



## **Recycling Student Textiles**

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# **Recycling Textile Items at UCF**

Student Sustainability Advisory Committee Project Proposal

by

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## **Abstract**

It's important that as a large college, the University of Central Florida makes an effort to reduce the amount of trash it throws into landfills. According to the United States Environmental Protection Agency, in 2017 8% of landfills consisted of textiles. These items can take hundreds of years to decompose and can release methane and carbon dioxide if they are made of natural fibers. Synthetic textiles will not decompose and slowly release toxic substances into the water and soil surrounding the landfill. Most people assume that once a clothing item becomes unwearable it must be thrown out. This is not the case. With the help of the American Textile Recycling Service, we plan to make it easy and accessible for all of the UCF population to recycle textiles by putting a collection bin on campus. University of Central Florida students, faculty, and staff can lessen their carbon footprint by recycling unusable textile goods that would normally be thrown out.

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## **Background**

### Problem Statement:

Textile recycling in the United States has been lacking for many years. The growing textile industry has contributed to the crisis of climate change by marketing their products as out of style, commonly known as fast fashion. To combat carbon emissions in the U.S, more efforts to educate the public on the negative side of the textile industry is needed.

### Background:

The average person uses about 81 pounds of clothing a year. With over 65,000 people who attend or work at the University of Central Florida, this amounts to 5,265,000 pounds of old clothing heading to landfills every year. A simple way to reduce the amount of waste produced is to recycle these items by using a company called American Textile Recycling. This company is able to recycle gently used clothes, shoes, toys and accessories that otherwise may not be accepted by other companies. The wide array of textiles available for recycling allow the students to be more proactive in their recycling habits and minimizes confusion on what can and can't be recycled. Marked collection boxes will be provided in drop off locations on campus listing exact items that can be recycled in order to better coordinate the process.

With the goal of being carbon neutral by 2050, the University of Central Florida would benefit from recycling everything it can. "Recycling reduces the need for extracting, refining and processing raw materials all of which create air and water

pollution” (Brysons Recycling). Promoting recycling as a University will lower the overall amount of greenhouse gases being produced on campus.

## **Objectives**

One objective is to educate students, faculty, and staff on different outlets for recycling on campus. Many students assume that items that cannot be recycled in the mainstream recycling system cannot be recycled at all. All it might take for an everyday item you use to not end up in a landfill is to do some research. Our goal is to educate the student body about the different methods of recycling different types of materials.

A second objective is to educate UCF students, faculty, and staff on why textile recycling is so important. In 2017, the United States produced 16,890 tons of textile waste and only recycled 2,570 tons of it. The problem starts with fast fashion. With new styles and trends being constantly promoted to consumers, we are convinced our slightly used clothes belong in the trash. While consumers may think all they’re doing is making space for the latest fashion items, much more is happening. When we fill landfills with these items, we are generating a large amount of greenhouse gases that contribute to global warming and climate change. The textile industry has the second highest potential for reduction of greenhouse gas emissions. This is due to the amount of wasted energy and resources that goes in to both producing the clothing and dealing with the waste.

Another objective is to get students, faculty, and staff to be more engaged in recycling in their community. Getting to see and read about the accomplishments they could make with recycling will hopefully encourage them to be proud of what they did and acknowledge the fact that one person can make a difference.

## **Research Questions**

1. How often do students/faculty/staff throw out an item of clothing?
2. How many students/faculty/staff already recycle their clothing?
3. How many students/faculty/staff will take the time to bring their items to campus?
4. If/when bin is contaminated, how will the individuals participating be notified?
5. How often will the bin(s) need to be checked for contamination?

## **Scope**

The overall scope of this project is to collect many textiles to be recycled. The goal is to reach more than just the students living on campus, but the many other students, faculty and staff who don't. This campus contains over 65,000 students, all who would be able to participate if motivated to. The time scope of this project is the spring semester.

## **Literature Review**

In the past decade, production of cellulosic fibers has doubled from 3 million tonnes to about 6 million tonnes (Bartl and Piribauer, 2019). Production of synthetic fibers used in clothing has also rapidly risen. These synthetic fibers take extra manufacturing processes and produce excess waste. These massive increases in clothing and textile production is thought to be due to the steadily declining global poverty level and increased social pressure to participate in fast fashion practices (Bartl and Piribauer, 2019).

Textile manufacturing is one of the main contributors to greenhouse gas emissions (Hole, 2019). Being able to reuse the fibers from old textiles would prevent the need for such large amounts of production. Recycling these textiles is not standardized across the globe, leading to a lack of resources and systems in place to efficiently recycle these goods. We aim to combat this using the American Textile Recycling company, who have developed ways to recycle textiles from various different materials.

### **Significance/Implications**

In terms of academic contributions, this project can be used as an example of real-world applications of statistics or sustainability, which also has the advantage of being UCF-facilitated. The results from this project can be used in order to drive a bigger sustainability movement at UCF while also inspiring other universities do the same thing. Sustainability organizations can use the results from UCF to suggest a similar project in cities or towns. The benefit of conducting this type of experiment at UCF is how massive the sample size would be (around 66,000 students) in addition to reaching such a wide range of students in terms of political views and income. This type of variance is similar to large cities and could even be used as a general sample of Orlando.

## **Methodology**

The American Textile Recycling Company provides plenty of information to help get the collection started. They provide a poster with examples of accepted waste and a simple drop off point for students. They also explain how our items will be recycled.

“Once collected, the textiles are sorted into categories based on type of material they are made of and broken down into useable components”. The ATR service includes complementary bin placement and pick up services 3-5 times a week.

Our methodology will consist of a few different steps. First, we will reach out to students, faculty, and staff with a survey that has the first three research questions, to get an understanding of what our numbers and participation will be like. Next, we will inform students, faculty, and staff about the collection through social media and other forms of marketing as well as what item. This will include informative posts on what clothing will be accepted, focusing mostly on non-donatable clothing. Then, we will figure out the best way to pursue the collection by finding the best permitted spot.

Seeing that this will most likely be geared towards students living on campus, it would be ideal to place the bins by the dorms. The chosen space will be periodically emptied by the American Textile Recycling company. Each pick up will be recorded to view the success of the program at a later date.

## **Work Plan**

### **November:**

- Conduct survey
- Converse on the best spot for collection and have bin/information on what to recycle near or on box: Ideal location is the Dorms
- Post on social media and other outlets about the collection. Make a tutorial on how to correctly clean items.

### **January:**

- Put out collection bin
- First two weeks the bin will be check at the end of Monday, Wednesday, and Friday for contamination. Same checks will follow if it is deemed necessary.

### **February-March:**

- Bin will be checked in the middle of the month for contamination if January was successful.
- Collection will be audited when filled.
- When enough products are collected, the shipment will be made.

### **March:**

- Assessment of how the project did and addition of all weights calculated.

### Expected Results:

Through bringing the textile recycling service to the UCF campus, we hope to increase student, faculty, and staff awareness and engagement in recycling possibilities.

Furthermore, we hope to bring attention to the negatives of fast fashion and the need for these recycling techniques and to UCF's goal to become carbon neutral by the year 2050.

### **Budget**

UCF printing services will be used to print full color copies of all informational posters for the project. Any left over budget will be used to purchase incentive items for our student survey. There will be an estimated \$450 to be used towards purchasing these incentive items. The items include glass straws, reusable tote bags, and bamboo toothbrushes purchased from the store "Package Free". They are an online store based in New York City that limits the amount of waste in their packaging and specializes in zero waste goods.

### **Administration and Departments Involved**

SSAC members

UCF Housing Services

### **Organization Involved**

American Textile Recycling Services

University of Central Florida