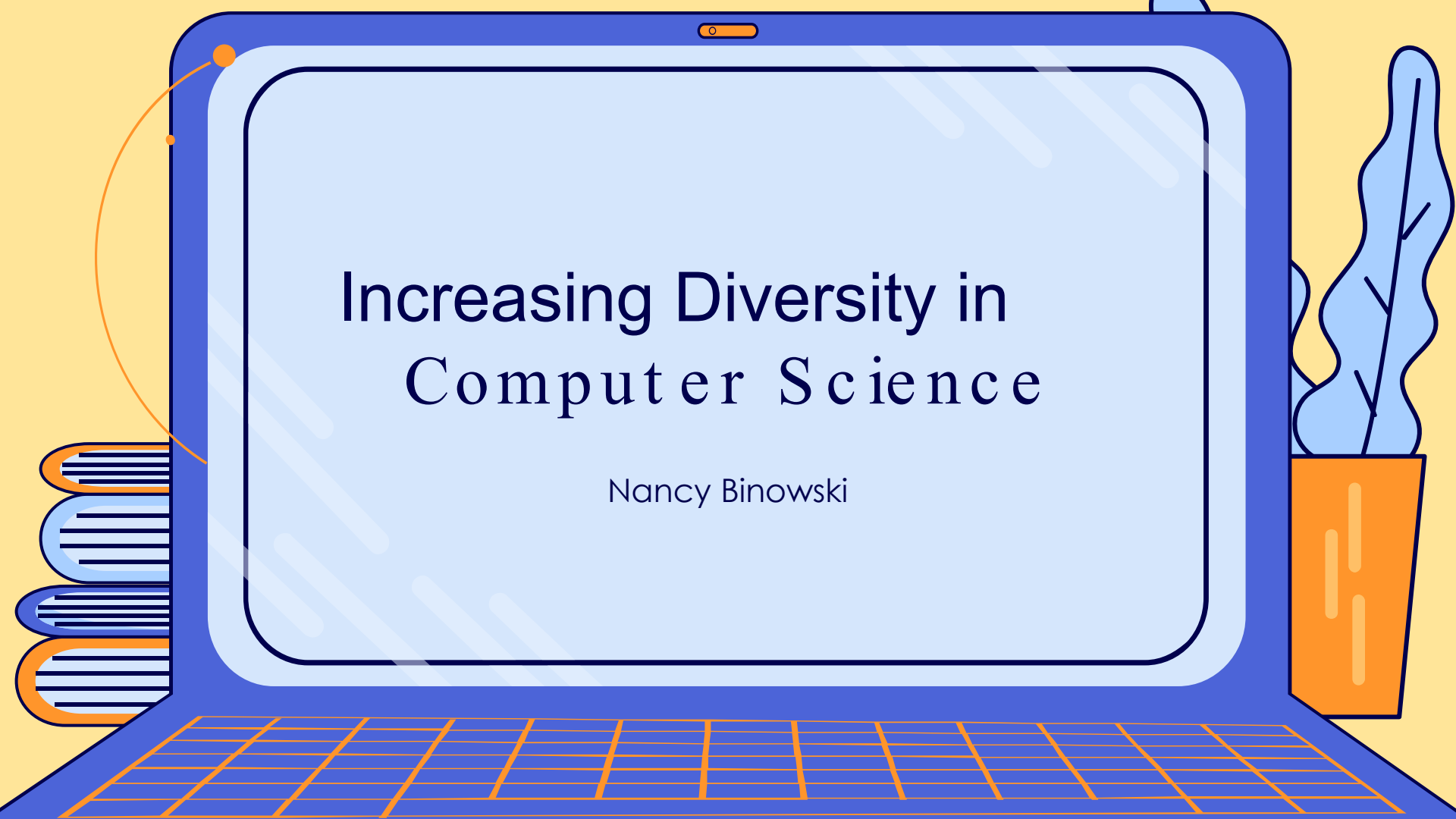

Increasing Diversity in
Computer Science
Nancy Binowski

12%

Percentage of women in computing majors

County College of Morris, NJ

PROBLEM

Not enough women are taking a second computing class

SOLUTION

Identify student clusters to create targeted messaging campaigns that entice these groups to take a second class

Methodology

Source Data

College-level demographics
IT Departmentdemographics
Intro CourseSurveys

Tools

Excel/Google Sheets
Tableau

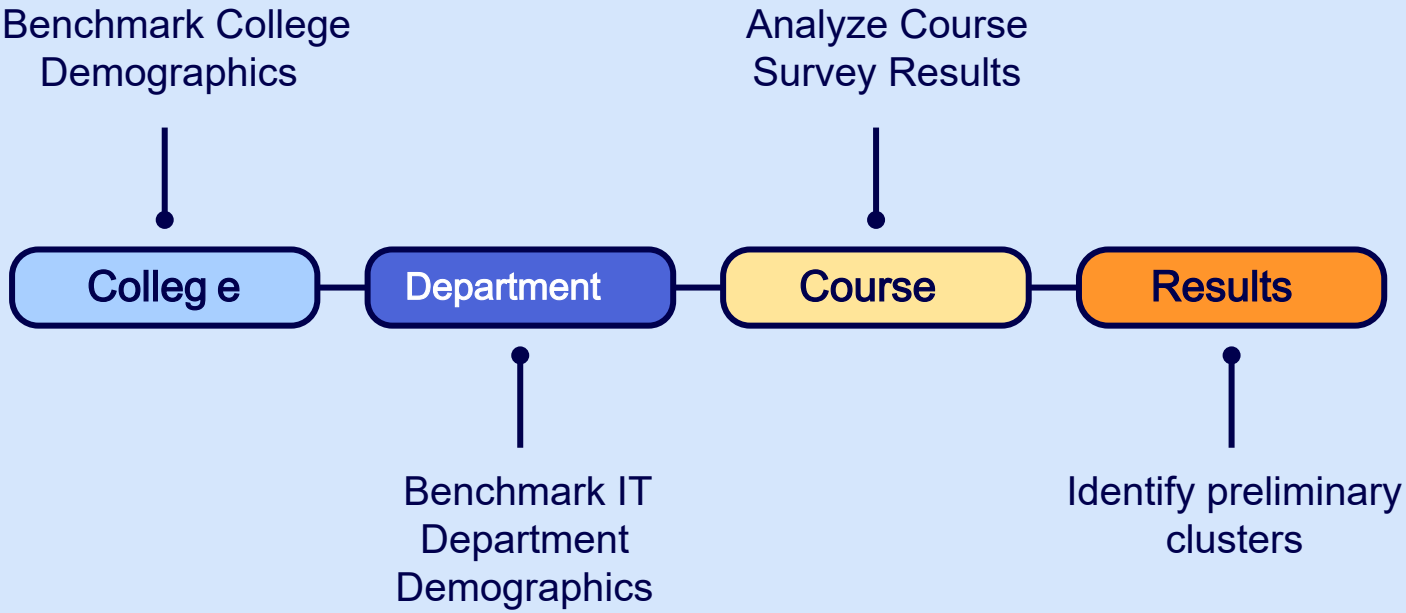
Data Science Solution

Preliminary EDA
Clustering Model

Metrics

Number of clusters identified
Demographicsin capstone classes

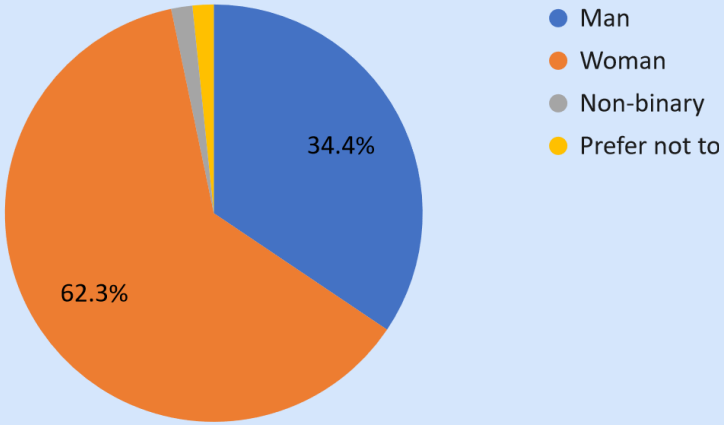
PROCESS


Benchmark College Demographics
Analyze Course Survey Results
Colleg e
Department
Course
Results
Benchmark IT Department Demographics
Identify preliminary clusters

There is a dramatic difference in gender makeup in 2 categories of computing classes.

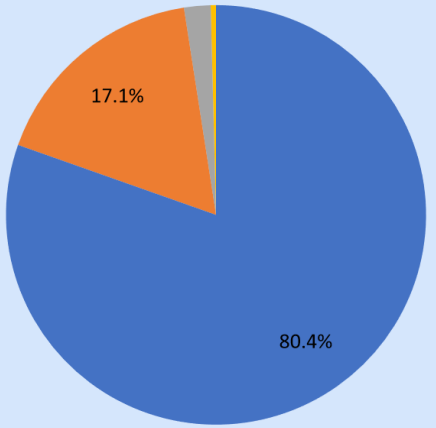
Majority of Computing Literacy students are women

2021 Computer Literacy Course Survey



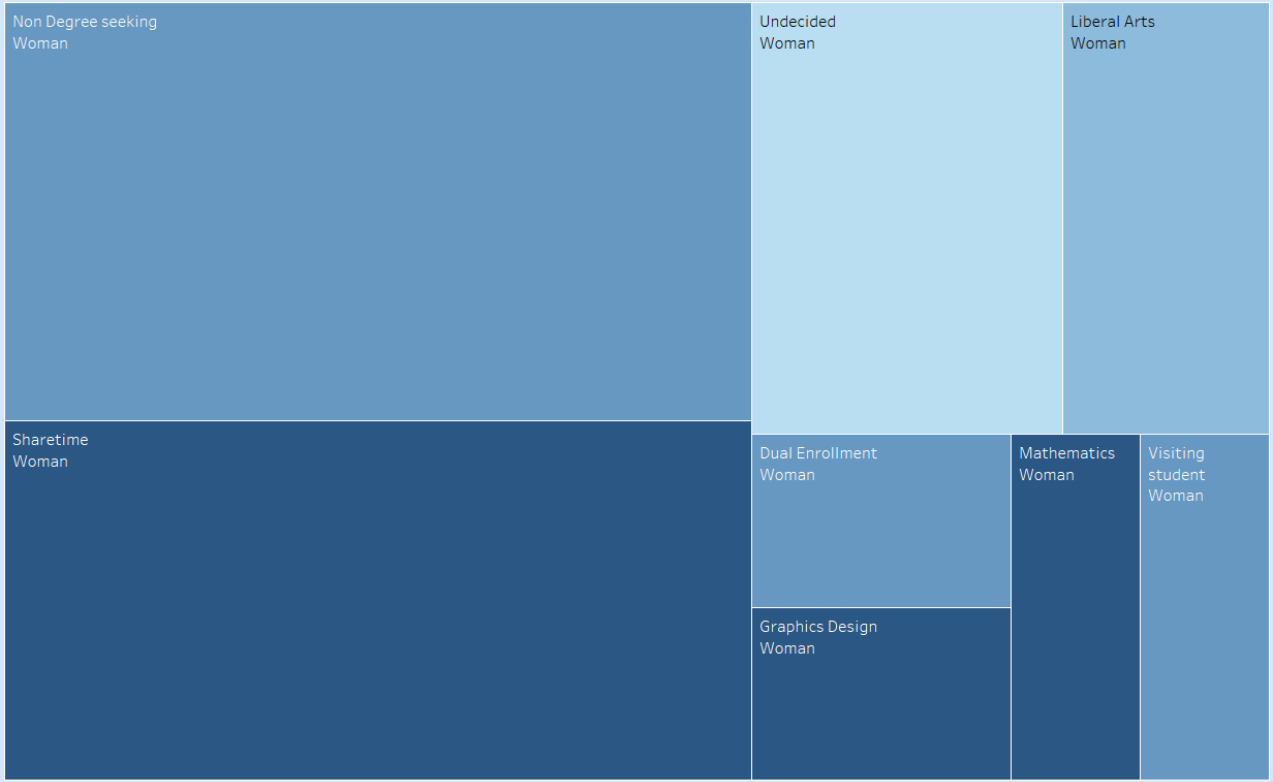
Majority of students in entry-level computing are men

2021 Entry Level Computing Course Survey



Non-Computing Majors Interested in Another Computing Course (Women)

Entry-Level Computing Course



Major and Gender. Color shows median of Computing Course Interest. Size shows count of Major. The marks are labeled by Major and Gender. The data is filtered on Race/Ethnicity, which keeps 7 of 7 members. The view is filtered on Gender, Major and median of Computing Course Interest. The Gender filter keeps Woman. The Major filter keeps 13 of 20 members. The median of Computing Course Interest filter ranges from 3.000 to 5.000.

Computer Literacy Students Interested in Another Computing Course (Women)

Major Cleaned and Gender. Color shows median of Computing Course Interest. Size shows count of Major. The marks are labeled by Major Cleaned and Gender. The data is filtered on Race/Ethnicity, which keeps 7 of 7 members. The view is filtered on Gender, Major Cleaned and median of Computing Course Interest. The Gender filter keeps Woman. The Major Cleaned filter keeps 26 of 26 members. The median of Computing Course Interest filter ranges from 3.000 to 5.000.

Conclusions

Largest clusters of women most interested in computing are:

- Non-Degree seeking
- Sharetime (High School students)
- Undecided
- Nursing and Radiography
- Liberal Arts

Possible Target Messaging:

- Sharing information about other computing classes
- Sharing career opportunities
- Focus on life science computing applications

Future Work

- Incorporate and collect more survey data
- Overlay which areas of technology the clusters are interested in
- Complete Clustering Model
- Develop Targeting Message Campaigns

THANKS!

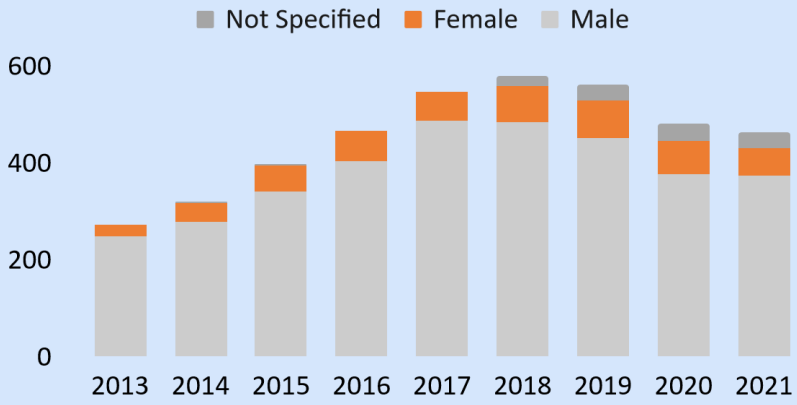
CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, infographics & images by **Freepik**

Appendix

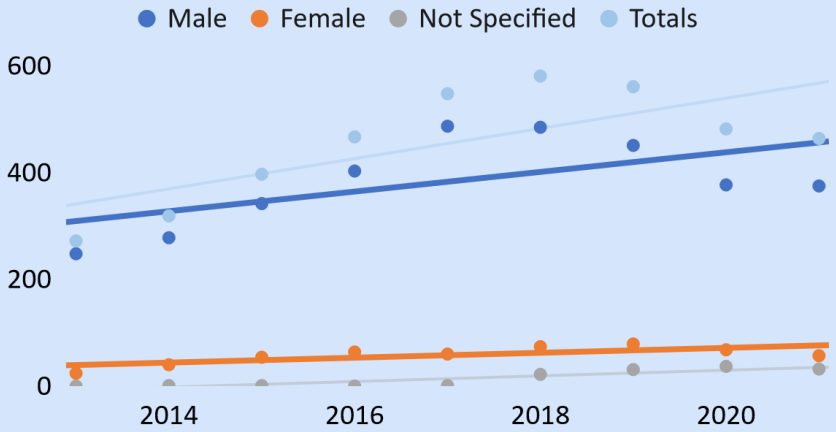
Supporting Data

Despite targeted efforts, the number of women computing students has not changed much.

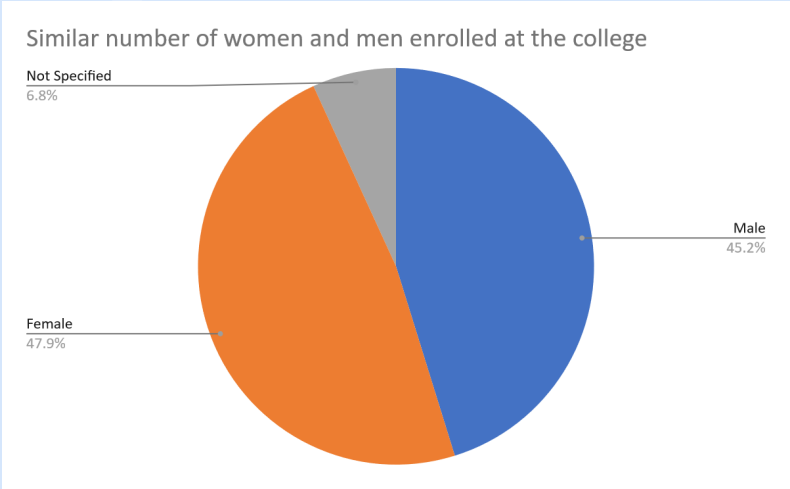
Women computing major numbers have not changed much despite targeted efforts.

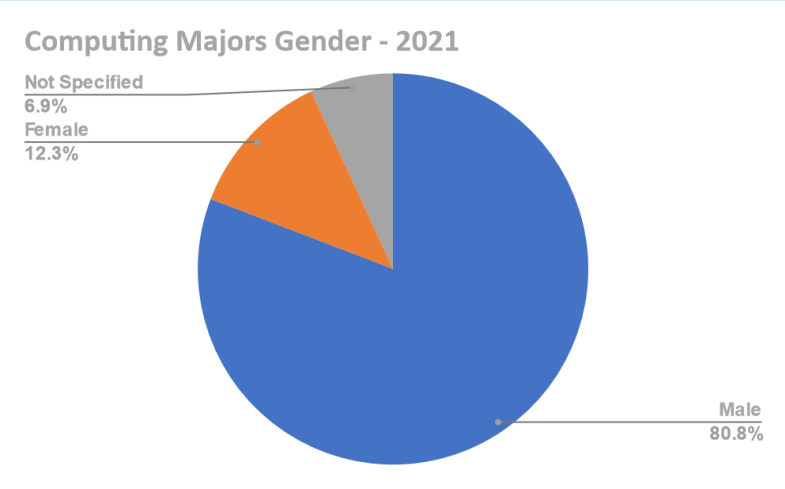


Overall enrollment increase due to men.

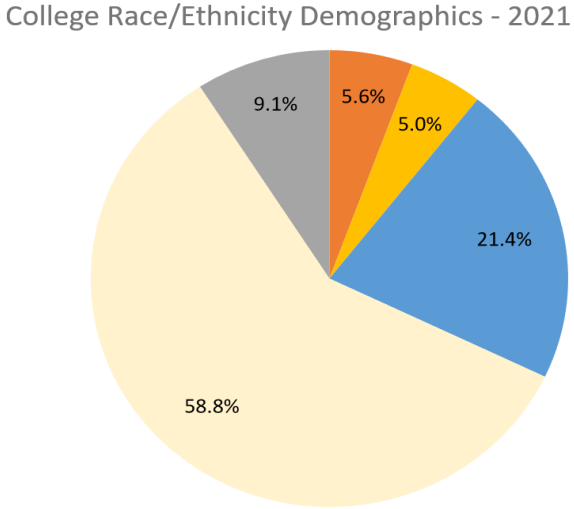


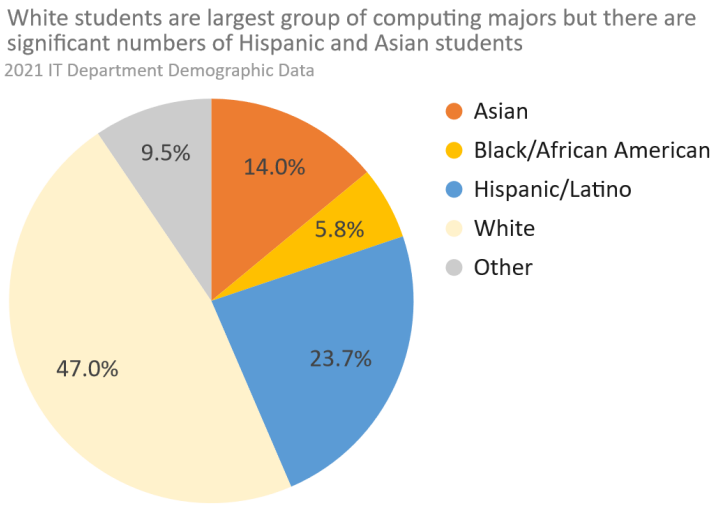
There is a dramatic difference between general college and computing majors gender data.





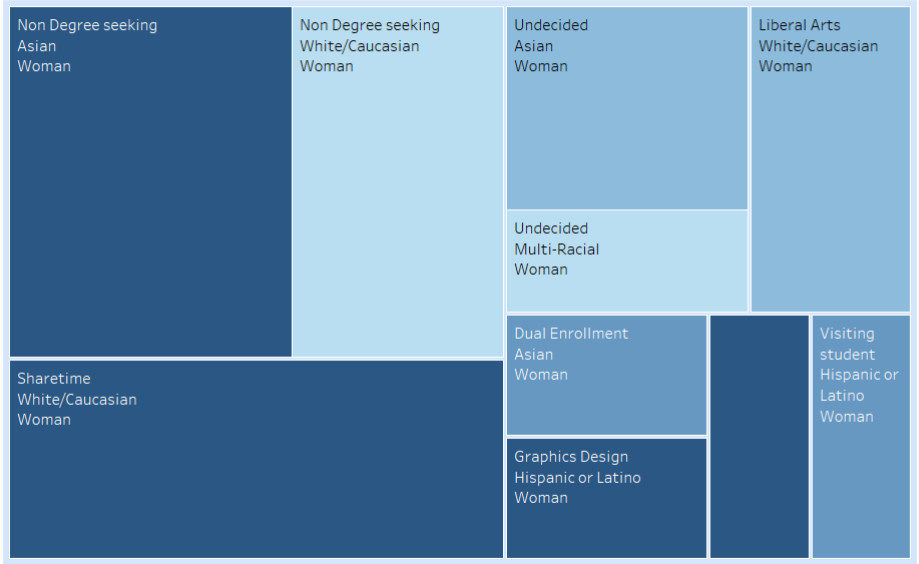
College and department data have similar race/ethnicity characteristics with the exception of Asian students.





Non-Computing Majors Interested in Another Computing Course (Women)

Entry-Level Computing Course

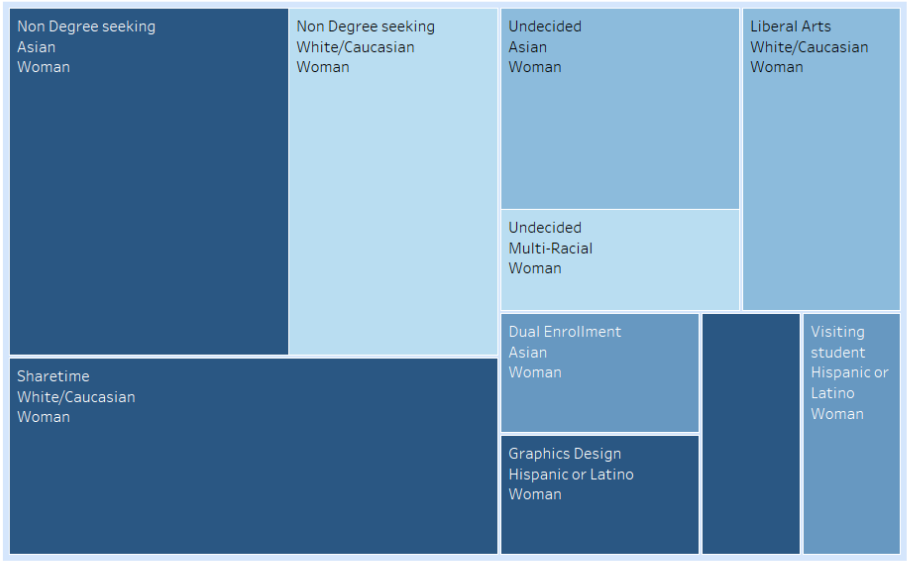


Median Computing Course Interest

3.000 5.000

Non-Computing Majors Interested in Another Computing Course (Women)

Entry-Level Computing Course



Median Computing Course Interest

3.000 5.000