

GreenTerp: Team 34

Jenna Han, Ivan Thomas, Christopher Jones



Table of contents

01

Dataset

02

Methodology

03

Question

04

Graphics

05

Solutions

06

Conclusion



01

Dataset

Dataset

- Office of Sustainability & Department of Resident life
 - Promote environmentally responsible choices
- Two step pledging process:
 - **Registration** and **Certification**
 - Self-reported through Google Forms
- AY2018-2019 to AY2022-2023
- Awareness, commuting, dining, water, waste, products, and energy

AY	Form-Type	Timestamp	UniqueID	Grade	Housing
2022-2023	Registration	08/19/2022 12:11:45 PM	111006945	Other	On Campus (includin
2022-2023	Registration	08/20/2022 3:31:08 PM	111003962	Senior	Off Campus
2022-2023	Registration	08/24/2022 9:05:24 PM	111002137	Sophomore	On Campus (includin
2022-2023	Registration	08/25/2022 9:12:33 AM	111006111	Graduate Student	Off Campus
2022-2023	Registration	08/25/2022 9:31:12 AM	111002154	Other	Off Campus
2022-2023	Registration	08/25/2022 9:32:46 AM	111005263	Senior	Off Campus
2022-2023	Registration	08/25/2022 10:02:34 AM	111006695	Senior	Off Campus
2022-2023	Registration	08/25/2022 10:42:20 AM	111003545	Other	Off Campus
2022-2023	Registration	08/25/2022 11:31:19 AM	111003133	Sophomore	On Campus (includin
2022-2023	Registration	08/25/2022 12:01:45 PM	111004273	Junior	Off Campus
2022-2023	Registration	08/25/2022 12:20:06 PM	111005859	First Year	On Campus (includin
2022-2023	Registration	08/25/2022 1:00:27 PM	111005057	Senior	On Campus (includin
2022-2023	Registration	08/25/2022 1:43:48 PM	111001014	Junior	On Campus (includin
2022-2023	Registration	08/25/2022 8:41:46 PM	111005295	Junior	Off Campus
2022-2023	Registration	08/26/2022 9:09:22 AM	111003388	Other	Off Campus
2022-2023	Registration	08/26/2022 4:22:22 PM	111005746	Sophomore	On Campus (includin

78 columns and 10,995 rows

Challenges

- Inconsistency throughout AC Years
 - Questions changed
- Students registering/certifying multiple times
- Registering \neq Certifying
- Varying question format when registering and certifying
- Not 100% accurate (self-reported)

Choices_Reduce	Choices_Products	Choices_Commute	Choices_Dine
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	0
1	1	1	1
1	1	1	1
1	1	0	0
1	1	1	1

Registration Questions

Certification Questions

dine_waste	dine_plant	dine_volunteer	dine_pantry
1	1	0	
1	1	0	
1	0	0	
1	1	0	
0	1	0	
1	1	0	
0	1	0	
1	0	0	
0	1	0	
1	1	0	
0	1	0	
1	1	1	
1	0	0	
1	0	0	
0	1	0	
1	1	0	

02

Methodology



Data Cleaning

- Split csv file into two dataframes:
 - Individuals who only registered
 - Individuals who registered **and** certified
- Utilize timestamps to remove duplicate individuals
 - Most recent/updated entries remain

```
def keep_most_recent(df):  
    return df.sort_values(by='Timestamp').drop_duplicates(subset='UniqueID', keep='last')
```



Measuring Success



- Assess the **completion rate** of respondents' who registered and certified
 - 7 registration questions
 - 28 certification questions
 - Binary variables
 - Each registration question corresponds to four, more specified certification questions
- **Focus Years:** 2021-2022 and 2022-2023
 - Post COVID-19

Sustainable Choices - I will reduce waste, recycle & compost	Choices_Reduce
--------------------------------------------------------------	----------------

Registration “waste” variable

Waste - I carry and use a reusable bag and water bottle	waste_reuse
Waste - I reduce, recycle, and compost	waste_compost
Waste - I avoid disposable plastics (single-use plastics, plastic shopping bags, etc.)	waste_plastic
Waste - I donate unwanted items for reuse	waste_donate

Four certification “waste” variables

Conversion Rate Calculations

- Assigned a 25% weight to each certification question
 - Resulted in value between 0 and 1
 - Compared the weighted average from certification questions to each registration question
- Calculated for all seven categories

Example:

Registration

Waste: 1

Certification

Reuse: 1
Compost: 0
Plastic: 1
Donate: 1

x 0.25

Weighted

Reuse: 0.25
Compost: 0
Plastic: 0.25
Donate: 0.25

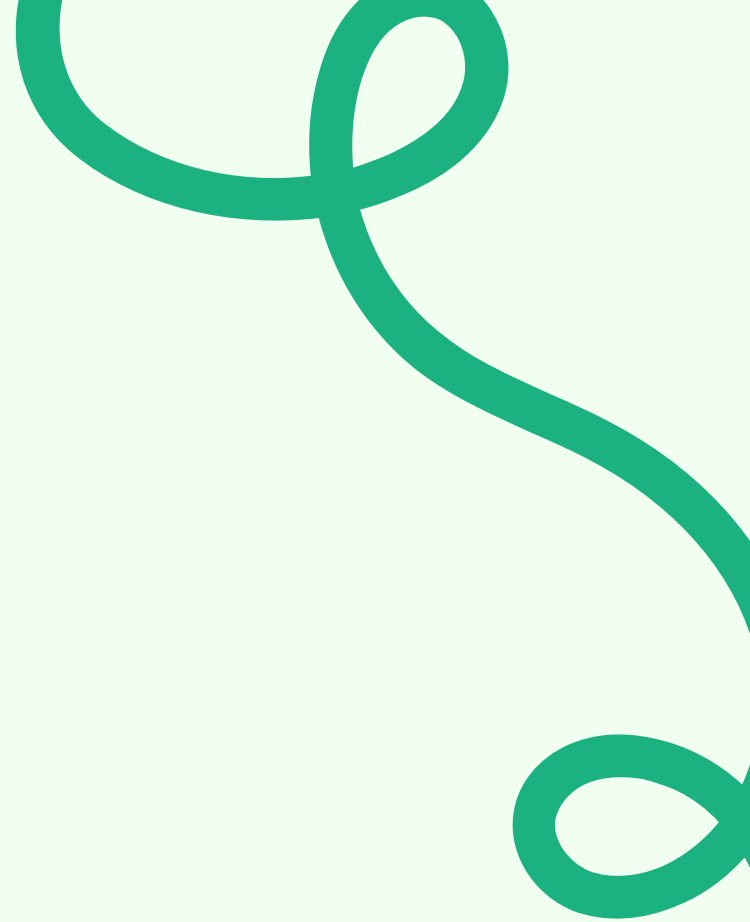
Total: 0.75

Conversion: $0.75/1 = 75\%$



03

Question





What's the point?

- What was GreenTerp's enrollment rate over time?
- How many students successfully registered **and** certified?
- Which demographics of students need more outreach?
 - Grade
 - Housing facility
- Which habits did students struggle to implement? Why?
- What changes can be made to GreenTerp? How?



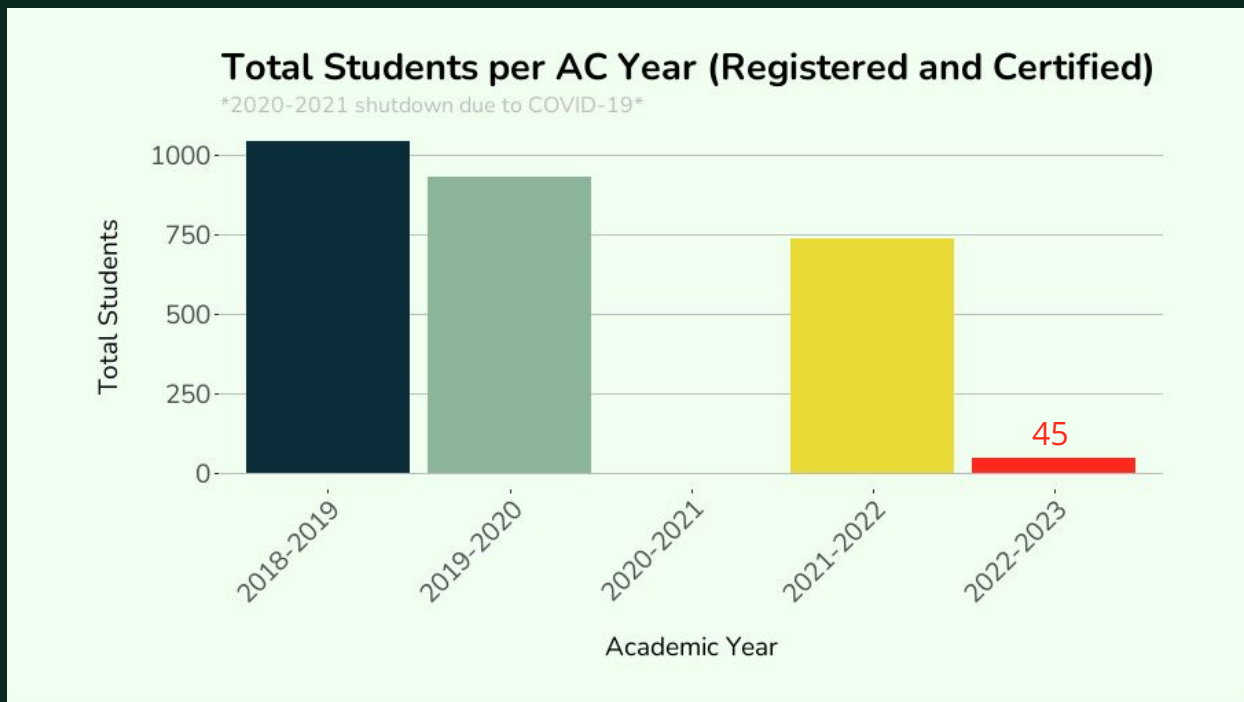


04

Graphics

Chat GPT used to
implement graphs.

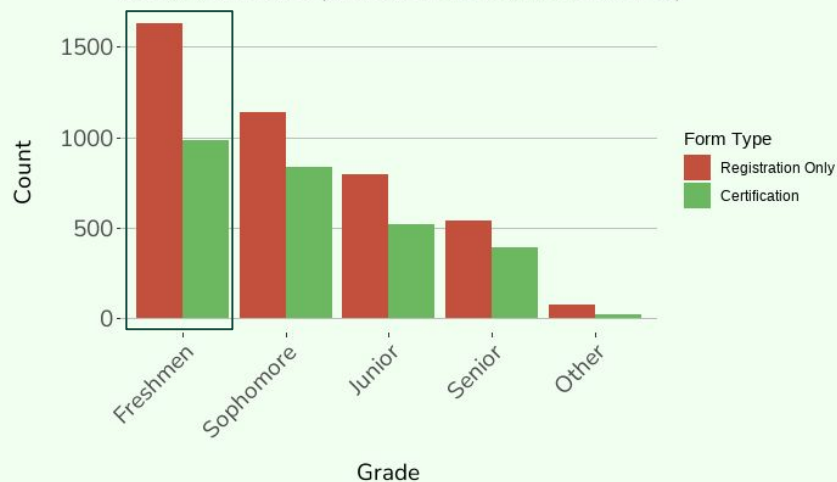
How has GreenTerp outreach done over time?



Which demographic of students need focus?

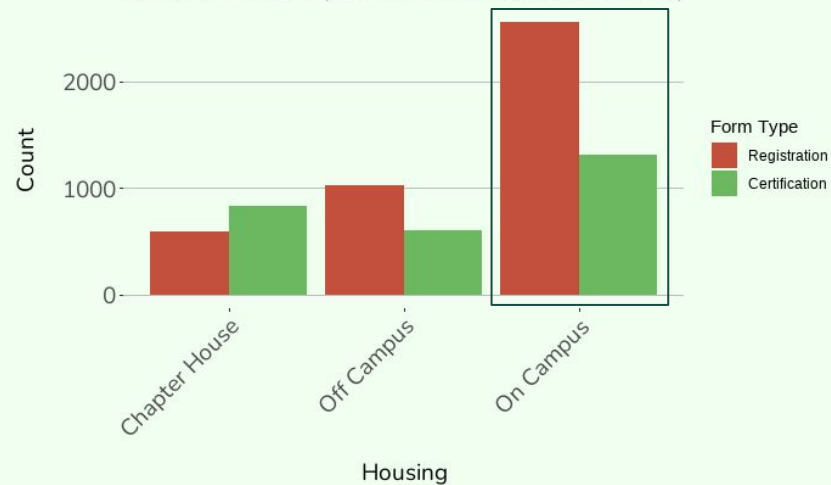
Registration Only and Certification Counts

AC Years 2018-2023 (2020-2021 excluded due to COVID-19)

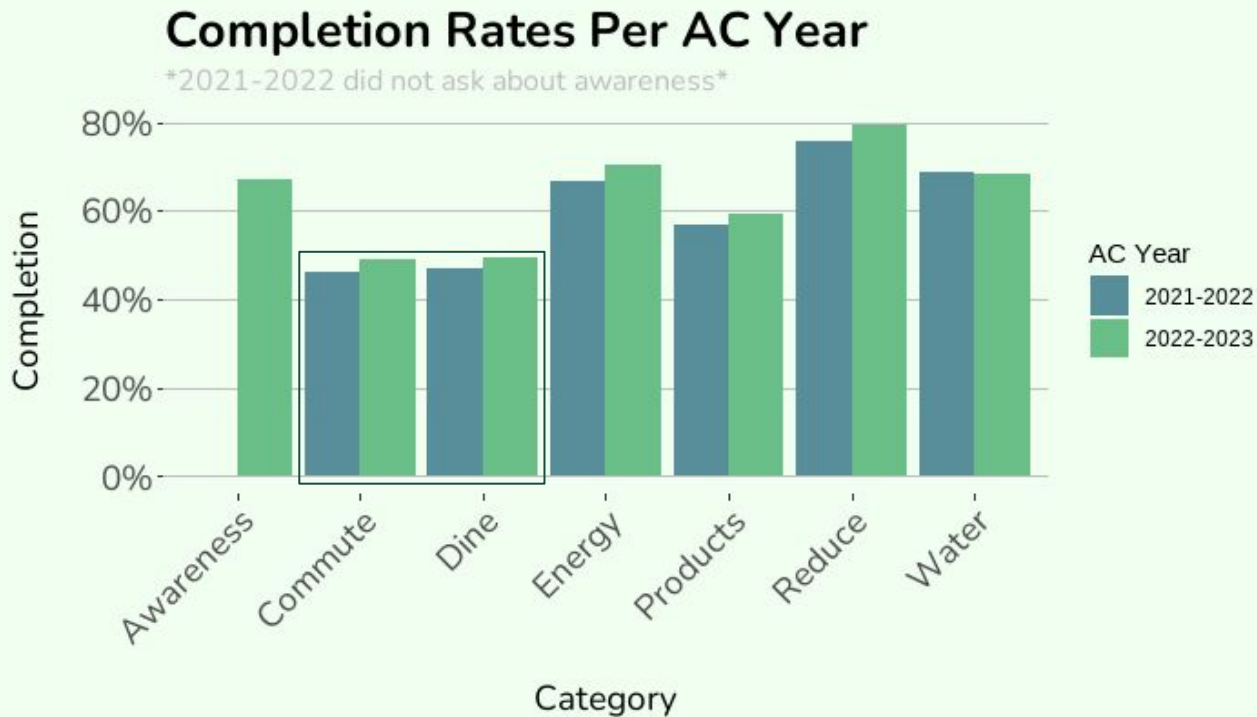


Housing by Form Type

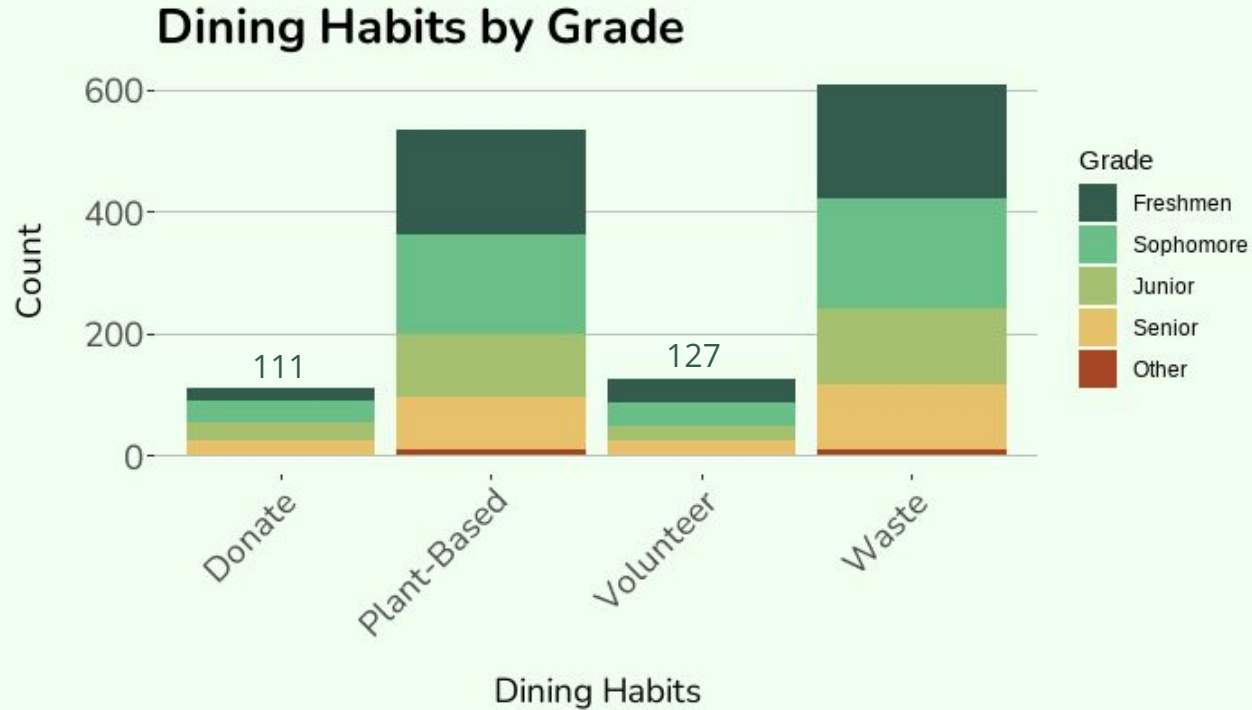
AC Years 2018-2023 (2020-2021 excluded due to COVID-19)



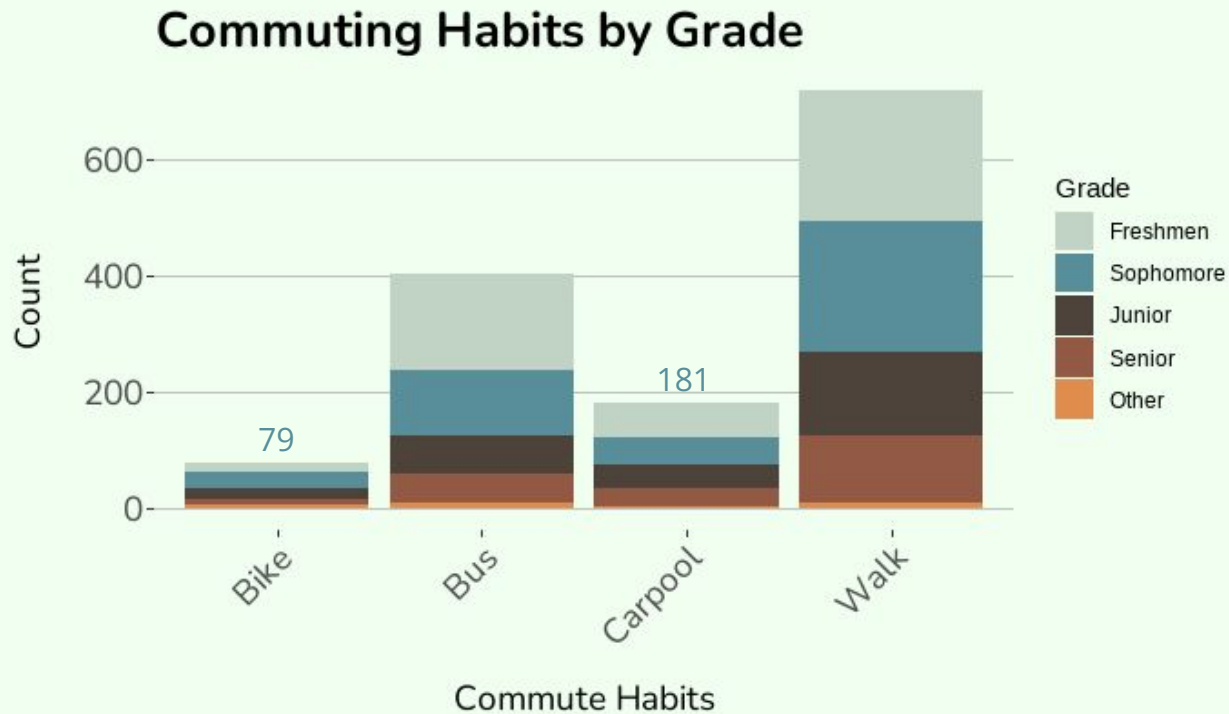
Which habits were challenging to implement?



Which dining habits need more focus?



Which commuting habits need more focus?

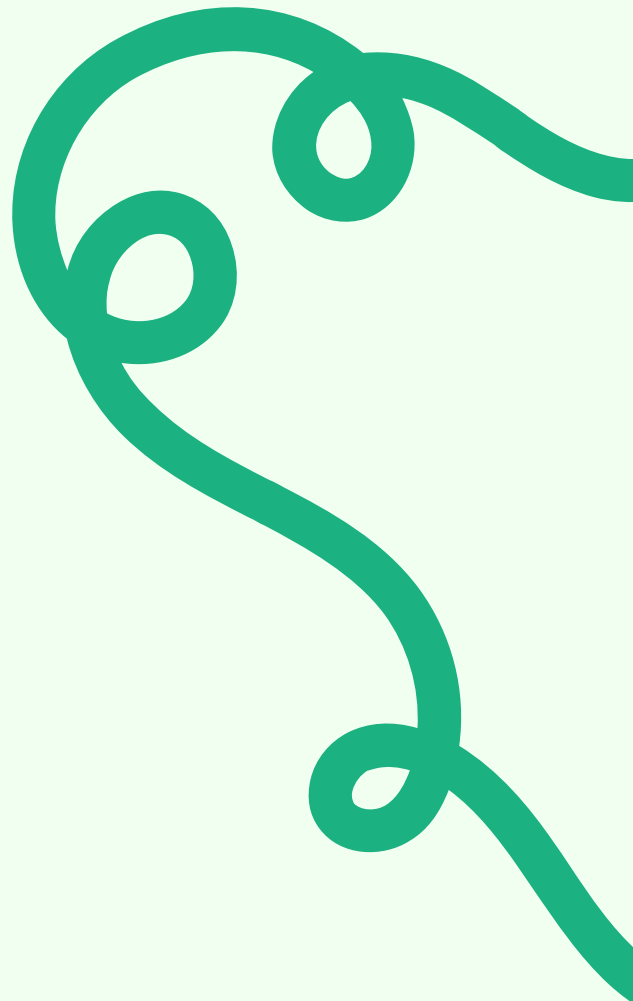


Findings

- **Freshmen** living **on campus** register the most, but certify the least
- Participation decreases as grade increases
- All students struggle to **dine** and **commute** sustainably
 - Donating to Campus Pantry
 - Volunteering with garden/farm
 - Registering with BikeUMD or using bikeshare
 - Carpooling

05

Solutions

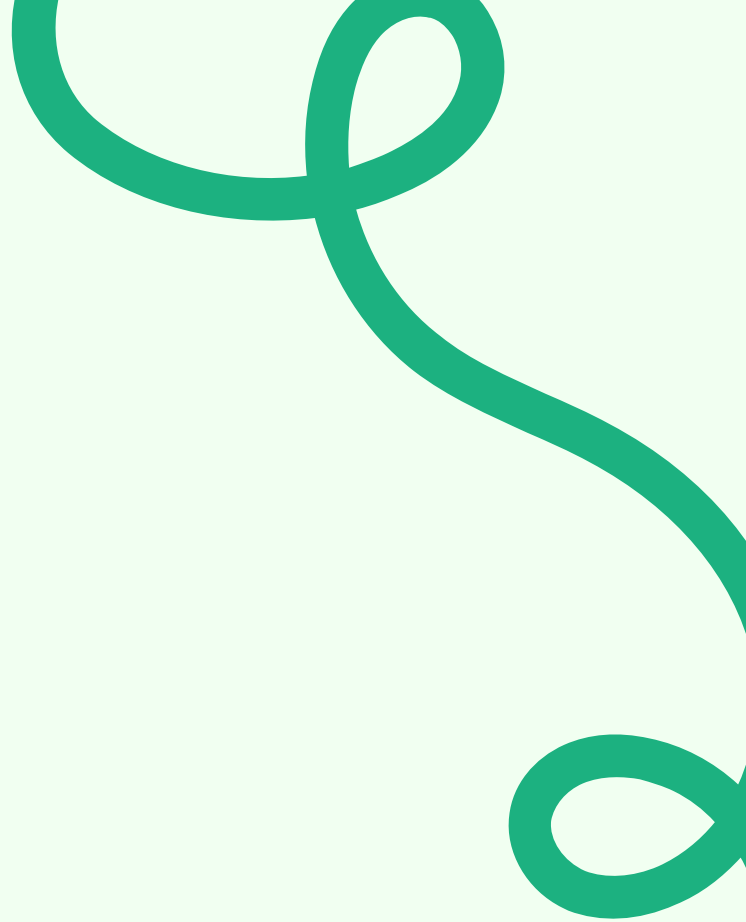


Recommendations

- Retention focus on **freshmen** students living **on campus**
- Outreach to students in higher grades
 - Increase certification incentives
 - Frequent reminders
- **Dining:**
 - Increase frequency of donation events, locations, and availability
 - Campus Pantry only open three days a week for short hours
 - Advertise TerpFarm volunteer opportunities
- **Commuting:**
 - Install communal bikes/e-scooters on campus
 - Carpool app for UMD students

06

Conclusion



Summary

Engage

- Educate freshmen living on campus
- Encourage upperclassmen
- Intra-UMD opportunities

Incentivize

- Better rewards
- Student referrals
- Competitions

Facilitate

- Communal resources
- Longer hours
- More locations



DIVISION OF
STUDENT AFFAIRS
DEPARTMENT OF RESIDENT LIFE

sustainableumd

Questions?

