Your ideas or opinions are minimized or ignored.	1.59 (0.71)	1.62 (0.65)		1.76 (0.99)	1.84 (1.08)	
<i>n</i>	32	24		6126	1101	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### 3.4 Support Structures

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
helps you improve your computing skills.	2.52 (1.23)	2.54 (1.50)		2.41 (1.32)	2.39 (1.36)	
shows compassion for concerns and feelings you discussed with them.	2.58 (1.18)	2.79 (1.67)		2.79 (1.41)	2.82 (1.43)	
shares personal experiences as an alternative perspective to your problems.	2.37 (1.40)	2.54 (1.64)		2.67 (1.41)	2.71 (1.44)	
explores career options with you.	2.47 (1.31)	2.42 (1.50)		2.52 (1.38)	2.55 (1.43)	
<i>n</i>	30	24		6105	1092	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**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			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
Someone to hang out with.	2.94 (1.31)	3.17 (1.55)		3.48 (1.25)	3.31 (1.31)	
Someone to confide in or talk to about your problems.	2.61 (1.43)	2.75 (1.57)		3.05 (1.35)	2.88 (1.40)	
Someone to get class assignments for you if you were sick.	3.06 (1.39)	3.29 (1.60)		3.51 (1.27)	3.36 (1.33)	
Someone to help you understand difficult homework problems.	3.10 (1.37)	2.83 (1.40)		3.59 (1.21)	3.45 (1.29)	
<i>n</i>	31	24		6114	1095	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met



### 3.5 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?  
 (1) Very uninterested - (5) Very interested

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
College/University professor in computing field	2.84 (1.51)	2.92 (1.52)		2.63 (1.34)	2.64 (1.36)	
Computing researcher in industry or government lab	3.25 (1.41)	3.54 (1.45)		3.13 (1.31)	3.25 (1.33)	
High school computing teacher	1.91 (1.20)	2.00 (1.20)		1.98 (1.17)	1.99 (1.22)	
A non-research position in the computing industry	4.06 (1.26)	3.65 (1.32)		4.00 (1.04)	3.98 (1.05)	
Position applying computing research to another area (e.g. digital media, support of research in medicine or other sciences)	3.66 (1.15)	4.00 (1.30)		3.68 (1.12)	3.73 (1.13)	
Non-research position applying your computing knowledge in another area (e.g. business applications, government)	3.88 (1.31)	3.81 (1.36)		3.71 (1.12)	3.71 (1.16)	
Entrepreneur (computing related)	3.28 (1.49)	3.46 (1.58)		3.38 (1.28)	3.52 (1.30)	
Non-computing career	1.88 (1.16)	2.36 (1.41)		2.41 (1.25)	2.45 (1.28)	
<i>n</i>	32	25		6147	1097	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### 3.6 Degree Plans

What is the highest degree you plan to attain?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Associate's degree	0%	4%	N/A	0%	0%	N/A
Bachelor's degree	32%	21%		38%	32%	
Master's degree	52%	42%		33%	34%	
Doctoral degree	10%	8%	N/A	11%	15%	
Professional degree (MD, JD, Ed.D, etc)	0%	4%	N/A	3%	5%	
Uncertain	6%	21%	N/A	15%	13%	
Other	0%	0%	N/A	0%	0%	N/A
<i>n</i>	31	24		6133	1103	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Computing related field	94%	77%	N/A	86%	85%	
Non-computing field	25%	31%		29%	32%	
<i>n</i>	32	26		6179	1109	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Yes	7%	8%	N/A	10%	11%	
<i>n</i>	30	24		5848	1053	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**Part II**

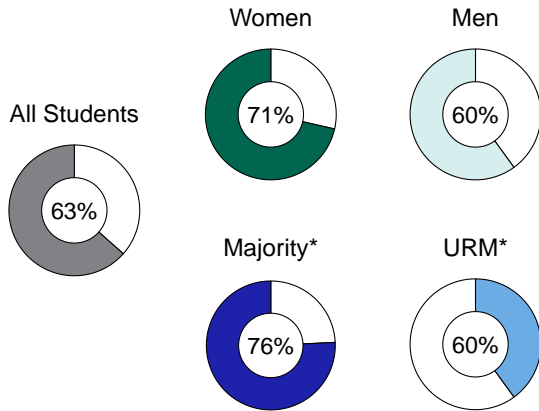
**Graduate Students**

# Your Institution at a Glance: Graduate Students

April 19, 2018

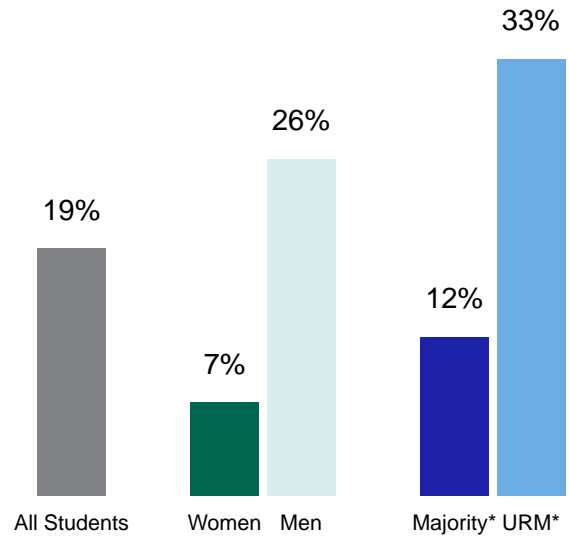
## Satisfaction with the computing program

At your institution, the following are satisfied with the computing program\*\*:



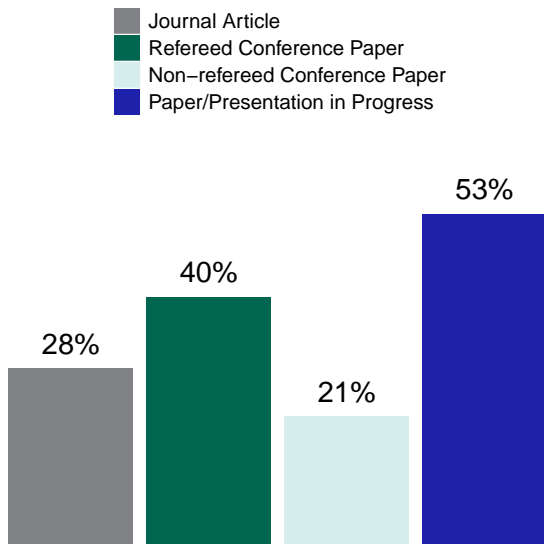
## Thought about leaving degree program

At your institution, the following thought about leaving their degree program\*\*:



## Publication record of your students

Your students published at least one of the following:



## Career interests of your students

Top 5 career paths reported by your students:

1. Computing researcher, industry
2. Computing researcher, government lab
3. Non-research position, industry
4. Tenured faculty, research university
5. Entrepreneur (computing related)

**See full report for benchmarking on these topics and more!**

\* **URM**: "Underrepresented minority" in computing; students who identify as African American/Black; American Indian/Alaska Native; Arab, Middle Eastern, or Persian; Mexican American/Chicano; Native Hawaiian/Pacific Islander; Puerto Rican, Other Latino. **Majority**: Students who identify with a racial/ethnic group in the majority in computing, including White/Caucasian and/or Asian.

**N/A**:  $n < 5$  for the group for the specific question.

\*\* The calculations are independent for All Students, for Women/Men, and for Majority/URM.

# Chapter 4

## Graduate Students: General Results

### 4.1 Student Background

In what type of degree program are you currently enrolled?

	Your Institution (%)	Similar Institutions (%)	Sig.
Joint Bachelor's/Master's	8%	10%	N/A
Master's only	36%	46%	
Master's (intending Ph.D.)	2%	4%	N/A
Ph.D.	55%	40%	*
<i>n</i>	53	4251	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

In what field is your graduate program?

	Your Institution (%)	Similar Institutions (%)	Sig.
Computer Science	81%	77%	
Computer/ Electrical and Computer Engineering	9%	4%	
Computing Information Systems	4%	6%	N/A
Other computing field	6%	11%	N/A
Non-computing field	0%	2%	N/A
<i>n</i>	53	4249	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

### What year are you in your current degree program?

	Your Institution (%)	Similar Institutions (%)	Sig.
First year	51%	42%	
Second year	23%	30%	
Third year	15%	13%	
Fourth year	5%	8%	N/A
Fifth year or greater	5%	6%	N/A
<i>n</i>	39	3456	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

### Have you ever attended community college?

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes	9%	13%	N/A
<i>n</i>	47	3668	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution (%)	Similar Institutions (%)	Sig.
Federal student loans	9%	9%	
Private student loans	8%	14%	N/A
Personal savings	21%	25%	
Scholarship, fellowship, grant, or aid	25%	23%	
Full-time work	4%	11%	N/A
Part-time work	8%	11%	N/A
Family support	15%	24%	
Credit	13%	5%	
Research Assistantship	34%	23%	
Teaching Assistantship	43%	18%	*
Employer support	2%	7%	N/A
Military/Veterans benefits/assistance	0%	1%	N/A
Other	4%	3%	N/A
<i>n</i>	53	4251	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 4.2 Confidence

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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Become an expert in my field.	4.45 (0.64)	4.25 (0.81)	
Complete my department's milestones towards earning my degree in a timely manner	4.35 (0.74)	4.42 (0.81)	
Publish in the top journals in my field	3.86 (1.11)	3.59 (1.12)	
Discuss theory with senior members of your field	3.88 (1.16)	3.80 (1.04)	
Articulate thoughtful answers to theoretical questions about your work during a presentation	4.12 (0.89)	4.03 (0.90)	
<i>n</i>	51	3921	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 4.3 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)	Similar Institutions Mean (SD)	Sig.
I would NOT recommend the graduate computing program at my institution to a friend.	2.12 (1.11)	1.95 (1.05)	
I am glad that I chose to do a graduate degree at my institution.	4.00 (0.89)	4.12 (0.89)	
I am satisfied with how well my graduate computing program has prepared me for a career in computing.	3.62 (1.07)	3.79 (0.93)	
<i>n</i>	52	4089	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

How do you feel about the environment of the department of your computing program?  
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I feel a sense of community in my department.	3.50 (1.08)	3.57 (1.03)	
My department cares about its students.	3.75 (1.08)	3.82 (0.95)	
The environment in my department inspires me to do the best job that I can.	3.60 (1.11)	3.68 (0.99)	
My department provides resources to help its students succeed (lab spaces, computers, etc.)	3.98 (0.90)	4.01 (0.90)	
<i>n</i>	52	4066	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	2.15 (1.04)	1.86 (1.06)	
You are talked down to by classmates, instructors, or advisors.	1.94 (1.06)	1.71 (1.00)	
Your ideas or opinions are minimized or ignored.	1.83 (0.98)	1.71 (0.96)	
<i>n</i>	52	4068	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 4.4 Support Structures

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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Shows compassion for concerns and feelings you discussed with them?	3.67 (1.19)	3.37 (1.35)	
Shares personal experiences as an alternative perspective to your problems?	3.60 (1.22)	3.22 (1.38)	
Informed you about opportunities that would help you build skills or enhance your CV?	3.62 (1.19)	3.29 (1.39)	
<i>n</i>	52	4040	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

**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)	Similar Institutions Mean (SD)	Sig.
Someone to confide in or talk to about your problems.	3.21 (1.11)	3.12 (1.23)	
Someone to get class assignments for you if you were sick.	2.75 (1.22)	3.04 (1.38)	
Someone to help you solve difficult technical problems.	3.23 (1.06)	3.21 (1.17)	
<i>n</i>	52	4027	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met



## 4.5 Publication Record

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

	Your Institution (%)	Similar Institutions (%)	Sig.
Author on a journal publication	28%	22%	
Author on a refereed conference paper	40%	33%	
Author on a non-refereed conference paper	21%	15%	
Author on a paper or presentation currently in progress	53%	39%	
<i>n</i>	53	4156	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 4.6 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?  
(1) Very uninterested - (5) Very interested

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Tenured faculty in a computing department at a research university	3.55 (1.46)	3.32 (1.43)	
Tenured faculty in a computing department at a teaching college	3.10 (1.26)	2.96 (1.38)	
Non-tenured computing researcher at a university	2.91 (1.18)	2.77 (1.31)	
Non-tenured computing teaching faculty at a college/university	2.70 (1.20)	2.56 (1.29)	
Computing researcher in industry	3.96 (1.40)	4.09 (1.14)	
Computing researcher in a government lab	3.85 (1.35)	3.60 (1.26)	
Non-research position in industry	3.85 (1.13)	3.58 (1.32)	
Non-research position in a government lab	3.38 (1.18)	2.97 (1.33)	*
Entrepreneur (computing related)	3.53 (1.25)	3.56 (1.33)	
Non-computing career	2.19 (1.09)	2.15 (1.22)	
Middle/high school computing teacher	1.75 (1.02)	2.11 (1.21)	
<i>n</i>	53	4157	

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## 4.7 Degree Plans

What is the highest degree you plan to attain? (For Terminal M.S. Students)

	Your Institution (%)	Similar Institutions (%)	Sig.
Master's degree	61%	77%	
Doctoral degree	35%	22%	
Professional degree (MD, JD, Ed.D, etc)	4%	1%	N/A
Other	0%	1%	N/A
<i>n</i>	23	2367	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

In which field do you plan to attain your highest degree? Select all that apply. (For Terminal M.S. Students)

	Your Institution (%)	Similar Institutions (%)	Sig.
Computing related field	43%	53%	
Non-computing field	0%	5%	N/A
<i>n</i>	53	4251	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

During your academic career, have you ever seriously considered leaving your graduate program?

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes	19%	21%	
<i>n</i>	53	4251	

(\* )  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ ; (N/A)  $n < 5$  or test criteria were not met

## Chapter 5

# Graduate Students: Results by Gender

Data for individuals who do not identify as either a woman or a man are not included in this report due to small samples sizes.

### 5.1 Student Background

In what type of degree program are you currently enrolled?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Joint Bachelor's/Master's	21%	3%	N/A	8%	10%	
Master's only	29%	34%	N/A	41%	49%	
Master's (intending Ph.D.)	0%	3%	N/A	5%	4%	
Ph.D.	50%	60%		47%	37%	
<i>n</i>	14	35		1310	2501	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### In what field is your graduate program?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Computer Science	71%	86%	N/A	68%	81%	*
Computer/ Electrical and Computer Engineering	14%	9%	N/A	5%	4%	
Computing Information Systems	0%	3%	N/A	8%	4%	
Other computing field	14%	3%	N/A	15%	9%	
Non-computing field	0%	0%	N/A	3%	1%	
<i>n</i>	14	35		1309	2500	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### What year are you in your current degree program?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
First year	78%	37%	N/A	38%	44%	
Second year	11%	30%	N/A	31%	30%	
Third year	0%	22%	N/A	15%	13%	
Fourth year	11%	4%	N/A	10%	7%	
Fifth year or greater	0%	7%	N/A	6%	6%	
<i>n</i>	9	27		1094	2013	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### Have you ever attended community college?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes	8%	9%	N/A	13%	12%	
<i>n</i>	13	34		1232	2380	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Federal student loans	14%	9%	N/A	11%	9%	
Private student loans	14%	6%	N/A	13%	17%	
Personal savings	0%	31%	N/A	23%	29%	
Scholarship, fellowship, grant, or aid	29%	26%	N/A	32%	22%	
Full-time work	7%	3%	N/A	10%	14%	
Part-time work	0%	11%	N/A	13%	12%	
Family support	7%	20%	N/A	28%	26%	
Credit	7%	17%	N/A	5%	5%	
Research Assistantship	29%	40%	N/A	28%	24%	
Teaching Assistantship	43%	49%		22%	18%	
Employer support	0%	3%	N/A	5%	9%	
Military/Veterans benefits/assistance	0%	0%	N/A	0%	1%	
Other	0%	6%	N/A	4%	3%	
<i>n</i>	14	35		1310	2501	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 5.2 Confidence

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
Become an expert in my field.	4.50 (0.65)	4.49 (0.61)		4.14 (0.84)	4.33 (0.78)	
Complete my department's milestones towards earning my degree in a timely manner	4.36 (0.74)	4.40 (0.74)		4.37 (0.83)	4.45 (0.80)	
Publish in the top journals in my field	4.21 (0.80)	3.74 (1.22)		3.58 (1.10)	3.59 (1.14)	
Discuss theory with senior members of your field	3.86 (1.29)	3.91 (1.15)		3.66 (1.07)	3.88 (1.01)	
Articulate thoughtful answers to theoretical questions about your work during a presentation	4.00 (1.18)	4.20 (0.76)		3.91 (0.95)	4.10 (0.86)	
<i>n</i>	14	35		1282	2448	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 5.3 Perceptions of the Professional Environment

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
I would NOT recommend the graduate computing program at my institution to a friend.	1.64 (0.63)	2.29 (1.23)	*	1.95 (1.02)	1.93 (1.06)	
I am glad that I chose to do a graduate degree at my institution.	4.36 (0.63)	3.86 (0.94)	*	4.13 (0.86)	4.13 (0.89)	
I am satisfied with how well my graduate computing program has prepared me for a career in computing.	3.93 (0.92)	3.49 (1.09)		3.77 (0.93)	3.82 (0.93)	
<i>n</i>	14	35		1298	2476	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

How do you feel about the environment of the department of your computing program?  
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
I feel a sense of community in my department.	3.86 (0.95)	3.46 (1.09)		3.56 (1.03)	3.58 (1.04)	
My department cares about its students.	4.29 (0.61)	3.57 (1.20)	*	3.86 (0.93)	3.82 (0.97)	
The environment in my department inspires me to do the best job that I can.	4.14 (0.77)	3.43 (1.17)	*	3.69 (1.00)	3.69 (0.99)	
My department provides resources to help its students succeed (lab spaces, computers, etc.)	4.29 (0.61)	3.89 (0.99)		4.02 (0.91)	4.02 (0.90)	
<i>n</i>	14	35		1297	2464	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	2.36 (1.22)	2.03 (0.98)		2.01 (1.08)	1.76 (1.04)	
You are talked down to by classmates, instructors, or advisors.	1.86 (1.03)	1.91 (1.04)		1.85 (1.04)	1.62 (0.96)	
Your ideas or opinions are minimized or ignored.	1.86 (1.10)	1.74 (0.95)		1.80 (0.97)	1.65 (0.94)	
<i>n</i>	14	35		1297	2466	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 5.4 Support Structures

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

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
Shows compassion for concerns and feelings you discussed with them?	4.21 (0.70)	3.53 (1.31)	*	3.51 (1.33)	3.30 (1.37)	
Shares personal experiences as an alternative perspective to your problems?	4.00 (0.68)	3.46 (1.36)		3.30 (1.38)	3.18 (1.39)	
Informed you about opportunities that would help you build skills or enhance your CV?	4.00 (0.78)	3.57 (1.29)		3.41 (1.37)	3.23 (1.41)	
<i>n</i>	14	35		1289	2451	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**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			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
Someone to confide in or talk to about your problems.	3.29 (1.14)	3.11 (1.11)		3.21 (1.22)	3.07 (1.24)	
Someone to get class assignments for you if you were sick.	2.57 (1.28)	2.80 (1.26)		3.14 (1.38)	2.98 (1.38)	
Someone to help you solve difficult technical problems.	3.36 (0.84)	3.17 (1.18)		3.20 (1.17)	3.22 (1.17)	
<i>n</i>	14	35		1287	2454	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 5.5 Publication Record

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

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Author on a journal publication	29%	29%	N/A	23%	21%	
Author on a refereed conference paper	36%	40%		35%	31%	
Author on a non-refereed conference paper	14%	23%	N/A	18%	14%	
Author on a paper or presentation currently in progress	36%	60%		45%	36%	
<i>n</i>	14	35		1290	2470	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met



## 5.6 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?  
(1) Very uninterested - (5) Very interested

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
Tenured faculty in a computing department at a research university	2.86 (1.56)	3.71 (1.41)		3.28 (1.45)	3.35 (1.41)	
Tenured faculty in a computing department at a teaching college	2.69 (1.25)	3.11 (1.23)		3.01 (1.40)	2.94 (1.37)	
Non-tenured computing researcher at a university	2.86 (1.17)	2.80 (1.18)		2.77 (1.30)	2.77 (1.31)	
Non-tenured computing teaching faculty at a college/university	2.71 (1.14)	2.57 (1.22)		2.60 (1.29)	2.52 (1.29)	
Computing researcher in industry	4.00 (1.47)	3.86 (1.44)		4.04 (1.19)	4.14 (1.10)	
Computing researcher in a government lab	4.00 (1.47)	3.74 (1.38)		3.59 (1.29)	3.62 (1.24)	
Non-research position in industry	3.71 (1.27)	3.91 (1.12)		3.45 (1.39)	3.66 (1.26)	
Non-research position in a government lab	3.57 (0.94)	3.34 (1.28)		2.93 (1.37)	3.01 (1.31)	
Entrepreneur (computing related)	3.14 (1.41)	3.54 (1.17)		3.28 (1.37)	3.71 (1.27)	*
Non-computing career	2.14 (1.03)	2.17 (1.12)		2.16 (1.22)	2.14 (1.21)	
Middle/high school computing teacher	1.71 (0.83)	1.74 (1.07)		2.21 (1.24)	2.05 (1.18)	
<i>n</i>	14	35		1283	2457	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 5.7 Degree Plans

What is the highest degree you plan to attain? (For Terminal M.S. Students)

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Master's degree	71%	69%	N/A	76%	77%	
Doctoral degree	29%	31%	N/A	23%	22%	
Professional degree (MD, JD, Ed.D, etc)	0%	0%	N/A	1%	1%	
Other	0%	0%	N/A	1%	0%	N/A
<i>n</i>	7	13		640	1470	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**In which field do you plan to attain your highest degree? Select all that apply. (For Terminal M.S. Students)**

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Computing related field	50%	37%		44%	57%	
Non-computing field	0%	0%	N/A	6%	5%	
<i>n</i>	14	35		1310	2501	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**During your academic career, have you ever seriously considered leaving your graduate program?**

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes	7%	26%	N/A	26%	19%	
<i>n</i>	14	35		1310	2501	

Data are compared between women and men at your institution, and women and men at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## Chapter 6

# Graduate Students: Results by Race/Ethnicity

### 6.1 Student Background

In what type of degree program are you currently enrolled?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Joint Bachelor's/Master's	9%	7%	N/A	10%	6%	
Master's only	36%	27%	N/A	48%	31%	*
Master's (intending Ph.D.)	3%	0%	N/A	4%	5%	
Ph.D.	52%	67%		37%	58%	*
<i>n</i>	33	15		3261	508	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

In what field is your graduate program?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Computer Science	82%	80%	N/A	79%	66%	
Computer/ Electrical and Computer Engineering	9%	13%	N/A	4%	6%	
Computing Information Systems	3%	0%	N/A	5%	9%	
Other computing field	6%	7%	N/A	10%	15%	
Non-computing field	0%	0%	N/A	2%	3%	
<i>n</i>	33	15		3259	508	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### What year are you in your current degree program?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
First year	48%	50%		43%	36%	
Second year	24%	30%	N/A	31%	28%	
Third year	20%	0%	N/A	13%	17%	
Fourth year	4%	10%	N/A	8%	13%	
Fifth year or greater	4%	10%	N/A	7%	6%	
<i>n</i>	25	10		2674	408	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

### Have you ever attended community college?

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Yes	0%	27%	N/A	12%	19%	
<i>n</i>	31	15		3109	470	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Federal student loans	6%	20%	N/A	10%	14%	
Private student loans	12%	0%	N/A	18%	4%	*
Personal savings	24%	13%	N/A	29%	17%	
Scholarship, fellowship, grant, or aid	18%	47%		24%	38%	*
Full-time work	6%	0%	N/A	12%	15%	
Part-time work	9%	7%	N/A	13%	10%	
Family support	24%	0%	N/A	29%	11%	*
Credit	18%	7%	N/A	5%	5%	
Research Assistantship	42%	27%	N/A	25%	34%	
Teaching Assistantship	45%	47%		19%	24%	
Employer support	3%	0%	N/A	8%	9%	
Military/Veterans benefits/assistance	0%	0%	N/A	1%	1%	
Other	0%	13%	N/A	3%	5%	
<i>n</i>	33	15		3261	508	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 6.2 Confidence

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
Become an expert in my field.	4.42 (0.56)	4.60 (0.74)		4.24 (0.81)	4.39 (0.77)	
Complete my department's milestones towards earning my degree in a timely manner	4.27 (0.80)	4.67 (0.49)	*	4.42 (0.80)	4.39 (0.87)	
Publish in the top journals in my field	3.85 (1.20)	4.00 (1.00)		3.55 (1.12)	3.77 (1.14)	
Discuss theory with senior members of your field	3.88 (1.11)	3.87 (1.36)		3.80 (1.03)	3.81 (1.10)	
Articulate thoughtful answers to theoretical questions about your work during a presentation	4.21 (0.70)	3.93 (1.22)		4.04 (0.89)	4.01 (0.92)	
<i>n</i>	33	15		3192	497	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 6.3 Perceptions of the Professional Environment

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
I would NOT recommend the graduate computing program at my institution to a friend.	1.85 (0.87)	2.47 (1.30)		1.92 (1.03)	2.04 (1.14)	
I am glad that I chose to do a graduate degree at my institution.	4.21 (0.65)	3.73 (0.96)		4.15 (0.85)	4.04 (1.00)	
I am satisfied with how well my graduate computing program has prepared me for a career in computing.	3.91 (0.80)	3.13 (1.19)	*	3.82 (0.91)	3.74 (1.02)	
<i>n</i>	33	15		3231	501	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

How do you feel about the environment of the department of your computing program?  
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
I feel a sense of community in my department.	3.58 (1.09)	3.53 (1.06)		3.60 (1.02)	3.41 (1.11)	
My department cares about its students.	3.85 (1.06)	3.80 (1.01)		3.85 (0.93)	3.70 (1.06)	
The environment in my department inspires me to do the best job that I can.	3.76 (1.00)	3.40 (1.35)		3.71 (0.98)	3.58 (1.06)	
My department provides resources to help its students succeed (lab spaces, computers, etc.)	4.06 (0.90)	3.93 (0.96)		4.02 (0.90)	3.97 (0.94)	
<i>n</i>	33	15		3218	502	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
People tend to attribute your success to special treatment or luck rather than to your competence.	2.33 (1.05)	1.67 (0.98)	*	1.84 (1.06)	1.87 (1.06)	
You are talked down to by classmates, instructors, or advisors.	1.94 (1.03)	1.73 (1.03)		1.69 (0.99)	1.79 (1.07)	
Your ideas or opinions are minimized or ignored.	1.76 (1.00)	1.87 (0.99)		1.69 (0.95)	1.80 (1.01)	
<i>n</i>	33	15		3220	502	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 6.4 Support Structures

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

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
Shows compassion for concerns and feelings you discussed with them?	3.72 (1.05)	3.93 (1.33)		3.39 (1.34)	3.26 (1.46)	
Shares personal experiences as an alternative perspective to your problems?	3.58 (1.09)	3.87 (1.36)		3.23 (1.37)	3.12 (1.46)	
Informed you about opportunities that would help you build skills or enhance your CV?	3.76 (1.00)	3.73 (1.39)		3.31 (1.38)	3.17 (1.51)	
<i>n</i>	33	15		3202	497	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**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			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
Someone to confide in or talk to about your problems.	3.15 (1.09)	3.13 (1.19)		3.14 (1.22)	2.95 (1.32)	
Someone to get class assignments for you if you were sick.	2.73 (1.28)	2.73 (1.28)		3.05 (1.38)	2.98 (1.40)	
Someone to help you solve difficult technical problems.	3.27 (0.98)	3.07 (1.33)		3.23 (1.15)	3.06 (1.25)	
<i>n</i>	33	15		3203	498	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 6.5 Publication Record

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

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Author on a journal publication	33%	20%	N/A	22%	27%	
Author on a refereed conference paper	42%	33%		31%	40%	
Author on a non-refereed conference paper	15%	33%		14%	24%	
Author on a paper or presentation currently in progress	55%	53%		37%	52%	*
<i>n</i>	33	15		3217	501	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met



## 6.6 Career Interests

How interested are you in having the types of jobs listed below after you finish your highest degree?  
(1) Very uninterested - (5) Very interested

	Your Institution			Similar Institutions		
	Majority Mean (SD)	URM Mean (SD)	Sig.	Majority Mean (SD)	URM Mean (SD)	Sig.
Tenured faculty in a computing department at a research university	3.39 (1.48)	3.67 (1.59)		3.30 (1.42)	3.45 (1.48)	
Tenured faculty in a computing department at a teaching college	2.91 (1.16)	3.21 (1.48)		2.94 (1.37)	3.09 (1.42)	
Non-tenured computing researcher at a university	2.76 (1.15)	2.93 (1.28)		2.76 (1.30)	2.79 (1.31)	
Non-tenured computing teaching faculty at a college/university	2.67 (1.11)	2.47 (1.41)		2.54 (1.29)	2.58 (1.30)	
Computing researcher in industry	3.70 (1.55)	4.53 (0.64)	*	4.10 (1.14)	4.12 (1.11)	
Computing researcher in a government lab	3.67 (1.45)	4.27 (1.16)		3.61 (1.26)	3.56 (1.25)	
Non-research position in industry	3.79 (1.19)	3.93 (1.10)		3.62 (1.30)	3.41 (1.34)	
Non-research position in a government lab	3.45 (1.18)	3.40 (1.24)		2.99 (1.33)	2.91 (1.34)	
Entrepreneur (computing related)	3.39 (1.34)	3.47 (1.06)		3.56 (1.32)	3.53 (1.36)	
Non-computing career	2.18 (1.07)	2.13 (1.19)		2.17 (1.22)	2.01 (1.18)	
Middle/high school computing teacher	1.94 (1.06)	1.33 (0.72)	*	2.11 (1.20)	2.10 (1.24)	
<i>n</i>	33	15		3203	496	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

## 6.7 Degree Plans

What is the highest degree you plan to attain? (For Terminal M.S. Students)

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Master's degree	73%	60%	N/A	78%	66%	
Doctoral degree	27%	40%	N/A	21%	30%	
Professional degree (MD, JD, Ed.D, etc)	0%	0%	N/A	1%	2%	N/A
Other	0%	0%	N/A	0%	2%	N/A
<i>n</i>	15	5		1906	191	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**In which field do you plan to attain your highest degree? Select all that apply. (For Terminal M.S. Students)**

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Computing related field	45%	33%		56%	34%	*
Non-computing field	0%	0%	N/A	5%	6%	
<i>n</i>	33	15		3261	508	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

**During your academic career, have you ever seriously considered leaving your graduate program?**

	Your Institution			Similar Institutions		
	Majority (%)	URM (%)	Sig.	Majority (%)	URM (%)	Sig.
Yes	12%	33%	N/A	20%	30%	
<i>n</i>	33	15		3261	508	

Data are compared between majority students and URM students at your institution, and majority students and URM students at other institutions.

(\*)  $p \leq .05$  and Cohen's  $d$  or  $h \geq .30$ , (N/A)  $n < 5$  or test criteria were not met

# APPENDIX

## Statistical significance

For each statistical test in this report, statistical significance is determined using a two-step process. First, we assessed whether group differences meet the conventional  $p \leq .05$  threshold for inferential statistics. Then, if the  $p \leq .05$  threshold was met, we observed the effect size for the two-group comparison using Cohen's  $d$  for the independent samples  $t$  tests and Cohen's  $h$  for the two-proportion  $z$  tests. According to Cohen (1988)<sup>1</sup>, the magnitude of effect sizes indicate the following: .10 - .29 is a small effect, .30 - .49 is a medium effect, and .50 or greater is a large effect; values less than .10 are considered inconsequential. In the current report, group comparisons are only deemed "significant" if they reach the  $p \leq .05$  threshold, and their effect size is  $\geq .30$  (indicating an effects size of "medium" or greater).

We opted to use a two-step method to test for significant effects so that we could control for unequal sample sizes (i.e., a relatively small "Your Institution" sample, compared to a relatively large "Similar Institutions" sample). This is because large sample sizes tend to yield group differences that easily meet the  $p \leq .05$  threshold, but have small effect sizes. On the other hand, it is relatively more difficult to detect a significant effect when sample sizes are small. Thus, our two-step strategy required that a group comparison meet the  $p \leq .05$  threshold, and for that effect to be at least medium in size.

## Test criteria

Statistical tests were not run if:

- Sample size was too small,  $n < 5$ .
- For the two-proportion  $z$ -tests: The number of students in each group who selected a response option was less than five. (e.g., out of 65 students at your institution, 3 selected that they are planning to get their highest degree in a non-computing related field.)

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<sup>1</sup>Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.