

APPH 1040 Scientific Foundations of Health—Global Learning Program

Teresa Snow, PhD

Global at Home (<https://global.gatech.edu/>)

- Summer 2022-- 3 weeks
- FYSA Students/Two Cohorts (92 participants)
 - GT Tech Loraine
 - Oxford
- Enrolled in GT 1000 and APPH 1040
- Taught in Study Abroad Format (including local excursions)
- Modified Course Content Focused on Two Sustainable Development Goals (**SDG 3 and SDG 11 [11.4]**)

The Intersection of History, Cultural Heritage and Health.

Overarching Program Learning Objectives

APPH 1040 & GT 1000

- Students will gain knowledge and skills to work effectively both individually and collaboratively in global settings with diverse cultures.
- Students will develop intellectual and emotional commitment to engage in behaviors that promote supportive environments, inclusivity, resilience and social justice.
- Students will connect individual and community actions with consequences and learn to make choices that can create better outcomes and experiences.

APPH 1040 Scientific Foundations of Health

- Course Learning Objectives:
 - Describe ways in which inclusive and sustainable cities and societies can play a role in developing resilience, health and wellbeing.
 - Explain how behavior and behavior change strategies are shaped by both history and the current socio-cultural environment.
 - Provide examples in which access to safe, inclusive and accessible, green and public spaces positively impacts public health.
 - Assess ways in which cultural heritage can be used creatively to support well-being at various life stages.
- Develop an action plan for leveraging an aspect of cultural heritage to improve public health.

Final Project--Developing Action Plan

- **Purpose:**

- Develop goal-oriented actions leading to positive wellbeing. Integrate
 - Community culture and engagement
 - Influence of Social Determinants of Health (SDOH)
 - Cultural landscapes and heritage/heritage preservation

- **Learning Objectives Address:**

- Problem solving and critical thinking skills
- Strategies for solutions that
 - Account for complexity of health issues and array of influences on behavior
 - Incorporate cultural perspectives and heritage to strengthen outcome
 - Leverage resources in innovative ways
 - Identify and implement elements of sustainability

Project Components

- Background– (health issue; target community; culture--including core values)
- Research–(health issue; culture; traditions; behavior change strategies, etc.)
- Vision
- Objectives
- Action Plan
 - Statement of Goals (SMART Goals)
 - Actionable items
 - Resources needed including resources that are already available
 - Timeline for achievement of the goals
 - The primary stakeholders--Consensus/Expectations
 - Measurement of progress
 - Outcome: How will the community culture be changed as a result of this process?
- Obstacles and countermeasures
- Sustainability

Course Assessments

- Three Reflections—trips/assigned readings integrated with course content
- Two Quizzes—student teams generated potential questions
- Project—Team Action Plan
 - Poster Presentations on Last Day
 - Two Sessions
 - Each team presented in one session and evaluated presentations in the other session
 - Evaluations according to rubric provided with assignment
 - Each evaluation entered into canvas quizzes for quick summary/feedback

Partnership with GT 1000

- Project Teams Formed in GT 1000
 - Clifton Strengths
 - Location and Cohort
- Presentation skills
- Poster Fair at Mini-Convocation

Also Supported in Other Ways

THEY WERE AWESOME!!!

Prep Work for Project

**Provide Opportunities To Work On the Individual Pieces –
Explore and Discuss Each Component!**

Integration of SDG's, Culture and SDOH

- A Brief Intro---**Focus on Discussion**
 - SDG's (overview, complexity, organizing principles)
 - SDOH (need for synergy/collaboration)
 - Role of Culture
 - Definition
 - Reactions to Differences (bias, stereotypes)
 - Assessment of Core Beliefs
- Data Exploration—SDG tracker
- Integrated Media Clips Related to Action Plan
 - Ex. Seven Layers for Large-Scale Social Change
- Campus Exploration/Examples
- Connect Action Plan at Each Step



How We Choose to Engage is Important



BENEFITS OF GETTING A COVID-19 VACCINE

WE CAN DO THIS

COVID-19 Vaccination Will Help Keep You from Getting COVID-19

NEARLY 100%
EFFECTIVE AT PREVENTING SEVERE ILLNESS, HOSPITALIZATION & DEATH DUE TO COVID-19, INCLUDING FROM THE DELTA VARIANT

All COVID-19 vaccines currently available in the United States have been shown to be highly effective at preventing COVID-19.

COVID-19 Vaccination is a Safer Way to Help Build Protection

MILLIONS OF PEOPLE
IN THE UNITED STATES HAVE RECEIVED COVID-19 VACCINES

COVID-19 vaccines are safe and effective. Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring in U.S. history.

COVID-19 Vaccination is an Important Tool to Help Stop the Pandemic

WEARING MASKS + SOCIAL DISTANCING
PROTECT YOURSELF AND OTHERS FROM COVID-19.

Until you're fully vaccinated, wearing masks inside public places + staying at least 6 ft apart from people who don't live with you + who may not be vaccinated reduce your chance of being exposed to or spreading the virus. Even people who are vaccinated in areas of substantial or high spread of COVID-19 should wear a mask inside public places to maximize protection from the highly contagious Delta variant and prevent possibly spreading it to others.

Three ways to find a vaccine: Go to [vaccines.gov](https://www.vaccines.gov), text your zip code to 438829, or call 1-800-232-0233 to find a vaccine near you

Case Studies

- Connecting Tangible and Intangible Heritage
 - Feng Shui
 - Historic Towns, Pakistan
- Three Stone Cook Stove--Rwanda



<https://www.delagua.org/project-rwanda/>

Readings

- Why didn't I assign a health textbook?

- Primary Reading—

What the Eyes Don't See: A Story of Crisis, Resistance, and Hope in an American City by Mona Hanna-Attisha

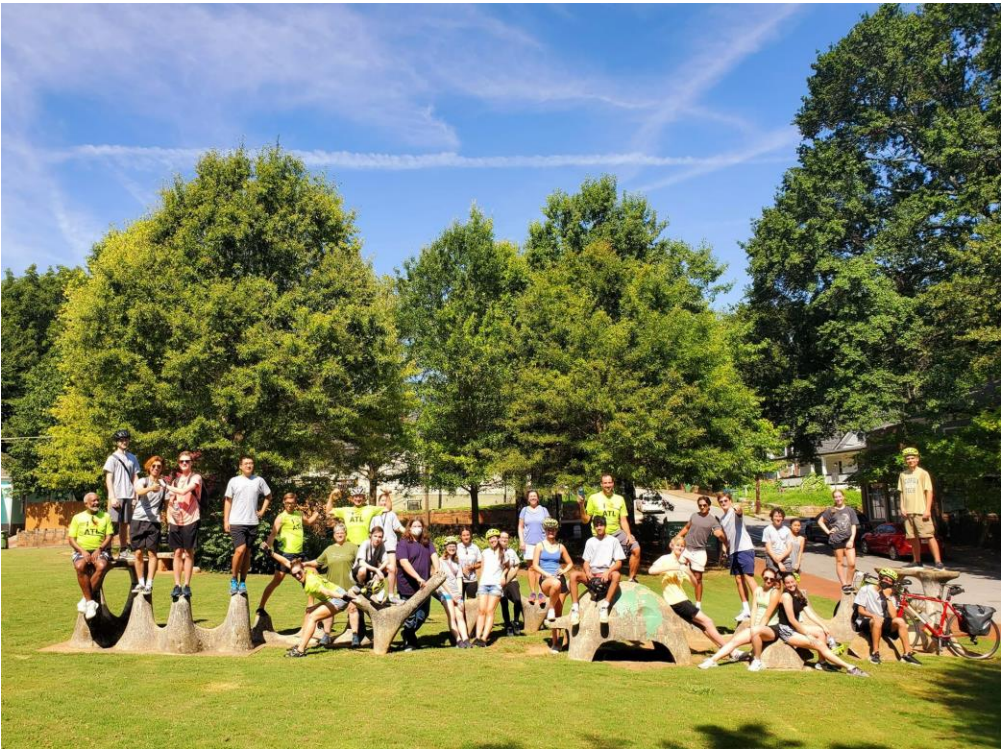
Student Comments—

"It is important to find an efficient and reliable outlet to get your message across to your target audience when dealing with a social justice issue. Without sending your message into the world, there is no way to find the support and backing to create realistic and concrete change."

"We must be resilient and fight for the positive social change we desire."

"We also need to be more aware of how our current society can have negative barriers that hamper the ability of many to live healthy lives, and we need to stop treating the lives of people in our society like political tokens."

Results



Results



ATLANTA PUBLIC TRANSPORT



THE PROBLEM

MARTA: unreliable, slow, few routes, inconvenient

Culture: public transport viewed as welfare for the impoverished

- 500,000 weekly riders in a city of over 6 million
- Underutilized by middle and upper class
- MARTA receives little to no funding outside of Breeze swipes
- All 4 metro lines & 103 bus lines are late 20% of the time.

OUR VISION

- Greater Convenience
- Environmental benefits (Electric buses)
- Reduced congestion



Ultimately, we aim to build a more convenient, environmentally-conscious Atlanta that encourages public transit (via MARTA), discourages car usage, and improves the environmental health of the area. We also aim to destigmatize public transit by emphasizing its benefits.

TARGETED DEMOGRAPHIC



- The working class, frequent MARTA users
- Also, the middle and upper-middle class, who have low rates of public transportation usage
- Car users

SUGGESTED ACTION

MARTA FUNDING

- GOAL: double MARTA annual revenue
- 15% increase per year for 5 years will double the current 550 million dollars annual revenue
 - Selling more ad spaces
 - Name routes and vehicles after donors
 - Increase fare to \$2.75, offer a \$2.00 student fare
 - Actions will be taken **immediately**



MARTA APP REVAMP

- GOAL: increase app downloads and daily MARTA users
- Implement accurate live location tracking and capacity tracking of busses, subways, and trolleys
 - Include a trip planner, making use of walking, busses, trolleys, and subways – or a combination of all 4
 - Run advertisements on the app for funding
 - Actions begin immediately, full vehicle tracking in **3 years**

INCREASED MARTA FREQUENCY

- GOAL: double frequency of popular routes, slight increases in others
- Cars are valued for their convenience, and to match that convenience, frequency of specific routes will be increased
 - Advertise increased frequency to middle class
 - Hire more MARTA bus drivers
 - New busses purchased should be electric
 - Actions should take **3-5 years**



CONVERSION TO ELECTRIC VEHICLES

- GOAL: The gradual conversion of all MARTA vehicles to use electricity
- Electric vehicles will be more environmentally friendly and will decrease sound and air pollution
 - Current culture values electric vehicles and the environment
 - Most popular bus routes can be replaced with trolleys
 - conversion to trolleys of specific routes will take **7-10 years**
 - Full conversion of the bus fleet will take up to **20 years**

EXPANSION OF BUS AND SUBWAY ROUTES

- GOAL: To have walking distance MARTA stations for the majority of Atlanta citizens
- Major population centers without MARTA stations will have them
 - Construction is to be done in small pieces to avoid disruption
 - Subway expansions to complement bus routes
 - Expensive and long term project that will take up to **30 years**



PROJECTED OUTCOMES



- Positive environmental impact: more electric buses, less usage of individual gasoline vehicles
- Lower congestion, reduced commute times
- Greater sense of community and connectedness
- Greater mobility – both physical and metaphorical – for working class neighborhoods
- Reduction of stress through convenience, efficiency and reliability

OBSTACLES

- **Funding:** money is required during every step; the hope is to involve wealthy donors and sell ad space for increased revenue.
- **Stigma:** although there's no quick, easy solution, we can work with local leaders and advertising campaigns over time to attempt a shift in perception.
- **Politics:** since public transport is viewed as welfare, conversations become politically charged. Additionally, MARTA is the largest public transit agency in the US to never have received operational funding from the State of Georgia. However, as stigma changes, this may change as well.



SUSTAINABILITY

- Prices sustain majority of expenses
- Net zero profit or loss; goal is to provide transport, not to make profit
- Long term: make ALL vehicles electric for environmental sustainability
- Adding, removing, and changing routes and vehicles as needed

CONSULTED SOURCES

- <https://www.itsmarta.com/KPIRidership.aspx>
- https://www.crunchbase.com/organization/marta/company_financials
- <https://www.itsmarta.com/kpihome.aspx>
- https://cptdb.ca/wiki/index.php/Metropolitan_Atlanta_Rapid_Transit_Authority



BACKGROUND

What is the problem?

12% of Atlanta residents live with **food insecurity**



1 in 9 people are affected.



1 in 7 children are affected



Over **500,000** residents live in **food deserts**.

Urban food deserts are defined as locations where 1/3 of the population lives more than a half mile from fresh food.

Lower-income regions in Atlanta, have limited access to fresh foods due to a lack of **public transportation**, physical **distance**, and less developed **infrastructure**.

This leads to...



Poor Nutrition



Chronic Illness



Medical Bills



Lower Income



Shorter Life Expectancy

Although some progress has been made in expanding access to fresh food, increases in access have been uneven throughout the city. Currently, food deserts disproportionately impact minority residents, specifically the Black and Hispanic populations of Atlanta.

We aim to provide **equal** and **easy access** to fresh food across the city.

KEY PARTNERS



Local Government



Local Grocery Stores



Atlanta Food Bank



Universities and Colleges

STAKEHOLDERS



Local Stores



Local Farmers



Low Income Individuals

ATLANTA FOOD INSECURITY

OUR VISION

Our goal is to ensure that all Atlanta residents would live at a maximum of 0.5 miles from access to fresh food. In addition, access to these stores should not be restricted due to lack of transportation, the walkability of the area, or an individual's income level.

SOLUTION

We will be building **hydroponics systems** to increase access to fresh foods. Hydroponics is a system of growing plants without the use of soil, instead using nutrient-enhanced mineral solutions. Systems can be implemented on both larger and smaller scales.



We are using hydroponic farms because they are:

Cost-effective: Smaller systems for families can be implemented for ~\$500. Larger greenhouse systems may cost upwards of \$20,000.

Space efficient: Hydroponics systems can be fitted to the available space. Some systems only require 6 feet of floor space. Others can use vertical space. A more extensive greenhouse system can be built on roofs where space may already be unused.



It is important to note that food insecurity and food deserts are complex issues, rooted in many different causes. There is no single solution to the issue at hand. We are focusing on hydroponics as a way to fight food insecurity, but this is something that will be solved through the efforts of many. Other potential solutions involve **grocery store expansions** into new areas, more **partnerships with local restaurants**, increased **funding for food stamps**, and **better public transportation**. We will support other efforts made in the community to fight food insecurity in whatever ways we can, whether that be financial or otherwise.



ACTION PLAN

6 mo.

1. Bring Awareness to our plan
We will utilize social media and other forms of communication to share information about our plan and recruit volunteers

1 yr.

2. Raise Capital
This will include asking for donations online, hosting events to ask for donations in person, reaching out to local businesses for donations, etc. Fundraising will not end after a year, but we hope to have enough funds in a year to begin building hydroponic systems. Money will be provided to individual families as it comes in for them to purchase their own systems.

1.5 yr.

3. Find Space for Large Hydroponic Plants
This will happen as capital is being raised. Though there are a small number of lots of land on the market that we may look into purchasing (most in the range of ~\$500,000 to purchase), we want to utilize the flexibility of hydroponics, and we also reach out to owners of buildings in Downtown about the usage of their roofs to construct a hydroponics greenhouse.

2 - 3 yr.

4. Begin Construction on Hydroponics Plant
Once we have our set land to build the hydroponics plant, we will look into what we will be growing and what kind of system we'll be using. Light will be the main source of growth for these farms. As we begin to use it and become more familiar with the system, we can begin to expand these farms and experiment with different foods. Examples of types of foods we will grow include lettuce, tomatoes, strawberries, etc.

5 + yr.

5. Expansion/Community-Run
If our plan is successful in Atlanta, the next step is to expand the use of hydroponic systems to the rest of Georgia and food deserts all over the nation in the long run. We also intend for decisions about expansion to be made by members of the community, based on their experiences with our program.

MEASURE OF SUCCESS

We want to ensure that at least **90%** of residents live within half a mile of fresh food within the time frame of this plan.

Other measures of success:

- **Reducing the** number of **food deserts** in metro Atlanta.
- **Surveys/polls** will be used to assess residents' access to food and compared to initial results to see if there has been an improvement.
- Significant **decreases in inquiries for food** assistance from the Atlanta Community Food Bank



Slather Up!

Ayleen Tello, Jansher Azmat, Valentina Garcia, Venessa Hu, Zhang Ke Wei

Background

1. Low sunscreen usage among college students



3. Extremely deadly and costly

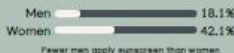
• 9,008 people died from melanoma in the United States in 2020

\$3.3 billion

Estimated cost of treating melanoma

5. Men are especially affected

• Men are more susceptible to developing melanoma due to elevated levels of testosterone



Community



We are targeting Georgia Tech college students of all demographics, but especially men

Culture



Stigma among men about skincare, daily as "girly"

Vision

Sun protection everywhere, for everyone.

Mission

Georgia Tech students...

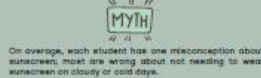
- are aware of the importance of applying sunscreen
- apply sunscreen regularly
- have easy access to basic skin care products regardless of income

This way we can...

- reduce skin cancer
- improve self esteem through skincare
- make skincare more inclusive to all genders and ethnicities
- boost life expectancy
- create a community that disregards stigmas and stereotypes and is truly concerned with self-care

... while acknowledging and respecting the cultural values of different members in our community.

Findings



Based on a survey of 50 Georgia Tech students in the FYSA program on their sunscreen usage habits and attitudes towards skincare, we discovered that:

- Spread awareness of proper sunscreen application
- Focus on encouraging skincare usage among men and addressing their differences such as physiological factors that might affect the optimal sunscreen product for men
- Improve the convenience and cost of sunscreen access for students
- Set up sunscreen dispensers in key locations throughout campus
- Organize campaign to raise awareness about skin-related health issues, dispel myths and stigma relating to cultural heritage, and encourage the usage of on-campus sunscreen dispensers



Goals

Distribution Plan

- Deploy an estimated 160 sunscreen dispenser stands across campus, placed near the primary entrance of each building on the Georgia Tech campus, as well as around major outdoor locations denoted on the campus map including Tech Green
- Have 70% of students in Georgia Tech develop habit of wearing sunscreen in 5 months
- Minimize the risk for Georgia Tech students from having skin disorders

Campaign Plan

- Increase dispenser usage by a factor of 1.25 up to two months after the campaign launch
- Amass a following of at least 25% of the undergraduate student body (4,000+) by the end of the school year
- In a follow-up survey,
 - improve the number of respondents agreeing to use on-campus dispensers from 34.7% to 50%+
 - reduce disparity between number of female and male students applying sunscreen daily by 2x
 - increase perceived importance of skin cancer and reduce misconceptions held by students about skincare by 30%

Obstacles



- Stereotypes and biases surrounding skin care – men consider applying sunscreen daily "girly"
 - Utilize social media to stress the negative consequences of exposure to UV rays and invite influencers to lead the trend of wearing sunscreen, especially for males. Normalize the behavior of wearing sunscreen daily despite gender
- POC may still feel they don't need sunscreen
 - Although dark skin produces a natural chemical, melanin, that helps to absorb ultraviolet light, exposure to sunlight without protection still damages the skin, raising the chances of sun spots, wrinkles and skin cancer
 - Use both digital (internet and social media) and in-person (flyers and posters) channels to spread the message that ultraviolet rays are harmful despite skin color
 - Promote sunscreens which do not leave white residue and are acceptable for POC
- Myth that ultraviolet rays are less harmful in winter
 - UV rays are equally harmful, sometimes even more harmful in the winter (during snowy days the snow reflects ultraviolet light and further cause damage to the skin)
- Expenses of purchasing sunscreen for the whole school may be prohibitive
 - Collaborate with skin care foundation to collect funds and cooperate with sunscreen company to get discounts by purchasing in bulk.
- Some students might be allergic to specific chemicals in sunscreens we provided
 - Put up a poster at every station to specify the elements included in our sunscreen.

Timeline

(Based on 2022-2023 calendar school year)

- Sept. Establish a governing body consisting of Clinical team members
- Oct. Communicate with the administration and Stamps Health Department to discuss permissions, logistics, and funding
- Nov. Research and determine the optimal sunscreen product(s) and dispenser stand for full-scale deployment
- Dec. Secure social media handles and accounts on Instagram, Facebook, and Twitter, as well as student-run media such as Technique
- Jan. Design and print infographic posters and flyers for each dispenser station, emphasizing misconceptions related to cultural heritage such as stigmas linked to gender and skin color
- Feb. Initiate a stream of bi-weekly social media content to share educational resources and promote the upcoming sunscreen dispenser pilot launch



Timeline

(Continued)

- Mar. Secure financing for an initial test launch through a fund-raising initiative, grants from the Skin Cancer Foundation, and the generosity of the administration
- Apr. Distribute trial dispensers around campus hotspots and gather usage data
- May. Evaluate the frequency of the usage of dispensers and determine whether the full-scale deployment plan would be appropriate
- Jun. Install sunscreen dispensers in 153 locations based on usage metrics. Set up a poster and a stack of educational flyers in close proximity at each station
- July. Monitor metrics for sunscreen usage, operational cost per month, and station activity by location on campus
- Aug. Resurvey undergraduate student population, evaluate the success of the initiative, and determine whether to continue this project in the future

ACTION PLAN SOLUTIONS

Distribution Campaign

- Resources Required**
- Funding for station materials, including:
 - Vertical stand with dispenser
 - Sunscreen product
 - Maintenance and personnel
 - Access to sunscreen supply data
 - Physical poster and flyer materials
 - Funding for the purchase and distribution of these educational materials
 - Social media handles and accounts
 - Influencers and content producers
- Primary Stakeholders**
- School administration
 - Stamps Health Service Center staff and medical personnel
 - Campus population, with a particular emphasis on the male undergraduate student population
- Measurement of Progress**
- Physical sunscreen usage metrics
 - Recurring follow-up surveys after the Fall and Spring semesters
 - Student health data, including prevalence of sunburns and skin-related diseases
 - Social media engagement metrics e.g. followers, likes, comments, shares
 - Number of flyers picked up at each station
- Available Resources**
- Stamps Health Service Center
 - Existing sunscreen dispenser stationed at the Campus Recreation Center entrance
 - Student-run media, e.g. Technique, Instagram accounts
 - Price Gilbert Library media desk and copy center

Outcomes

- Georgia Tech students, especially males, will develop more awareness about the importance of skin care and gain more knowledge on how to scientifically take care of their skin. This also helps students to get past underlying bias about the past gender stereotype that label certain behaviors to "girly" or "manly," and it will promote a more tolerant environment in this community.

Sustainability

- 1-7 Sunscreen dispensers per facility encourages long-term priority of skin care
- Sunscreen dispensers are technology-driven, economical, easily adaptable, and convenient.
- Better for the environment – creating healthy communities here on campus!

Reinforcement of Course Learning Objectives Through Key “Capstone” Assignments

- The type of assignment will vary. It should be based on purpose and criteria. The assignment chosen should:
 - Be closely aligned with learning objectives
 - Provide clear description of purpose and task
 - Require integration of concepts and application of critical thinking skills
 - Have clear criteria for evaluating performance
 - Demonstrate benefit and transferable skills
- Format of assignment should consider goals and level of student
- The amount of direction vs. flexibility should be determined upfront
- **Provide in-class practice to ensure students are sufficiently prepared and understand required elements.**

Slow Down the Pace

Do not tell them. Let them tell you!

Empower students to be successful

Make it fun— for you and your students!

Thank You!!

- And a Special Thanks to
 - Serve-Learn Sustain (Rebecca)
 - Center for Teaching and Learning (Carol)
 - Office of International Education (Amy)
 - Global Learning Program & GT 1000 (Sara, Cassy and Lizzy)