#### CSCI 4997 Internship in Computer Science - Spring 2025

Student: Emely Lopez Instructor: Dr. Tao Wu Site Supervisor: Rachel Kornhauser Number of Credits: 3 Number of Internship Hours: 120 Grading Option: Pass/Fail

#### **Final Internship Report**

# Introduction

During the Spring 2025 semester, I had the opportunity to complete an internship with the Office of Sustainability at SUNY Oneonta. As an Engagement Intern, my main job was to help the office with all the engagement activities hosted by our office. The main responsibility involved tracking student engagement, doing outreach, and updating students on their progress. From small to large-scale settings, I was able to support the Office of Sustainability.

In this documentation, I will focus only on the activity for which I was able to collect data and illustrate in a dashboard using Power BI, which is now public on our SharePoint website.

#### Outcomes

#### 1. Thrift Store Dashboard

After officially having a permanent location for our thrift store on campus, daily sales, visitor count, and the number of items sold began being tracked. We decided to illustrate how much progress and support we were receiving from the community. Even though these numbers were originally for internal use only, creating this interactive

dashboard allows the public to see this data and understand how it has helped fund the Sustainability Scholarship recipients.



# 2. Waste Management Dashboard

SUNY Oneonta actively tracks its waste production and is committed to reducing and diverting waste from landfills. In addition to single-stream recycling in all buildings, we collect and divert scrap metal from building projects, clean cardboard from shipments, food waste through our Grind2Energy system, and use cooking oil from the dining halls. This dashboard presents a stacked data visualization that illustrates the total amount of garbage sent to the landfill versus the amount of waste that has been diverted. Diversion categories include recycling, cardboard, move-out collections, single-stream recycling, scrap metal, food waste, and used cooking oil.

The dashboard also allows us to compare annual garbage and recycling data from 2019 through 2025, enabling a clear view of our progress and improvement in waste reduction and diversion efforts over time.



#### Annual Garbage and Recycling Data

#### 3. Green Room Certification Program

The Green Room Certification encourages SUNY Oneonta residents to take sustainable actions in categories such as waste, water, energy, participation, and personal habits. The dashboard below illustrates the participation rate of each residence hall during the 2023 and 2024 competitions. Double-style residence halls competed against each other, as did suite-style halls, with winners determined by the highest percentage of participation. This was the second year of the program, and the dashboard allows us to compare participation across buildings, highlighting each hall's level of engagement and

commitment.

#### **Green Room Certification Report**



Participation by Doubles Resident Halls

## 4. STARS Dashboard Progress

The Sustainability Tracking, Assessment & Rating System (STARS) is a comprehensive framework used to measure SUNY Oneonta's sustainability performance across academics, operations, and engagement. The university currently holds a Silver rating, valid through April 3, 2026, based on its most recent submission in February 2023.

The dashboard highlights achievements in categories such as Research, Diversity & Affordability, and Grounds where SUNY Oneonta scored particularly high while also identifying areas for improvement like Transportation, Buildings, and Investment.

The creation of the dashboard, which includes a pie chart visualization, allows us to clearly see how each sustainability category contributes to the overall score. This makes it easier to communicate progress and focus future efforts where they are most needed.



#### The Sustainability Tracking, Assessment & Rating System (STARS®) State University of New York at Oneonta

# 5. Green Dragon Recognition Program (Internal Use Only)

The Green Dragon Recognition Program is a new initiative launched by the Office of Sustainability to track and celebrate student engagement in sustainability through a three-tier system: Roots, Shoots, and Saplings. This dashboard, intended for internal use only, was developed during the program's first year to help us better understand student participation and guide future improvements.

We focused on highlighting key insights from our dataset, such as how many students came close to completing the recognition and how we can better support them in the next cycle. The dashboard includes visualizations that allow us to clearly see patterns in student engagement.

Our goal is to make this dashboard public next year in order to compare first-year and second-year participation and demonstrate how the program is growing over time.

Through this recognition system, we celebrate students who show strong commitment to sustainability—one of SUNY Oneonta's core values.



#### **Green Dragon Recognition - Spring 2025**

# **Skills and Learning Outcomes**

1. Knowledge of Sustainability Programs

I learned how different programs help make the campus more eco-friendly and involve students in green actions.

2. Data Management Skills

I learned how to collect, organize, and keep track of data from events, programs, and dashboards.

3. Communication and Reporting

I learned how to share updates and explain data clearly to others through emails, meetings, and presentations.

4. Data Visualization & Analysis

I learned how to turn data into charts and dashboards to show patterns and results using Power BI.

5. Project Management & Professional Development

I learned how to plan tasks, meet deadlines, and work in a professional setting with a team.

6. Understanding of Campus Sustainability Efforts

I learned about the steps SUNY Oneonta takes to reduce waste, save energy, and promote sustainability.

# **Ideas for Future Computer Science Students**

If you're a computer science student interested in sustainability and data work, here are some ways you can build on this internship:

• Learn Tableau or Advanced Power BI Features (like DAX)

Use tools like Tableau or DAX formulas in Power BI to make more dynamic and interactive dashboards.

• Create Automation Tools

Write simple scripts (in Python or JavaScript) to help collect or clean data automatically.

• Build a Web-Based Dashboard

Use HTML, CSS, and JavaScript to make public-facing dashboards that update in real time.

• Use SQL for Data Handling

Practice using SQL to store and manage large sets of sustainability data more efficiently.

• Explore Machine Learning for Prediction

Try beginner machine learning to predict trends, like waste or energy use, over time.

## Reflection

This internship has been an important step in my academic and professional development. It allowed me to apply my computer science background to real-world challenges, particularly in data visualization and information communication. I am especially proud of learning Power BI, as it is a powerful tool that I plan to use in future professional roles. The experience also strengthened my belief in the importance of sustainability work and the value of cross-disciplinary collaboration.

## Conclusion

I am grateful for the opportunity to intern with the Office of Sustainability at SUNY Oneonta. The experience not only enhanced my technical and communication skills but also deepened my understanding of how data can drive positive environmental change. I look forward to continuing to support sustainability efforts in both academic and professional settings.

Link to our SharePoint: https://oneonta365.sharepoint.com/sites/Sustainability