

# FINAL PRESENTATION

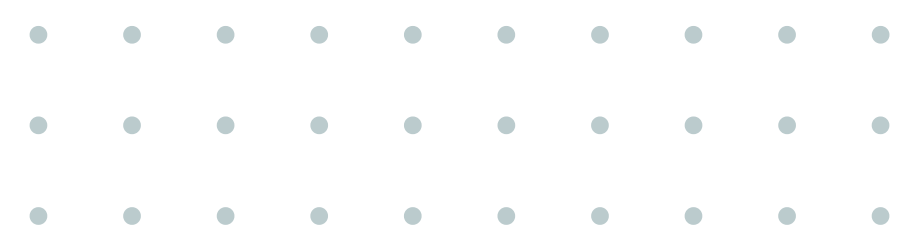
*Active Minds Research Project*

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# INTRODUCTION

*Purpose and overview*






# ACTIVE MINDS

- Active Minds is a mental health advocacy group on campus
  - Meetings are every Tuesday at 6 PM in Ell Hall
  - Meetings range from discussion of key mental health related policies on campus to educational lectures
  - Primary focus of the club this semester was establishing additional policy surrounding wellness days and extending the UHCS hours
- 




# PROJECT OVERVIEW

- **Research question:** how do students feel about NUPD wellness checks?
  - **Purpose:** the goal of this research was to determine student attitudes towards the wellness checks and establish suggestions for improving the process.
  - **Objectives:**
    - Retrieve feedback from students and faculty who have had both positive and negative experiences with wellness checks
    - Retrieve feedback from students who have not had experiences with wellness checks
    - Provide actionable recommendations for our affiliated student group, Active Minds
- 



# WELLNESS CHECKS

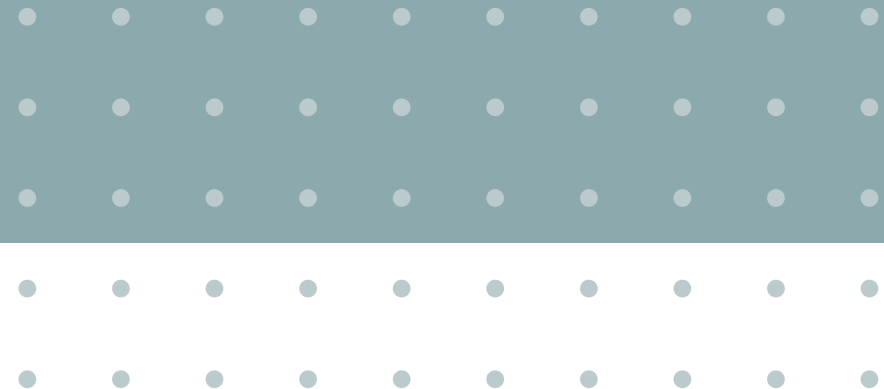
Police wellness checks occur when either a student or faculty member at Northeastern calls the NUPD when another student or faculty member has demonstrated signs of distress. These are the symptoms of distress, as outlined on the NUPD website:

- Significant change in academic performance or classroom conduct
  - Unusual behavior or appearance
  - Traumatic event or change in relationships
  - Talk of suicide, homicide, or death
- 

02.

# LITERATURE REVIEW

*Secondary research*



# LITERATURE REVIEW

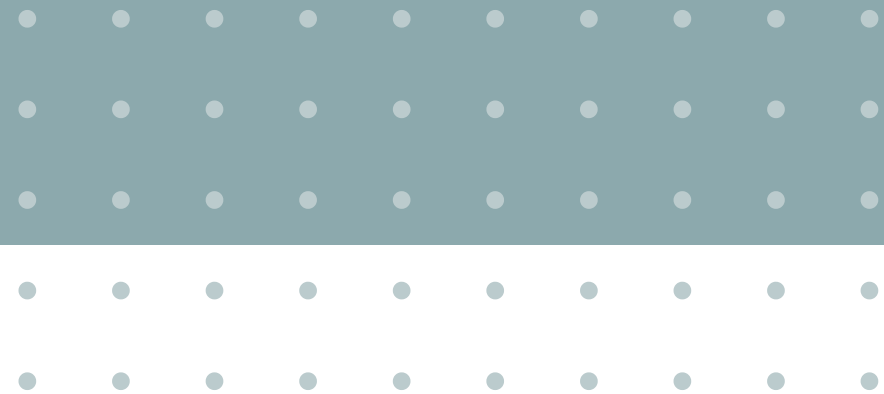
- Active Minds met with NUPD on March 5th, 2022 discussing how in a matter of 4 months, there have been 38 Medical Psychiatric Emergencies and 100 Wellbeing Checks
- AM's proposed long-term goal: the creation of a co-response model where UHCS clinicians will respond to calls with NUPD. This requires both mental health training and Crisis Intervention Training (CIT) for NUPD officers.
- *The Journal of Police and Criminal Psychology:*  
*Campus police report that they receive sufficient training to handle these crises, but many acknowledge that a mental health professional would be better suited to handling the situation*



03.

# METHODS

*Survey and interview*





# RESEARCH METHODS

## SURVEY

- 12 questions
- Sent out to the Northeastern student body via iMessage, Slack channels, Instagram stories, Facebook, and LinkedIn
- Target: students who have and have not experienced wellness checks
- Questions:
  - Demographics: age, gender, year, major
  - Wellness checks: experience, likeliness of referral, recommended policy changes

## INTERVIEW

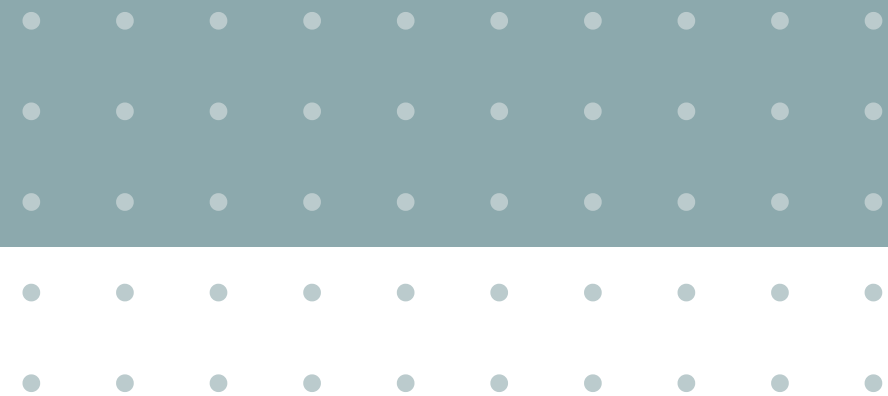
- 1 interview with a Northeastern professor
- Questions:
  - How did you find out about police wellness checks?
  - What led you to make the wellness call?
  - Did you feel it was beneficial/what was the outcome?
  - What changes would you make to the police wellness check process?



04.

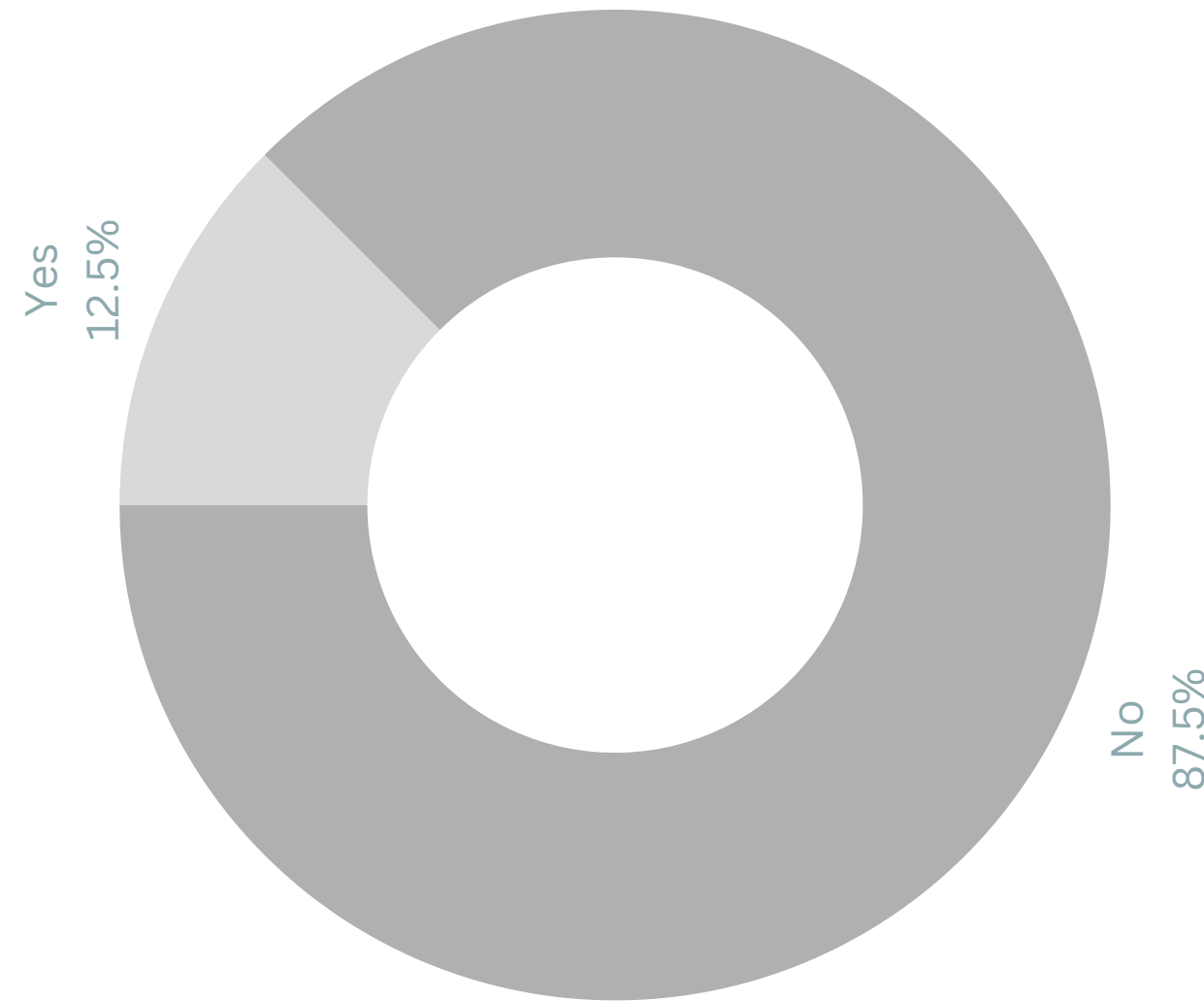
# RESULTS AND DISCUSSION

*Recommendations for Active Minds*



# SURVEY RESULTS

If you experienced a NUPD wellness check, do you feel that it was beneficial?



**85.7%**

Of respondents have not had an encounter with wellness checks.

**62.5%**

Of respondents would not request a wellness check.

**62.1%**

Of respondents who have had wellness checks would not request one.

**68.6%**  
Female respondents

**21**  
Mean age of respondents

**35**  
Survey respondents




# SURVEY RESULTS

"It was really distressing for the both of us... she was really upset afterwards, and didn't understand why they had been called by one of her coworkers."

"I was then searched, put in the back of a cop car where I wasn't allowed to have my phone or belongings, and put on a forced hold at Beth Israel hospital."


"The concept feels quite invasive... I am not sure if the NUPD is a department that is equipped to handle such sensitive work."

"I think they are not a productive way to assist students experiencing mental health crises...this should be handled by an experienced mental health professional..."






# INTERVIEW SUMMARY

- We interviewed a Northeastern professor who has called for NUPD wellness checks on two separate occasions: as a parent and as an instructor
  - **Parent:** called a wellness check on her son when his friends expressed concern for his mental wellbeing and she was unable to contact him
  - **Instructor:** called a wellness check for a student who came to class in a manic state and confessed to using drugs
  - In both instances, the students were transported to local hospitals to receive treatment and her overall experience was positive
- 




# INTERVIEW RESULTS

- Professor Green found that as a professor or an out-of-state parent, NUPD wellness checks are the best avenue for helping a student experiencing a mental health crisis
  - She would not hesitate to call a wellness check again based on the positive outcomes of both her past calls
  - However, she expressed concern about the lack of transparency surrounding the outcome of wellness checks
- 




# RECOMMENDATIONS

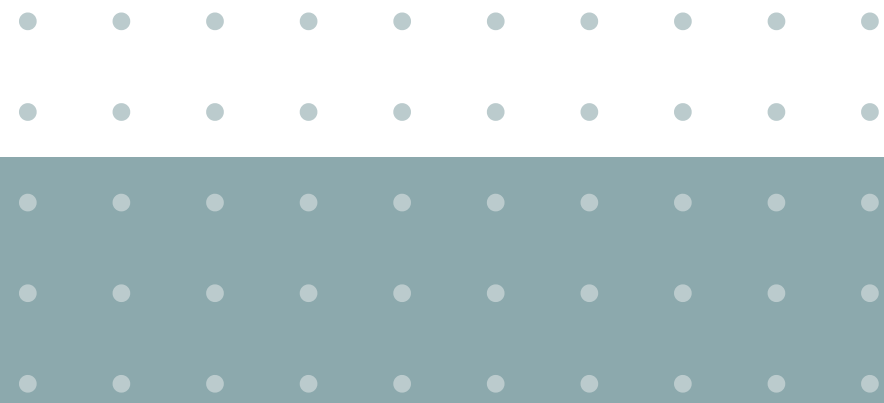
- 01.** Increase transparency and education surrounding police wellness checks.
  - 02.** Equip NUPD with mental health training.
  - 03.** Have mental health professionals accompany NUPD on wellness checks.
- 





# DISCUSSION QUESTIONS

- 01.** As a student would you feel comfortable issuing a police wellness check?
  - 02.** Do you think that incorporating trained professionals into the process would be beneficial?
  - 03.** After watching this presentation, has your opinion of police wellness checks changed? If so how?
- 



# THANK YOU

Have any question?



SAPR Group

Professor Finn

Interdisciplinary English Writing

April 14, 2023

**Research Report: Knowledge on the Prison System**

**By: Harrison Dolin, Yige Sun, Rafa Arias Torres**

**Introduction:**

Knowledge is power. In the United States, immigrants applying for citizenship must pass a literacy test that quizzes them on their knowledge of the American civil system. In a poll done by the American Bar Associates, only 5% of natural-born citizens were able to get all 15 questions correct. So why does this matter? This discrepancy is drastic enough to establish that there is a knowledge gap with Americans and their understanding of their own legal system. This problem is not relegated simply to American civics, but extends to the prison and criminal justice system as well. This research paper aims to examine the lack of knowledge surrounding prison systems in America, more specifically Northeastern University students. By asking Northeastern students about their personal background and testing their knowledge on the prison system, we hope to look and see where the knowledge gaps lie and how we may be able to fill in those holes. In addition, we aim to understand why this discrepancy exists. This research will help organizations on campus like SAPR know what topic areas that the student body is unfamiliar with, which in turn will help them focus curriculum and outreach based on the results.

**Literature Review:**

College students have many different avenues to get their news. Unlike with prior generations, they do not need to read newspapers to get information, but rather can use the

internet and social media. As a result, they can be well informed on a wide range of issues fairly easily. From the article “What ARE they reading? News selections by college students”, it is explained that general college students care more about the news that is relative to them in their daily lives, like the environment and the events happening in their city. They care less about the events which are happening in other places and the news that is foreign, or that does not intersect with topics they interact with in their personal lives.

A research article titled “The State of the Prisons: Exploring Public Knowledge And Opinion” shares people’s opinion and knowledge of their current prison system. The article reached its findings by surveying many people from Western Civilization, and researchers found that many citizens know little to no accurate information about how the prison system operates in their country, or the issues within them. This is also tied to another finding that people’s opinions of the prison system was based on race and socioeconomic status as those who had a more privileged background and were white tended to view the current prison system as effective while those who are people of color and of lower economic means viewed it as ineffective. These findings suggest that more awareness and education is needed to dismantle these preconceived notions for what makes an effective prison and to highlight issues currently ongoing with the prison system.

The current landscape of knowledge about the issues plaguing the prison system is not dissimilar in the college subspace, with the level of the average student on these issues being very similar to the general public knowledge of the issues. However, while there is still ignorance surrounding these issues, college students are better at research and self education, as is needed by their academic pursuits, and therefore can be better suited to become well versed in prison reform issues. According to Christopher Hensley in his paper “Criminal Justice and

Non-Criminal Justice Students' Views of U.S. Correctional Issues”, university students in both criminal justice and non criminal justice majors rated 6 key prison issues as problematic and displayed an accurate although overtly negative understanding of the correctional institution culture and challenges. However, more importantly, Hensley found that courses on criminal justice issues greatly impact student’s knowledge and attitude, which bodes well for the theory that greater education can lead to greater activism by students (Hensley).

However, to broaden student knowledge, there are some barriers. According to Alexis Miller in his paper “College Students' Perceptions of Crime, Prison and Prisoners”, on average, university students, regardless of their major, have major misconceptions of the size and scope of the correctional system and the problems within it. Students tend to heavily overestimate the number of prison inmates, homicides, killings in prisons, and the sexual assaults among inmates (Miller). These misconceptions, tied with a general unrefined source of information about prison issues, can create a biased and uninformed discourse around these issues and stymie efforts at reform.

Another issue relating to prison education is that often non criminal justice majors have misconceptions about the way the criminal justice system works in society. Often fueled by consumption of crime shows, crime podcasts, and news media focusing on crime rates, the average student has a poor understanding about the rate of crime and the way that the criminal justice system operates (Miller). Many students prescribe to the ‘Mean world’ theorem, originally coined by criminal justice researcher George Gerbner, which is a cognitive dissidence based theory wherein people overestimate how dangerous the world is, which can sway students to believe that criminal justice and prison reform are not needed and actually sway them to believe in increased incarceration (Miller).

Tying everything together, we can see how knowledge surrounding the prison system in college campuses is obscured. Lack of education and awareness is the leading issue, coupled with the misinformation surrounding college students. The goal of this research is to gauge how Northeastern students fare with this dilemma. Additionally, we hope to further educate them and see where their knowledge lies through investigative methods.

**Methodology:**

Our aim in the research section is to measure the average knowledge that Northeastern students have about the prison system. The first method we will utilize to gather research data is an anonymous survey. Anonymity is key because we want students to feel comfortable answering. The second methodology we will utilize is one on one interviews with students, because this allows a more in depth information gathering process. Most of the questions in our surveys and interviews will be open ended, which will allow students to explain their answers.

Our survey consists of two parts. The first section asks the student their major, age, and gender to start. This baseline information is valuable to garner information on the demographics of who is answering the survey, so we can see the character/major distribution among the student population. Following this, we ask about their engagement with the news and what areas they focus on. This aims to understand what the average student consumes from news outlets and if prison issues ever surface in their weekly digest. Moving on in the survey, the remaining questions in section one are trying to understand how much the student understands the prison system and if they have a personal connection to the issues. This functions both as a measurement of knowledge as well as a measurement of sentiment, or how much the average student cares about prison reform issues. This can allow us to contrast how students feel towards the issues versus their actual engagement and knowledge.

1. What is your current major and age?
2. What is your gender?
3. How many times do you check the news a week?
4. What areas of news do you pay attention to?
5. On a scale of 1-10, how informed are you on the prison system?
6. On a scale of 1-10, how much would you say you care about prison reform or injustices in prison?
7. If it is not uncomfortable or a personal matter, how has the prison system affected you personally?
8. Do you believe that the prison system issues influence the environment of a society a lot?

The second section of our survey covers prison knowledge through asking pointed informational questions about the prison system. Through analyzing what students get right, we can accurately gauge the average level of knowledge, and what areas are less prevalent in student understanding than others. These questions are written in a rapid answer style, so that the student can be asked a large quantity of questions in a short period of time with only needing to enter minimal information. Part of the reason we do this is because prior research and experience has shown that longer surveys do not have as high engagement and often students will give up on completing lengthy surveys. We aim to have a high completion rate as well as gaining the minimum information we need to accurately synthesize results from this survey.

1. How much do prisoners get paid per hour on average when working?

2. How much time are prisoners confined to just their cell per day?
3. How much does the US government spend on the prison system per year?
4. Do you know what a private prison is?
  - a. Yes
  - b. No
5. Can you name any bill/law surrounding the prison system?
6. What percentage of prisoners return to prison after being released?
7. How many people are currently incarcerated in the US?

In addition to distributing a survey, we are aiming to conduct several interviews with people around campus to get a more detailed view of the level of knowledge that students at Northeastern have of the prison system in the US. Similar to the survey questions, we are gauging the level of knowledge and involvement that students have about key prison system issues and bases of information. Interviews give us a unique perspective into the student populace because they allow people to elaborate further on their own involvement in issues, and give a deeper explanation of their answers to questions. Additionally, we can ask follow up questions and investigate into their answers further, which can glean valuable insights into both their background and how they are informed on issues.

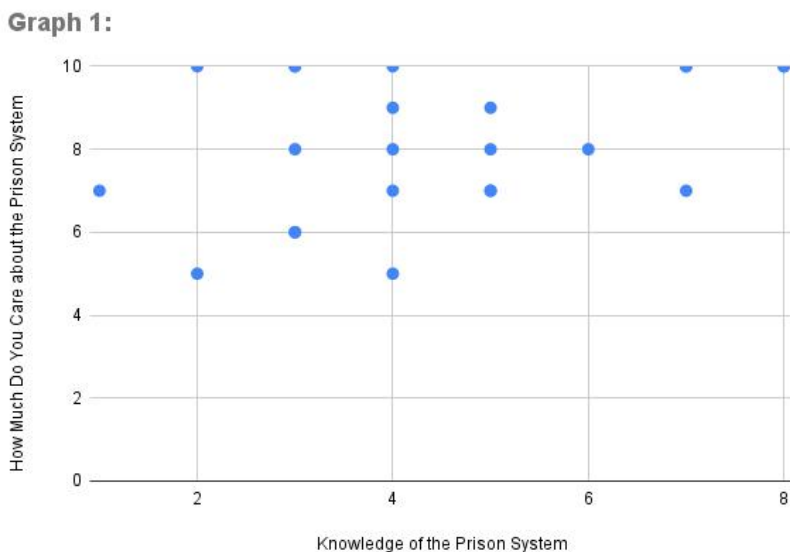
For the target group for the interview, we will be asking two subsets of students. The first interview group will be one or more members of the Student Alliance for Prison Reform. This will allow us to determine the level of understanding of students who are actively involved in activism and education regarding the prison system. This can function as a valuable baseline for comparison to our second interview group, the general student population. For this group, we will be interviewing friends of ours that are willing to participate, and we will focus on obtaining



a wide range of majors and academic years (i.e. freshmen-seniors). The aim of this is to gauge the understanding of the issues of those that may not be involved in activism or may not be knowledgeable about prison injustices.

In terms of the questions asked during the interviews, we will utilize the same questions as our survey. The key difference will be the elaboration on student's answers to the questions. In the interviews, we will allow students to elaborate as much as they are comfortable with, and then determine areas of further inquiry in their answers that we can ask follow-up questions on to get a deeper understanding of their knowledge.

## Results:

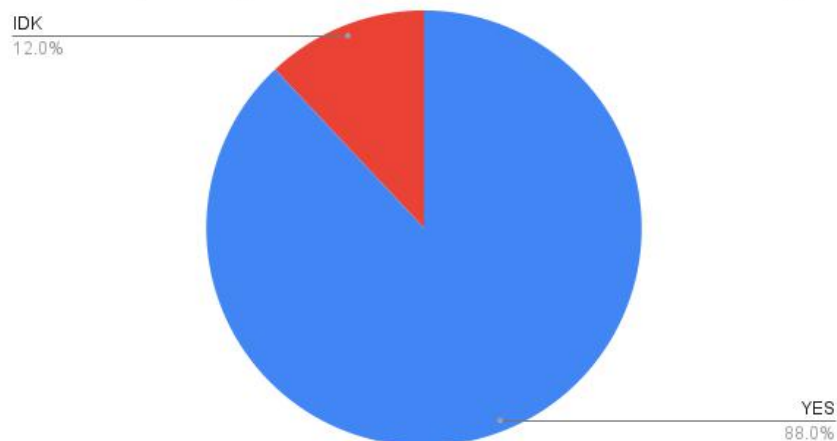


In response to the question "On a scale of 1-10, how informed are you on the prison system?", we can see that 11 students felt that their knowledge of the prison system was greater than or equal to 5, indicating relatively moderate knowledge. The remaining 15 responded that they were not very well informed about the prison system through lower value entries.. However, in the question "On a scale of 1-10, how much would you say you care about prison reform or

injustices in prison?", 24 of the students wrote a number greater than 5. This indicates that college students care about the issues plaguing the prison system but lack the knowledge to engage with the material/scene. This may be due to the fact that there is less news about the prison system distributed by the media on a daily basis.

In the interview, one of the interviewees gave a number which is lower than 5 for the level of knowledge question, and the other two answered higher than 5. But all of them gave a number higher than 5 for the care question. This matches the trend and sentiment displayed in the survey section.

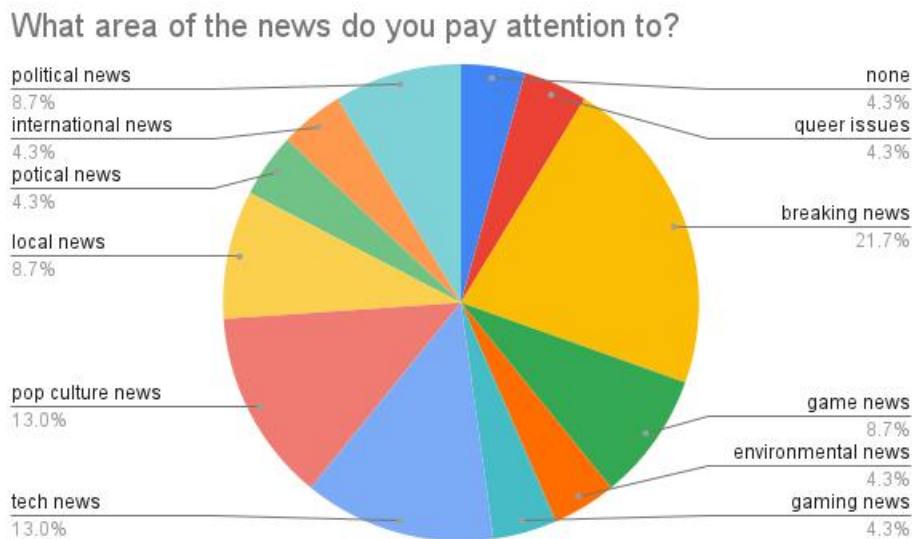
Does the prison system influence the environment of a society?



In the question "Do you believe that the prison system issues influence the environment of a society a lot?", 22 students answered "Yes" and gave detailed reasons for their answers. This sentiment shows that most respondents believe that there is a correlation between prison issues and larger societal influences. Some of the more common reasons provided were that the prison system issues show the society's attitude towards minority groups, the prison system issues are very much related to the crime problem, and these issues are also linked to the society's attitude towards human rights and social stability.

For this question, all of the interviewees also gave the answer of "Yes", which clearly

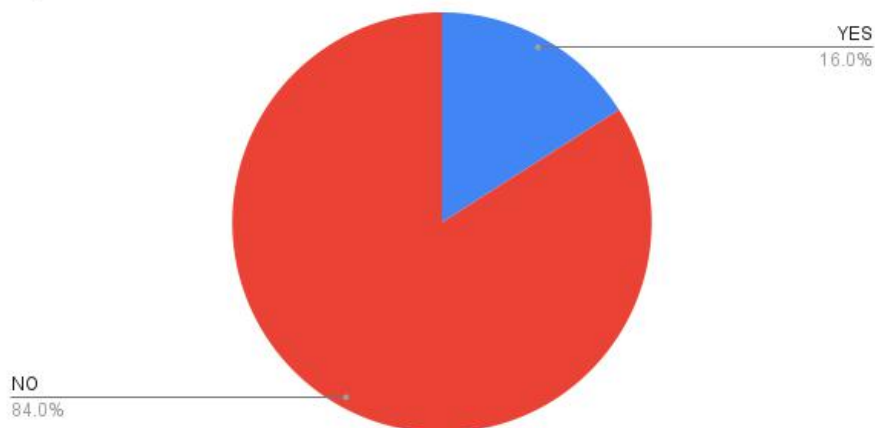
shows that people think that the prison problem is important to societal issues, and is in line with the survey responses.



It is clear from the responses to the question “What area of the news do you pay attention to?” that many students focus on pop news, international news, social news, technology news, and entertainment news. Students also followed the news related to their major. Criminal justice news is usually linked to social news, so people might see something related to the criminal justice system when they learn about social news. Some responses also mentioned that they pay more attention to news related to themselves as well as the news of the day, while criminal justice news is usually more distant from students' daily news feed and relationships, which may be one of the reasons why students know less about it.

From the interviews conducted,, two of the interviewees mentioned that they got news only from friends or social media, and that they do not often find news by themselves. They also mentioned that they nearly always got news through memes and posts on Reddit and Twitter, which can be unreliable sources, or be lacking in criminal justice material

Correctly/Was Able to name a Law surrounding the Prison System.



After aggregating the results of the survey given to Northeastern students, the overall consensus is that there is not a considerable knowledge of current legislation surrounding prison reform. Of the 25 respondents, 19 responded with either no, not applicable, no response, or an answer with the same sentiment as the prior responses. Additionally, 1 student answered the 13th amendment, which is not associated with current prison reform. Only 4 students were able to respond with the name of a bill or law related to prison reform, resulting in a 16% rate of answering this question aptly. The in person interview sections yielded similar responses. From both of the SAPR member students surveyed, when asked their knowledge of current prison reform bills or laws, neither could present an answer. The non SAPR members responded in kind, with no interviewees being able to present a bill or law. In all of our data collection samples, we observed no group that responded more reliably than any other.

Looking at the rapid fire questions and the responses we received there was an outstanding disconnect between the knowledge of the prison system. 1 out of 24 people who responded to our survey knew how much on average a prisoner makes, which is \$0.25 cents/hour. Another question we asked was how much the government actively spends on the

prison system each year and we were surprised to see that no one got the correct amount. Lastly, when asking “Do you know what a private prison is?”, 17 out of 24 people we surveyed did in fact know. The interview component of our research followed the same trends as the survey answers, with almost none of the interviewees being able to name a prison bill or law. We also observe that none were able to give correct answers to questions such as how many hours do prisoners stay in a cell each day and how much do prisoners make an hour when working.

Overall, the results of the rest of the survey are highly varied, as were the majors of respondents (however the ages stayed consistently in the 20s, which indicates most surveyed were mid to upper classmen). Starting with the news section, respondents had no universal amount of news consumed, with ranges for times checking the news in a week varying from 0 to over 20 times a week. The most common range was 0-5 times a week, with 18 (or 72%) of students answering this. This was consistent with the interviews conducted as well, with interviewees not having a consensus, and often staying within this range. For the question relating to a personal relationship to the prison system, only one respondent mentioned any connection to someone who had been incarcerated, and only a few with a tangential relationship with the prison system, either through their major or volunteer work. During the interview section, all but one interviewee had no relation, with one student having a family member who had been incarcerated. They noted that their opinion of criminal justice reform had been heavily influenced by this.

### **Discussion:**

The surveys and interviews we conducted in this research report shed light on one of the biggest obstacles to prison reform activism, which is the lack of awareness of the issues and facts

related to the industry. Highlighted by the question “On a scale of 1-10, how informed are you on the prison system?”, the responses tended to sway towards the less informed, with most expressing that they knew little about the prison reform landscape. This trend was consistent with the interviews we conducted, where interviewees expressed a similar lack of education related to the issues. However, this lack of awareness is not out of indifference, because the students surveyed showed a very high level of care regarding the issues. In response to the question “On a scale of 1-10, how much would you say you care about prison reform or injustices in prison?”, nearly all students indicated a high level of care and desire to correct injustices, with 24 of the respondents giving a number higher than 5. This shows that the root of the problem of lack of prison reform activism and engagement by college students is fueled not by an apathetic view of the key issues, but rather a lack of informed opinions. If students had better access to information or were more able to easily engage with prison reform material, we believe that this would result in a higher level of activism and popular support of prison reform issues on NU campus.

In order to address this issue, the Student Alliance for Prison Reform could bolster their outreach programs. By posting more actively to social media, putting up more informative fliers around campus, and partnering with other student groups to create collaborative outreach programs, SAPR can begin to raise awareness around campus. Additionally, SAPR could collaborate more with Criminal Justice faculty at Northeastern. Currently, the club does not have many events that involve faculty, and by incorporating them into club events they can not only draw more students to meetings/events, the professors can also spread outreach material to their classes and interested students. The key is to raise the collective level of knowledge of prison reform issues.

Another takeaway we gained from this research was the lack of news consumption surrounding the prison system. None of the people surveyed say they actively listen purely to news surrounding the prison system and almost half of those surveyed said they only check the news 0 to 5 times a week. A major reason for this has direct ties to another question asked during our research which was that people see the prison system issues as a foreign issue and do not see how it affects them personally, which further alienates them from the issues. We believe this is one of the reasons why we do not have more students on this campus more engaged with the prison system happenings. The motivation being that these issues do not affect them in any personal way so why should they care? In order to address this issue, SAPR needs to be more proactive with education and sharing resources on where students can gain knowledge about the prison system in a digestible way. A lot of college students are deterred from political stances because they feel they don't have enough knowledge to actively participate in activism, as shown in our results when talking about the comparison between level of knowledge and care about the prison system. SAPR's leadership must tackle this lack of news consumption now if they wish to broaden their membership and directly speak to students.

The last major takeaway from our research was that college students truly underestimated the systemic injustices within the prison system and the mistreatment of prisoners. In our surveys and interviews, we asked three questions in our rapid fire questions surrounding the care of prisoners in and after incarceration. The first question we asked was, on average, how many hours a day do prisoners stay in their cell. Based on the fact that many students only thought prisoners spend a few hours a day in their cells, we can acknowledge the fact that the college students underestimate the inhumane conditions prisoners are often kept in. Another question we asked was how much the prison system costs the government and how many people are currently

incarcerated in America. The finding we noted was that most students either guessed far below the actual number, or were wildly off the target. With this information and research, we can clearly see the direct tie in between lack of knowledge and how it affects people's perceptions of the prison system. SAPR can break these perceptions by showcasing more voices during club meetings that have been actively affected by the prison system. The club has many resources within the criminal justice department, and having more speakers who can talk about the issues is important as a lot of the voices are silenced.

**Conclusion:**

The findings of this research report shed light on the discrepancy between Northeastern student's knowledge of the prison reform initiatives and their self espoused care about the issues. Though many students were passionate about the key issues we focused our survey on, they noted that they were not informed nor did they have a reliable pipeline for getting prison reform information. Further inhibiting the activism among students was a trend that we discovered of misconceptions about the size and scope of both the prison system, as well as the injustices contained within it. By deriving the sources of the problems, we believe that the SAPR student group can effectively combat them by increasing campus outreach, promoting the club and events more aggressively to students, partnering more often with professors and faculty, and by making the club more welcoming and inviting to all students. We hope that through our research, we have allowed others to understand the problems on Northeastern's campus, and they may possibly be able to fix them.



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## Project/Program Description (can draw from reports for this, 6400 word max)

Since August 2019, the Northeastern University chapter of Engineers Without Borders (EWB-USA NEU) has been working with the community of La Pedregosa in the Colc  province of Panama to upgrade the current water system. Their current system, established in 2011 by Peace Corps volunteers with support from the Non-Governmental Organization (NGO) Water Engineers, provides insufficient water for the community during the dry season (January-April). EWB-USA NEU plans to repair and improve the current water system by drilling a borehole and installing a temporary hand pump in the well in the first implementation phase. Future implementation phases would include the construction of a solar-powered submersible pump, a concrete water storage tank, and an extended distribution pipeline. The success of this project would provide La Pedregosa with a consistent, safe and reliable source of water year-round that will meet the community's needs for the 50-year project lifespan.

The current water system relies on accessing the underground reservoirs in the nearby mountain, El Escobal, and uses gravity to extract the water down into a 2,300-gallon concrete storage tank. Then, gravity proceeds to deliver water from the storage tank to each house's taps via pipelines. During the wet season (May-December) this system is relatively sufficient, however, there is a large discrepancy when compared to the water accumulation in the dry season. EWB-USA NEU conducted an initial assessment trip in March 2020 and discovered that La Pedregosa only receives 2,600 gallons of water per day on average, which is nowhere close to the 10,000 gallons per day recommended by the World Health Organization (WHO) for the 50-year project lifespan. Additionally, during the wet season, the storage tank is not large enough and often overflows before the community can use up the water. Climate trends in the area suggest that the rainfall in the wet season has been steadily decreasing. In fact, in 2019 the community experienced drought. With an undersized water tank and less rain each year, the community may eventually encounter difficulties in water supply even during the wet season. The current water system also relies on elevation to distribute water to the community's homes, which causes an uneven distribution of water across La Pedregosa. Residents receive an unequal amount of water depending on their elevation differences, wherein lower-elevation houses receive water first and lose it last when compared to their higher-elevation neighbors. Currently, to help equitably distribute water throughout the community during the dry season, the community partitions water to half of the town, alternating halves on different days. During the assessment trip, EWB-USA NEU measured the water supply to the southern half of the community and discovered that the water supply only lasted for about 2 hours. Thus, the current water system in La Pedregosa is unable to meet the WHO-recommended demand of 13-26 gallons per person per day. The community would benefit from an improved water system for both the acquisition of more safe water during the dry season and a more reliable distribution pipeline to prevent unequal water access to houses at different elevations.

EWB-USA NEU's main objectives for this phase of the project are to drill a new well in the center of the community and construct a larger storage tank to support La Pedregosa's growing population. While there are several smaller groundwater sources near the community that are not currently connected to the distribution pipeline, they are either privately owned or

used to supplement the water supply when the current system runs out or is disabled for the day. When inspected during the assessment trip, all but one of these sources was discovered to be too small to be used as an alternative community-wide source. EWB-USA NEU estimates that these sources will only be able to sustain the community's water supply for 32 years before the population growth exceeds this supply. Additionally, these underground sources have poor water quality in terms of mineral concentration and an exceptionally high concentration of fecal coliforms detected during testing compared to the current main source. Since the risk of dangerous contaminants in deeper groundwater is significantly less than in surface water, drilling a deep borehole in the center of the community will provide a safe, clean, consistent supply of water for the community to use for drinking, cooking, cleaning, and bathing. Once the well has been drilled, a submersible pump will be connected to allow water to be pumped from the well at a rate lower than the groundwater recharge rate, which is crucial for preserving the aquifer and ensuring that it does not run dry. Initially, this pump will be manually operated. However, in future implementation stages of the project, the manual pump will be replaced and powered by clean and sustainable solar energy. This phase of the project principally seeks to address the community's current deficit of 1,822 gallons of water per day. To combat this deficit, EWB-USA NEU plans to construct a well that can supply an additional 1,822 gallons of clean water a day for the 50-year project lifespan. A new storage tank will be constructed to both provide for a reservoir for the water provided by the new well, and be located at an elevation that alleviates the discrepancies in water distribution caused by the currently outdated water delivery system. Upon completion of this project, the new water system will be entirely community-owned, and the community of La Pedregosa will be independently sufficient.

The well will be drilled by a licensed contractor hired by EWB-USA NEU in accordance with the Panamanian Ministry of Health standards for location, pipe material, and water quality. EWB-USA NEU is responsible for organizing and quoting the costs of the required materials, as well as communicating with the contractor. The specifics of the well materials, borehole depth, and overall costs will be stated in the budget narrative.

In addition to the goals already mentioned for La Pedregosa's water distribution system, EWB-USA NEU also strives to educate its members via real world experience based engineering projects. Undergraduate engineers of varying experience, and even non-engineering students, can earn hands-on experience in drafting construction blueprints, grant writing, budget planning, and many other skills that are crucial for a career in engineering. Our members frequently learn from each other and from the communities we partner with; thus, all parties gain a deeper understanding of each other's perspectives. Further, EWB-USA NEU facilitates the exchange of knowledge between its own members and between global communities. Finally, the opportunities EWB-USA NEU offers are invaluable in preparing students for future careers by engaging them in self-driven, collaborative, and team-based projects that yield high-impact results. In this way, the EWB-USA NEU mission to execute this project in La Pedregosa achieves synergistic benefits for both La Pedregosa and the Northeastern community.

Revenue Budget Narrative (need to put together budget first)

Table 1. Well supplies and labor quote by Perfostar Well Drilling in Panamanian currency, the Balboa.

Description	Quantity	Unit Price	Tax	Amount PAB
8"-6" Drilling of Well	300	40.00	7%	12,000.00
Supply and Installation of high-resistance PVC pipe	300	10.00	7%	3,000.00
Supply and Placement of Gravel	1	400.00	7%	400.00
Cleaning of the pipe using a standard air compressor	1	300.00	7%	300.00
Transportation of materials and equipment	3.5	1050.00	7%	3675.00
Pump Test	1	1200.00	7%	1200.00
Physical, Chemical, and Bacteriological Analysis <small>*may be done for free my MINSA</small>	1	1430.00	7%	1430.00

Subtotal: 22,005.00

Total ITBMS: 1,540.35

TOTAL PAB: 23,545.35

Note: The exchange rate between USD and PAB is 1:1. ITBMS refers to the Panamanian tax on goods.

Provide additional context around the budget revenues. Address the details requested for each budget line item in the above definitions.

The primary cost of this objective is the drilling of the well, which demands precision and technical equipment which is costly. The functionality of the project relies on having a

dependable and high quality well, which is worth a substantial investment. To transport the water, high resistance PVC pipe is necessary in order to guarantee the integrity of the system. The pump must be thoroughly tested, under proper supervision and to proper standards, which is a necessary cost. Following the implementation of the well, physical, chemical, and bacteriological tests must be performed to ensure the system is operating properly and safely. The overall transportation of materials and equipment is quite costly, due to the rugged and undeveloped nature of the road systems in the area, and the caution that must be taken to transport safely. Less significant costs include the supply and placement of gravel in the area in order to have a sturdy and even substrate to work on, as well as compressed air cleaning of the pipes to ensure they are unobstructed and clean.

#### Primary Goal or Objective of Project/Program (short. 1 paragraph)

The overarching goal of the La Pedregosa project is to design and install a new water distribution system to replace an outdated, unreliable and insufficient existing system. We plan to use the following objectives to implement this goal:

- *Assessment (completed)*: Perform on-site land surveying, water quality and flow rate assessments to design the system, which has already been completed.
- *Implementation (current objective)*: Work with community leaders to implement the system and integrate all of the components including new piping, pressure-break tanks, and storage tanks
- *Verification (future)*: Follow up with data collection including water quality, flow rate to ensure the system is operating properly

This crucially improved water distribution system is designed to provide safe and reliable water for all 300 residents of La Pedregosa year round, thus eliminating current water insecurity within the community. Our previous assessment trips have measured a water flow of 2,600 gallons per day. This measurement falls critically short of the World Health Organization's daily water recommendation and population growth projections which estimate that 10,000 gallons per day is necessary to properly sustain the community over the next 50 years. Therefore, the need for action is undeniable. The requested funds will be dedicated to financing the implementation phase of the improved water distribution system. Specifically, funds will allow for the drilling of a borehole and installation of a well, both of which are crucial in order to lay the groundwork for the future stages of the project, which includes installation of a solar-powered well pump, a water storage tank, and an extended distribution pipeline.

#### Success Metric for Primary Goal or Objective (short. 1 paragraph)

The primary goal for well drilling and construction is to supply 30 gallons of water per minute, which equates to at least 1,800 gallons per day, into the new water delivery system. This water supply is crucial for maintaining a 100 gallon reserve tank which will compensate for the current water deficit.

The water quality from the well is to be evaluated by the Panamanian Ministry of Health (MINSa) according to their evaluation parameters described below in Table 2, which described acceptable levels of physical, chemical and microbiological components. Depending on the findings of this evaluation, filtration applications will be applied to modify water as needed.

Table 2. Water Quality Standards defined by and to be tested by MINSa.

Physical Components	Units of Measure	Acceptable Range
Turbidity	UNIT	1.0
pH	Units of pH	6.5-8.5
Conductivity	µS/cm	1000
Dissolved Solids	mg/l	500.0
<b>Chemical Components</b>		
Residual Chlorine	mg/l	0.8-1.5
Nitrites	mg/l	1.0
Nitrates	mg/l	10
Sulfates	mg/l	250
Iron	mg/l	0.30
<b>Microbiological Components</b>		
Total Chloroform	CFU/100ml	0
Fecal Chloroforms ( <i>E. coli</i> )	CFU/100ml	0

#### Direct Beneficiary Group (very brief)

Direct beneficiaries will be those of La Pedregosa community. This water distribution project renovation will provide this community with reliable and clean water. Further, this project is crucial for the acquisition of sufficient volumes of clean water during the dry season and a more consistent and reliable water distribution throughout the community's pipeline, thus preventing unequal water access to houses at different elevations within the community. Further, the project is an important public health measure that is expected to improve the health of Pedregosa community members by providing long-term, reliable and clean water access. Lastly, this updated water system is expected to be sustainable for at least 50 years, and is projected to help protect the community from anticipated climate change induced extreme weather variability, which has already started to increasingly interfere with water supply.

### Number of Direct Beneficiaries (very brief)

La Pedregosa community is home to approximately 300 people residing in approximately 55 houses. Additionally, a multigrade school for La Pedregosa residents is located within the scope of the new water distribution system.

### % of beneficiaries funded by this grant (very brief)

100% of the direct beneficiaries mentioned will be benefited by this grant. However, it is important to note that La Pedregosa community is responsible for funding 5% of this project. All EWB-USA NEU projects require that both club and partnering community contribute to project financing as a way to both promote bidirectional partnership and to ensure that the community can sustain the water delivery system beyond EWB-USA NEU's involvement in planning and implementation.

### Overall Expected Outcomes (based on PMEL from report)

The existing distribution system provides enough water for La Pedregosa community during the wet season, however, the water supply for cooking, cleaning and drinking is insufficient and accessible potable water sources are limited during the dry season. This project is expected to rectify this issue by providing stable, clean, safe and reliable drinking water during the dry and wet seasons, to every member of La Pedregosa community that meets community demands projected for the next 50 years, despite future expected climate change induced extreme weather variability in Panama. The Water Board of La Pedregosa supports and relies on the Engineers Without Border (EWB) team to design and implement the fully functional water supply system, and they want to reach the goal for the community of an estimated benefit of 10,000 gallons per day, which is the World Health Organization standard, the daily water demand recommendations and local population growth rate data.

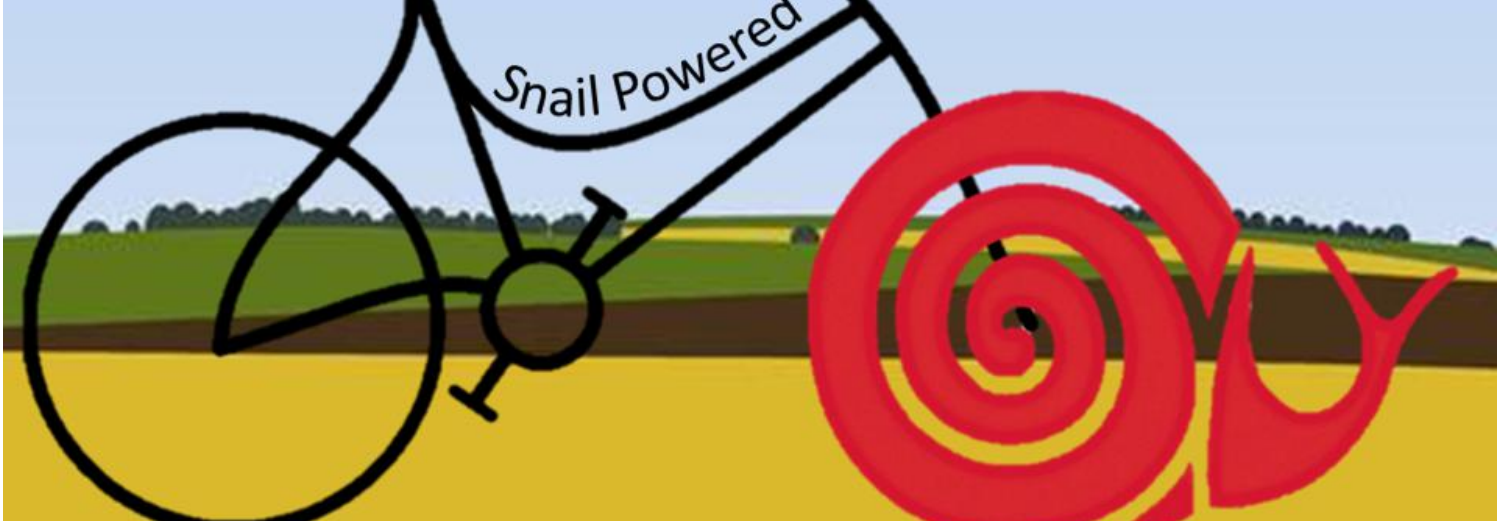
Further, the partnership between EWB-USA NEU and La Pedregosa community is expected to facilitate the education of La Pedregosa community and thus result in community knowledge of both how to sustain the water delivery infrastructure beyond EWB-USA NEU involvement and how to make future modifications to the infrastructure as needed. On the other hand, for our student members, planning and running trips to Panama can be just as beneficial as the knowledge obtained from the project. Further, by improving access to safe, easy access and reliable water La Pedregosa community is expected to reduce rates of diarrhea, reduce mortality of children under 5, and reduce burden on water collectors, which are primarily women. This impact is expected to have positive implications for health outcomes, quality of life, satisfaction, and facilitate increased female involvement in economic activity within La Pedregosa community.

# SLOW FOOD

Boston







## WHAT IS SLOW FOOD?

SLOW FOOD IS AN INTERNATIONAL VOLUNTEER-RUN ORGANIZATION COMMITTED TO BUILDING COMMUNITIES THROUGH THE FOOD WE EAT, PROMOTING GOOD, CLEAN AND FAIR FOOD FOR ALL. WITH A NETWORK OF OVER 150,000 VOLUNTEERS ACROSS THE GLOBE, WE ARE COLLECTIVELY COMMITTED TO SUPPORTING EFFORTS IN MAKING OUR FOOD SUPPLY MORE SUSTAINABLE, CLEANER, AND ACCESSIBLE FOR ALL.

## WHAT WE RECOMMEND



mei mei

wagamama



# ABOUT BON ME

WE STRIVE TO MAKE AS MANY HOUSE MADE ITEMS AS WE CAN.

FROM THE DRINKS TO THE DRESSINGS, IF WE CAN MAKE IT FROM SCRATCH, WE WILL. WE'RE

ALSO AWARE OF THE MANY DIETARY RESTRICTIONS OUR CUSTOMERS HAVE - AS A RESULT, THERE ARE NUMEROUS VEGAN, VEGETARIAN AND GLUTEN FRIENDLY OPTIONS ON BOARD. JUST ASK THE ORDER TAKER OR CHECK OUT OUR MENU PAGE FOR MORE DETAILS!



**BON ME**  
CATERING

## K-TOWN THROWDOWN



OUR MOST FLAVORFUL DISH! THIS "UN-FRIED RICE" IS A PERFECT MIXTURE OF SALTY, NUTTY, SWEET AND SOUR. OUR SPICY GOCHUJANG-GLAZED CHICKEN IS TOSSED IN A MIXTURE OF WHITE RICE AND ROASTED SESAME OIL. KIMCHI AND ROASTED VEGGIES ADD A SOUR AND CRUNCHY KICK TO EACH BITE, WHILE AN EXTRA HELPING OF CHICKEN AND HARD BOILED EGGS MAKE THIS A HEARTY MEAL.

## SESAME SOBA NOODLES



A CHILLED NOODLE SALAD IN WHICH OUR BUCKWHEAT SOBA NOODLES AND ROASTED PAPRIKA TOFU STAR. FRESH VEGGIES KEEP THIS SALAD LIGHT AND REFRESHING, WHILE THE ROASTED SCALLIONS AND TOASTED SESAME SAUCE ADD A SWEET AND EARTHY FLAVOR TO CONTRAST THE SAVORY ROASTED PAPRIKA TOFU. BOTH DELICIOUS AND NUTRITIOUS!

LOCATION: BACK BAY. 441 STUART STREET BOSTON, MA 02116;



# mei mei

Farm-Focused.  
Woman-Owned.

We're a dumpling business that strives to be a good company in every sense of the word. That's why we source our ingredients carefully and put our community at the center of everything we do. Find our dumplings at farmer's market locations throughout MA and at our new dumpling factory + cafe in South Boston!





# TRADE

A revitalizing departure from the everyday. Inspired by the deepest notions of the Greek way of life: relationship-building conversations and connections over the sharing of plates.

Elegant Greek cuisine and wines elicit the romantic notes of moonlit azure seas and crisp Mediterranean breezes. Cocktails that awaken your tastebuds and desserts that stimulate the senses.



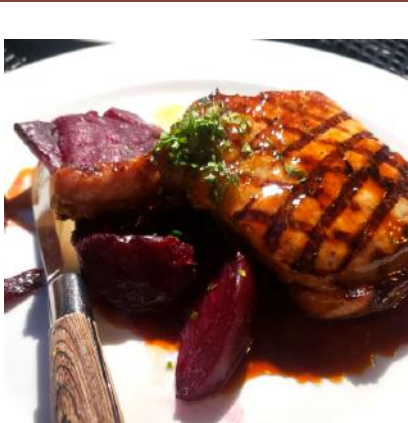


# Henrietta's Table

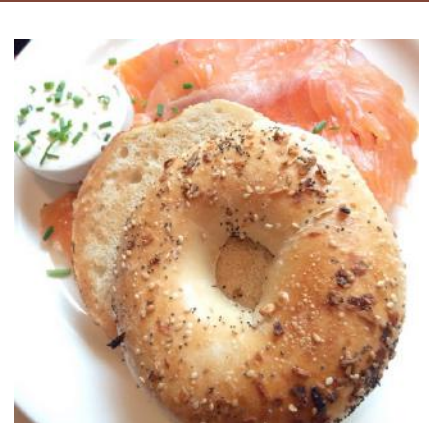
## FARM-TO-TABLE

Henrietta's Table has been at the forefront of farm-to-table dining since before it was a trend or a hashtag.

Menus rotate daily based on availability from our local farmers and artisans, pushing chefs to constantly create mouthwatering dishes that let the ingredients shine.



Ozark Mountain Smoked  
and Grilled Pork Chop



House-smoked Salmon





# wagamama<sup>®</sup>

## the wagamama way

the philosophy 'kaizen', meaning 'continual improvement,' shapes every dish, inspiring new and better ways bring the flavors of asia to all

## treading softly

a commitment to be sustainable and eco-friendly, has led to improvements such as a half plant-based menu, redesigned packaging to minimize plastics, and more

### CHICKEN GYOZA RAMEN



five steamed chicken gyoza. ramen noodles. vegetable broth. roasted bok choy. half a tea-stained egg. chilli sambal paste. spring onion. coriander. chilli oil. side of gyoza sauce

tempeh in crispy panko breadcrumbs. dressed mixed leaves. apple slices. cucumber. edamame beans. pickled asian slaw. pea shoots. japanese pickles. red chillies. a side of curried salad dressing



### TEMPAH KATSU SALAD



Restaurant & Groceries

ITALIAN TRADITION FOOD & FRESH VEGETABLES

Eataly is an Italian-style store integrating groceries stores and restaurants. Here you can buy the fresh food, including vegetables and meat products. At the same time, you can also taste authentic traditional Italian cuisine, such as classic pasta.

Seasonal vegetables, such as radicchio and broccoli, are sold here. These vegetables are rich in vitamins and micronutrient which are beneficial to human health. These products are imported directly from local suppliers. The products sold here reflect themes of the nature of biodiversity, organic agriculture and renewable agriculture.



SRV

*Venetian-style Baccaro*



SRV is a Venetian restaurant and bar. It focuses on cicchetti (small portion) made from freshly ground flour and customized Italian risotto. The food sold in this restaurant has a strong Venetian flavor, paying tribute to traditional Venetian cuisine with modern interpretation.

Fresh Food Generation is a catering company integrating restaurants and food trucks. The dishes in this restaurant have unique taste. They integrate New England with Caribbean and Southern Flavors to create a charming new style.

## FRESH FOOD GENERATION



The sauce used in making delicious food is also healthy. These condiments and sauces are made at home, so there are no additives and preservatives. The sauce is fresh. At the same time, the restaurant purchases agricultural products and meat from local farms. In terms of raw materials, they have tried their best to present nature and health.

These raw materials do not contain hormones and antibiotics. The restaurant has always implemented high standards of cooking.

## LA SANGHITA



The name "La Sanghita" is derived from Sanskrit and Spanish and translated into the meditation community. Unlike ordinary restaurants, La Sanghita is more like a training course. Their core is to promote health by providing nutritious and delicious food. They advocate plant-based diet.

Here customers can have space for mindful practice and meditation. La Sanghita has spread the idea that food can be used as medicine. They believe that food is healing and can help physical and mental health. By changing eating habits, people can get a healthier lifestyle. La Sanghita has helped to achieve delicacy and health.






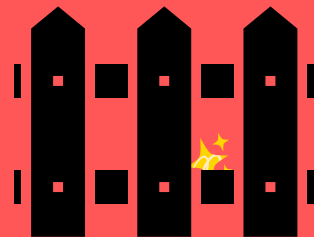
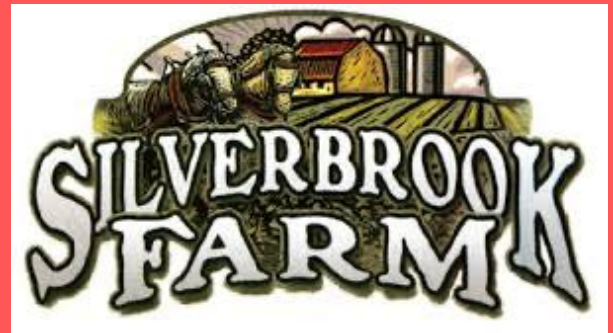


# LOCAL FARM & PRODUCERS

## SILVERBROOK FARM


The Silverbrook Farm is a fully operational agriculture facility serving the Southern New England Region.

Operating with the motto, "Start a New Family Tradition at Silverbrook Farm!",  Silverbrook strives to hold dear the values and components of traditional New England living while incorporating the updated attractions of the modern day.



## SEVEN HILLS PASTA CO.



We created Seven Hills Pasta Co. with  the belief that food can bring people together. In Italy, when you are invited to a "Spaghattata" you're asked to enjoy more than a bowl of that country's best. We echo this call to celebrate good friends with good food. In that spirit, we invite you to share our pasta with the people who make your life richer, too!





# LOCAL FARM & PRODUCERS

## HARLOW FARMSTAND

Harlow Farmstand is a local farmstand located in Westminster, Vermont that specializes in providing fresh, locally grown produce and other products to its community.

At Harlow Farmstand, customers can find a wide variety of fruits, vegetables, herbs, and flowers, all of which are grown using sustainable and organic farming practices. The farmstand also sells other local products such as honey, maple syrup, and baked goods.



## THREE SISTERS GARDEN PROJECT



**THREE SISTERS  
GARDEN PROJECT**

The Three Sisters Garden Project is a community-based initiative that aims to promote sustainable agriculture and food sovereignty in Native American communities across the United States. The project takes its name from the traditional Native American planting technique of growing three crops - corn, beans, and squash - together in a mutually beneficial system.



Kreena Totala

ENGW3315

Professor Sarah Finn

### A Sustainable Solution for a Greener Campus

As students, we often find ourselves buried in assignments and commitments, with little time to focus on our impact on the environment. Starting to compost can seem like a huge time commitment, especially when we have homework and co-op interviews and group projects to work on. But what if I told you that composting as a student is actually really simple?

Northeastern has composting resources that many students (including me) don't even know about. If you take the five minutes to read through this article, you will already have taken the hardest steps in your composting journey.

Did you know that food waste makes up about 30-40% of the waste in landfills? And when that food waste decomposes without access to oxygen, it produces methane, a potent greenhouse gas that's about 25 times more effective at trapping heat in the atmosphere than carbon dioxide. According to the US Environmental Protection Agency, landfills are the third-largest source of human-related methane emissions in the United States, contributing to global warming. Composting, on the other hand, allows food waste to decompose in the presence of oxygen, which produces carbon dioxide instead of methane. While carbon dioxide is still a greenhouse gas, it's much less potent than methane and doesn't contribute to climate change as much. Plus, composting turns that waste into nutrient-rich soil that can be used to grow new plants, among other environmental benefits.

If you take a minute to think about all of the waste a large institution like Northeastern produces, it is clear that there is a lot of potential for turning that waste into something more

positive for the environment. In 2019, Northeastern University composted over 700 tons of food waste, which translates to a reduction of over 1400 metric tons of greenhouse gas emissions. Imagine the impact if every person living in a dorm or apartment were to compost their food waste. While composting might seem like a daunting task for those of us living in college dorms or apartments, it's actually easier than you might think.

1. You'll need a compost box. Look for one that's small enough to fit in your living space, but big enough to hold your food scraps. If you live in the East Village (EV) dorms, you can get one from your RA office! Alternatively, you can purchase one online or at a local garden center. Any airtight container works well.
2. Once you have your box, line it with a compostable bag and start collecting food scraps, like fruit and vegetable peels, eggshells, coffee grounds, and tea bags.
3. Dump the contents of your compost in a local composting bin about once a week. If your dorm has composting resources, there may be a compost bin right in your trash room! Otherwise, Project Oscar (Boston's 24-hour community compost pilot program) has composting bins in **Tobin Community Center at 1418 Tremont St**, which is the closest bin to campus - located in Mission Hill. If you live south of campus, there are some in **South End, at the South End Branch Library, 685 Tremont Street**, and in **Roxbury, at Egleston Library on Columbus Ave**. If you live in the Jamaica Plains area, there is one in the parking lot of **Curtis Hall Community Center at 20 South St**. For other bin locations in the Boston area, visit Project Oscar's website!

All in all, composting can be just as easy as taking out the trash. CANU (Composting at NU) is an incubator on campus that is dedicated to increasing accessibility to composting both on and off campus. After speaking to a member of their e-board, I learned that they are currently

working on getting composting resources in all of the resident and dining halls on campus. So far, they have implemented composting in the EV and Speare Residential Halls, and composting resources in the IV and Stetson East Dining Halls. Students currently living in EV have access to free composting boxes (pictured below) that can be used to collect composting materials. They can then be emptied out in a composting bin located right in their trash room (also pictured below). This makes it so convenient; it can be taken out regularly with trash and recycling. Last year, they had this same program in Speare, and they are looking to expand this program to other resident halls, such as the West Villages, next year.

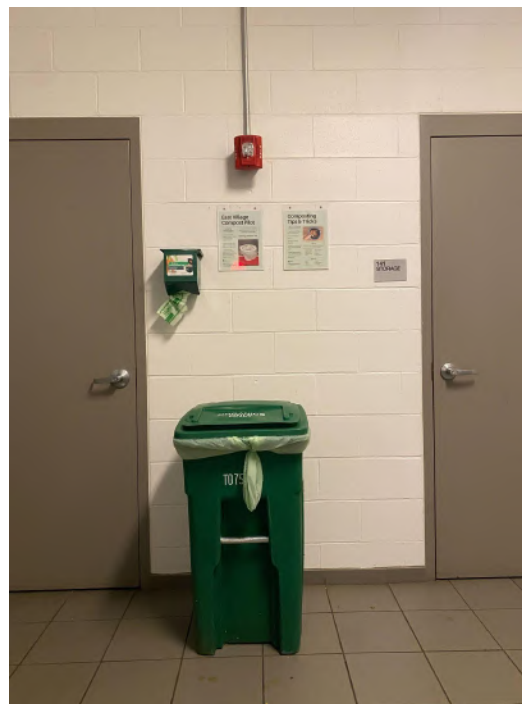
While composting is already available on campus, more can be done to make it accessible to everyone. In a survey conducted by the Office of Sustainability at Northeastern University, over 90% of respondents said they would compost if it were more convenient, and 60% said that they would be more likely to use a compost bin if it were more visible on campus. By expanding its composting program and making it more accessible, Northeastern can help students, faculty, and staff turn that intention into action. CANU is working towards this goal by expanding their pilot program to more residential and dining halls to make composting as convenient as possible. CANU is additionally looking to create more relationships with composting companies that do curbside pickup to get student discounts, which would make it easier for off-campus folks to compost.

Composting is an important part of Northeastern's sustainability efforts and is a great way for the community to contribute to a greener campus. By expanding and promoting CANU's efforts, more students, faculty, and staff can get involved and make a positive impact on the environment. If you are interested in learning more about the resources available to you for composting (either through Northeastern or the Boston community in general) or want to be a

part of advocating for changes with administration, get in touch with CANU at [nucomposting@gmail.com](mailto:nucomposting@gmail.com) to sign up for their newsletter or to share your thoughts. Happy composting!



Composting Bags in EV Trash Room



## Composting Bin in EV Trash Room



Free Composting Boxes Available in EV



Project Oscar Composting Bin



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Interview Questions:

1. Tell me about your incubator.
2. What specific changes have you recently enacted with administration?
3. How would a student use your pilot program to compost in their resident hall?
4. What resources are available for students off-campus to compost?
5. What is your incubator currently working on to make composting more accessible to students?
6. How can interested students get involved with the work that you are doing?
7. Send over any pictures you may have!

Jo Ashman

ENGW 3315 SL

Unit 2 Assignment

28 February 2023

DivestNU Introduction and Club Update: Huskies Fighting for Climate Justice

For many Huskies, fiscally supporting a conglomerate with multimillions invested in the fossil fuel industry feels antiquated, irresponsible, and just plain weird. However, many would be surprised to learn that Northeastern is not only an institution with a massive endowment of \$1.09 billion but is using part of this endowment to invest in unsustainable energy (“ENDOWMENT MANAGEMENT AND PERFORMANCE | FISCAL YEAR 2020”). Additionally, Northeastern is falling behind our academic counterparts in divestment from fossil fuels. Boston University, Harvard University, Brandeis University, University of Massachusetts network (UMass Amherst, UMass Boston, UMass Dartmouth, UMass Lowell, and UMass Worcester), and Wellesley College are all institutions that have committed to divesting in the fossil fuel industry (Cussen). Luckily, members of our community have decided to take a stand in an effort to have Northeastern’s \$65 million investment in fossil fuels reinvested: DivestNU.

DivestNU is an incubator through the Husky Environmental Action Team (HEAT) and a coalition of campus organizations since 2013. DivestNU is partaking in the fight for climate justice by asking Northeastern to invest in a sustainable future, considering “We research the climate crisis, we claim to be sustainable, we claim to be a global university—so why are we still funding disaster?” (“About Divest NEU”) DivestNU focuses on the removal of all investments in the fossil fuel industry, reinvestment in sustainable

companies and climate justice, yearly disclosures of direct and indirect investments and the removal process of members of the Board of Trustees, no false or partial divestments and distractions, and no funding from fossil fuels for research. (“About Divest NEU”)

DivestNU has had demonstrations over the years, such as a thirteen-day-long protest on Centennial Common in 2016. This was to make an effort to meet with administrators to discuss divestment, however, nothing came to fruition. However, since then, a new generation of Huskies has begun demanding administration to divest. In 2021, the Northeastern Faculty Senate approved a 2021 resolution for divestment. In 2022, DivestNU hosted a student-led divestment protest in Krentzman Quad, and a few days later, SGA passed a reaffirmation for divestment referendum from 2014. For Spring 2023, DivestNU’s main goal is to put a question about divestment on the Student Government Association ballot for this year. Considering faculty are overall supportive of divestment, DivestNU is calling on faculty to support the divestment of Northeastern’s financial holdings in oil and gas within the next two years. (“Faculty Open Letter”)

How can Huskies get involved? It may feel a bit hopeless considering the current climatic events at hand, but as a student community, we can work together to fight for climate justice against these conglomerates. A great first step is attending DivestNU meetings (every Monday at 7:00 PM in Ryder Hall Room 158) and HEAT meetings (every Tuesday at 6:00 PM in International Village Room 022) and following them on Instagram, @Divest\_Northeastern, and @HeatNEU, respectively. Both pages are active and have important information about new climate facts and their impacts on the Northeastern community. Some other great student-led campus resources include SGA Sustainability (Green Initiatives Board meetings every Tuesday at 7:00 PM in Curry Student Center Room

334 and Sustainability Committee meetings every Thursday at 6:00 pm in Curry Student Center Room 335), and other HEAT incubators, such as Composting at Northeastern University (Instagram account is @NUComposting), and Tailored, a sustainable fashion incubator (Instagram account is @Tailored\_Collective\_).

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Consider the clothes you are wearing right now. Are you at work in a uniform, company-designed so that people can recognize you from afar? How about in public, wearing something casual to look good for friends? Or are you at home, relaxing in bed and in the comfort of your pajamas?

Whatever the situation may be, you are likely wearing clothes designed and manufactured at a large scale by the fashion industry. For over two hundred years, companies have been mass producing clothes constantly in order to supply one of humanity's most basic needs. Initially, this pipeline brought unique designs and innovative wear, but as time went on, it has become an exploitative machine.

Before the industrial revolution, clothes were a commodity that was laborious to produce. Materials would have to be processed by hand, and the fabric would be painstakingly woven. After the invention of the sewing machine and textile machines, however, clothes became not only easier to create but also scalable; clothes could be made in large quantities. These innovations made clothing significantly cheaper and more available, and the general population began to have the luxury to choose which clothes to buy. The fashion industry had been born!

Initially, there was a distinction between levels of wealth in fashion. Those who couldn't afford much wore noticeably cheaper clothes while the social elite donned fancy, colorful fabrics with accessories. The fashion industry would cater to all audiences, but the audiences companies catered to were clear. Additionally, trends in fashion were seasonal, which is a tradition that has persisted to this day. Experts would work months in advance to predict what customers would want in the future, and they would design and manufacture new clothes to fit the upcoming weather. This system continued for many years, but as technology improved, eventually the industry would change.

Until the late twentieth century and early twenty-first century, there was still a clear difference between high-street fashion (clothes one would wear in the city) and high-end fashion (luxury clothes for the elite). As the world entered late-stage capitalism, however, more people had an interest in high-end fashion, though they were not as wealthy. Companies saw this as an opportunity and began producing clothes that mimicked high-end trends with cheap, low-quality materials such as synthetic fabrics. Sales for these clothes exceeded expectations, and since then, the industry is constantly on the clock to churn out more of the latest trends.

So, why is this new system where wealth is no longer visible via clothing bad? One issue is the unsustainability of following high-end trends. The old system of seasonal clothing was slower, since new clothes were produced at a seasonal rate; as a result, consumers would buy at a seasonal rate. In the new system, trends can change as quickly as weekly, but realistically, consumers do not need new clothes every week; despite this lack of need, people will still buy in order to follow the trends. This gluttony causes exorbitant amounts of waste; an estimated 92 million tons of waste is produced via textiles, and textile waste is expected to grow by 60% from 2015 to 2030.

To make matters worse, about 30% of produced clothes are never sold each season. The fashion industry still makes a profit even though they overproduce and cause additional waste, and this profit comes at the cost of workers. In order to produce at breakneck speeds and make money even with a surplus of clothes, companies pay garment workers (the people working at factories) below minimum wage.

Furthermore, there are other areas of the production cycle that are harmful to the environment. The usage of toxic chemicals, dangerous dyes, and synthetic fabrics is not only detrimental to workers, who are around these materials regularly, but they also cause



environmental damage and ruin the health of nearby animals and residents via air or water pollution. The carbon footprint of the fashion industry rivals the oil or air travel industries. Clothes are also not very recyclable; about 12% of materials from recycled clothing end up actually being reused. The new paradigm encourages waste and overproducing.

Fast fashion has quickly created several environmental and human problems. What can be done to help fight against this system? The simplest thing you can do to stop fast fashion is avoid buying from fast fashion brands. If a brand is constantly releasing new trends that are similar to others, is using cheap materials, or is manufacturing in an area where workers are paid little, this may be a fast fashion brand and should be avoided. Trying to lengthen the lifetime of clothes is also a great idea; clothes should last for at least a year.

If you would like to donate clothes, please be careful to sort them and only donate functional clothing; charities often have to spend money to sort and filter donations, and an estimated 25% of donated clothes goes to landfill. It is better to directly find someone who would happily take your unneeded clothes, or find another way to reuse them yourself.

Finally, if you would like to be more involved in fighting fast fashion, or if you would like to learn more (for instance, there is also *slow fashion*, a more sustainable system that some companies are adopting!), join Tailored, Northeastern's group of students fighting the fast fashion industry! You can find more information about us @tailored\_collective on Instagram.

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ENGW3315 Interdisciplinary advanced writing

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### SustaiNUbility

The Earth is in crisis, which threatens us all with coastal flooding, food chain disruptions, and extreme weather events. It will take significant action to mitigate climate change, and educational institutions need to step-up to make sure that those entering the workforce tomorrow understand the severity of the problem and how to tackle it. And Northeastern will tell you, “combatting (spelt, with two ‘ts’) climate change can’t wait.” Although many students are critical of general education requirements (due to the high cost per credit and the questionable relevance) a sustainability-oriented university-wide degree requirement could greatly help graduates navigate issues of sustainability. Many of these graduates will go on to be scientists, engineers, entrepreneurs, politicians, etc, and all of whom will be shaping the world of the future; and hopefully this world will be a more sustainable one.

Northeastern already has a fairly exhaustive list of university-wide requirements called NUPath. Northeastern says these requirements “prepare students for personal success in an ever-evolving global society regardless of their chosen field of study.” To ensure this success, Northeastern needs to add sustainability to the list, because if humans keep accelerating climate change at the current rate, natural disasters will threaten Northeastern graduates and everyone else's way of life.

However, the way in which this requirement is integrated is incredibly important to achieve the desired outcomes. Critics of general education requirements often cite the massive

cost of higher education nowadays. Unsurprisingly, A survey done by a group of researchers on students of Ohio State University found that 50% of students either agree or strongly agree that they would not take general education courses if they were not required. Many students have to work one or two part-time jobs and take out tens-of-thousands or even hundreds-of-thousands of dollars in loans. It is vital they get real value out of every credit they take. To make it worthwhile, this sustainability requirement must be integrated into their curriculum through major-specific courses. With 72% of students agreeing or strongly agreeing they would rather take additional courses related to their major instead of a general education course, it is clear a curriculum with sustainability integrated instead of tacked on would be their preference. Further, it is clear that an integrated approach more effectively achieves the desired outcomes. A study on 552 university students based in the Southeastern USA “stresses the importance of curricular approaches to sustainability that are integrated.” Additionally, “within courses deeply entrenched in disciplinary silos, sustainability should be presented in a way in which disciplinary focus is situated within that larger frame.”

While creating major-specific courses integrating sustainability may take some time, there are many intersections between sustainability and other majors that could make for exciting courses, and Northeastern has already done a good amount of the leg-work. A look through the combined majors offered at Northeastern proves the clear intersections environmental studies can have with other majors from economics to engineering. Further, a look through the courses Northeastern offers shows they already offer courses exploring sustainability and environmental science in other fields of study. For example, ECON 1711 - Economics of Sustainability; ENTR 3520 - Impact Investing and Social Finance; CIVE 4566 - Design for Sustainable Transportation: Netherlands. These courses can greatly increase student’s awareness of sustainability issues, give

them the tools to address these issues in their careers, and can be expanded and or modified to accommodate more students under the new NUPath requirement.

Students and professors at Northeastern are advocating for deeper sustainability education across Northeastern. SustaiNUbility is a new student organization at Northeastern working towards this goal. The group is spearheaded by Environmental Studies and Economics major Tyler Brogan, who was inspired after taking ECON 1711 with Professor Madhavi Venkatesan. Professor Venkatesan is an outspoken advocate for issues in sustainability, In 2016, she established Sustainable Practices, a 501(c)3 nonprofit. This non-profit “initiated the Municipal Plastic Bottle Ban campaign and in spring 2020” which, “As of July 2021, the Municipal Ban has been adopted in all 15 towns that constitute Barnstable County.” She is also passionate about “the integration of sustainability into the economics curriculum. She has been active in promoting education and stakeholder engagement to incorporate ethics into the existing economic framework and her written work has largely focused on these topics as a catalyst to promoting sustainability.” Further, she has offered guidance to Tyler Brogan as he kickstarts SustaiNUbility. As of writing, the group is preparing a petition to create a university-wide sustainability requirement.

Higher education needs to act fast to prepare students to face the climate crisis we currently face. Graduates from universities like Northeastern will shape the world of tomorrow, and will need to be educated on issues of sustainability if we are to mitigate the impact of human-accelerated climate change. This can be accomplished by adding sustainability to Northeastern’s existing NUPath requirements. Further, the desired outcomes will be best achieved if this requirement is satisfied through courses integrated into the student's major. While this will take some work, Northeastern already has the foundations to make this happen.

Their programs include courses and combined majors that already explore the intersections between sustainability and other disciplines. While it may be small now, there is a growing group of professors and students advocating for this change. Northeastern has the opportunity now to spearhead a change in higher education to greatly integrate sustainability and environmental studies across its disciplines to enable students to create a more sustainable world.

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