

L3: UMD OFFICE OF SUSTAINABILITY - GREEN TERP PROGRAM

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MEET OUR TEAM



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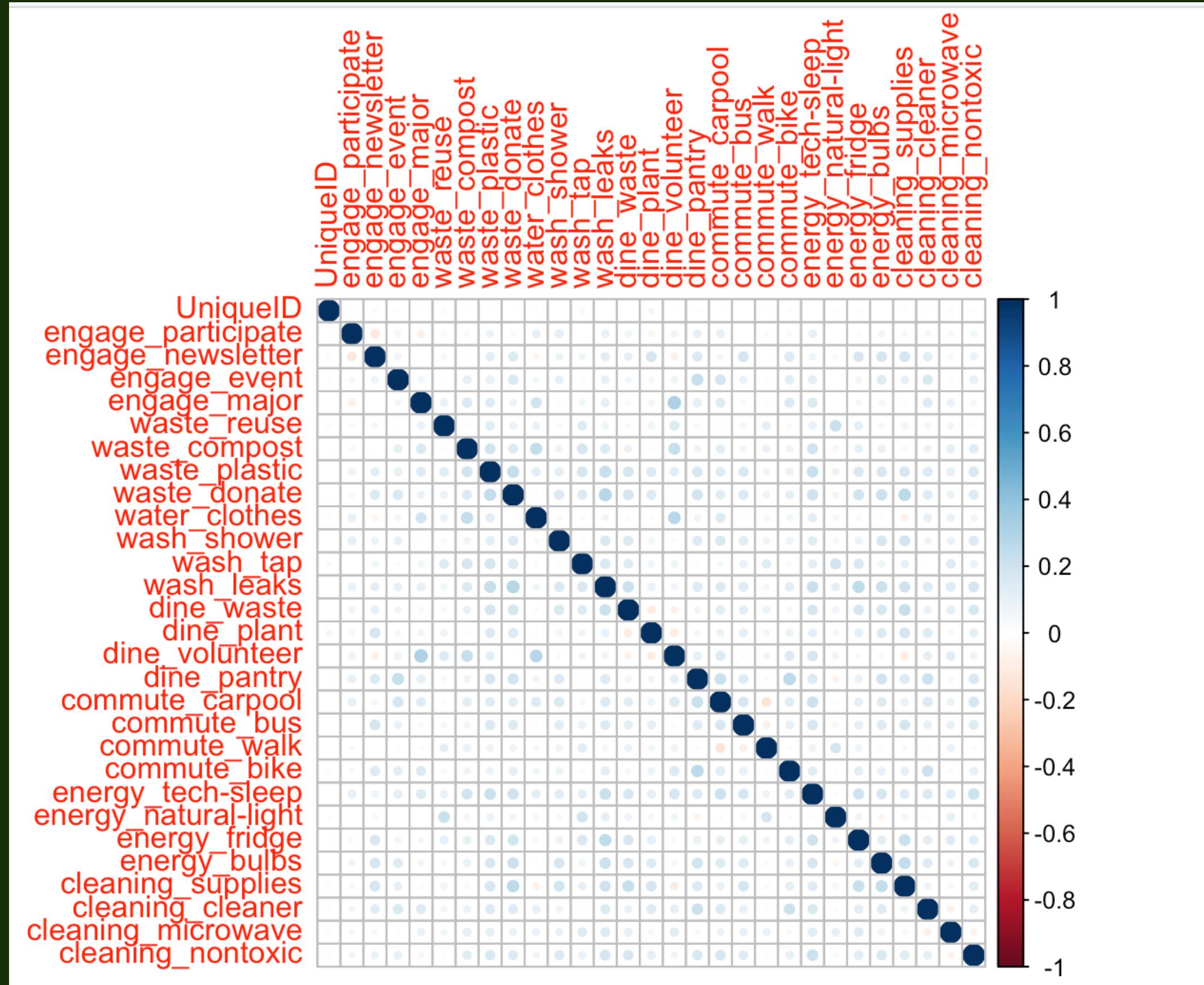


PROGRAM OVERVIEW

The Green Terp Program is a dynamic initiative that is dedicated to cultivating a sense of environmental responsibility among students, with one approach being through encouraging pledges of commitment. To optimize the effectiveness of these initiatives, our team analyzed data in order to identify the most impactful variables enhancing engagement and productivity.



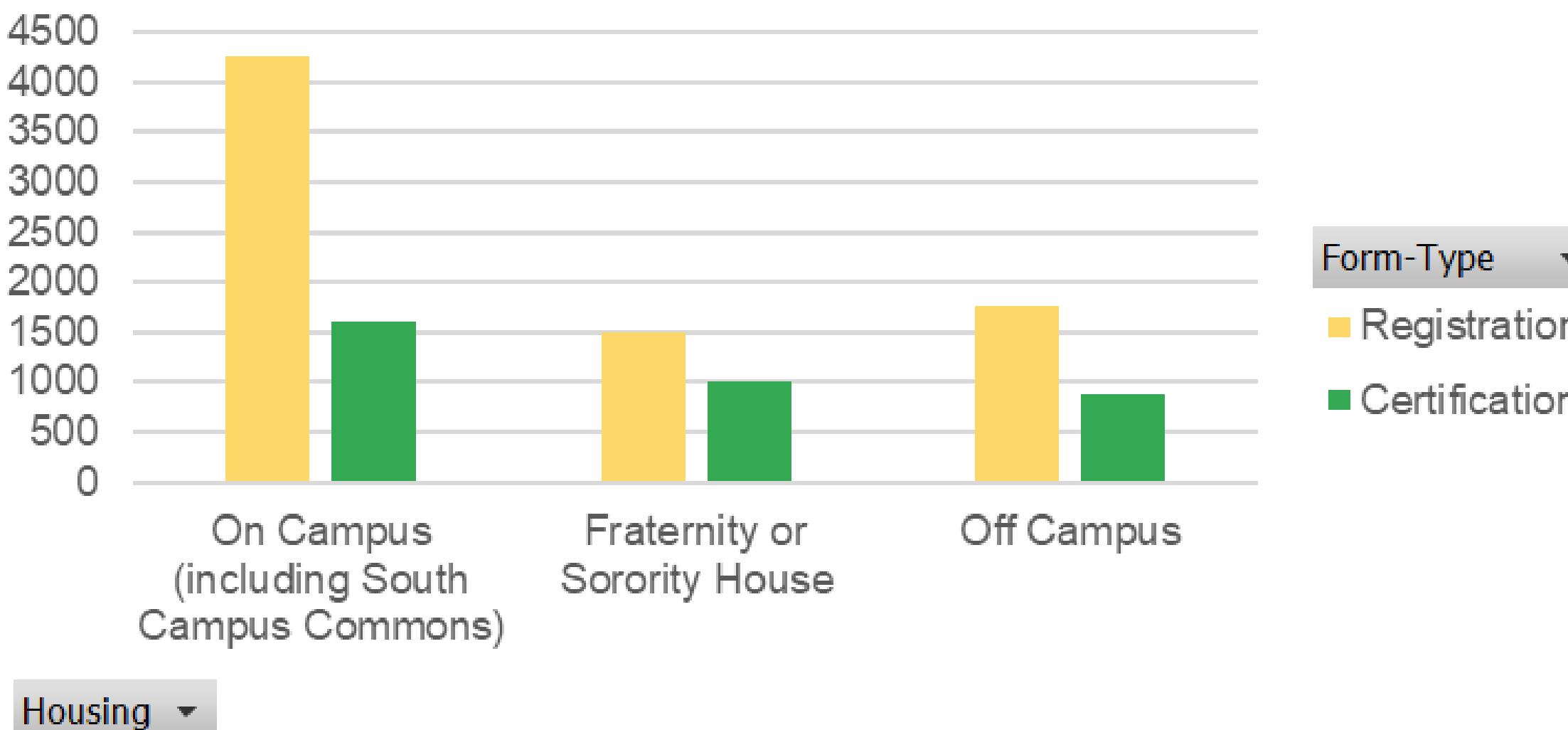
CORRELATION MATRIX



CONVERSION PATTERNS VS. HOUSING

Count of Form-Type

Registration to Certification Among Housing



Speaker: Aidan



LOGISTIC REGRESSION: FACTOR ANALYSIS

**Factor analysis was conducted
as a starting point**

Dummy variable was created to
compare against as a baseline

**Insights such as:
Those with Green Chapter
certification were 58% more
likely to convert than those who
did not.**

Call:

```
glm(formula = `form_type-binary` ~ AY + `Grade-Num` +  
  Green-Chapter` +  
  Habits, family = binomial, data = greenterp)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-1.1573	-0.9024	-0.7471	1.3117	2.1301

Coefficients:

Estimate	
(Intercept)	-1.46205
AY2019-2020	-0.19146
AY2021-2022	-0.02303
AY2022-2023	-0.62805
`Grade-Num`^2	-0.06943
`Grade-Num`^3	-0.18707
`Grade-Num`^4	-0.07635
`Grade-Num`^5	-0.04620



TERP HABITS: FROM REGISTRATION TO CERTIFICATION

Baseline: “I don't really take environmental action.”

Those who responded “I take environmental or sustainable actions when it's convenient for me” were 39% more likely to stick with the challenge

“I orient my life around environmental and sustainable choices” was 77% more likely to convert

“I go out of my way, and may spend time or money to be sustainable” was 82% more likely to certify.

LOGISTIC REGRESSION: FRESHMEN ARE A KEY DEMOGRAPHIC

Freshmen convert:

7%

more than Sophomores

18%

more than Juniors

7.5%

more than Seniors

4%

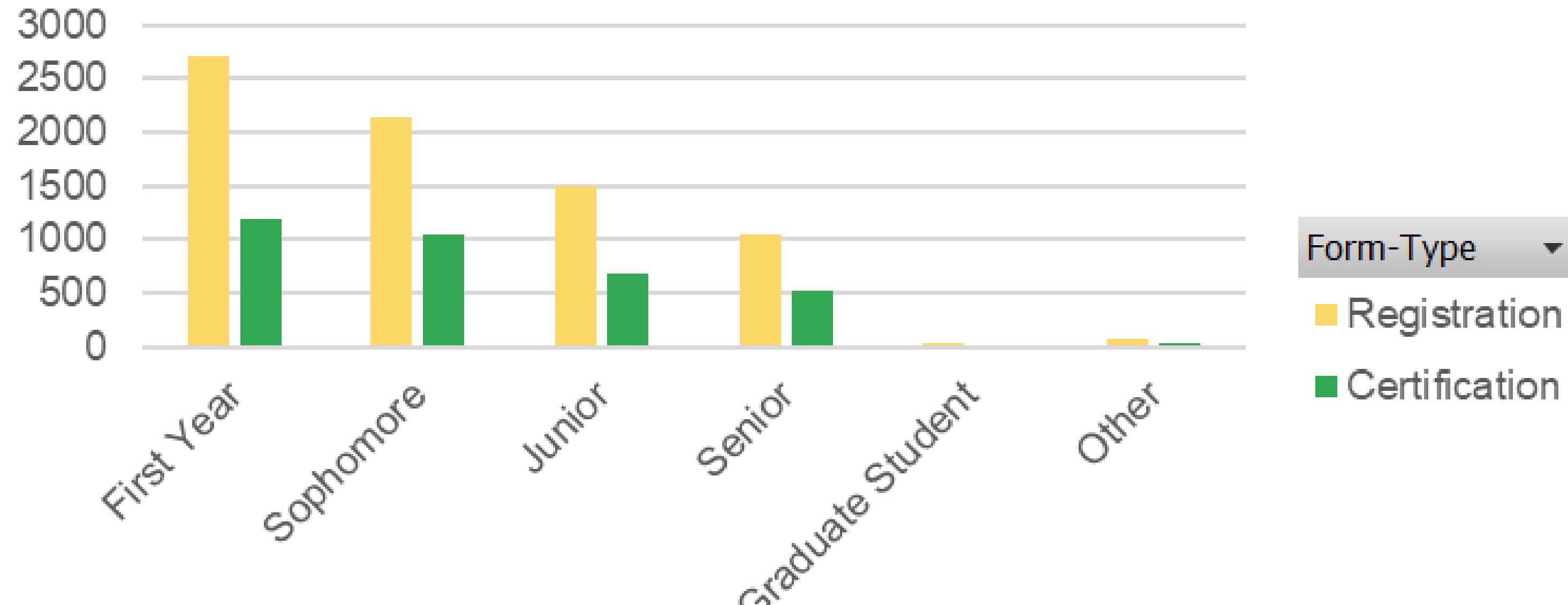
more than Grad Students





Count of Form-Type

Registration to Certification Among Grade



Grade ▾



CONVERSION RATE FROM REGISTRATION TO CERTIFICATION

**The conversion rate was
46.5%**

**46.5% of students successfully completed
the certification process after initially
registering for it**



CONSIDERATIONS FROM DATA COLLECTION

2 methods for categorizing sustainability pledges and corresponding results

- From 2018-2021, 7 broad categories were used for both registration and certification
- After 2021, 7 broad Categories (registration) vs 7 Categories with 4 subsets (certification)
 - Comparing broad sustainable categories to more specific counterparts presents various issues





EXAMPLE 7 SIMPLE CATEGORIES METHOD: “DID YOU CONSERVE ENERGY?”

In 2020's registration, 2115 out of 2236 pledged to conserve energy (95%) in 2020

- 910 out of 967 certified this behavior (94%)

In 2021, the 7 broad categories (for certification only) were modified by including 4 subcategories

- Similarly, 95% of students pledged to conserve energy in 2021 (1960 of 2075 responses)
- 100% of respondents reported participation in this category (1,136 out of 1,136)





EXAMPLE: 7 EXPANDED CATEGORIES

Rather than “Did you conserve energy?”, the question becomes:

“Did you set computers or printers to hyberenate or sleep?...

OR...

“Did you turn off lights and/or use natural light?”

OR...

“Do you not have a minifridge OR use a fridge with EnergyStar rating?”

OR...

“Do you choose LED lightbulbs?”



AN ANSWER “YES” TO ANY OF THESE RETURNS A RESULT OF REDUCING ENERGY USAGE.

Questions are broad and all encompassing

- Of 8,638 responses with subcategories, 8,638 participated In each major category (100%)

Students are *interpreting* each category differently during certification, and likely qualifying for new behaviors that they actually didn't modify.



Attempts to standardize these different data methods would likely lead to models that are *not* accurate predictors of the program's success.

Speaker: James



TEAM IC24056'S

RECOMMENDATIONS FOR ENHANCING GREEN TERP PROGRAM

Speaker: Aidan



Recommendations

OFFICE OF SUSTAINABILITY SHOULD CREATE A DATA GOVERNANCE FRAMEWORK



Engagement - I pursued eco-studies or careers (2022) and/or I grew and cared for a houseplant (2018)

engage_major

Cleaning - I use reusable cleaning supplies (2022) and/or avoid using anti-bacterial or antimicrobial products (2018)

cleaning_supplies

Partner with Consultants/Data Science Students

Creating surveys that doesn't skew is hard: large amounts of data is not advisable for actionable models

Potential resources are the College of Information Systems and local consulting firms

Consistency Is Key

Upon careful construction of data framework, Green Terp should **stay consistent** year to year; **categories should be standardized** year over year

Speaker: Aidan



SURVEY RESPONSES SHOULD BE NOT GROUPED

Partner with Consultants/Data Science Students

Changing definitions of variables year over year **complicates** accurate model creation.

Green Terp should collaborate with surveyors to develop a **standardized, neutral** survey aimed at measuring specific aspects.

Consideration of **weighting practices** based on their impact is essential for accurate analysis.

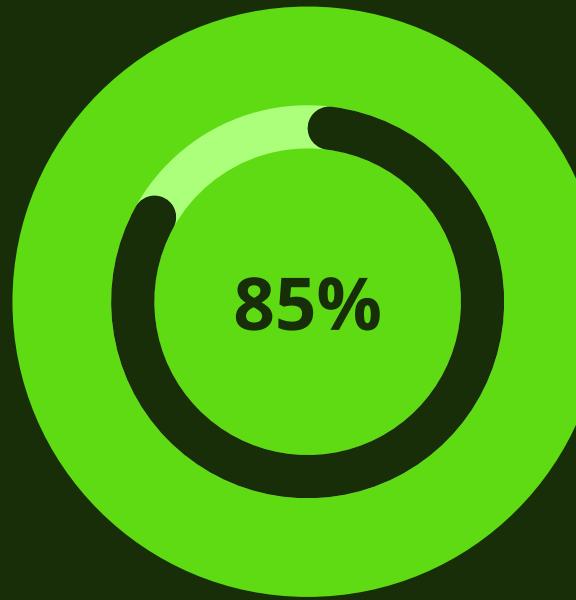


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POTENTIAL NEW METRICS

Green Terp can utilize UMD's network to monitor other indicators of success

Are recycling bins filling up faster after registration?

Monitoring attendance at sustainability events

Are parking lots more vacant after registration



THANK YOU

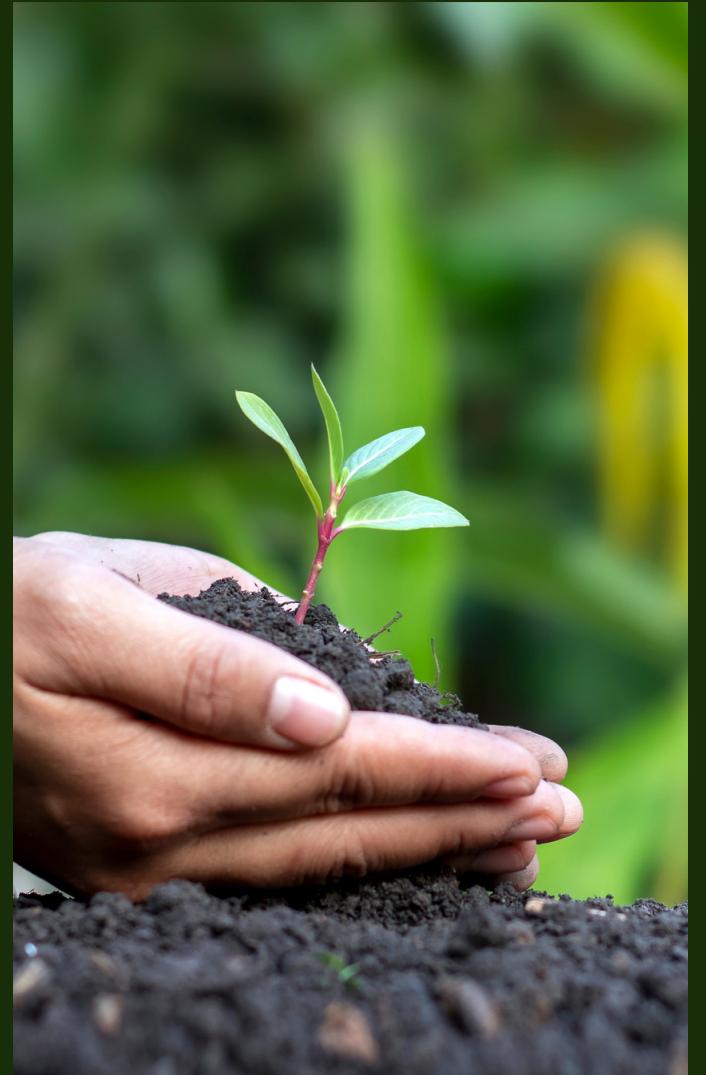


CASE STUDY: STUDENT #111001430

Upon registration, this student did NOT pledge to conserve water or dine sustainably.

After certification, this student DID report dining sustainably and conserving water

They washed in cold water, turned off taps while brushing, reported leaky faucets, ate at least one plant based meal per week, and ate less packaged food OR got take out less often



Did the student adopt new behavior, or simply realize they were already acting in a way that the survey considers "conserving water"?