CERP
Computing Research Association
Evaluation

Data Buddies 2023 Department Report

Montana State University
Computer Science
All Students

REPORT INFORMATION

This report presents data collected via The Computing Research Association's (CRA) Data Buddies survey during the end of the Fall 2023 and the beginning of the Spring 2024 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 (i.e., institutions whose computing departments are PhD Granting). Data are presented by student population (i.e. undergraduate and graduate). For each population, we present:

- An executive summary page containing key findings about your students'

- Detailed comparative tables for:

    - Your students and students in your comparison group
    - Women and men at your institution/department/other academic unit and in your comparison group
    - Students who are underrepresented in comptuing (BHN) and those who are not (AW) [1] at your institution/department/other academic unit and in your comparison group.

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 <u>and</u> 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. CERP also publishes monthly infographics in the Computing Research Newsletter (https://cra.org/crn/tag/cerp-infographics/). Subscribe to CERP's newsletter at https://cra.org/cerp/email-list. For parties interested in working with CERP data, a data request application can be completed at https://cra.org/cerp/cerp-data-request/.

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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[1]BHN: Black(African American/African/Black), Hispanic (Hispanic/Latinx, Caribbean/Puerto Rican), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students

# Report Highlights: Undergraduate Students

May 2, 2024

Reasons for selecting a computing major

At your institution, the following are the top five reasons why students selected, or are considering to select a computing major.

1. The job market for the computing field is promising

2. I like learning about computing

3. The courses required of the computing major are interesting

4. A computing major will enable me to make a lot of money

5. I will be successful completing the courses required of the computing major

Satisfaction with the computing program

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

Women (n=7) — 86%
Men (n=22) — 82%
All (n=40) — 85%
AW* (n=28) — 82%
BHN* (n=2) — N/A
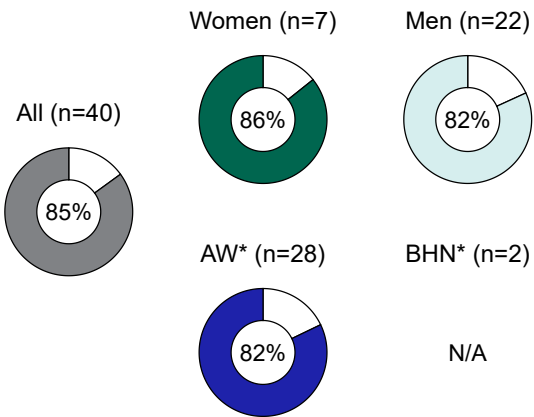
Thoughts about leaving computing major

At your institution, the following thought about leaving their computing major:
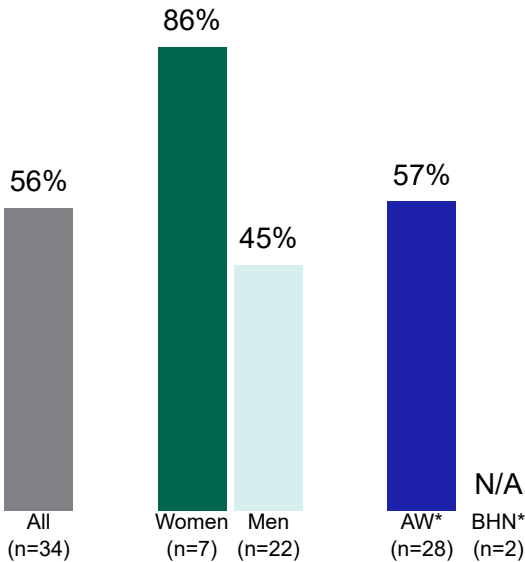
All (n=34) — 56%
Women (n=7) — 86%
Men (n=22) — 45%
AW* (n=28) — 57%
BHN* (n=2) — N/A

Why did you consider leaving computing?

At your institution, the following are the top five reasons why students considered leaving their computing major.

1. I experienced health issues that inhibited my ability to feel/be successful

2. I was interested in trying something new

3. I felt isolated in my program

4. I was having trouble passes my courses

5. I did not like the course material

See full report for benchmarking on these topics and more!

*AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students.**BHN**: Black(African American/African/Black), Hispanic(Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multiracial/ethnic students including at least one of these identities. **N/A**: $n < 5$ for the group for the specific question. + The calculations are independent for All Students, for $\overline{\text{Men}}$/Women, and for AW/BHN.

Report Highlights: Graduate Students

May 2, 2024

Reasons for selecting a computing related graduate program

At your institution, the following are the top five reasons why students selected, or are considering to select a graduate program in a computing field.

1. I like learning about this field
2. The job market for this field is promising
3. The program will allow me to make an impact on society
4. I want to pursue research in this field
5. Professors/faculty at my institution influenced my decision

Satisfaction with the computing program

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

Women (n=3)   Men (n=3)

All (n=6)   N/A   N/A

67%

AW* (n=5)   BHN* (n=1)

60%   N/A
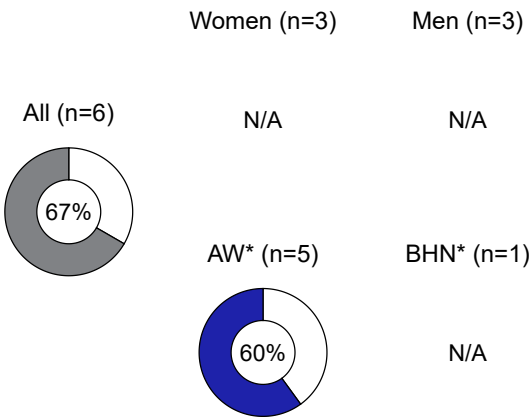
Thoughts about leaving computing program

At your institution, the following thought about leaving their graduate program in computing program:
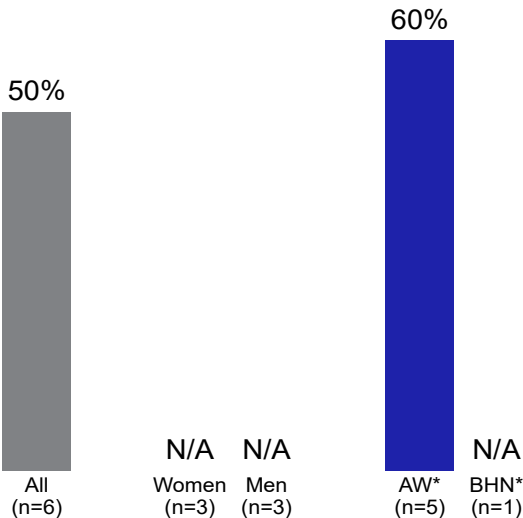
50% — All (n=6); N/A — Women (n=3); N/A — Men (n=3); 60% — AW* (n=5); N/A — BHN* (n=1)

Why did you consider leaving computing?

At your institution, the following are the top five reasons why students considered leaving their computing program.

1. I felt isolated in my program
2. The department did not make me feel welcome
3. The courses were difficult
4. The math requirements were too hard
5. I was interested in trying something new

See full report for benchmarking on these topics and more!

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Part I

Undergraduate Students

Chapter 1

Undergraduate Students: General Results

1.1 Entering and Exiting the Field

Table 1.1.1 Motivation for Choice of Current/Intended Major
Why did you choose or intend to choose this major? (for computing majors)
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
I like learning about this field	63%	66%	
My friends are majors in this field	3%	7%	
The courses required of this major are interesting	42%	35%	
Professors/faculty at my institution influenced my decision	5%	4%	
The major will allow me to make an impact on society	21%	29%	
This major will enable me to make a lot of money	34%	50%	
The job market for this field is promising	84%	58%	*
My family influenced my decision	11%	17%	
I will be successful completing the courses required of this major	24%	17%	
Other	5%	3%	
n	38	8254	

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

Table 1.1.2 Consideration of Leaving Program Frequency
During your studies at your current institution, how often have you considered leaving your program before completing it?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	44%	49%	
Rarely	26%	26%	
Occasionally	21%	17%	
Often	6%	4%	
All of the time	3%	3%	
n	34	9012	

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

Table 1.1.3 Motivation for Leaving Program
Why did you consider leaving your current program?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
The courses were difficult	16%	44%	*
The math requirements were too hard	5%	16%	
I was interested in trying something new	37%	26%	
I did not like the course material	21%	23%	
I was having trouble passes my courses	26%	25%	
I did not have any friends in the major	16%	11%	
The professors were not supportive	16%	12%	
I felt isolated in my program	32%	24%	
The department did not make me feel welcome	5%	8%	
I experienced health issues that inhibited my ability to feel/be successful	42%	14%	*
I was considering a job	0%	9%	
Other	26%	11%	
n	19	4486	

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

Table 1.1.4 Motivation for Staying in Program
What helped you continue in your current program when you were contemplating leaving?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
My family encouraged/supported me	42%	36%	
My friends encouraged/supported me	32%	28%	
Professors/faculty encouraged/supported me	26%	11%	
I had already invested too much time and resources	68%	65%	
I liked the field of study	53%	49%	
The job market for this field is promising	37%	50%	
Other	5%	5%	
n	19	4462	

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

Table 1.1.5 Frequency of Switching Majors
How many times in your undergraduate experience have you switched majors?

	Your Institution (%)	Similar Institutions (%)	Sig.
None	50%	74%	*
Once	38%	20%	*
Twice	8%	5%	
More than two times	5%	2%	
n	40	9917	

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

Table 1.1.6 Reasons for Swtiching Majors
For students who reported having changed their major: Of the reasons below, which best explain why you switched out of computing??
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
The courses are too difficult	17%	27%	
I am not interested in learning about computing and technology	0%	6%	
My non-computing major aligns with my future career goals better	33%	7%	
I do not have any friends in the major	0%	6%	
The professors are not supportive	0%	12%	
The department does not make me feel welcome	17%	8%	
I do not like the course material	17%	29%	
Too many people major in computing	17%	7%	
I do not meet the eligibility requirements to major in computing	0%	5%	
The math requirements are too hard	33%	20%	
Computing is not a valuable career	0%	1%	
The job market for this field is not promising	0%	7%	
I wanted to try something new	33%	22%	
Scheduling is too difficult (courses are full, not offered frequently enough, etc.)	33%	9%	
There is no sense of community in the department	17%	7%	
I do not feel safe in the computing department	0%	2%	
Other	0%	19%	
n	6	939	

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

1.2 Perceptions of the Department

Table 1.2.1 Department Satisfaction
Please indicate the extent to which you disagree or agree with the following statements
(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.	4.10 (0.78)	3.83 (1.08)	
Overall, I am satisfied with the computing program at my institution.	4.03 (0.92)	3.80 (1.05)	
I would recommend taking an introductory computer science course at my institution to a friend.	4.12 (0.82)	3.83 (1.14)	
The number of students in my computing classes is too large.	2.98 (1.14)	3.14 (1.12)	
I am satisfied with the technical content of the computing courses.	3.85 (0.89)	3.76 (0.98)	
The computing courses at my institution are too difficult.	2.45 (0.85)	3.01 (1.00)	*
n	40	9629	

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

Table 1.2.2 Computing Program Satisfaction
How dissatisfied or satisfied are you with the following aspects of the computing program at your institution?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
The variety of computing courses offered	3.66 (1.02)	3.69 (1.03)	
Access to academic resources needed to do your work	4.05 (1.01)	3.89 (1.00)	
The availability of professors/instructors outside of class (e.g., office hours, answering questions via email, etc.)	4.03 (1.00)	3.90 (1.02)	
How well the program has prepared you for your future career	3.32 (1.04)	3.51 (1.00)	
The workload expected of you	3.60 (0.87)	3.32 (1.00)	
n	40	9504	

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

Table 1.2.3 Department Environment Perception
For the next few questions, think about the environment of the computing department as a whole (including faculty, staff, administrators, and students) and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I feel a sense of community in the computing department.	3.15 (1.14)	3.31 (1.12)	
People in the department often attribute my success to special treatment or luck, rather than my competence.	1.64 (0.84)	2.25 (1.16)	*
The environment in the computing department inspires me to do the best job that I can.	3.36 (1.14)	3.50 (1.02)	
My ideas or opinions are minimized or ignored.	2.10 (1.07)	2.29 (1.03)	
n	39	9139	

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

Table 1.2.4 Department Staff Perception
Think about the faculty, staff, administrators (e.g., the department chair, dean, staff) in the computing department and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
The computing department cares about its students.	4.16 (0.72)	3.72 (1.05)	*
The computing department is NOT very supportive of its students.	1.97 (0.85)	2.31 (1.10)	*
Computer science administrators and faculty care about diversity.	3.97 (0.99)	3.65 (0.95)	*
n	39	9219	

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

Table 1.2.5 Receiving Stipend From Institution
Are you receiving a stipend from your institution?

	Your Institution (%)	Similar Institutions (%)	Sig.
No, I am not	88%	92%	
Yes, I am receiving a stipend	12%	8%	
n	40	9918	

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

Table 1.2.6 Institutional Stipend Sufficiency
How difficult or easy is it to cover your basic expenses with your current stipend(s)?
(1) Very difficult - (5) Very easy

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How difficult or easy is it to cover your basic expenses with your current stipend?	3.00 (1.41)	2.90 (1.20)	
n	5	811	

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

Table 1.2.7 Introductory Computing Courses: Course History
Have you taken an introductory computer science course?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes, I am currently enrolled in an introductory computer science course.	8%	32%	*
Yes, I have completed an introductory computer science course.	88%	68%	*
I was enrolled in an introductory computer science course, but I dropped it.	0%	1%	
No, I have not taken an introductory computer science course	5%	5%	
n	40	9639	

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

Table 1.2.8 Introductory Computing Courses: Enrollment Motivation
Why did you enroll in an introductory computing course?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
It was required for my major/minor	79%	83%	
It fulfilled another requirement	18%	26%	
Curiosity or interest in computers	39%	34%	
My parents encouraged me to	3%	5%	
A teacher or other mentor encouraged me to	8%	5%	
It helped build my computing skills for my other interests.	47%	35%	
Other	0%	1%	
n	38	9094	

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

Table 1.2.9 Introductory Computing Courses: Drop Motivation
Why did you drop your introductory computing course?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
It didnt meet my expectations	N/A	14%	N/A
It was too challenging	N/A	42%	N/A
It was not challenging enough	N/A	5%	N/A
Im no longer interested in computer science	N/A	10%	N/A
It was no longer a requirement for my degree	N/A	10%	N/A
I didnt enjoy the professors teaching style	N/A	31%	N/A
I had a scheduling conflict	N/A	21%	N/A
I did not feel welcomed in the course	N/A	13%	N/A
Other	N/A	15%	N/A
n	0	78	

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

Table 1.2.10 Number of Computing Course Taken
How many computing-related courses are you taking this semester?

	Your Institution (%)	Similar Institutions (%)	Sig.
0	0%	3%	
1	18%	31%	
2	35%	35%	
3	22%	20%	
4	10%	8%	
5 or more	15%	3%	*
n	40	9424	

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

Table 1.2.11 Course Perceptions
Please assess the following statements and indicate how many of your computing courses they apply to.
(1) None of my courses - (5) All of my courses

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
In these courses, I know the purpose of each assignment.	4.31 (0.80)	4.26 (0.97)	
My instructors identify a specific learning goal for each assignment.	4.08 (0.98)	4.07 (1.11)	
Each assignment includes a detailed set of instructions for completing it.	4.05 (1.05)	4.08 (1.07)	
I know how my work would be evaluated.	4.23 (0.93)	4.02 (1.13)	
My instructors provide students with annotated examples of past students work.	2.36 (1.27)	2.30 (1.46)	
n	39	9024	

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

Table 1.2.12 Computing Course Difficulty - The first course required for a computing major (e.g. CS1)
To what degree do you think the following computing courses at your institution are difficult? - The first course required for a computing major (e.g. CS1)

	Your Institution (%)	Similar Institutions (%)	Sig.
Not at all difficult	52%	23%	*
A little difficult	15%	25%	
Moderately difficult	22%	26%	
Quite difficult	2%	12%	
Extremely difficult	0%	4%	
Not sure	8%	10%	
n	40	9427	

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

Table 1.2.13 Computing Course Difficulty - Data structures course

To what degree do you think the following computing courses at your institution are difficult? - Data structures course

	Your Institution (%)	Similar Institutions (%)	Sig.
Not at all difficult	2%	4%	
A little difficult	25%	14%	
Moderately difficult	38%	27%	
Quite difficult	20%	17%	
Extremely difficult	0%	5%	
Not sure	15%	33%	*
n	40	9395	

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

Table 1.2.14 Computing Course Difficulty - Discrete structures or discrete math course

To what degree do you think the following computing courses at your institution are difficult? - Discrete structures or discrete math course

	Your Institution (%)	Similar Institutions (%)	Sig.
Not at all difficult	2%	6%	
A little difficult	10%	15%	
Moderately difficult	25%	25%	
Quite difficult	28%	18%	
Extremely difficult	12%	8%	
Not sure	22%	28%	
n	40	9397	

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

Table 1.2.15 Computing Course Difficulty - A required proof-based algorithms course

To what degree do you think the following computing courses at your institution are difficult? - A required proof-based algorithms course

	Your Institution (%)	Similar Institutions (%)	Sig.
Not at all difficult	0%	2%	
A little difficult	0%	6%	
Moderately difficult	15%	19%	
Quite difficult	20%	18%	
Extremely difficult	5%	10%	
Not sure	60%	45%	
n	40	9395	

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

Table 1.2.16 Computing Course Difficulty - A required systems course
To what degree do you think the following computing courses at your institution are difficult? - A required systems course

	Your Institution (%)	Similar Institutions (%)	Sig.
Not at all difficult	5%	2%	
A little difficult	12%	7%	
Moderately difficult	12%	19%	
Quite difficult	8%	16%	
Extremely difficult	0%	9%	
Not sure	62%	46%	*
n	40	9404	

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

1.3   Support Structures

Table 1.3.1 Academic Advising: Access
Do you have access to one or more academic advisor(s)?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes, I have an academic advisor(s) affiliated with the computing department	89%	74%	
Yes, I have an academic advisor(s) affiliated with another department	28%	36%	
No, I do not have an advisor yet, but I know how to get one	0%	4%	
No, I do not have an advisor yet, and I do not know how to get one	3%	3%	
n	36	9025	

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

Table 1.3.2 Academic Advising: Frequency
About how many times per academic term do you interact with academic advisor(s) for the following reasons?
(1) Never - (4) Four or more times

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Course-related guidance	2.27 (0.67)	2.13 (0.76)	
Career advice	1.42 (0.71)	1.61 (0.76)	
Advice related to graduate school	1.33 (0.60)	1.44 (0.71)	
Other reason	1.48 (0.83)	1.52 (0.75)	
n	33	8246	

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

Table 1.3.3 Academic Advising: Satisfaction
How dissatisfied or satisfied are you with the following?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How often you meet with your advisor(s)	3.74 (1.15)	3.46 (1.12)	
The academic guidance your advisor(s) provides	3.69 (1.47)	3.55 (1.16)	
The career advice your advisor(s) provides	3.41 (1.33)	3.34 (1.10)	
How available your advisor(s) is to meet you	3.97 (1.22)	3.59 (1.17)	
How supportive your advisor(s) is of your academic goal(s)	4.20 (0.83)	3.77 (1.08)	*
n	35	8317	

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

Table 1.3.4 Interaction Frequency (TAs)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	21%	8%	*
Less than once per month	32%	16%	*
1-3 times per month	21%	27%	
1-3 times per week	26%	40%	
More than 3 times per week	0%	8%	
Not applicable	0%	1%	
n	38	9111	

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

Table 1.3.5 Interaction Frequency (Instructor on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	11%	21%	
Less than once per month	29%	35%	
1-3 times per month	34%	30%	
1-3 times per week	26%	11%	*
More than 3 times per week	0%	2%	
n	38	9093	

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

Table 1.3.6 Interaction Frequency (Instructor NOT on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	50%	57%	
Less than once per month	42%	25%	*
1-3 times per month	5%	11%	
1-3 times per week	3%	5%	
More than 3 times per week	0%	1%	
n	38	9079	

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

Table 1.3.7 Interaction Frequency (Classmates)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	16%	10%	
Less than once per month	18%	10%	
1-3 times per month	24%	19%	
1-3 times per week	16%	29%	
More than 3 times per week	26%	33%	
n	38	9090	

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

Table 1.3.8 Interaction Frequency (Career Services)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	63%	44%	*
Less than once per month	34%	40%	
1-3 times per month	3%	10%	
1-3 times per week	0%	3%	
More than 3 times per week	0%	1%	
Not applicable	0%	2%	
n	38	9097	

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

Table 1.3.9 Interaction Frequency (Academic Advisor)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	18%	22%	
Less than once per month	71%	58%	
1-3 times per month	8%	14%	
1-3 times per week	3%	3%	
More than 3 times per week	0%	1%	
Not applicable	0%	1%	
n	38	9093	

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

Table 1.3.10 Peer support
How often do you receive the following from other students at your institution?
(1) Never - (5) All of the time

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Help and support	2.79 (1.10)	3.29 (1.03)	*
Willingness to listen to issues you are having in your program	3.31 (0.89)	3.49 (1.03)	
Helpful feedback about your work	2.87 (1.10)	3.29 (1.06)	*
Respect for your work and/or ideas	3.67 (0.98)	3.73 (0.98)	
Inclusion of your perspective on their work and/or ideas	3.33 (1.03)	3.55 (1.01)	
Opportunities to collaborate	3.33 (0.93)	3.48 (1.05)	
n	39	9291	

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

Table 1.3.11 Mentor support
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?	1.88 (1.13)	2.23 (1.24)	
shows compassion for any issues you discussed with them?	2.50 (1.48)	2.50 (1.34)	
shares personal experiences as an alternative perspective to your problem?	2.12 (1.07)	2.38 (1.31)	
explores career options with you?	1.69 (1.00)	2.22 (1.25)	*
encourages you to do the best you can in your coursework?	2.44 (1.48)	2.61 (1.40)	
supports your research ideas?	1.88 (1.21)	2.15 (1.28)	
provides constructive feedback?	2.16 (1.32)	2.54 (1.38)	
n	32	8185	

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

Table 1.3.12 Professional Network
To what extent is each of the following available to you at this point?
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
People with whom you can ask questions related to your professional development	2.37 (0.76)	2.89 (1.15)	*
People with whom you can discuss graduate school opportunities	2.23 (0.88)	2.47 (1.16)	
A strong network of peers to interact with at conferences	1.74 (0.86)	2.45 (1.21)	*
A strong network of mentors to interact with at conferences	1.65 (0.88)	2.15 (1.18)	*
People who would be excited to learn about your professional successes	2.87 (1.31)	2.99 (1.21)	
People with whom you can discuss issues you are having	2.94 (1.31)	3.05 (1.17)	
n	31	8121	

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

1.4   Self-perceptions

Table 1.4.1 Belonging and Computing Identity
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I see myself as a computing person.	3.82 (0.81)	3.63 (1.17)	
I feel like I belong in computing.	3.82 (0.92)	3.57 (1.19)	
I feel like an outsider in computing.	2.58 (1.17)	2.69 (1.22)	
Computing is a big part of who I am.	3.36 (1.06)	3.25 (1.22)	
I feel welcomed in computing.	3.82 (0.88)	3.55 (1.01)	
I do not have much in common with the other students in my computing classes.	3.00 (1.12)	2.84 (1.09)	
n	33	8346	

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

Table 1.4.2 Imposter syndrome
In your opinion, to what extent are each of the following statements true of you
(1) Not at all true - (5) Extremely true

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I can give the impression that I am more competent than I really am.	3.19 (1.28)	3.13 (1.16)	
When others praise me for something I have accomplished, I am afraid I will not be able to live up to their expectations of me in the future.	3.32 (1.25)	3.22 (1.25)	
At times, I feel my success has been due to some kind of luck.	2.77 (1.31)	2.90 (1.26)	
At times, I am disappointed in my present accomplishments and think I should have accomplished much more by now.	3.71 (1.16)	3.42 (1.25)	
n	31	8035	

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

Table 1.4.3 Self-Efficacy
Please indicate the extent to which you disagree or agree with the following statements: I am confident that I can¡c9¿
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
pass my computing courses	4.34 (0.79)	4.22 (0.93)	
complete an undergraduate degree in computing	4.62 (0.71)	4.21 (1.11)	*
learn the foundations and concepts of computing	4.44 (0.88)	4.26 (0.87)	
do well in a computing-related contest (eg, programming contest, robotics contest, hackathon)	3.19 (1.12)	3.26 (1.17)	
quickly learn a new programming language on my own	3.84 (1.14)	3.65 (1.13)	
contribute to a research project in computing	3.50 (1.05)	3.54 (1.09)	
clearly communicate technical problems and solutions to a range of audiences	3.59 (0.84)	3.58 (0.99)	
articulate thoughtful answers to questions about my work during a presentation	3.81 (0.86)	3.64 (0.98)	
introduce myself to new peers/colleagues at professional meetings	3.97 (0.93)	3.75 (1.03)	
be a capable researcher in computing	3.22 (1.18)	3.36 (1.07)	
find employment in an area of computing interest	3.84 (1.05)	3.59 (1.11)	
get admitted to a graduate computing program	3.84 (1.08)	3.42 (1.18)	*
be successful in a graduate computing program	3.72 (1.11)	3.49 (1.19)	
n	32	8248	

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

Table 1.4.4 Perceptions of a Computing Career
In your opinion, to what extent would (or does) a career in computing allow you to do the following?
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Serve humanity	2.97 (1.13)	3.27 (1.12)	
Be in a position of influence in society	2.87 (1.11)	3.07 (1.18)	
Spend a lot of time with family	3.33 (1.18)	3.51 (1.07)	
n	30	7877	

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

Table 1.4.5 Professional Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Mentoring others	3.42 (0.90)	3.34 (0.94)	
Building/maintaining a professional network	2.76 (0.94)	3.10 (0.99)	*
Dealing with conflict	3.52 (0.94)	3.58 (0.89)	
Providing constructive feedback	3.70 (0.68)	3.68 (0.82)	
Time management	3.24 (1.12)	3.35 (1.07)	
Speaking clearly and effectively	3.70 (0.98)	3.50 (0.94)	
Presenting research	3.00 (0.94)	3.09 (0.96)	
Planning and organizing projects	3.24 (0.79)	3.56 (0.91)	*
Writing scientific papers	2.64 (0.96)	2.78 (0.99)	
n	33	8434	

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

Table 1.4.6 Career Planning Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Identifying career options	2.76 (0.71)	3.24 (0.94)	*
Preparing job application materials	2.79 (0.78)	3.19 (0.97)	*
Interviewing techniques	2.82 (0.77)	2.98 (1.02)	
Preparing your CV/resume	3.03 (0.85)	3.25 (0.98)	
Preparing graduate school application materials	2.27 (0.84)	2.47 (1.02)	
Identifying graduate school options	2.15 (0.91)	2.53 (1.05)	*
n	33	8384	

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

1.5 Activities

Table 1.5.1 Research/Teaching/Internship Experiences
Up to this point in your undergraduate program, which of the following experiences were you involved in that were NOT part of a formal REU?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Independent research projects	6%	10%	
Course-based research projects	6%	13%	
Internships or co-ops	19%	25%	
Research Assistant	10%	9%	
Teaching Assistant	19%	14%	
Entrepreneurial or consulting projects	3%	6%	
K-12 outreach	0%	7%	
Computing-related student groups	29%	21%	
None of the above	45%	47%	
n	31	8623	

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

Table 1.5.2 Academic and Professional Experiences
Have you been involved in the following during your current program?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Received study support in computing (e.g. received tutoring; supplemental Instruction [SI])	22%	10%	
Provided study support in computing (e.g., provided tutoring; supplemental Instruction [SI])	12%	7%	
Trainings or workshops in computing (other than conferences)	0%	9%	
Summer institutes or short courses related to computing (other than summer research programs) (e.g., Google for Education Computer Science Summer Institute, online courses/MOOCs, etc.)	10%	5%	
Technical conferences related to computing	3%	8%	
Career mentoring programs or workshops	0%	10%	
Jobs related to computing (not as a TA or RA)	22%	11%	
Independent computing projects (e.g., tinkering and technical skill building outside of your coursework)	28%	24%	
Computing-related contests (e.g., Hackathons, robotics competitions, programming competitions, etc.)	7%	18%	
Computing-related online social networking (listservs, etc.)	10%	8%	
Computing-related student groups (e.g., technical organizations on campus, ACM student chapters, etc.)	31%	23%	
Other student groups (e.g., Greek Life, volunteer groups, academic merit societies, etc.)	21%	26%	
Professional societies related to computing	3%	5%	
Involvement in efforts to broaden participation in computing	3%	6%	
Mentored students	9%	12%	
Taught courses	3%	6%	
n	32	8261	

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

Table 1.5.3 Institutional Resources
During your academic career to date, have you pursued any of the following resources at your institution?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Peer tutoring	39%	25%	
Tutoring offered by your department/college	33%	27%	
Peer mentoring	9%	16%	
Career counseling	27%	23%	
Mental health counseling	30%	16%	*
None of the above	30%	42%	
n	33	8453	

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

1.6 Future Plans and Interests

Table 1.6.1 Future Plans: After Graduation
After you complete your current program, what are your plans after graduation?
Choose up to 2 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
Traveling	26%	17%	
Go back to school	26%	20%	
Start working (i.e., internship, full/part time work, postdoc, etc.)	74%	85%	
Create a start-up	6%	9%	
Take a break from work and school	13%	8%	
Another plan	6%	3%	
I don't know at all	6%	4%	
n	31	8008	

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

Table 1.6.2 Future Plans: Career Setting
For your future career, in which setting would you like to work the most?

	Your Institution (%)	Similar Institutions (%)	Sig.
Academia	3%	5%	
Industry	71%	62%	
Government (includes national labs)	19%	12%	
Self-employment	6%	16%	
Something else	0%	5%	
n	31	7869	

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

Table 1.6.3 Future Plans: Career Interest

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

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
College or university professor in computing field (teaching focused)	2.23 (1.31)	2.27 (1.29)	
College or university professor in computing field (research focused)	2.19 (1.33)	2.24 (1.27)	
K-12 computing teacher	2.13 (1.26)	1.93 (1.19)	
Computing researcher in industry	3.06 (1.29)	2.93 (1.34)	
Computing researcher in a government lab or agency	2.81 (1.45)	2.89 (1.35)	
A non-research computing position in industry (e.g., software engineer)	4.37 (0.89)	3.84 (1.30)	*
A non-research computing position in government	3.33 (1.30)	3.28 (1.32)	
Entrepreneur (computing related; e.g., individual contractor, build a start-up)	3.17 (1.26)	3.27 (1.30)	
Non-computing career	2.74 (1.37)	2.87 (1.28)	
n	31	7929	

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

Table 1.6.4 Highest Degree Plans (Degree Level)

What is the highest degree you plan to attain?

	Your Institution (%)	Similar Institutions (%)	Sig.
Associate degree	0%	1%	
Bachelor's degree	52%	52%	
Master's degree	39%	33%	
Doctoral degree	10%	9%	
Graduate certificate	0%	4%	
High school degree	0%	1%	
Technical certificate	0%	1%	
I have already earned the highest degree I plan to attain	0%	0%	
n	31	8054	

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

Table 1.6.5 Highest Degree Plans (Field)

In which field do you intend to earn your highest degree?
At least one computing field selected

	Your Institution (%)	Similar Institutions (%)	Sig.
A computing field	72%	67%	
A non-computing field	28%	33%	
n	40	9957	

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

Table 1.6.6 Likelihood of Future Career in Computing
How likely will your future career have a computing-related focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How likely will your future career have a computing-related focus?	4.35 (0.88)	4.08 (1.13)	
n	31	7868	

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

Table 1.6.7 Likielihood of Future Career in Research
How likely will your future career have a research focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How likely will your future career have a research focus?	2.55 (1.12)	2.83 (1.09)	
n	31	7864	

(*) $p \leq .05$ 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 Entering and Exiting the Field

Table 2.1.1 Motivation for Choice of Current/Intended Major
Why did you choose or intend to choose this major? (for computing majors)
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
I like learning about this field	57%	75%		60%	70%	
My friends are majors in this field	0%	5%		5%	8%	
The courses required of this major are interesting	57%	30%		33%	35%	
Professors/faculty at my institution influenced my decision	14%	0%		4%	3%	
The major will allow me to make an impact on society	14%	20%		30%	27%	
This major will enable me to make a lot of money	0%	35%		51%	51%	
The job market for this field is promising	100%	95%		60%	58%	
My family influenced my decision	0%	15%		22%	14%	
I will be successful completing the courses required of this major	43%	10%		17%	18%	
Other	0%	10%		2%	3%	
n	7	20		2183	4015	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.1.2 Consideration of Leaving Program Frequency
During your studies at your current institution, how often have you considered leaving your program before completing it?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Never	14%	55%		44%	53%	
Rarely	57%	23%		28%	25%	
Occasionally	29%	14%		19%	16%	
Often	0%	5%		5%	4%	
All of the time	0%	5%		3%	2%	
n	7	22		2708	4641	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.1.3 Motivation for Leaving Program
Why did you consider leaving your current program?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
The courses were difficult	17%	20%		51%	40%	
The math requirements were too hard	0%	10%		14%	17%	
I was interested in trying something new	33%	30%		25%	28%	
I did not like the course material	0%	20%		24%	23%	
I was having trouble passes my courses	17%	30%		25%	26%	
I did not have any friends in the major	33%	10%		12%	10%	
The professors were not supportive	33%	0%		10%	12%	
I felt isolated in my program	67%	20%		26%	22%	
The department did not make me feel welcome	17%	0%		8%	8%	
I experienced health issues that inhibited my ability to feel/be successful	0%	60%		15%	12%	
I was considering a job	0%	0%		5%	12%	
Other	17%	40%		9%	12%	
n	6	10		1497	2152	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.1.4 Motivation for Staying in Program
What helped you continue in your current program when you were contemplating leaving?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
My family encouraged/supported me	33%	50%		38%	36%	
My friends encouraged/supported me	50%	20%		30%	26%	
Professors/faculty encouraged/supported me	0%	30%		11%	11%	
I had already invested too much time and resources	67%	70%		68%	63%	
I liked the field of study	100%	30%	*	45%	51%	
The job market for this field is promising	33%	40%		53%	49%	
Other	0%	10%		3%	5%	
n	6	10		1491	2143	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.1.5 Frequency of Switching Majors
How many times in your undergraduate experience have you switched majors?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
None	29%	55%		70%	75%	
Once	57%	32%		22%	19%	
Twice	14%	5%		6%	4%	
More than two times	0%	9%		3%	1%	
n	7	22		2709	4646	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.1.6 Reasons for Swtiching Majors
For students who reported having changed their major: Of the reasons below, which best explain why you switched out of computing??
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
The courses are too difficult	N/A	N/A	N/A	33%	24%	
I am not interested in learning about computing and technology	N/A	N/A	N/A	6%	5%	
My non-computing major aligns with my future career goals better	N/A	N/A	N/A	8%	5%	
I do not have any friends in the major	N/A	N/A	N/A	6%	6%	
The professors are not supportive	N/A	N/A	N/A	9%	12%	
The department does not make me feel welcome	N/A	N/A	N/A	11%	5%	
I do not like the course material	N/A	N/A	N/A	32%	29%	
Too many people major in computing	N/A	N/A	N/A	8%	6%	
I do not meet the eligibility requirements to major in computing	N/A	N/A	N/A	4%	5%	
The math requirements are too hard	N/A	N/A	N/A	18%	25%	
Computing is not a valuable career	N/A	N/A	N/A	1%	2%	
The job market for this field is not promising	N/A	N/A	N/A	7%	7%	
I wanted to try something new	N/A	N/A	N/A	17%	25%	
Scheduling is too difficult (courses are full, not offered frequently enough, etc.)	N/A	N/A	N/A	13%	9%	
There is no sense of community in the department	N/A	N/A	N/A	6%	6%	
I do not feel safe in the computing department	N/A	N/A	N/A	2%	2%	
Other	N/A	N/A	N/A	18%	20%	
n	2	4		232	440	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

2.2 Perceptions of the Department

Table 2.2.1 Department Satisfaction
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	4.14 (1.07)	4.05 (0.79)		3.76 (1.10)	3.85 (1.07)	
Overall, I am satisfied with the computing program at my institution.	4.00 (1.00)	4.05 (1.00)		3.77 (1.02)	3.82 (1.05)	
I would recommend taking an introductory computer science course at my institution to a friend.	4.29 (0.76)	4.05 (0.79)		3.81 (1.15)	3.84 (1.13)	
The number of students in my computing classes is too large.	3.00 (0.82)	2.82 (1.14)		3.12 (1.15)	3.11 (1.10)	
I am satisfied with the technical content of the computing courses.	4.00 (0.58)	3.95 (0.72)		3.77 (0.95)	3.75 (0.99)	
The computing courses at my institution are too difficult.	2.57 (0.53)	2.41 (0.80)		3.13 (1.00)	2.94 (0.99)	
n	7	22		2708	4645	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.2 Computing Program Satisfaction
How dissatisfied or satisfied are you with the following aspects of the computing program at your institution?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
The variety of computing courses offered	3.50 (1.22)	3.64 (1.09)		3.68 (1.03)	3.70 (1.02)	
Access to academic resources needed to do your work	3.50 (1.38)	4.09 (0.92)		3.88 (1.00)	3.91 (0.99)	
The availability of professors/instructors outside of class (e.g., office hours, answering questions via email, etc.)	3.50 (1.38)	4.14 (0.94)		3.91 (1.01)	3.89 (1.02)	
How well the program has prepared you for your future career	3.83 (0.98)	3.23 (0.97)		3.50 (0.99)	3.51 (1.00)	
The workload expected of you	4.00 (0.58)	3.50 (0.96)		3.25 (1.02)	3.35 (0.99)	
n	7	22		2705	4642	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.3 Department Environment Perception
For the next few questions, think about the environment of the computing department as a whole (including faculty, staff, administrators, and students) and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I feel a sense of community in the computing department.	3.00 (1.41)	3.32 (1.09)		3.27 (1.11)	3.35 (1.11)	
People in the department often attribute my success to special treatment or luck, rather than my competence.	2.29 (0.95)	1.45 (0.74)		2.31 (1.13)	2.19 (1.16)	
The environment in the computing department inspires me to do the best job that I can.	3.57 (1.51)	3.41 (1.05)		3.50 (1.01)	3.54 (1.02)	
My ideas or opinions are minimized or ignored.	2.29 (1.11)	2.09 (1.15)		2.29 (0.99)	2.25 (1.04)	
n	7	22		2702	4635	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.4 Department Staff Perception
Think about the faculty, staff, administrators (e.g., the department chair, dean, staff) in the computing department and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
The computing department cares about its students.	4.17 (0.75)	4.18 (0.80)		3.72 (1.02)	3.76 (1.05)	
The computing department is NOT very supportive of its students.	1.67 (0.52)	2.00 (0.98)		2.29 (1.06)	2.26 (1.10)	
Computer science administrators and faculty care about diversity.	3.29 (1.50)	4.32 (0.72)		3.68 (0.96)	3.67 (0.94)	
n	7	22		2704	4636	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.5 Receiving Stipend From Institution
Are you receiving a stipend from your institution?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
No, I am not	86%	86%		92%	91%	
Yes, I am receiving a stipend	14%	14%		8%	9%	
n	7	22		2710	4644	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.6 Institutional Stipend Sufficiency
How difficult or easy is it to cover your basic expenses with your current stipend(s)?
(1) Very difficult - (5) Very easy

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
How difficult or easy is it to cover your basic expenses with your current stipend?	N/A	N/A	N/A	2.91 (1.23)	2.86 (1.21)	
n	1	3		208	403	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.7 Introductory Computing Courses: Course History
Have you taken an introductory computer science course?
Select all that apply.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes, I am currently enrolled in an introductory computer science course.	14%	9%		34%	33%	
Yes, I have completed an introductory computer science course.	86%	86%		67%	66%	
I was enrolled in an introductory computer science course, but I dropped it.	0%	0%		1%	1%	
No, I have not taken an introductory computer science course	0%	5%		5%	6%	
n	7	22		2710	4643	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.8 Introductory Computing Courses: Enrollment Motivation
Why did you enroll in an introductory computing course?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
It was required for my major/minor	86%	76%		84%	84%	
It fulfilled another requirement	0%	19%		25%	27%	
Curiosity or interest in computers	43%	33%		32%	35%	
My parents encouraged me to	0%	5%		6%	4%	
A teacher or other mentor encouraged me to	14%	5%		4%	5%	
It helped build my computing skills for my other interests.	57%	48%		33%	38%	
Other	0%	0%		1%	1%	
n	7	21		2568	4373	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.9 Introductory Computing Courses: Drop Motivation
Why did you drop your introductory computing course?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
It didnt meet my expectations	N/A	N/A	N/A	0%	24%	
It was too challenging	N/A	N/A	N/A	56%	37%	
It was not challenging enough	N/A	N/A	N/A	0%	10%	
Im no longer interested in computer science	N/A	N/A	N/A	6%	12%	
It was no longer a requirement for my degree	N/A	N/A	N/A	6%	15%	
I didnt enjoy the professors teaching style	N/A	N/A	N/A	28%	29%	
I had a scheduling conflict	N/A	N/A	N/A	28%	20%	
I did not feel welcomed in the course	N/A	N/A	N/A	11%	12%	
Other	N/A	N/A	N/A	17%	15%	
n	0	0		18	41	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.10 Number of Computing Course Taken
How many computing-related courses are you taking this semester?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
0	0%	0%		3%	2%	
1	29%	23%		34%	30%	
2	14%	32%		34%	36%	
3	0%	27%		20%	20%	
4	29%	9%		8%	9%	
5 or more	29%	9%		2%	3%	
n	7	22		2698	4638	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.11 Course Perceptions
Please assess the following statements and indicate how many of your computing courses they apply to.
(1) None of my courses - (5) All of my courses

	Your Institution			Similar Institutions		
	Women Mean (SD)	Men Mean (SD)	Sig.	Women Mean (SD)	Men Mean (SD)	Sig.
In these courses, I know the purpose of each assignment.	4.29 (0.76)	4.24 (0.89)		4.21 (1.01)	4.32 (0.93)	
My instructors identify a specific learning goal for each assignment.	4.43 (0.79)	4.10 (1.09)		4.05 (1.13)	4.13 (1.07)	
Each assignment includes a detailed set of instructions for completing it.	4.14 (1.07)	4.14 (1.06)		4.05 (1.10)	4.12 (1.06)	
I know how my work would be evaluated.	4.29 (0.76)	4.33 (1.02)		3.99 (1.15)	4.08 (1.11)	
My instructors provide students with annotated examples of past students work.	2.00 (0.82)	2.48 (1.36)		2.10 (1.38)	2.42 (1.50)	
n	7	21		2612	4521	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.12 Computing Course Difficulty - The first course required for a computing major (e.g. CS1)
To what degree do you think the following computing courses at your institution are difficult? - The first course required for a computing major (e.g. CS1)

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Not at all difficult	29%	45%		17%	26%	
A little difficult	29%	14%		27%	24%	
Moderately difficult	29%	27%		27%	26%	
Quite difficult	14%	0%		15%	12%	
Extremely difficult	0%	0%		5%	3%	
Not sure	0%	14%		9%	9%	
n	7	22		2695	4635	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.13 Computing Course Difficulty - Data structures course
To what degree do you think the following computing courses at your institution are difficult? - Data structures course

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Not at all difficult	0%	0%		2%	4%	
A little difficult	14%	32%		12%	14%	
Moderately difficult	29%	32%		25%	28%	
Quite difficult	14%	23%		19%	17%	
Extremely difficult	0%	0%		7%	4%	
Not sure	43%	14%		35%	32%	
n	7	22		2686	4619	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.14 Computing Course Difficulty - Discrete structures or discrete math course
To what degree do you think the following computing courses at your institution are difficult? - Discrete structures or discrete math course

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Not at all difficult	0%	5%		6%	7%	
A little difficult	0%	9%		15%	14%	
Moderately difficult	43%	23%		23%	25%	
Quite difficult	14%	23%		18%	18%	
Extremely difficult	0%	18%		9%	7%	
Not sure	43%	23%		29%	28%	
n	7	22		2685	4622	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.15 Computing Course Difficulty - A required proof-based algorithms course
To what degree do you think the following computing courses at your institution are difficult? - A required proof-based algorithms course

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Not at all difficult	0%	0%		1%	2%	
A little difficult	0%	0%		6%	7%	
Moderately difficult	29%	18%		17%	19%	
Quite difficult	14%	18%		17%	18%	
Extremely difficult	0%	9%		12%	9%	
Not sure	57%	55%		47%	45%	
n	7	22		2686	4622	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.2.16 Computing Course Difficulty - A required systems course
To what degree do you think the following computing courses at your institution are difficult? - A required systems course

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Not at all difficult	14%	0%		1%	2%	
A little difficult	0%	14%		7%	8%	
Moderately difficult	14%	18%		16%	20%	
Quite difficult	14%	9%		17%	16%	
Extremely difficult	0%	0%		10%	8%	
Not sure	57%	59%		49%	45%	
n	7	22		2686	4626	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

2.3 Support Structures

Table 2.3.1 Academic Advising: Access
Do you have access to one or more academic advisor(s)?
Select all that apply.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Yes, I have an academic advisor(s) affiliated with the computing department	100%	82%		71%	75%	
Yes, I have an academic advisor(s) affiliated with another department	29%	36%		41%	34%	
No, I do not have an advisor yet, but I know how to get one	0%	0%		4%	5%	
No, I do not have an advisor yet, and I do not know how to get one	0%	5%		3%	3%	
n	7	22		2689	4622	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.2 Academic Advising: Frequency
About how many times per academic term do you interact with academic advisor(s) for the following reasons?
(1) Never - (4) Four or more times

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Course-related guidance	2.00 (1.00)	2.33 (0.58)		2.12 (0.75)	2.15 (0.75)	
Career advice	1.43 (0.79)	1.38 (0.67)		1.55 (0.74)	1.64 (0.76)	
Advice related to graduate school	1.14 (0.38)	1.38 (0.59)		1.38 (0.67)	1.46 (0.71)	
Other reason	1.43 (0.79)	1.57 (0.93)		1.52 (0.74)	1.51 (0.74)	
n	7	21		2501	4245	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.3 Academic Advising: Satisfaction
How dissatisfied or satisfied are you with the following?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How often you meet with your advisor(s)	4.00 (1.00)	3.71 (1.23)		3.47 (1.14)	3.47 (1.10)	
The academic guidance your advisor(s) provides	4.14 (1.07)	3.67 (1.56)		3.53 (1.16)	3.58 (1.15)	
The career advice your advisor(s) provides	3.86 (0.69)	3.30 (1.49)		3.30 (1.11)	3.38 (1.09)	
How available your advisor(s) is to meet you	4.29 (0.76)	3.90 (1.41)		3.58 (1.18)	3.61 (1.16)	
How supportive your advisor(s) is of your academic goal(s)	4.29 (0.76)	4.10 (0.94)		3.75 (1.07)	3.79 (1.07)	
n	7	21		2511	4262	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.4 Interaction Frequency (TAs)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	0%	23%		6%	9%	
Less than once per month	29%	36%		13%	17%	
1-3 times per month	29%	18%		27%	27%	
1-3 times per week	43%	23%		43%	39%	
More than 3 times per week	0%	0%		10%	8%	
Not applicable	0%	0%		1%	1%	
n	7	22		2707	4640	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.5 Interaction Frequency (Instructor on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	14%	9%		23%	21%	
Less than once per month	29%	32%		37%	35%	
1-3 times per month	29%	32%		29%	31%	
1-3 times per week	29%	27%		10%	12%	
More than 3 times per week	0%	0%		1%	2%	
n	7	22		2704	4633	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.6 Interaction Frequency (Instructor NOT on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	57%	50%		62%	55%	
Less than once per month	43%	41%		23%	26%	
1-3 times per month	0%	5%		10%	12%	
1-3 times per week	0%	5%		3%	6%	
More than 3 times per week	0%	0%		1%	1%	
n	7	22		2699	4631	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.7 Interaction Frequency (Classmates)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	14%	14%		10%	10%	
Less than once per month	29%	18%		10%	10%	
1-3 times per month	43%	18%		18%	19%	
1-3 times per week	0%	18%		30%	29%	
More than 3 times per week	14%	32%		32%	32%	
n	7	22		2702	4634	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.8 Interaction Frequency (Career Services)
Approximately how often do you interact with the following individuals?

| | Your Institution | | | Similar Institutions | | |
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Never	71%	64%		46%	43%	
Less than once per month	29%	36%		41%	41%	
1-3 times per month	0%	0%		9%	10%	
1-3 times per week	0%	0%		2%	3%	
More than 3 times per week	0%	0%		1%	1%	
Not applicable	0%	0%		2%	2%	
n	7	22		2704	4637	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.9 Interaction Frequency (Academic Advisor)
Approximately how often do you interact with the following individuals?

| | Your Institution | | | Similar Institutions | | |
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Never	29%	18%		23%	21%	
Less than once per month	71%	64%		60%	58%	
1-3 times per month	0%	14%		13%	15%	
1-3 times per week	0%	5%		2%	4%	
More than 3 times per week	0%	0%		1%	1%	
Not applicable	0%	0%		1%	1%	
n	7	22		2703	4635	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.10 Peer support
How often do you receive the following from other students at your institution?
(1) Never - (5) All of the time

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Help and support	2.86 (1.07)	2.68 (1.13)		3.42 (1.01)	3.21 (1.05)	
Willingness to listen to issues you are having in your program	3.00 (1.15)	3.45 (0.74)		3.55 (1.01)	3.45 (1.05)	
Helpful feedback about your work	2.86 (1.21)	2.86 (1.08)		3.30 (1.05)	3.28 (1.08)	
Respect for your work and/or ideas	3.29 (1.11)	3.77 (0.75)		3.76 (0.95)	3.72 (1.00)	
Inclusion of your perspective on their work and/or ideas	3.14 (1.21)	3.32 (0.84)		3.57 (1.00)	3.55 (1.03)	
Opportunities to collaborate	3.71 (0.49)	3.32 (0.84)		3.51 (1.03)	3.47 (1.07)	
n	7	22		2705	4637	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.11 Mentor support
To what extent do you have a mentor who:
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
helps you improve your computing skills?	1.86 (1.21)	1.86 (1.17)		2.22 (1.23)	2.24 (1.25)	
shows compassion for any issues you discussed with them?	2.57 (1.72)	2.50 (1.50)		2.55 (1.34)	2.47 (1.33)	
shares personal experiences as an alternative perspective to your problem?	2.14 (1.21)	2.09 (1.06)		2.37 (1.31)	2.39 (1.31)	
explores career options with you?	1.43 (0.53)	1.73 (1.12)		2.20 (1.25)	2.23 (1.25)	
encourages you to do the best you can in your coursework?	2.14 (1.68)	2.45 (1.50)		2.67 (1.41)	2.58 (1.40)	
supports your research ideas?	2.00 (1.73)	1.82 (1.10)		2.12 (1.28)	2.15 (1.28)	
provides constructive feedback?	2.14 (1.35)	2.14 (1.36)		2.54 (1.38)	2.54 (1.37)	
n	7	22		2667	4590	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.3.12 Professional Network
To what extent is each of the following available to you at this point?
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
People with whom you can ask questions related to your professional development	2.00 (0.82)	2.45 (0.74)		2.89 (1.14)	2.91 (1.15)	
People with whom you can discuss graduate school opportunities	1.86 (0.90)	2.27 (0.83)		2.40 (1.15)	2.51 (1.15)	
A strong network of peers to interact with at conferences	1.86 (0.90)	1.64 (0.73)		2.40 (1.21)	2.49 (1.20)	
A strong network of mentors to interact with at conferences	1.71 (0.95)	1.55 (0.74)		2.08 (1.15)	2.20 (1.19)	
People who would be excited to learn about your professional successes	2.71 (1.70)	2.86 (1.25)		3.06 (1.20)	2.96 (1.20)	
People with whom you can discuss issues you are having	3.00 (1.73)	2.86 (1.25)		3.09 (1.16)	3.04 (1.17)	
n	7	22		2664	4580	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

2.4   Self-perceptions

Table 2.4.1 Belonging and Computing Identity
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I see myself as a computing person.	3.43 (0.79)	3.86 (0.83)		3.42 (1.24)	3.74 (1.13)	
I feel like I belong in computing.	3.57 (0.79)	3.86 (0.99)		3.28 (1.22)	3.74 (1.14)	*
I feel like an outsider in computing.	3.29 (1.25)	2.45 (1.10)		3.01 (1.19)	2.50 (1.20)	*
Computing is a big part of who I am.	3.29 (1.11)	3.27 (1.08)		3.01 (1.24)	3.37 (1.19)	*
I feel welcomed in computing.	3.71 (0.95)	3.77 (0.92)		3.32 (1.02)	3.69 (0.98)	*
I do not have much in common with the other students in my computing classes.	3.71 (0.95)	2.95 (1.05)		2.92 (1.09)	2.80 (1.07)	
n	7	22		2688	4604	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.4.2 Imposter syndrome

In your opinion, to what extent are each of the following statements true of you
(1) Not at all true - (5) Extremely true

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I can give the impression that I am more competent than I really am.	3.14 (1.57)	3.18 (1.26)		3.08 (1.17)	3.13 (1.14)	
When others praise me for something I have accomplished, I am afraid I will not be able to live up to their expectations of me in the future.	3.29 (1.60)	3.27 (1.20)		3.42 (1.23)	3.08 (1.24)	
At times, I feel my success has been due to some kind of luck.	2.71 (1.89)	2.68 (1.09)		3.06 (1.27)	2.77 (1.24)	
At times, I am disappointed in my present accomplishments and think I should have accomplished much more by now.	4.00 (1.53)	3.64 (1.09)		3.52 (1.24)	3.34 (1.26)	
n	7	22		2665	4582	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.4.3 Self-Efficacy

Please indicate the extent to which you disagree or agree with the following statements: I am confident that I can¡c9¿
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
pass my computing courses	4.14 (1.21)	4.41 (0.67)		4.11 (0.97)	4.30 (0.89)	
complete an undergraduate degree in computing	4.71 (0.49)	4.59 (0.80)		4.08 (1.23)	4.28 (1.04)	
learn the foundations and concepts of computing	4.57 (0.53)	4.41 (1.01)		4.18 (0.89)	4.32 (0.85)	
do well in a computing-related contest (eg, programming contest, robotics contest, hackathon)	3.14 (1.21)	3.14 (1.17)		3.03 (1.16)	3.39 (1.14)	*
quickly learn a new programming language on my own	3.71 (1.25)	3.82 (1.18)		3.45 (1.15)	3.75 (1.09)	
contribute to a research project in computing	3.14 (0.90)	3.55 (1.01)		3.38 (1.12)	3.62 (1.07)	
clearly communicate technical problems and solutions to a range of audiences	2.86 (0.90)	3.77 (0.75)	*	3.45 (1.01)	3.64 (0.97)	
articulate thoughtful answers to questions about my work during a presentation	3.14 (1.21)	4.00 (0.69)		3.54 (1.00)	3.69 (0.96)	
introduce myself to new peers/colleagues at professional meetings	3.71 (0.95)	4.09 (0.87)		3.79 (1.01)	3.74 (1.03)	
be a capable researcher in computing	3.14 (1.35)	3.18 (1.14)		3.21 (1.11)	3.45 (1.03)	
find employment in an area of computing interest	3.71 (0.76)	3.82 (1.14)		3.44 (1.16)	3.66 (1.07)	
get admitted to a graduate computing program	4.00 (1.29)	3.82 (1.05)		3.22 (1.23)	3.54 (1.13)	
be successful in a graduate computing program	3.71 (1.11)	3.73 (1.16)		3.27 (1.26)	3.62 (1.13)	
n	7	22		2683	4597	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.4.4 Perceptions of a Computing Career
In your opinion, to what extent would (or does) a career in computing allow you to do the following?
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Serve humanity	3.14 (1.57)	2.91 (1.02)		3.34 (1.08)	3.24 (1.13)	
Be in a position of influence in society	3.14 (1.35)	2.77 (1.07)		3.17 (1.17)	3.05 (1.19)	
Spend a lot of time with family	3.71 (1.25)	3.23 (1.19)		3.49 (1.07)	3.56 (1.06)	
n	7	22		2664	4566	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.4.5 Professional Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Mentoring others	3.71 (0.76)	3.32 (0.99)		3.29 (0.94)	3.36 (0.93)	
Building/maintaining a professional network	3.14 (1.21)	2.64 (0.85)		3.12 (0.97)	3.11 (1.00)	
Dealing with conflict	3.86 (0.90)	3.41 (0.96)		3.53 (0.88)	3.64 (0.89)	
Providing constructive feedback	3.71 (0.95)	3.68 (0.65)		3.65 (0.81)	3.71 (0.82)	
Time management	3.57 (1.40)	3.05 (1.09)		3.47 (1.06)	3.30 (1.06)	
Speaking clearly and effectively	3.29 (1.11)	3.91 (0.92)		3.50 (0.94)	3.51 (0.95)	
Presenting research	2.57 (0.79)	3.18 (0.96)		3.06 (0.96)	3.10 (0.96)	
Planning and organizing projects	3.43 (0.53)	3.14 (0.89)		3.70 (0.91)	3.49 (0.91)	
Writing scientific papers	2.14 (0.90)	2.73 (0.98)		2.81 (0.97)	2.76 (1.00)	
n	7	22		2695	4612	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.4.6 Career Planning Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Identifying career options	2.71 (0.76)	2.73 (0.70)		3.24 (0.91)	3.25 (0.95)	
Preparing job application materials	2.43 (0.53)	2.73 (0.77)		3.20 (0.95)	3.20 (0.98)	
Interviewing techniques	2.57 (0.79)	2.82 (0.80)		2.92 (1.00)	3.00 (1.02)	
Preparing your CV/resume	2.57 (0.53)	3.00 (0.87)		3.26 (0.96)	3.23 (0.99)	
Preparing graduate school application materials	2.14 (0.90)	2.27 (0.88)		2.41 (1.01)	2.52 (1.02)	
Identifying graduate school options	2.00 (1.00)	2.14 (0.89)		2.47 (1.01)	2.57 (1.06)	
n	7	22		2684	4605	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

2.5 Activities

Table 2.5.1 Research/Teaching/Internship Experiences
Up to this point in your undergraduate program, which of the following experiences were you involved in that were NOT part of a formal REU?
Select all that apply.

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Independent research projects	0%	10%		8%	10%	
Course-based research projects	0%	10%		13%	12%	
Internships or co-ops	0%	29%		26%	23%	
Research Assistant	0%	14%		10%	8%	
Teaching Assistant	14%	19%		17%	11%	
Entrepreneurial or consulting projects	0%	5%		6%	6%	
K-12 outreach	0%	0%		9%	5%	
Computing-related student groups	29%	33%		25%	18%	
None of the above	57%	38%		44%	51%	
n	7	21		2656	4550	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.5.2 Academic and Professional Experiences
Have you been involved in the following during your current program?
Select all that apply.

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Received study support in computing (e.g. received tutoring; supplemental Instruction [SI])	33%	18%		13%	8%	
Provided study support in computing (e.g., provided tutoring; supplemental Instruction [SI])	17%	14%		7%	6%	
Trainings or workshops in computing (other than conferences)	0%	0%		11%	8%	
Summer institutes or short courses related to computing (other than summer research programs) (e.g., Google for Education Computer Science Summer Institute, online courses/MOOCs, etc.)	17%	10%		6%	5%	
Technical conferences related to computing	0%	5%		9%	6%	
Career mentoring programs or workshops	0%	0%		13%	8%	
Jobs related to computing (not as a TA or RA)	0%	23%		11%	11%	
Independent computing projects (e.g., tinkering and technical skill building outside of your coursework)	17%	32%		21%	24%	
Computing-related contests (e.g., Hackathons, robotics competitions, programming competitions, etc.)	17%	5%		19%	16%	
Computing-related online social networking (listservs, etc.)	33%	5%		8%	7%	
Computing-related student groups (e.g., technical organizations on campus, ACM student chapters, etc.)	50%	29%		27%	19%	
Other student groups (e.g., Greek Life, volunteer groups, academic merit societies, etc.)	17%	24%		34%	20%	*
Professional societies related to computing	0%	5%		7%	4%	
Involvement in efforts to broaden participation in computing	17%	0%		8%	5%	
Mentored students	0%	9%		14%	10%	
Taught courses	0%	0%		6%	6%	
n	6	22		2588	4488	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.5.3 Institutional Resources
During your academic career to date, have you pursued any of the following resources at your institution?
Select all that apply.

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Peer tutoring	71%	32%		30%	23%	
Tutoring offered by your department/college	57%	18%		32%	24%	
Peer mentoring	14%	9%		19%	13%	
Career counseling	29%	27%		26%	22%	
Mental health counseling	29%	32%		20%	12%	
None of the above	14%	41%		35%	47%	
n	7	22		2676	4563	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

2.6   Future Plans and Interests

Table 2.6.1 Future Plans: After Graduation
After you complete your current program, what are your plans after graduation?
Choose up to 2 responses.

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Traveling	29%	23%		23%	14%	
Go back to school	29%	27%		22%	19%	
Start working (i.e., internship, full/part time work, postdoc, etc.)	86%	73%		87%	85%	
Create a start-up	0%	9%		5%	12%	
Take a break from work and school	14%	9%		6%	8%	
Another plan	0%	9%		2%	4%	
I don't know at all	0%	9%		3%	5%	
n	7	22		2677	4590	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.6.2 Future Plans: Career Setting
For your future career, in which setting would you like to work the most?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Academia	0%	5%		5%	5%	
Industry	71%	73%		66%	60%	
Government (includes national labs)	29%	14%		12%	11%	
Self-employment	0%	9%		12%	19%	
Something else	0%	0%		5%	5%	
n	7	22		2643	4557	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.6.3 Future Plans: Career Interest
How interested are you in having the types of jobs listed below?
(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 or university professor in computing field (teaching focused)	2.43 (1.27)	2.27 (1.35)		2.18 (1.28)	2.30 (1.28)	
College or university professor in computing field (research focused)	2.29 (1.38)	2.14 (1.39)		2.07 (1.24)	2.31 (1.27)	
K-12 computing teacher	2.14 (1.46)	2.23 (1.23)		1.93 (1.22)	1.92 (1.16)	
Computing researcher in industry	2.57 (1.40)	3.18 (1.30)		2.77 (1.38)	3.00 (1.32)	
Computing researcher in a government lab or agency	2.57 (1.51)	2.77 (1.48)		2.74 (1.39)	2.97 (1.33)	
A non-research computing position in industry (e.g., software engineer)	4.14 (1.46)	4.43 (0.68)		3.75 (1.38)	3.90 (1.25)	
A non-research computing position in government	3.00 (1.63)	3.38 (1.24)		3.18 (1.36)	3.35 (1.30)	
Entrepreneur (computing related; e.g., individual contractor, build a start-up)	3.00 (1.41)	3.24 (1.30)		3.09 (1.33)	3.42 (1.26)	
Non-computing career	2.86 (1.35)	2.73 (1.45)		3.05 (1.32)	2.77 (1.25)	
n	7	22		2665	4577	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.6.4 Highest Degree Plans (Degree Level)
What is the highest degree you plan to attain?

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
Associate degree	0%	0%		1%	1%	
Bachelor's degree	57%	50%		49%	54%	
Master's degree	43%	36%		36%	32%	
Doctoral degree	0%	14%		9%	8%	
Graduate certificate	0%	0%		4%	4%	
High school degree	0%	0%		1%	1%	
Technical certificate	0%	0%		0%	1%	
I have already earned the highest degree I plan to attain	0%	0%		0%	0%	
n	7	22		2681	4606	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.6.5 Highest Degree Plans (Field)
In which field do you intend to earn your highest degree?
At least one computing field selected

	Your Institution			Similar Institutions		
	Women (%)	Men (%)	Sig.	Women (%)	Men (%)	Sig.
A computing field	100%	91%		79%	84%	
A non-computing field	0%	9%		21%	16%	
n	7	22		2712	4651	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.6.6 Likelihood of Future Career in Computing
How likely will your future career have a computing-related focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How likely will your future career have a computing-related focus?	4.14 (1.07)	4.41 (0.85)		4.01 (1.16)	4.12 (1.11)	
n	7	22		2643	4554	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

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

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

Table 2.6.7 Likielihood of Future Career in Research
How likely will your future career have a research focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution			Similar Institutions		
	Women	Men		Women	Men	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How likely will your future career have a research focus?	2.57 (1.13)	2.55 (1.18)		2.76 (1.12)	2.87 (1.06)	
n	7	22		2644	4552	

This table presents data for women and men only due to small sample sizes at each institution for other gender identities.

Data are compared between women and men at your institution, and women and men at similar 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 Entering and Exiting the Field

Table 3.1.1 Motivation for Choice of Current/Intended Major
Why did you choose or intend to choose this major? (for computing majors)
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
I like learning about this field	65%	N/A	N/A	67%	66%	
My friends are majors in this field	4%	N/A	N/A	7%	6%	
The courses required of this major are interesting	42%	N/A	N/A	35%	31%	
Professors/faculty at my institution influenced my decision	0%	N/A	N/A	3%	3%	
The major will allow me to make an impact on society	19%	N/A	N/A	28%	29%	
This major will enable me to make a lot of money	27%	N/A	N/A	51%	53%	
The job market for this field is promising	92%	N/A	N/A	58%	58%	
My family influenced my decision	15%	N/A	N/A	18%	14%	
I will be successful completing the courses required of this major	19%	N/A	N/A	17%	18%	
Other	8%	N/A	N/A	3%	3%	
n	26	2		4803	1416	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.1.2 Consideration of Leaving Program Frequency
During your studies at your current institution, how often have you considered leaving your program before completing it?

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Never	43%	N/A	N/A	51%	42%	
Rarely	29%	N/A	N/A	26%	27%	
Occasionally	21%	N/A	N/A	16%	21%	
Often	4%	N/A	N/A	4%	6%	
All of the time	4%	N/A	N/A	2%	4%	
n	28	2		5723	1622	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.1.3 Motivation for Leaving Program
Why did you consider leaving your current program?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
The courses were difficult	19%	N/A	N/A	45%	42%	
The math requirements were too hard	6%	N/A	N/A	14%	20%	
I was interested in trying something new	31%	N/A	N/A	28%	24%	
I did not like the course material	12%	N/A	N/A	24%	20%	
I was having trouble passes my courses	25%	N/A	N/A	24%	30%	
I did not have any friends in the major	19%	N/A	N/A	11%	11%	
The professors were not supportive	12%	N/A	N/A	11%	11%	
I felt isolated in my program	38%	N/A	N/A	23%	25%	
The department did not make me feel welcome	6%	N/A	N/A	8%	8%	
I experienced health issues that inhibited my ability to feel/be successful	44%	N/A	N/A	13%	15%	
I was considering a job	0%	N/A	N/A	9%	9%	
Other	25%	N/A	N/A	10%	12%	
n	16	1		2756	916	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.1.4 Motivation for Staying in Program
What helped you continue in your current program when you were contemplating leaving?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
My family encouraged/supported me	38%	N/A	N/A	37%	36%	
My friends encouraged/supported me	25%	N/A	N/A	29%	25%	
Professors/faculty encouraged/supported me	25%	N/A	N/A	10%	13%	
I had already invested too much time and resources	69%	N/A	N/A	66%	63%	
I liked the field of study	56%	N/A	N/A	49%	50%	
The job market for this field is promising	38%	N/A	N/A	51%	48%	
Other	6%	N/A	N/A	4%	6%	
n	16	1		2744	910	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.1.5 Frequency of Switching Majors
How many times in your undergraduate experience have you switched majors?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
None	46%	N/A	N/A	75%	68%	
Once	39%	N/A	N/A	19%	23%	
Twice	7%	N/A	N/A	4%	7%	
More than two times	7%	N/A	N/A	2%	3%	
n	28	2		5726	1623	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.1.6 Reasons for Swtiching Majors
For students who reported having changed their major: Of the reasons below, which best explain why you switched out of computing??
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
The courses are too difficult	17%	N/A	N/A	25%	30%	
I am not interested in learning about computing and technology	0%	N/A	N/A	6%	5%	
My non-computing major aligns with my future career goals better	33%	N/A	N/A	8%	5%	
I do not have any friends in the major	0%	N/A	N/A	4%	9%	
The professors are not supportive	0%	N/A	N/A	11%	11%	
The department does not make me feel welcome	17%	N/A	N/A	8%	9%	
I do not like the course material	17%	N/A	N/A	30%	29%	
Too many people major in computing	17%	N/A	N/A	7%	5%	
I do not meet the eligibility requirements to major in computing	0%	N/A	N/A	4%	7%	
The math requirements are too hard	33%	N/A	N/A	21%	25%	
Computing is not a valuable career	0%	N/A	N/A	1%	4%	
The job market for this field is not promising	0%	N/A	N/A	8%	4%	
I wanted to try something new	33%	N/A	N/A	21%	23%	
Scheduling is too difficult (courses are full, not offered frequently enough, etc.)	33%	N/A	N/A	9%	11%	
There is no sense of community in the department	17%	N/A	N/A	7%	5%	
I do not feel safe in the computing department	0%	N/A	N/A	2%	2%	
Other	0%	N/A	N/A	23%	11%	*
n	6	0		469	209	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

3.2 Perceptions of the Department

Table 3.2.1 Department Satisfaction
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	4.04 (0.84)	N/A	N/A	3.83 (1.07)	3.75 (1.08)	
Overall, I am satisfied with the computing program at my institution.	4.00 (0.98)	N/A	N/A	3.82 (1.03)	3.73 (1.09)	
I would recommend taking an introductory computer science course at my institution to a friend.	4.04 (0.79)	N/A	N/A	3.83 (1.13)	3.82 (1.13)	
The number of students in my computing classes is too large.	2.86 (1.08)	N/A	N/A	3.13 (1.13)	3.06 (1.11)	
I am satisfied with the technical content of the computing courses.	3.93 (0.66)	N/A	N/A	3.77 (0.97)	3.72 (1.01)	
The computing courses at my institution are too difficult.	2.50 (0.69)	N/A	N/A	2.98 (1.01)	3.08 (0.94)	
n	28	2		5727	1620	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.

Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.

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

Table 3.2.2 Computing Program Satisfaction
How dissatisfied or satisfied are you with the following aspects of the computing program at your institution?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
The variety of computing courses offered	3.59 (1.08)	N/A	N/A	3.70 (1.01)	3.64 (1.05)	
Access to academic resources needed to do your work	4.00 (1.07)	N/A	N/A	3.91 (0.97)	3.85 (1.06)	
The availability of professors/instructors outside of class (e.g., office hours, answering questions via email, etc.)	4.00 (1.07)	N/A	N/A	3.91 (1.01)	3.88 (1.02)	
How well the program has prepared you for your future career	3.30 (0.95)	N/A	N/A	3.51 (0.99)	3.48 (1.00)	
The workload expected of you	3.54 (0.88)	N/A	N/A	3.31 (1.00)	3.32 (1.01)	
n	28	2		5723	1620	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.3 Department Environment Perception
For the next few questions, think about the environment of the computing department as a whole (including faculty, staff, administrators, and students) and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I feel a sense of community in the computing department.	3.18 (1.12)	N/A	N/A	3.33 (1.11)	3.26 (1.12)	
People in the department often attribute my success to special treatment or luck, rather than my competence.	1.68 (0.86)	N/A	N/A	2.19 (1.13)	2.33 (1.19)	
The environment in the computing department inspires me to do the best job that I can.	3.36 (1.13)	N/A	N/A	3.52 (1.01)	3.49 (1.04)	
My ideas or opinions are minimized or ignored.	2.14 (1.15)	N/A	N/A	2.24 (1.01)	2.34 (1.07)	
n	28	2		5716	1620	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.4 Department Staff Perception
Think about the faculty, staff, administrators (e.g., the department chair, dean, staff) in the computing department and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
The computing department cares about its students.	4.15 (0.77)	N/A	N/A	3.75 (1.03)	3.71 (1.07)	
The computing department is NOT very supportive of its students.	2.00 (0.88)	N/A	N/A	2.27 (1.08)	2.28 (1.13)	
Computer science administrators and faculty care about diversity.	3.96 (1.04)	N/A	N/A	3.67 (0.93)	3.62 (1.03)	
n	28	2		5717	1621	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.5 Receiving Stipend From Institution
Are you receiving a stipend from your institution?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
No, I am not	89%	N/A	N/A	92%	89%	
Yes, I am receiving a stipend	11%	N/A	N/A	8%	11%	
n	28	2		5726	1622	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.6 Institutional Stipend Sufficiency
How difficult or easy is it to cover your basic expenses with your current stipend(s)?
(1) Very difficult - (5) Very easy

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How difficult or easy is it to cover your basic expenses with your current stipend?	N/A	N/A	N/A	2.94 (1.24)	2.80 (1.17)	
n	3	1		447	178	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.7 Introductory Computing Courses: Course History
Have you taken an introductory computer science course?
Select all that apply.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Yes, I am currently enrolled in an introductory computer science course.	11%	N/A	N/A	31%	38%	
Yes, I have completed an introductory computer science course.	86%	N/A	N/A	69%	61%	
I was enrolled in an introductory computer science course, but I dropped it.	0%	N/A	N/A	1%	2%	
No, I have not taken an introductory computer science course	4%	N/A	N/A	5%	6%	
n	28	2		5727	1619	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.8 Introductory Computing Courses: Enrollment Motivation
Why did you enroll in an introductory computing course?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
It was required for my major/minor	81%	N/A	N/A	85%	81%	
It fulfilled another requirement	15%	N/A	N/A	25%	29%	
Curiosity or interest in computers	33%	N/A	N/A	33%	35%	
My parents encouraged me to	0%	N/A	N/A	5%	4%	
A teacher or other mentor encouraged me to	4%	N/A	N/A	5%	6%	
It helped build my computing skills for my other interests.	48%	N/A	N/A	35%	38%	
Other	0%	N/A	N/A	1%	2%	
n	27	2		5415	1524	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.9 Introductory Computing Courses: Drop Motivation
Why did you drop your introductory computing course?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
It didnt meet my expectations	N/A	N/A	N/A	23%	8%	
It was too challenging	N/A	N/A	N/A	43%	46%	
It was not challenging enough	N/A	N/A	N/A	11%	0%	
Im no longer interested in computer science	N/A	N/A	N/A	11%	8%	
It was no longer a requirement for my degree	N/A	N/A	N/A	11%	15%	
I didnt enjoy the professors teaching style	N/A	N/A	N/A	26%	31%	
I had a scheduling conflict	N/A	N/A	N/A	23%	15%	
I did not feel welcomed in the course	N/A	N/A	N/A	9%	19%	
Other	N/A	N/A	N/A	20%	8%	
n	0	0		35	26	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.10 Number of Computing Course Taken
How many computing-related courses are you taking this semester?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
0	0%	N/A	N/A	2%	3%	
1	25%	N/A	N/A	32%	30%	
2	21%	N/A	N/A	34%	37%	
3	25%	N/A	N/A	20%	19%	
4	14%	N/A	N/A	9%	7%	
5 or more	14%	N/A	N/A	2%	4%	
n	28	2		5709	1619	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.11 Course Perceptions
Please assess the following statements and indicate how many of your computing courses they apply to.
(1) None of my courses - (5) All of my courses

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
In these courses, I know the purpose of each assignment.	4.19 (0.83)	N/A	N/A	4.31 (0.95)	4.18 (1.01)	
My instructors identify a specific learning goal for each assignment.	4.07 (1.04)	N/A	N/A	4.11 (1.10)	4.05 (1.10)	
Each assignment includes a detailed set of instructions for completing it.	4.11 (1.05)	N/A	N/A	4.10 (1.08)	4.06 (1.08)	
I know how my work would be evaluated.	4.26 (0.94)	N/A	N/A	4.05 (1.13)	4.03 (1.12)	
My instructors provide students with annotated examples of past students work.	2.37 (1.24)	N/A	N/A	2.23 (1.45)	2.46 (1.48)	
n	27	2		5565	1569	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.12 Computing Course Difficulty - **The first course required for a computing major (e.g. CS1)**
To what degree do you think the following computing courses at your institution are difficult? - The first course required for a computing major (e.g. CS1)

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Not at all difficult	46%	N/A	N/A	24%	19%	
A little difficult	18%	N/A	N/A	25%	26%	
Moderately difficult	25%	N/A	N/A	26%	28%	
Quite difficult	4%	N/A	N/A	12%	14%	
Extremely difficult	0%	N/A	N/A	3%	4%	
Not sure	7%	N/A	N/A	9%	9%	
n	28	2		5707	1616	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.13 Computing Course Difficulty - Data structures course
To what degree do you think the following computing courses at your institution are difficult? - Data structures course

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Not at all difficult	0%	N/A	N/A	4%	3%	
A little difficult	25%	N/A	N/A	14%	11%	
Moderately difficult	36%	N/A	N/A	28%	26%	
Quite difficult	21%	N/A	N/A	17%	16%	
Extremely difficult	0%	N/A	N/A	5%	6%	
Not sure	18%	N/A	N/A	32%	37%	
n	28	2		5692	1609	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.14 Computing Course Difficulty - Discrete structures or discrete math course
To what degree do you think the following computing courses at your institution are difficult? - Discrete structures or discrete math course

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Not at all difficult	4%	N/A	N/A	7%	5%	
A little difficult	7%	N/A	N/A	16%	12%	
Moderately difficult	32%	N/A	N/A	25%	23%	
Quite difficult	21%	N/A	N/A	18%	18%	
Extremely difficult	14%	N/A	N/A	8%	9%	
Not sure	21%	N/A	N/A	27%	33%	
n	28	2		5696	1605	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.15 Computing Course Difficulty - A required proof-based algorithms course
To what degree do you think the following computing courses at your institution are difficult? - A required proof-based algorithms course

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Not at all difficult	0%	N/A	N/A	2%	2%	
A little difficult	0%	N/A	N/A	6%	6%	
Moderately difficult	21%	N/A	N/A	19%	16%	
Quite difficult	18%	N/A	N/A	18%	16%	
Extremely difficult	7%	N/A	N/A	10%	10%	
Not sure	54%	N/A	N/A	44%	50%	
n	28	2		5696	1607	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.2.16 Computing Course Difficulty - A required systems course
To what degree do you think the following computing courses at your institution are difficult? - A required systems course

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Not at all difficult	4%	N/A	N/A	2%	3%	
A little difficult	11%	N/A	N/A	7%	8%	
Moderately difficult	18%	N/A	N/A	19%	18%	
Quite difficult	11%	N/A	N/A	17%	14%	
Extremely difficult	0%	N/A	N/A	9%	8%	
Not sure	57%	N/A	N/A	45%	50%	
n	28	2		5696	1611	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

3.3 Support Structures

Table 3.3.1 Academic Advising: Access
Do you have access to one or more academic advisor(s)?
Select all that apply.

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Yes, I have an academic advisor(s) affiliated with the computing department	89%	N/A	N/A	74%	74%	
Yes, I have an academic advisor(s) affiliated with another department	32%	N/A	N/A	37%	35%	
No, I do not have an advisor yet, but I know how to get one	0%	N/A	N/A	4%	4%	
No, I do not have an advisor yet, and I do not know how to get one	0%	N/A	N/A	3%	3%	
n	28	2		5690	1616	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.2 Academic Advising: Frequency
About how many times per academic term do you interact with academic advisor(s) for the following reasons?
(1) Never - (4) Four or more times

	Your Institution			Similar Institutions		
	AW Mean (SD)	BHN Mean (SD)	Sig.	AW Mean (SD)	BHN Mean (SD)	Sig.
Course-related guidance	2.29 (0.71)	N/A	N/A	2.10 (0.74)	2.24 (0.78)	
Career advice	1.36 (0.68)	N/A	N/A	1.57 (0.73)	1.69 (0.82)	
Advice related to graduate school	1.32 (0.55)	N/A	N/A	1.40 (0.67)	1.48 (0.75)	
Other reason	1.54 (0.88)	N/A	N/A	1.48 (0.72)	1.62 (0.81)	
n	28	1		5257	1494	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.3 Academic Advising: Satisfaction
How dissatisfied or satisfied are you with the following?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How often you meet with your advisor(s)	3.86 (1.18)	N/A	N/A	3.47 (1.11)	3.48 (1.15)	
The academic guidance your advisor(s) provides	3.79 (1.45)	N/A	N/A	3.55 (1.16)	3.62 (1.16)	
The career advice your advisor(s) provides	3.44 (1.34)	N/A	N/A	3.33 (1.08)	3.42 (1.15)	
How available your advisor(s) is to meet you	4.00 (1.28)	N/A	N/A	3.60 (1.16)	3.61 (1.20)	
How supportive your advisor(s) is of your academic goal(s)	4.14 (0.89)	N/A	N/A	3.78 (1.06)	3.77 (1.11)	
n	28	1		5283	1494	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.4 Interaction Frequency (TAs)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	18%	N/A	N/A	7%	10%	
Less than once per month	36%	N/A	N/A	15%	16%	
1-3 times per month	25%	N/A	N/A	27%	25%	
1-3 times per week	21%	N/A	N/A	41%	39%	
More than 3 times per week	0%	N/A	N/A	8%	9%	
Not applicable	0%	N/A	N/A	1%	2%	
n	28	2		5722	1622	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.5 Interaction Frequency (Instructor on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Never	11%	N/A	N/A	21%	23%	
Less than once per month	29%	N/A	N/A	36%	33%	
1-3 times per month	32%	N/A	N/A	30%	30%	
1-3 times per week	29%	N/A	N/A	10%	13%	
More than 3 times per week	0%	N/A	N/A	1%	2%	
n	28	2		5716	1616	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.6 Interaction Frequency (Instructor NOT on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Never	54%	N/A	N/A	58%	57%	
Less than once per month	39%	N/A	N/A	25%	23%	
1-3 times per month	4%	N/A	N/A	11%	13%	
1-3 times per week	4%	N/A	N/A	5%	6%	
More than 3 times per week	0%	N/A	N/A	1%	2%	
n	28	2		5711	1615	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.7 Interaction Frequency (Classmates)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	14%	N/A	N/A	9%	13%	
Less than once per month	21%	N/A	N/A	9%	12%	
1-3 times per month	18%	N/A	N/A	18%	22%	
1-3 times per week	18%	N/A	N/A	30%	27%	
More than 3 times per week	29%	N/A	N/A	34%	25%	
n	28	2		5711	1620	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.8 Interaction Frequency (Career Services)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	68%	N/A	N/A	45%	41%	
Less than once per month	32%	N/A	N/A	41%	39%	
1-3 times per month	0%	N/A	N/A	9%	12%	
1-3 times per week	0%	N/A	N/A	2%	4%	
More than 3 times per week	0%	N/A	N/A	1%	2%	
Not applicable	0%	N/A	N/A	2%	2%	
n	28	2		5719	1618	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.9 Interaction Frequency (Academic Advisor)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	18%	N/A	N/A	22%	21%	
Less than once per month	68%	N/A	N/A	60%	54%	
1-3 times per month	11%	N/A	N/A	13%	18%	
1-3 times per week	4%	N/A	N/A	2%	4%	
More than 3 times per week	0%	N/A	N/A	1%	2%	
Not applicable	0%	N/A	N/A	1%	1%	
n	28	2		5719	1615	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.10 Peer support
How often do you receive the following from other students at your institution?
(1) Never - (5) All of the time

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Help and support	2.79 (1.13)	N/A	N/A	3.31 (1.03)	3.21 (1.07)	
Willingness to listen to issues you are having in your program	3.36 (0.87)	N/A	N/A	3.51 (1.02)	3.43 (1.10)	
Helpful feedback about your work	2.86 (1.08)	N/A	N/A	3.29 (1.05)	3.28 (1.12)	
Respect for your work and/or ideas	3.71 (0.90)	N/A	N/A	3.76 (0.96)	3.64 (1.05)	
Inclusion of your perspective on their work and/or ideas	3.39 (0.96)	N/A	N/A	3.58 (1.00)	3.45 (1.07)	
Opportunities to collaborate	3.36 (0.78)	N/A	N/A	3.50 (1.04)	3.43 (1.11)	
n	28	2		5720	1620	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.11 Mentor support
To what extent do you have a mentor who:
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
helps you improve your computing skills?	1.79 (1.10)	N/A	N/A	2.22 (1.23)	2.21 (1.27)	
shows compassion for any issues you discussed with them?	2.36 (1.39)	N/A	N/A	2.50 (1.33)	2.47 (1.36)	
shares personal experiences as an alternative perspective to your problem?	2.04 (1.04)	N/A	N/A	2.37 (1.30)	2.37 (1.34)	
explores career options with you?	1.57 (0.92)	N/A	N/A	2.20 (1.25)	2.22 (1.27)	
encourages you to do the best you can in your coursework?	2.25 (1.40)	N/A	N/A	2.61 (1.40)	2.60 (1.43)	
supports your research ideas?	1.68 (1.02)	N/A	N/A	2.13 (1.27)	2.14 (1.29)	
provides constructive feedback?	2.00 (1.25)	N/A	N/A	2.55 (1.37)	2.50 (1.40)	
n	28	2		5660	1599	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.3.12 Professional Network
To what extent is each of the following available to you at this point?
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
People with whom you can ask questions related to your professional development	2.32 (0.77)	N/A	N/A	2.91 (1.14)	2.82 (1.19)	
People with whom you can discuss graduate school opportunities	2.14 (0.85)	N/A	N/A	2.46 (1.14)	2.47 (1.21)	
A strong network of peers to interact with at conferences	1.64 (0.73)	N/A	N/A	2.42 (1.19)	2.50 (1.25)	
A strong network of mentors to interact with at conferences	1.54 (0.74)	N/A	N/A	2.12 (1.16)	2.21 (1.22)	
People who would be excited to learn about your professional successes	2.71 (1.27)	N/A	N/A	3.00 (1.19)	2.96 (1.26)	
People with whom you can discuss issues you are having	2.75 (1.24)	N/A	N/A	3.09 (1.16)	2.95 (1.22)	
n	28	2		5650	1595	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.

Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.

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

3.4   Self-perceptions

Table 3.4.1 Belonging and Computing Identity
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I see myself as a computing person.	3.75 (0.84)	N/A	N/A	3.62 (1.19)	3.64 (1.13)	
I feel like I belong in computing.	3.71 (0.94)	N/A	N/A	3.56 (1.20)	3.60 (1.14)	
I feel like an outsider in computing.	2.75 (1.14)	N/A	N/A	2.66 (1.22)	2.80 (1.21)	
Computing is a big part of who I am.	3.29 (1.08)	N/A	N/A	3.24 (1.23)	3.24 (1.19)	
I feel welcomed in computing.	3.68 (0.86)	N/A	N/A	3.56 (1.00)	3.52 (1.04)	
I do not have much in common with the other students in my computing classes.	3.25 (0.97)	N/A	N/A	2.81 (1.07)	2.98 (1.12)	
n	28	2		5683	1612	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.4.2 Imposter syndrome
In your opinion, to what extent are each of the following statements true of you
(1) Not at all true - (5) Extremely true

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I can give the impression that I am more competent than I really am.	3.14 (1.33)	N/A	N/A	3.12 (1.15)	3.11 (1.17)	
When others praise me for something I have accomplished, I am afraid I will not be able to live up to their expectations of me in the future.	3.32 (1.19)	N/A	N/A	3.24 (1.23)	3.19 (1.30)	
At times, I feel my success has been due to some kind of luck.	2.89 (1.29)	N/A	N/A	2.90 (1.25)	2.86 (1.29)	
At times, I am disappointed in my present accomplishments and think I should have accomplished much more by now.	3.71 (1.15)	N/A	N/A	3.42 (1.25)	3.44 (1.28)	
n	28	2		5654	1598	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.4.3 Self-Efficacy

Please indicate the extent to which you disagree or agree with the following statements: I am confident that I can¡c9¿
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
pass my computing courses	4.32 (0.82)	N/A	N/A	4.26 (0.91)	4.12 (0.98)	
complete an undergraduate degree in computing	4.57 (0.74)	N/A	N/A	4.23 (1.12)	4.15 (1.13)	
learn the foundations and concepts of computing	4.39 (0.92)	N/A	N/A	4.30 (0.85)	4.19 (0.91)	
do well in a computing-related contest (eg, programming contest, robotics contest, hackathon)	3.07 (1.12)	N/A	N/A	3.25 (1.16)	3.27 (1.17)	
quickly learn a new programming language on my own	3.79 (1.20)	N/A	N/A	3.67 (1.12)	3.55 (1.13)	
contribute to a research project in computing	3.36 (1.03)	N/A	N/A	3.54 (1.10)	3.54 (1.08)	
clearly communicate technical problems and solutions to a range of audiences	3.61 (0.88)	N/A	N/A	3.59 (0.98)	3.47 (1.02)	
articulate thoughtful answers to questions about my work during a presentation	3.79 (0.92)	N/A	N/A	3.65 (0.96)	3.56 (1.02)	
introduce myself to new peers/colleagues at professional meetings	3.89 (0.96)	N/A	N/A	3.75 (1.02)	3.72 (1.04)	
be a capable researcher in computing	3.04 (1.14)	N/A	N/A	3.34 (1.07)	3.41 (1.07)	
find employment in an area of computing interest	3.68 (1.02)	N/A	N/A	3.57 (1.12)	3.61 (1.10)	
get admitted to a graduate computing program	3.82 (1.09)	N/A	N/A	3.39 (1.18)	3.47 (1.19)	
be successful in a graduate computing program	3.61 (1.10)	N/A	N/A	3.47 (1.19)	3.53 (1.21)	
n	28	2		5670	1610	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.4.4 Perceptions of a Computing Career
In your opinion, to what extent would (or does) a career in computing allow you to do the following?
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Serve humanity	2.96 (1.14)	N/A	N/A	3.25 (1.10)	3.35 (1.16)	
Be in a position of influence in society	2.79 (1.07)	N/A	N/A	3.05 (1.17)	3.18 (1.23)	
Spend a lot of time with family	3.36 (1.22)	N/A	N/A	3.48 (1.07)	3.63 (1.09)	
n	28	2		5641	1593	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.4.5 Professional Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Mentoring others	3.46 (0.79)	N/A	N/A	3.37 (0.92)	3.19 (0.97)	
Building/maintaining a professional network	2.64 (0.87)	N/A	N/A	3.08 (0.99)	3.15 (1.00)	
Dealing with conflict	3.43 (0.96)	N/A	N/A	3.58 (0.87)	3.61 (0.93)	
Providing constructive feedback	3.68 (0.67)	N/A	N/A	3.69 (0.80)	3.65 (0.88)	
Time management	3.25 (1.17)	N/A	N/A	3.38 (1.07)	3.25 (1.08)	
Speaking clearly and effectively	3.71 (1.05)	N/A	N/A	3.52 (0.94)	3.42 (0.95)	
Presenting research	2.93 (0.94)	N/A	N/A	3.08 (0.95)	3.07 (0.98)	
Planning and organizing projects	3.25 (0.80)	N/A	N/A	3.59 (0.90)	3.46 (0.94)	
Writing scientific papers	2.61 (0.99)	N/A	N/A	2.78 (0.97)	2.75 (1.02)	
n	28	2		5694	1614	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.4.6 Career Planning Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Identifying career options	2.68 (0.72)	N/A	N/A	3.22 (0.93)	3.27 (0.96)	
Preparing job application materials	2.71 (0.71)	N/A	N/A	3.18 (0.96)	3.21 (1.00)	
Interviewing techniques	2.82 (0.77)	N/A	N/A	2.96 (1.01)	3.00 (1.04)	
Preparing your CV/resume	2.96 (0.84)	N/A	N/A	3.24 (0.97)	3.23 (1.01)	
Preparing graduate school application materials	2.29 (0.90)	N/A	N/A	2.47 (1.01)	2.44 (1.04)	
Identifying graduate school options	2.14 (0.93)	N/A	N/A	2.53 (1.03)	2.49 (1.07)	
n	28	2		5683	1609	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

3.5 Activities

Table 3.5.1 Research/Teaching/Internship Experiences
Up to this point in your undergraduate program, which of the following experiences were you involved in that were NOT part of a formal REU?
Select all that apply.

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Independent research projects	7%	N/A	N/A	10%	7%	
Course-based research projects	7%	N/A	N/A	13%	11%	
Internships or co-ops	22%	N/A	N/A	26%	19%	
Research Assistant	11%	N/A	N/A	9%	6%	
Teaching Assistant	19%	N/A	N/A	14%	10%	
Entrepreneurial or consulting projects	4%	N/A	N/A	6%	6%	
K-12 outreach	0%	N/A	N/A	6%	6%	
Computing-related student groups	33%	N/A	N/A	22%	19%	
None of the above	41%	N/A	N/A	47%	52%	
n	27	2		5608	1595	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.5.2 Academic and Professional Experiences
Have you been involved in the following during your current program?
Select all that apply.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Received study support in computing (e.g. received tutoring; supplemental Instruction [SI])	19%	N/A	N/A	9%	12%	
Provided study support in computing (e.g., provided tutoring; supplemental Instruction [SI])	15%	N/A	N/A	7%	7%	
Trainings or workshops in computing (other than conferences)	0%	N/A	N/A	9%	10%	
Summer institutes or short courses related to computing (other than summer research programs) (e.g., Google for Education Computer Science Summer Institute, online courses/MOOCs, etc.)	12%	N/A	N/A	5%	7%	
Technical conferences related to computing	4%	N/A	N/A	7%	7%	
Career mentoring programs or workshops	0%	N/A	N/A	10%	10%	
Jobs related to computing (not as a TA or RA)	19%	N/A	N/A	12%	9%	
Independent computing projects (e.g., tinkering and technical skill building outside of your coursework)	33%	N/A	N/A	25%	19%	
Computing-related contests (e.g., Hackathons, robotics competitions, programming competitions, etc.)	8%	N/A	N/A	19%	13%	
Computing-related online social networking (listservs, etc.)	12%	N/A	N/A	8%	7%	
Computing-related student groups (e.g., technical organizations on campus, ACM student chapters, etc.)	35%	N/A	N/A	23%	19%	
Other student groups (e.g., Greek Life, volunteer groups, academic merit societies, etc.)	19%	N/A	N/A	28%	19%	
Professional societies related to computing	4%	N/A	N/A	5%	6%	
Involvement in efforts to broaden participation in computing	4%	N/A	N/A	6%	6%	
Mentored students	7%	N/A	N/A	12%	10%	
Taught courses	0%	N/A	N/A	6%	6%	
n	27	2		5518	1563	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.5.3 Institutional Resources
During your academic career to date, have you pursued any of the following resources at your institution?
Select all that apply.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Peer tutoring	39%	N/A	N/A	25%	27%	
Tutoring offered by your department/college	29%	N/A	N/A	25%	31%	
Peer mentoring	11%	N/A	N/A	15%	16%	
Career counseling	29%	N/A	N/A	24%	22%	
Mental health counseling	36%	N/A	N/A	15%	18%	
None of the above	32%	N/A	N/A	44%	37%	
n	28	2		5642	1601	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

3.6   Future Plans and Interests

Table 3.6.1 Future Plans: After Graduation
After you complete your current program, what are your plans after graduation?
Choose up to 2 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Traveling	25%	N/A	N/A	16%	19%	
Go back to school	25%	N/A	N/A	21%	17%	
Start working (i.e., internship, full/part time work, postdoc, etc.)	79%	N/A	N/A	87%	82%	
Create a start-up	7%	N/A	N/A	9%	11%	
Take a break from work and school	11%	N/A	N/A	7%	9%	
Another plan	7%	N/A	N/A	3%	5%	
I don't know at all	4%	N/A	N/A	4%	6%	
n	28	2		5671	1598	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.6.2 Future Plans: Career Setting
For your future career, in which setting would you like to work the most?

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Academia	4%	N/A	N/A	5%	5%	
Industry	75%	N/A	N/A	65%	54%	
Government (includes national labs)	14%	N/A	N/A	10%	16%	
Self-employment	7%	N/A	N/A	16%	19%	
Something else	0%	N/A	N/A	4%	6%	
n	28	2		5613	1588	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.6.3 Future Plans: Career Interest
How interested are you in having the types of jobs listed below?
(1) Very uninterested - (5) Very interested

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
College or university professor in computing field (teaching focused)	2.21 (1.32)	N/A	N/A	2.26 (1.28)	2.21 (1.27)	
College or university professor in computing field (research focused)	2.14 (1.33)	N/A	N/A	2.22 (1.27)	2.21 (1.25)	
K-12 computing teacher	2.14 (1.24)	N/A	N/A	1.92 (1.18)	1.94 (1.20)	
Computing researcher in industry	3.07 (1.33)	N/A	N/A	2.91 (1.35)	2.91 (1.33)	
Computing researcher in a government lab or agency	2.75 (1.40)	N/A	N/A	2.86 (1.36)	2.98 (1.36)	
A non-research computing position in industry (e.g., software engineer)	4.37 (0.93)	N/A	N/A	3.85 (1.31)	3.82 (1.27)	
A non-research computing position in government	3.30 (1.30)	N/A	N/A	3.27 (1.34)	3.33 (1.30)	
Entrepreneur (computing related; e.g., individual contractor, build a start-up)	3.11 (1.31)	N/A	N/A	3.25 (1.30)	3.31 (1.32)	
Non-computing career	2.75 (1.40)	N/A	N/A	2.88 (1.29)	2.85 (1.26)	
n	28	2		5653	1593	

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Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.6.4 Highest Degree Plans (Degree Level)
What is the highest degree you plan to attain?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Associate degree	0%	N/A	N/A	1%	2%	
Bachelor's degree	54%	N/A	N/A	51%	54%	
Master's degree	36%	N/A	N/A	34%	29%	
Doctoral degree	11%	N/A	N/A	9%	7%	
Graduate certificate	0%	N/A	N/A	4%	4%	
High school degree	0%	N/A	N/A	1%	2%	
Technical certificate	0%	N/A	N/A	0%	1%	
I have already earned the highest degree I plan to attain	0%	N/A	N/A	0%	0%	
n	28	2		5678	1606	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.6.5 Highest Degree Plans (Field)
In which field do you intend to earn your highest degree?
At least one computing field selected

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
A computing field	93%	N/A	N/A	82%	85%	
A non-computing field	7%	N/A	N/A	18%	15%	
n	28	2		5730	1625	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.6.6 Likelihood of Future Career in Computing
How likely will your future career have a computing-related focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How likely will your future career have a computing-related focus?	4.32 (0.90)	N/A	N/A	4.08 (1.15)	4.08 (1.07)	
n	28	2		5609	1590	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 3.6.7 Likielihood of Future Career in Research
How likely will your future career have a research focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How likely will your future career have a research focus?	2.57 (1.10)	N/A	N/A	2.82 (1.09)	2.88 (1.08)	
n	28	2		5609	1590	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar 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

Chapter 4

Graduate Students: General Results

4.1 Entering and Exiting the Field

Table 4.1.1 Motivation for Choice of Current Program
Why did you choose your program?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
I like learning about this field	50%	52%	
My friends are enrolled in this program	0%	2%	
The courses required of this program are interesting	17%	24%	
Professors/faculty at my institution influenced my decision	33%	17%	
The program will allow me to make an impact on society	33%	26%	
The job market for this field is promising	50%	37%	
I want to pursue research in this field	33%	36%	
This program will enable me to make a lot of money	17%	15%	
My family influenced my decision	0%	5%	
I will be successful completing the coursework required of this program	17%	13%	
I aspire to make a difference in this field	0%	24%	
I wanted to change fields	50%	10%	*
Other	0%	3%	
n	6	2657	

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

Table 4.1.2 Consideration of Leaving Program Frequency
During your studies at your current institution, how often have you considered leaving your program before completing it?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	50%	56%	
Rarely	33%	22%	
Occasionally	17%	14%	
Often	0%	6%	
All of the time	0%	2%	
n	6	2600	

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

Table 4.1.3 Motivation for Leaving Program
Why did you consider leaving your current program?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
The courses were difficult	N/A	17%	N/A
The math requirements were too hard	N/A	6%	N/A
I was interested in trying something new	N/A	15%	N/A
I did not like the course material	N/A	11%	N/A
I was having trouble passes my courses	N/A	8%	N/A
I did not have any friends in the major	N/A	11%	N/A
The professors were not supportive	N/A	11%	N/A
I felt isolated in my program	N/A	34%	N/A
The department did not make me feel welcome	N/A	11%	N/A
I experienced health issues that inhibited my ability to feel/be successful	N/A	18%	N/A
I was considering a job	N/A	26%	N/A
Other	N/A	27%	N/A
n	3	1092	

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

Table 4.1.4 Motivation for Staying in Program
What helped you continue in your current program when you were contemplating leaving?
Choose up to 3 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
My family encouraged/supported me	N/A	36%	N/A
My friends encouraged/supported me	N/A	27%	N/A
Professors/faculty encouraged/supported me	N/A	26%	N/A
I had already invested too much time and resources	N/A	56%	N/A
I liked the field of study	N/A	54%	N/A
The job market for this field is promising	N/A	28%	N/A
Other	N/A	8%	N/A
n	3	1091	

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

4.2   Perceptions of the Department

Table 4.2.1 Department Satisfaction
Please indicate the extent to which you disagree or agree with the following statements
(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.	4.17 (0.75)	4.15 (1.01)	
Overall, I am satisfied with the computing program at my institution.	3.83 (1.17)	4.06 (1.03)	
I would recommend taking an introductory computer science course at my institution to a friend.	4.50 (0.55)	4.04 (1.06)	
The number of students in my computing classes is too large.	2.83 (1.17)	3.06 (1.19)	
I am satisfied with the technical content of the computing courses.	3.83 (0.98)	4.04 (1.00)	
The computing courses at my institution are too difficult.	2.67 (0.52)	2.93 (1.03)	
n	6	2691	

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

Table 4.2.2 Computing Program Satisfaction
How dissatisfied or satisfied are you with the following aspects of the computing program at your institution?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
The variety of computing courses offered	3.17 (1.33)	3.78 (1.14)	
Access to academic resources needed to do your work	3.17 (1.17)	4.10 (0.95)	
The availability of professors/instructors outside of class (e.g., office hours, answering questions via email, etc.)	3.83 (1.17)	4.22 (0.93)	
How well the program has prepared you for your future career	3.33 (1.63)	3.93 (0.99)	
The workload expected of you	3.50 (0.84)	3.72 (1.00)	
n	6	2669	

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

Table 4.2.3 Department Environment Perception
For the next few questions, think about the environment of the computing department as a whole (including faculty, staff, administrators, and students) and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I feel a sense of community in the computing department.	3.17 (1.33)	3.66 (1.11)	
People in the department often attribute my success to special treatment or luck, rather than my competence.	2.33 (1.63)	2.41 (1.30)	
The environment in the computing department inspires me to do the best job that I can.	3.67 (1.21)	3.91 (0.98)	
My ideas or opinions are minimized or ignored.	2.33 (1.75)	2.22 (1.17)	
n	6	2606	

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

Table 4.2.4 Department Staff Perception
Think about the faculty, staff, administrators (e.g., the department chair, dean, staff) in the computing department and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
The computing department cares about its students.	4.17 (0.98)	4.01 (1.03)	
The computing department is NOT very supportive of its students.	2.33 (1.63)	2.20 (1.20)	
Computer science administrators and faculty care about diversity.	4.00 (1.26)	3.93 (0.99)	
n	6	2630	

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

Table 4.2.5 Receiving Stipend From Institution
Are you receiving a stipend from your institution?

	Your Institution (%)	Similar Institutions (%)	Sig.
No, I am not	17%	58%	
Yes, I am receiving a stipend	83%	42%	
n	6	2748	

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

Table 4.2.6 Institutional Stipend Sufficiency
How difficult or easy is it to cover your basic expenses with your current stipend(s)?
(1) Very difficult - (5) Very easy

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How difficult or easy is it to cover your basic expenses with your current stipend?	2.20 (0.45)	2.80 (1.21)	*
n	5	1152	

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

4.3   Support Structures

Table 4.3.1 Academic Advising: Access
Do you have access to one or more academic advisor(s)?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes, I have an academic advisor(s) affiliated with the computing department	83%	85%	
Yes, I have an academic advisor(s) affiliated with another department	0%	12%	
No, I do not have an advisor yet, but I know how to get one	17%	5%	
No, I do not have an advisor yet, and I do not know how to get one	0%	5%	
n	6	2566	

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

Table 4.3.2 Academic Advising: Frequency
About how many times per academic term do you interact with academic advisor(s) for the following reasons?
(1) Never - (4) Four or more times

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Course-related guidance	2.60 (0.55)	2.25 (0.90)	
Career advice	1.80 (0.84)	2.13 (0.97)	
Advice related to graduate school	2.60 (1.14)	2.34 (1.00)	
Other reason	2.00 (1.41)	2.13 (1.12)	
n	5	2257	

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

Table 4.3.3 Academic Advising: Satisfaction
How dissatisfied or satisfied are you with the following?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How often you meet with your advisor(s)	2.80 (1.79)	3.81 (1.17)	
The academic guidance your advisor(s) provides	3.40 (1.82)	3.88 (1.13)	
The career advice your advisor(s) provides	2.80 (1.79)	3.74 (1.16)	
How available your advisor(s) is to meet you	2.80 (1.79)	3.99 (1.09)	
How supportive your advisor(s) is of your academic goal(s)	4.00 (1.22)	4.06 (1.07)	
n	5	2299	

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

Table 4.3.4 Interaction Frequency (TAs)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	17%	13%	
Less than once per month	33%	23%	
1-3 times per month	33%	31%	
1-3 times per week	17%	19%	
More than 3 times per week	0%	6%	
Not applicable	0%	8%	
n	6	2606	

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

Table 4.3.5 Interaction Frequency (Instructor on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	0%	13%	
Less than once per month	0%	31%	
1-3 times per month	83%	37%	
1-3 times per week	0%	16%	
More than 3 times per week	17%	3%	
n	6	2590	

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

Table 4.3.6 Interaction Frequency (Instructor NOT on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	17%	33%	
Less than once per month	17%	30%	
1-3 times per month	33%	18%	
1-3 times per week	17%	14%	
More than 3 times per week	17%	5%	
n	6	2590	

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

Table 4.3.7 Interaction Frequency (Classmates)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	17%	9%	
Less than once per month	0%	12%	
1-3 times per month	33%	21%	
1-3 times per week	17%	29%	
More than 3 times per week	33%	29%	
n	6	2589	

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

Table 4.3.8 Interaction Frequency (Career Services)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	67%	38%	
Less than once per month	17%	36%	
1-3 times per month	17%	15%	
1-3 times per week	0%	5%	
More than 3 times per week	0%	3%	
Not applicable	0%	3%	
n	6	2592	

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

Table 4.3.9 Interaction Frequency (Academic Advisor)
Approximately how often do you interact with the following individuals?

	Your Institution (%)	Similar Institutions (%)	Sig.
Never	0%	14%	
Less than once per month	33%	31%	
1-3 times per month	17%	18%	
1-3 times per week	17%	24%	
More than 3 times per week	17%	8%	
Not applicable	17%	4%	
n	6	2595	

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

Table 4.3.10 Peer support
How often do you receive the following from other students at your institution?
(1) Never - (5) All of the time

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Help and support	2.67 (0.52)	3.49 (1.05)	*
Willingness to listen to issues you are having in your program	3.17 (1.17)	3.69 (1.03)	
Helpful feedback about your work	3.17 (0.75)	3.58 (1.06)	
Respect for your work and/or ideas	3.83 (1.17)	3.97 (0.93)	
Inclusion of your perspective on their work and/or ideas	3.83 (1.17)	3.82 (0.97)	
Opportunities to collaborate	3.33 (1.21)	3.72 (1.03)	
n	6	2643	

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

Table 4.3.11 Mentor support
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?	3.00 (1.22)	3.05 (1.36)	
shows compassion for any issues you discussed with them?	2.60 (1.14)	3.30 (1.35)	
shares personal experiences as an alternative perspective to your problem?	2.60 (1.34)	3.11 (1.37)	
explores career options with you?	2.40 (1.14)	2.91 (1.40)	
encourages you to do the best you can in your coursework?	2.60 (1.34)	3.09 (1.42)	
supports your research ideas?	2.60 (1.34)	3.22 (1.42)	
provides constructive feedback?	3.00 (1.58)	3.39 (1.38)	
prepares you for a career in academia?	N/A	3.34 (1.38)	N/A
n	2	834	

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

Table 4.3.12 Professional Network
To what extent is each of the following available to you at this point?
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
People with whom you can ask questions related to your professional development	3.17 (1.33)	3.22 (1.17)	
A strong network of peers to interact with at conferences	2.67 (1.63)	2.77 (1.31)	
A strong network of mentors to interact with at conferences	2.67 (1.63)	2.59 (1.32)	
People who would be excited to learn about your professional successes	3.00 (1.55)	3.24 (1.19)	
People with whom you can discuss issues you are having	3.00 (1.26)	3.23 (1.19)	
n	6	2312	

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

4.4   Self-perceptions

Table 4.4.1 Belonging and Computing Identity
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I see myself as a computing person.	4.00 (0.63)	4.14 (0.91)	
I feel like I belong in computing.	4.17 (0.75)	4.08 (0.96)	
I feel like an outsider in computing.	1.67 (0.82)	2.36 (1.27)	
Computing is a big part of who I am.	3.83 (0.75)	3.89 (1.02)	
I feel welcomed in computing.	3.83 (0.75)	3.95 (0.94)	
I do not have much in common with the other students in my computing classes.	3.67 (1.21)	2.78 (1.19)	
n	6	2399	

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

Table 4.4.2 Imposter syndrome
In your opinion, to what extent are each of the following statements true of you
(1) Not at all true - (5) Extremely true

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
I can give the impression that I am more competent than I really am.	3.67 (1.21)	3.24 (1.25)	
When others praise me for something I have accomplished, I am afraid I will not be able to live up to their expectations of me in the future.	3.67 (1.03)	3.20 (1.27)	
At times, I feel my success has been due to some kind of luck.	3.17 (1.47)	2.91 (1.33)	
At times, I am disappointed in my present accomplishments and think I should have accomplished much more by now.	4.00 (1.55)	3.47 (1.26)	
n	6	2281	

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

Table 4.4.3 Self-Efficacy
Please indicate the extent to which you disagree or agree with the following statements: I am confident that I can¡c9¿
(1) Strongly disagree - (5) Strongly agree

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
clearly communicate technical problems and solutions to a range of audiences	4.17 (0.75)	4.02 (0.87)	
articulate thoughtful answers to questions about my work during a presentation	4.17 (0.75)	4.03 (0.88)	
introduce myself to new peers/colleagues at professional meetings	4.00 (1.10)	4.02 (0.95)	
be a capable researcher in computing	4.33 (0.52)	3.89 (0.98)	
find employment in an area of computing interest	4.17 (1.17)	4.03 (0.94)	
successfully teach a course in my field	4.33 (0.82)	4.06 (1.00)	
be an effective mentor	4.20 (0.45)	4.20 (0.87)	
become an expert in my field	4.67 (0.52)	4.16 (0.92)	
discuss my work with senior members of my field	4.33 (0.52)	4.17 (0.89)	
publish in tier/top 1 conferences and journals in my field	4.33 (0.82)	3.67 (1.18)	
complete my graduate degree program	5.00 (0.00)	4.53 (0.77)	*
n	6	2377	

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

Table 4.4.4 Perceptions of a Computing Career
In your opinion, to what extent would (or does) a career in computing allow you to do the following?
(1) Not at all - (5) Very much

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Serve humanity	4.67 (0.52)	3.80 (1.08)	*
Be in a position of influence in society	4.33 (0.82)	3.57 (1.17)	
Spend a lot of time with family	3.67 (1.21)	3.69 (1.06)	
n	6	2229	

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

Table 4.4.5 Professional Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Mentoring others	3.17 (1.33)	3.77 (0.85)	
Building/maintaining a professional network	3.67 (0.52)	3.52 (1.00)	
Dealing with conflict	3.50 (0.84)	3.72 (0.91)	
Providing constructive feedback	4.00 (0.00)	3.91 (0.80)	
Time management	3.50 (0.84)	3.57 (1.05)	
Speaking clearly and effectively	3.33 (0.82)	3.80 (0.92)	
Presenting research to technical audiences	3.67 (0.52)	3.68 (0.90)	
Presenting research to non-technical audiences	3.83 (0.75)	3.73 (0.92)	
Planning and organizing projects	3.50 (0.55)	3.83 (0.91)	
Writing scientific papers	N/A	N/A	N/A
n	0	3	

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

Table 4.4.6 Career Planning Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
Identifying career options	3.67 (0.82)	3.56 (0.94)	
Preparing job application materials	3.50 (0.55)	3.57 (0.95)	
Interviewing techniques	3.50 (0.55)	3.40 (1.00)	
Preparing your CV/resume	3.67 (0.82)	3.70 (0.89)	
n	6	2429	

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

4.5 Activities

Table 4.5.1 Academic and Professional Experiences
Have you been involved in the following during your current program?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Received study support in computing (e.g. received tutoring; supplemental Instruction [SI])	17%	8%	
Provided study support in computing (e.g., provided tutoring; supplemental Instruction [SI])	0%	11%	
Trainings or workshops in computing (other than conferences)	0%	19%	
Summer institutes or short courses related to computing (other than summer research programs) (e.g., Google for Education Computer Science Summer Institute, online courses/MOOCs, etc.)	0%	9%	
Technical conferences related to computing	33%	28%	
Career mentoring programs or workshops	17%	17%	
Jobs related to computing (not as a TA or RA)	17%	21%	
Independent computing projects (e.g., tinkering and technical skill building outside of your coursework)	0%	32%	
Computing-related contests (e.g., Hackathons, robotics competitions, programming competitions, etc.)	0%	18%	
Computing-related online social networking (listservs, etc.)	0%	14%	
Computing-related student groups (e.g., technical organizations on campus, ACM student chapters, etc.)	0%	19%	
Other student groups (e.g., Greek Life, volunteer groups, academic merit societies, etc.)	17%	18%	
Professional societies related to computing	17%	12%	
Involvement in efforts to broaden participation in computing	17%	13%	
Mentored students	33%	28%	
Taught courses	17%	17%	
n	6	2403	

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

Table 4.5.2 Institutional Resources
During your academic career to date, have you pursued any of the following resources at your institution?
Select all that apply.

	Your Institution (%)	Similar Institutions (%)	Sig.
Peer tutoring	0%	17%	
Tutoring offered by your department/college	17%	19%	
Peer mentoring	0%	19%	
Career counseling	33%	29%	
Mental health counseling	50%	20%	
None of the above	33%	42%	
n	6	2429	

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

Table 4.5.3 REU Participation
Did you participate in an REU during your undergraduate degree program?

	Your Institution (%)	Similar Institutions (%)	Sig.
Yes	0%	27%	
No	100%	73%	
n	6	2536	

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

4.6 Future Plans and Interests

Table 4.6.1 Future Plans: After Graduation
After you complete your current program, what are your plans after graduation?
Choose up to 2 responses.

	Your Institution (%)	Similar Institutions (%)	Sig.
Traveling	33%	14%	
Go back to school	33%	6%	
Start working (i.e., internship, full/part time work, postdoc, etc.)	83%	88%	
Create a start-up	17%	15%	
Take a break from work and school	0%	7%	
Another plan	0%	4%	
I don't know at all	0%	3%	
n	6	2286	

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

Table 4.6.2 Future Plans: Career Setting
For your future career, in which setting would you like to work the most?

	Your Institution (%)	Similar Institutions (%)	Sig.
Academia	17%	20%	
Industry	50%	56%	
Government (includes national labs)	17%	9%	
Self-employment	17%	11%	
Something else	0%	3%	
n	6	2216	

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

Table 4.6.3 Future Plans: Career Interest
How interested are you in having the types of jobs listed below?
(1) Very uninterested - (5) Very interested

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
College or university professor in computing field (teaching focused)	2.67 (1.37)	3.21 (1.37)	
College or university professor in computing field (research focused)	3.17 (1.60)	3.37 (1.35)	
K-12 computing teacher	2.67 (1.63)	2.48 (1.35)	
Computing researcher in industry	4.17 (0.98)	3.89 (1.15)	
Computing researcher in a government lab or agency	4.17 (1.33)	3.64 (1.22)	
A non-research computing position in industry (e.g., software engineer)	4.00 (1.10)	3.73 (1.30)	
A non-research computing position in government	3.67 (1.37)	3.30 (1.38)	
Entrepreneur (computing related; e.g., individual contractor, build a start-up)	3.83 (1.60)	3.43 (1.32)	
Non-computing career	2.33 (1.51)	2.57 (1.28)	
n	6	2232	

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

Table 4.6.4 Highest Degree Plans (Degree Level)
What is the highest degree you plan to attain?

	Your Institution (%)	Similar Institutions (%)	Sig.
Associate degree	0%	0%	
Bachelor's degree	0%	0%	
Master's degree	17%	51%	
Doctoral degree	83%	44%	
Graduate certificate	0%	4%	
High school degree	0%	0%	
Technical certificate	0%	0%	
I have already earned the highest degree I plan to attain	0%	0%	
n	6	2303	

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

Table 4.6.5 Highest Degree Plans (Field)
In which field do you intend to earn your highest degree?
At least one computing field selected

	Your Institution (%)	Similar Institutions (%)	Sig.
A computing field	100%	64%	
A non-computing field	0%	36%	
n	6	3484	

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

Table 4.6.6 Likelihood of Future Career in Computing
How likely will your future career have a computing-related focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How likely will your future career have a computing-related focus?	4.83 (0.41)	4.49 (0.78)	
n	6	2208	

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

Table 4.6.7 Likielihood of Future Career in Research
How likely will your future career have a research focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution Mean (SD)	Similar Institutions Mean (SD)	Sig.
How likely will your future career have a research focus?	4.00 (1.26)	3.70 (1.09)	
n	6	2210	

(*) $p \leq .05$ 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

This section is not available for your department/academic unit/organization for the Fall 2023. Any of the following could be causing this:

- Your department/academic unit/organization did not participate in Data Buddies at the graduate level or does not have a graduate program.

- Your department/academic unit/organization had fewer than 5 graduate student responses from one or more of the groups compared in this chapter.

- This copy of your report is customized in a way that is not applicable for the types of students in this section. (e.g., you requested a report that includes your Bachelor of Science degree students only.)

Chapter 6

Graduate Students: Results by Race/Ethnicity

6.1 Entering and Exiting the Field

Table 6.1.1 Motivation for Choice of Current Program
Why did you choose your program?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
I like learning about this field	60%	N/A	N/A	52%	48%	
My friends are enrolled in this program	0%	N/A	N/A	2%	4%	
The courses required of this program are interesting	20%	N/A	N/A	26%	20%	
Professors/faculty at my institution influenced my decision	40%	N/A	N/A	17%	15%	
The program will allow me to make an impact on society	40%	N/A	N/A	26%	31%	
The job market for this field is promising	40%	N/A	N/A	40%	36%	
I want to pursue research in this field	20%	N/A	N/A	35%	34%	
This program will enable me to make a lot of money	20%	N/A	N/A	15%	16%	
My family influenced my decision	0%	N/A	N/A	5%	5%	
I will be successful completing the coursework required of this program	20%	N/A	N/A	14%	13%	
I aspire to make a difference in this field	0%	N/A	N/A	23%	28%	
I wanted to change fields	40%	N/A	N/A	8%	14%	
Other	0%	N/A	N/A	2%	3%	
n	5	1		1641	199	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.1.2 Consideration of Leaving Program Frequency

During your studies at your current institution, how often have you considered leaving your program before completing it?

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Never	40%	N/A	N/A	60%	45%	*
Rarely	40%	N/A	N/A	21%	25%	
Occasionally	20%	N/A	N/A	14%	15%	
Often	0%	N/A	N/A	4%	9%	
All of the time	0%	N/A	N/A	2%	6%	
n	5	1		1697	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.

Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.

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

Table 6.1.3 Motivation for Leaving Program
Why did you consider leaving your current program?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
The courses were difficult	N/A	N/A	N/A	18%	17%	
The math requirements were too hard	N/A	N/A	N/A	7%	4%	
I was interested in trying something new	N/A	N/A	N/A	16%	13%	
I did not like the course material	N/A	N/A	N/A	13%	9%	
I was having trouble passes my courses	N/A	N/A	N/A	7%	12%	
I did not have any friends in the major	N/A	N/A	N/A	11%	12%	
The professors were not supportive	N/A	N/A	N/A	11%	12%	
I felt isolated in my program	N/A	N/A	N/A	29%	41%	
The department did not make me feel welcome	N/A	N/A	N/A	9%	10%	
I experienced health issues that inhibited my ability to feel/be successful	N/A	N/A	N/A	17%	20%	
I was considering a job	N/A	N/A	N/A	27%	24%	
Other	N/A	N/A	N/A	27%	25%	
n	3	0		654	113	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.1.4 Motivation for Staying in Program

What helped you continue in your current program when you were contemplating leaving?
Choose up to 3 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
My family encouraged/supported me	N/A	N/A	N/A	36%	37%	
My friends encouraged/supported me	N/A	N/A	N/A	30%	18%	
Professors/faculty encouraged/supported me	N/A	N/A	N/A	27%	25%	
I had already invested too much time and resources	N/A	N/A	N/A	55%	55%	
I liked the field of study	N/A	N/A	N/A	54%	57%	
The job market for this field is promising	N/A	N/A	N/A	29%	27%	
Other	N/A	N/A	N/A	6%	12%	
n	3	0		656	110	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

6.2 Perceptions of the Department

Table 6.2.1 Department Satisfaction
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I would recommend taking computing courses at my institution to a friend.	4.20 (0.84)	N/A	N/A	4.17 (0.99)	4.16 (0.98)	
Overall, I am satisfied with the computing program at my institution.	3.80 (1.30)	N/A	N/A	4.11 (1.00)	4.05 (1.09)	
I would recommend taking an introductory computer science course at my institution to a friend.	4.40 (0.55)	N/A	N/A	4.07 (1.04)	4.05 (1.08)	
The number of students in my computing classes is too large.	3.20 (0.84)	N/A	N/A	3.09 (1.19)	2.85 (1.18)	
I am satisfied with the technical content of the computing courses.	3.80 (1.10)	N/A	N/A	4.05 (1.01)	4.03 (0.97)	
The computing courses at my institution are too difficult.	2.80 (0.45)	N/A	N/A	2.93 (1.01)	2.93 (0.98)	
n	5	1		1693	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.

Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.

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

Table 6.2.2 Computing Program Satisfaction
How dissatisfied or satisfied are you with the following aspects of the computing program at your institution?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
The variety of computing courses offered	3.40 (1.34)	N/A	N/A	3.83 (1.11)	3.77 (1.16)	
Access to academic resources needed to do your work	3.40 (1.14)	N/A	N/A	4.15 (0.91)	4.05 (1.02)	
The availability of professors/instructors outside of class (e.g., office hours, answering questions via email, etc.)	4.00 (1.22)	N/A	N/A	4.25 (0.90)	4.12 (1.05)	
How well the program has prepared you for your future career	3.60 (1.67)	N/A	N/A	3.97 (0.96)	3.79 (1.05)	
The workload expected of you	3.40 (0.89)	N/A	N/A	3.75 (0.97)	3.68 (1.07)	
n	5	1		1693	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.2.3 Department Environment Perception
For the next few questions, think about the environment of the computing department as a whole (including faculty, staff, administrators, and students) and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I feel a sense of community in the computing department.	3.40 (1.34)	N/A	N/A	3.70 (1.06)	3.50 (1.27)	
People in the department often attribute my success to special treatment or luck, rather than my competence.	2.60 (1.67)	N/A	N/A	2.41 (1.29)	2.37 (1.34)	
The environment in the computing department inspires me to do the best job that I can.	3.80 (1.30)	N/A	N/A	3.97 (0.93)	3.79 (1.11)	
My ideas or opinions are minimized or ignored.	2.60 (1.82)	N/A	N/A	2.19 (1.15)	2.22 (1.19)	
n	5	1		1688	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.2.4 Department Staff Perception
Think about the faculty, staff, administrators (e.g., the department chair, dean, staff) in the computing department and rate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
The computing department cares about its students.	4.00 (1.00)	N/A	N/A	4.08 (0.98)	3.99 (1.05)	
The computing department is NOT very supportive of its students.	2.60 (1.67)	N/A	N/A	2.14 (1.17)	2.19 (1.22)	
Computer science administrators and faculty care about diversity.	4.20 (1.30)	N/A	N/A	3.99 (0.95)	3.80 (1.08)	
n	5	1		1692	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.2.5 Receiving Stipend From Institution
Are you receiving a stipend from your institution?

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
No, I am not	20%	N/A	N/A	61%	59%	
Yes, I am receiving a stipend	80%	N/A	N/A	39%	41%	
n	5	1		1698	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.2.6 Institutional Stipend Sufficiency
How difficult or easy is it to cover your basic expenses with your current stipend(s)?
(1) Very difficult - (5) Very easy

	Your Institution			Similar Institutions		
	AW Mean (SD)	BHN Mean (SD)	Sig.	AW Mean (SD)	BHN Mean (SD)	Sig.
How difficult or easy is it to cover your basic expenses with your current stipend?	N/A	N/A	N/A	2.73 (1.21)	2.86 (1.31)	
n	4	1		665	87	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

6.3 Support Structures

Table 6.3.1 Academic Advising: Access
Do you have access to one or more academic advisor(s)?
Select all that apply.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Yes, I have an academic advisor(s) affiliated with the computing department	80%	N/A	N/A	86%	83%	
Yes, I have an academic advisor(s) affiliated with another department	0%	N/A	N/A	10%	15%	
No, I do not have an advisor yet, but I know how to get one	20%	N/A	N/A	5%	4%	
No, I do not have an advisor yet, and I do not know how to get one	0%	N/A	N/A	5%	4%	
n	5	1		1686	206	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.2 Academic Advising: Frequency
About how many times per academic term do you interact with academic advisor(s) for the following reasons?
(1) Never - (4) Four or more times

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Course-related guidance	N/A	N/A	N/A	2.26 (0.90)	2.25 (0.92)	
Career advice	N/A	N/A	N/A	2.11 (0.96)	2.00 (0.95)	
Advice related to graduate school	N/A	N/A	N/A	2.31 (0.99)	2.39 (1.02)	
Other reason	N/A	N/A	N/A	2.10 (1.10)	2.15 (1.10)	
n	4	1		1488	187	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.3 Academic Advising: Satisfaction
How dissatisfied or satisfied are you with the following?
(1) Very dissatisfied - (5) Very satisfied

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How often you meet with your advisor(s)	N/A	N/A	N/A	3.80 (1.16)	3.70 (1.25)	
The academic guidance your advisor(s) provides	N/A	N/A	N/A	3.91 (1.09)	3.63 (1.29)	
The career advice your advisor(s) provides	N/A	N/A	N/A	3.77 (1.12)	3.59 (1.28)	
How available your advisor(s) is to meet you	N/A	N/A	N/A	4.02 (1.05)	3.84 (1.26)	
How supportive your advisor(s) is of your academic goal(s)	N/A	N/A	N/A	4.07 (1.04)	3.92 (1.20)	
n	4	1		1507	189	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.4 Interaction Frequency (TAs)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	0%	N/A	N/A	11%	18%	
Less than once per month	40%	N/A	N/A	23%	19%	
1-3 times per month	40%	N/A	N/A	33%	30%	
1-3 times per week	20%	N/A	N/A	20%	17%	
More than 3 times per week	0%	N/A	N/A	6%	4%	
Not applicable	0%	N/A	N/A	6%	11%	
n	5	1		1697	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.5 Interaction Frequency (Instructor on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	0%	N/A	N/A	12%	12%	
Less than once per month	0%	N/A	N/A	31%	28%	
1-3 times per month	100%	N/A	N/A	38%	37%	
1-3 times per week	0%	N/A	N/A	16%	21%	
More than 3 times per week	0%	N/A	N/A	3%	3%	
n	5	1		1686	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.6 Interaction Frequency (Instructor NOT on Coursework)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	20%	N/A	N/A	33%	33%	
Less than once per month	20%	N/A	N/A	31%	28%	
1-3 times per month	40%	N/A	N/A	18%	16%	
1-3 times per week	20%	N/A	N/A	12%	16%	
More than 3 times per week	0%	N/A	N/A	5%	7%	
n	5	1		1689	206	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.7 Interaction Frequency (Classmates)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	20%	N/A	N/A	8%	12%	
Less than once per month	0%	N/A	N/A	11%	14%	
1-3 times per month	40%	N/A	N/A	21%	20%	
1-3 times per week	0%	N/A	N/A	29%	28%	
More than 3 times per week	40%	N/A	N/A	31%	27%	
n	5	1		1686	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.8 Interaction Frequency (Career Services)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	60%	N/A	N/A	35%	50%	*
Less than once per month	20%	N/A	N/A	37%	31%	
1-3 times per month	20%	N/A	N/A	16%	11%	
1-3 times per week	0%	N/A	N/A	6%	3%	
More than 3 times per week	0%	N/A	N/A	3%	2%	
Not applicable	0%	N/A	N/A	3%	4%	
n	5	1		1689	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.9 Interaction Frequency (Academic Advisor)
Approximately how often do you interact with the following individuals?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Never	0%	N/A	N/A	14%	18%	
Less than once per month	40%	N/A	N/A	34%	30%	
1-3 times per month	20%	N/A	N/A	18%	20%	
1-3 times per week	20%	N/A	N/A	22%	21%	
More than 3 times per week	0%	N/A	N/A	8%	8%	
Not applicable	20%	N/A	N/A	4%	3%	
n	5	1		1689	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.10 Peer support
How often do you receive the following from other students at your institution?
(1) Never - (5) All of the time

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Help and support	2.60 (0.55)	N/A	N/A	3.54 (1.02)	3.30 (1.18)	
Willingness to listen to issues you are having in your program	3.00 (1.22)	N/A	N/A	3.72 (1.01)	3.60 (1.10)	
Helpful feedback about your work	3.20 (0.84)	N/A	N/A	3.62 (1.04)	3.38 (1.13)	
Respect for your work and/or ideas	3.80 (1.30)	N/A	N/A	4.00 (0.90)	3.80 (1.10)	
Inclusion of your perspective on their work and/or ideas	3.80 (1.30)	N/A	N/A	3.86 (0.95)	3.66 (1.05)	
Opportunities to collaborate	3.60 (1.14)	N/A	N/A	3.79 (0.99)	3.58 (1.11)	
n	5	1		1687	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.11 Mentor support
To what extent do you have a mentor who:
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
helps you improve your computing skills?	N/A	N/A	N/A	3.09 (1.35)	2.75 (1.40)	
shows compassion for any issues you discussed with them?	N/A	N/A	N/A	3.29 (1.34)	3.03 (1.43)	
shares personal experiences as an alternative perspective to your problem?	N/A	N/A	N/A	3.11 (1.36)	2.90 (1.42)	
explores career options with you?	N/A	N/A	N/A	2.93 (1.38)	2.70 (1.41)	
encourages you to do the best you can in your coursework?	N/A	N/A	N/A	3.12 (1.40)	2.90 (1.50)	
supports your research ideas?	N/A	N/A	N/A	3.23 (1.41)	2.91 (1.52)	
provides constructive feedback?	N/A	N/A	N/A	3.39 (1.36)	3.18 (1.48)	
prepares you for a career in academia?	N/A	N/A	N/A	3.32 (1.37)	3.25 (1.38)	
n	1	1		508	72	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.3.12 Professional Network
To what extent is each of the following available to you at this point?
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
People with whom you can ask questions related to your professional development	3.40 (1.34)	N/A	N/A	3.25 (1.17)	3.01 (1.22)	
A strong network of peers to interact with at conferences	3.00 (1.58)	N/A	N/A	2.80 (1.31)	2.67 (1.32)	
A strong network of mentors to interact with at conferences	3.00 (1.58)	N/A	N/A	2.64 (1.32)	2.46 (1.30)	
People who would be excited to learn about your professional successes	3.40 (1.34)	N/A	N/A	3.26 (1.19)	3.03 (1.25)	
People with whom you can discuss issues you are having	3.00 (1.41)	N/A	N/A	3.26 (1.19)	3.04 (1.21)	
n	5	1		1662	204	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

6.4   Self-perceptions

Table 6.4.1 Belonging and Computing Identity
Please indicate the extent to which you disagree or agree with the following statements
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I see myself as a computing person.	4.00 (0.71)	N/A	N/A	4.15 (0.89)	4.02 (1.01)	
I feel like I belong in computing.	4.20 (0.84)	N/A	N/A	4.11 (0.92)	3.87 (1.08)	
I feel like an outsider in computing.	1.60 (0.89)	N/A	N/A	2.31 (1.25)	2.65 (1.31)	
Computing is a big part of who I am.	3.80 (0.84)	N/A	N/A	3.91 (1.00)	3.74 (1.10)	
I feel welcomed in computing.	4.00 (0.71)	N/A	N/A	3.99 (0.91)	3.78 (1.06)	
I do not have much in common with the other students in my computing classes.	3.60 (1.34)	N/A	N/A	2.77 (1.17)	2.97 (1.28)	
n	5	1		1679	205	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.4.2 Imposter syndrome
In your opinion, to what extent are each of the following statements true of you
(1) Not at all true - (5) Extremely true

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
I can give the impression that I am more competent than I really am.	3.40 (1.14)	N/A	N/A	3.24 (1.23)	3.08 (1.36)	
When others praise me for something I have accomplished, I am afraid I will not be able to live up to their expectations of me in the future.	3.40 (0.89)	N/A	N/A	3.20 (1.25)	3.12 (1.38)	
At times, I feel my success has been due to some kind of luck.	3.20 (1.64)	N/A	N/A	2.90 (1.30)	2.75 (1.49)	
At times, I am disappointed in my present accomplishments and think I should have accomplished much more by now.	3.80 (1.64)	N/A	N/A	3.47 (1.23)	3.37 (1.37)	
n	5	1		1668	205	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.4.3 Self-Efficacy

Please indicate the extent to which you disagree or agree with the following statements: I am confident that I can¡c9¿
(1) Strongly disagree - (5) Strongly agree

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
clearly communicate technical problems and solutions to a range of audiences	4.00 (0.71)	N/A	N/A	4.02 (0.85)	3.95 (0.98)	
articulate thoughtful answers to questions about my work during a presentation	4.00 (0.71)	N/A	N/A	4.05 (0.85)	4.02 (0.95)	
introduce myself to new peers/colleagues at professional meetings	4.40 (0.55)	N/A	N/A	4.03 (0.93)	4.08 (0.98)	
be a capable researcher in computing	4.20 (0.45)	N/A	N/A	3.91 (0.95)	3.84 (1.04)	
find employment in an area of computing interest	4.60 (0.55)	N/A	N/A	4.04 (0.92)	3.97 (1.02)	
successfully teach a course in my field	4.20 (0.84)	N/A	N/A	4.07 (0.99)	4.05 (1.00)	
be an effective mentor	N/A	N/A	N/A	4.20 (0.86)	4.24 (0.82)	
become an expert in my field	4.60 (0.55)	N/A	N/A	4.17 (0.89)	4.24 (0.88)	
discuss my work with senior members of my field	4.40 (0.55)	N/A	N/A	4.21 (0.86)	4.02 (0.98)	
publish in tier/top 1 conferences and journals in my field	4.40 (0.89)	N/A	N/A	3.69 (1.13)	3.53 (1.37)	
complete my graduate degree program	5.00 (0.00)	N/A	N/A	4.57 (0.73)	4.49 (0.84)	
n	5	1		1681	205	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.4.4 Perceptions of a Computing Career
In your opinion, to what extent would (or does) a career in computing allow you to do the following?
(1) Not at all - (5) Very much

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Serve humanity	4.80 (0.45)	N/A	N/A	3.83 (1.05)	3.84 (1.13)	
Be in a position of influence in society	4.60 (0.55)	N/A	N/A	3.62 (1.14)	3.59 (1.25)	
Spend a lot of time with family	4.00 (1.00)	N/A	N/A	3.74 (1.04)	3.73 (1.10)	
n	5	1		1665	205	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.4.5 Professional Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Mentoring others	3.40 (1.34)	N/A	N/A	3.77 (0.84)	3.76 (0.92)	
Building/maintaining a professional network	3.80 (0.45)	N/A	N/A	3.54 (0.99)	3.55 (1.02)	
Dealing with conflict	3.80 (0.45)	N/A	N/A	3.74 (0.89)	3.85 (0.93)	
Providing constructive feedback	4.00 (0.00)	N/A	N/A	3.93 (0.79)	3.92 (0.87)	
Time management	3.80 (0.45)	N/A	N/A	3.63 (1.03)	3.50 (1.11)	
Speaking clearly and effectively	3.60 (0.55)	N/A	N/A	3.82 (0.91)	3.82 (0.98)	
Presenting research to technical audiences	3.60 (0.55)	N/A	N/A	3.70 (0.88)	3.59 (1.00)	
Presenting research to non-technical audiences	3.80 (0.84)	N/A	N/A	3.74 (0.90)	3.71 (1.00)	
Planning and organizing projects	3.60 (0.55)	N/A	N/A	3.86 (0.91)	3.82 (0.94)	
Writing scientific papers	N/A	N/A	N/A	N/A	N/A	N/A
n	0	0		0	0	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.4.6 Career Planning Skills
Please rate the degree of your proficiency (how skilled you are) in the following items:
(1) Highly deficient - (5) Highly proficient

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
Identifying career options	3.80 (0.84)	N/A	N/A	3.59 (0.94)	3.55 (0.97)	
Preparing job application materials	3.60 (0.55)	N/A	N/A	3.59 (0.95)	3.60 (1.01)	
Interviewing techniques	3.60 (0.55)	N/A	N/A	3.43 (0.99)	3.33 (1.10)	
Preparing your CV/resume	3.80 (0.84)	N/A	N/A	3.71 (0.89)	3.69 (0.93)	
n	5	1		1688	205	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

6.5   Activities

Table 6.5.1 Academic and Professional Experiences
Have you been involved in the following during your current program?
Select all that apply.

	Your Institution			Similar Institutions		
	AW (%)	BHN (%)	Sig.	AW (%)	BHN (%)	Sig.
Received study support in computing (e.g. received tutoring; supplemental Instruction [SI])	20%	N/A	N/A	8%	13%	
Provided study support in computing (e.g., provided tutoring; supplemental Instruction [SI])	0%	N/A	N/A	10%	16%	
Trainings or workshops in computing (other than conferences)	0%	N/A	N/A	19%	20%	
Summer institutes or short courses related to computing (other than summer research programs) (e.g., Google for Education Computer Science Summer Institute, online courses/MOOCs, etc.)	0%	N/A	N/A	9%	14%	
Technical conferences related to computing	20%	N/A	N/A	25%	28%	
Career mentoring programs or workshops	20%	N/A	N/A	16%	18%	
Jobs related to computing (not as a TA or RA)	20%	N/A	N/A	20%	20%	
Independent computing projects (e.g., tinkering and technical skill building outside of your coursework)	0%	N/A	N/A	32%	31%	
Computing-related contests (e.g., Hackathons, robotics competitions, programming competitions, etc.)	0%	N/A	N/A	19%	12%	
Computing-related online social networking (listservs, etc.)	0%	N/A	N/A	13%	18%	
Computing-related student groups (e.g., technical organizations on campus, ACM student chapters, etc.)	0%	N/A	N/A	19%	18%	
Other student groups (e.g., Greek Life, volunteer groups, academic merit societies, etc.)	0%	N/A	N/A	17%	16%	
Professional societies related to computing	20%	N/A	N/A	11%	11%	
Involvement in efforts to broaden participation in computing	20%	N/A	N/A	10%	14%	
Mentored students	40%	N/A	N/A	25%	32%	
Taught courses	0%	N/A	N/A	14%	20%	
n	5	1		1638	204	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.5.2 Institutional Resources
During your academic career to date, have you pursued any of the following resources at your institution?
Select all that apply.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Peer tutoring	0%	N/A	N/A	16%	25%	
Tutoring offered by your department/college	20%	N/A	N/A	18%	30%	
Peer mentoring	0%	N/A	N/A	18%	25%	
Career counseling	40%	N/A	N/A	29%	32%	
Mental health counseling	40%	N/A	N/A	17%	26%	
None of the above	40%	N/A	N/A	44%	28%	*
n	5	1		1650	206	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.5.3 REU Participation
Did you participate in an REU during your undergraduate degree program?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Yes	0%	N/A	N/A	26%	29%	
No	100%	N/A	N/A	74%	71%	
n	5	1		1691	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

6.6 Future Plans and Interests

Table 6.6.1 Future Plans: After Graduation
After you complete your current program, what are your plans after graduation?
Choose up to 2 responses.

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Traveling	40%	N/A	N/A	13%	16%	
Go back to school	40%	N/A	N/A	6%	11%	
Start working (i.e., internship, full/part time work, postdoc, etc.)	80%	N/A	N/A	89%	83%	
Create a start-up	0%	N/A	N/A	15%	16%	
Take a break from work and school	0%	N/A	N/A	6%	6%	
Another plan	0%	N/A	N/A	4%	4%	
I don't know at all	0%	N/A	N/A	3%	2%	
n	5	1		1675	205	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.6.2 Future Plans: Career Setting
For your future career, in which setting would you like to work the most?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Academia	0%	N/A	N/A	18%	19%	
Industry	60%	N/A	N/A	59%	47%	
Government (includes national labs)	20%	N/A	N/A	9%	15%	
Self-employment	20%	N/A	N/A	11%	13%	
Something else	0%	N/A	N/A	3%	5%	
n	5	1		1649	202	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.6.3 Future Plans: Career Interest
How interested are you in having the types of jobs listed below?
(1) Very uninterested - (5) Very interested

| | Your Institution | | | Similar Institutions | | |
| | AW | BHN | | AW | BHN | |
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
College or university professor in computing field (teaching focused)	2.80 (1.48)	N/A	N/A	3.23 (1.35)	3.22 (1.40)	
College or university professor in computing field (research focused)	2.80 (1.48)	N/A	N/A	3.38 (1.34)	3.29 (1.40)	
K-12 computing teacher	2.40 (1.67)	N/A	N/A	2.56 (1.36)	2.40 (1.41)	
Computing researcher in industry	4.00 (1.00)	N/A	N/A	3.90 (1.14)	3.84 (1.22)	
Computing researcher in a government lab or agency	4.00 (1.41)	N/A	N/A	3.67 (1.19)	3.64 (1.27)	
A non-research computing position in industry (e.g., software engineer)	4.40 (0.55)	N/A	N/A	3.81 (1.26)	3.65 (1.36)	
A non-research computing position in government	4.00 (1.22)	N/A	N/A	3.38 (1.35)	3.34 (1.43)	
Entrepreneur (computing related; e.g., individual contractor, build a start-up)	3.80 (1.79)	N/A	N/A	3.53 (1.28)	3.37 (1.40)	
Non-computing career	2.60 (1.52)	N/A	N/A	2.60 (1.28)	2.50 (1.27)	
n	5	1		1663	202	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.6.4 Highest Degree Plans (Degree Level)
What is the highest degree you plan to attain?

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
Associate degree	0%	N/A	N/A	0%	0%	
Bachelor's degree	0%	N/A	N/A	0%	0%	
Master's degree	20%	N/A	N/A	56%	43%	
Doctoral degree	80%	N/A	N/A	39%	51%	
Graduate certificate	0%	N/A	N/A	4%	4%	
High school degree	0%	N/A	N/A	0%	0%	
Technical certificate	0%	N/A	N/A	0%	2%	
I have already earned the highest degree I plan to attain	0%	N/A	N/A	0%	0%	
n	5	1		1681	207	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.6.5 Highest Degree Plans (Field)
In which field do you intend to earn your highest degree?
At least one computing field selected

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	(%)	(%)	Sig.	(%)	(%)	Sig.
A computing field	100%	N/A	N/A	97%	95%	
A non-computing field	0%	N/A	N/A	3%	5%	
n	5	1		1700	208	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.6.6 Likelihood of Future Career in Computing
How likely will your future career have a computing-related focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How likely will your future career have a computing-related focus?	4.80 (0.45)	N/A	N/A	4.48 (0.79)	4.41 (0.92)	
n	5	1		1646	201	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar institutions.
(*) $p \leq .05$ and Cohen's d or $h \geq .30$, (N/A) $n < 5$ or test criteria were not met

Table 6.6.7 Likielihood of Future Career in Research
How likely will your future career have a research focus?
(1) Extremely unlikely - (5) Extremely likely

	Your Institution			Similar Institutions		
	AW	BHN		AW	BHN	
	Mean (SD)	Mean (SD)	Sig.	Mean (SD)	Mean (SD)	Sig.
How likely will your future career have a research focus?	3.80 (1.30)	N/A	N/A	3.69 (1.08)	3.62 (1.13)	
n	5	1		1646	202	

AW: Asian (East Asian, Southeast Asian, South Asian, Other Asian) and/or White (Caucasian/European/White) students; BHN: Black(African American/African/Black), Hispanic (Cuban, Mexican/Mexican American/ Chicanx, Puerto Rican, or another Hispanic, Latinx, or Spanish origin), Native/Indigenous (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Indigenous or First Nations), and multi-racial/ethnic students including at least one of these identities.
Data are compared between AW students and BHN students at your institution, and AW students and BHN students at similar 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) [1], 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 effect 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. 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.

Statistical tests were not run if sample size was too small, $n < 5$.

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