

Spring 2024 MakerFest Exhibitor Program

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TABLE #: AMST 1-1

Climatopia™: The Game

Course: AMST 641 - *Communicating Water Challenges of Climate Change with the Visual and Performing Arts*

Makers: Sydney Van Buren, Dr. Rachel Willis, Hannah Garner, Peyton Wojcik, Gabrielle Augier, Kailey Wadsworth

Climatopia™ is an innovative fabric game and resource backpack for people of all ages. Developed with BeAM and APPLES support, the goal of Climatopia™ is to share strategies and resources to help plan for, face, and recover from climate change-enhanced water disasters. These disasters include extreme heat, snowstorms, floods, hurricanes, disease, and wildfires. Students have iteratively designed the website, game rules and strategies, board and bag illustrations, and game pieces. Using BeAM training and facilities, they have collaboratively created all the game pieces, board, and curated resource links to produce the final iteration of the game for distribution to environmental centers in North Carolina.

TABLE #: APPL 1-1

SpinTunes Coaster Jukebox

Course: APPL 110 - *Introduction to Design and Making*

Makers: Alexis Obimma, Claybrook Taylor, Christina Nguyen, Lexy Isehour

Our group made a decorative turntable with drink coasters that look like classic vinyl records. The vinyl coasters, lever, and gears were designed using Tinkercad and printed with the 3D printers at BeAM. We crafted the box in the woodshop and used a laser cutter for carving. The vinyl coaster stickers were created using a vinyl cutter. Finally, we programmed the LED light on Arduino IDE and built it with actual Arduino hardware.

TABLE #: APPL 1-2

Scale Synergy

Course: APPL 110 - *Introduction to Design and Making*

Makers: Nicholas Hinson, Jennifer Yu, Minzheng Song

We made a physical board game for 3-8 players. The game flow will be like this: One player will be asked a question that is meant to be answered on a scale from 1-10. They will then answer the question in a way that is recorded but hidden from other players. The rest of the players will then guess how the other person answered and get points based on how close their answer was to (Same number, +3, adjacent number, +1). We used the laser cutter, the 3D printer, and the vinyl cutter.

TABLE #: APPL 1-3

LapStudy by HeroBeam

Course: APPL 110 - Introduction to Design and Making

Makers: Emily Lewis, Cheyenne Thaxton, Andrew Lockard, Carson Faulkner.

The LapStudy is a lap desk that puts the user's comfort and productivity first by adding features based on proven study techniques and personal experiences in higher education settings. We utilized numerous tools BeAM offers, including the laser cutter, 3-D printer, vinyl cutter, and textiles. We incorporated recycled elements into our product for sustainability as well. Throughout this process, we learned how to draw ideas from our present environment and experiences and revolutionize them.

TABLE #: APPL 1-4

Watch That Vibrates at a Given Time

Course: APPL 110 - Introduction to Design and Making

Makers: Nicholas Smith, Olivia Moran, Logan Oscher

We thought of ways to creatively make an alarm for deaf people or otherwise. We came up with a watch that shocks you and settles with a watch that vibrates. Using an Arduino board with a vibrating mechanism connected to it we can send a signal at certain times to activate. The less complex pieces are 3D printed and attached to a recycled material used as our wrist piece. We learned a lot about coding in Arduino and properly applying it with other pieces. It also deepened our knowledge with 3D printing software and sewing. For our next iteration we would likely try to use a charged Bluetooth function and try to make it more comfortable for the user/more functional in general.

TABLE #: APPL 1-5

Treat 4 Task

Course: APPL 110 - Introduction to Design and Making

Makers: Risa Mohapatra, Riley Connor, Katelyn McAfee, Anirudh Veeramalla

Treat 4 Task is an innovative take on the classic gumball machine. We redesigned the treat dispenser to be used as an incentive for kids to finish their chores, leading to a yummy treat shooting down. Using 3d printing, laser cutting, and vacuum forming, we constructed the walls, globe, and candy dispensing mechanism. Every aspect comes together to create a fun take on doing chores.

TABLE #: APPL 1-6

FocusLock: Modular Desk Organizer

Course: APPL 110 - Introduction to Design and Making

Makers: Cooper Pollock, Samhitha Pudipeddi, Peyton Price, Sherry Chen

The project is a motivational desk organizer with a phone box that tells you when and when not to use your phone with the use of an LED on a timer based system. This is enhanced by a motorized spool full of motivations to keep your head up high. There are boxes for your pens, pencils, and other study tools to be stored with a pegboard on the back to store notes or pictures.

TABLE #: APPL 1-7

Highly Functional Tea Cup

Course: APPL 110 - Introduction to Design and Making

Makers: Benjamin Huan, Evan Liu, Halden Levin, Helen Weninger

This highly functional tea cup combines multiple aspects of tea-drinking enjoyment into one design. The cup is custom-designed to allow for the attachment of 3 main components: a custom removable compartment to hold used tea bags, a mechanical stirrer that fits this and any tea cup, and an Arduino-powered sensor that measures the temperature of the tea and will give an audio cue if the cup is sufficiently cooled. Additional aesthetic elements were created from yarn and vinyl, and since this is a tea cup, there is a (removable) handle.

TABLE #: APPL 1-8

Flow Desk

Course: APPL 110 - Introduction to Design and Making

Makers: Catherine Buck, Katie Anderson, Ryan Morin, Reggie Love

We chose to make a motorized desk organizer to promote desk organization in smaller spaces. Made using laser cut wood, 3d printed elements, vinyl cut decorations, and textiles, our project allows for lots of user customizability in what the organizer stores. Through completing this project, we learned how to more effectively use each technology involved in the product, especially gaining experience with using Arduino. For a further iteration, we would improve on the visual design of the organizer like making it look more seamless on the average person's desk.

TABLE #: APPL 1-9

Glow-in-the-Dark Dog Collar

Course: APPL 110 - Introduction to Design and Making

Makers: Olivia Hammond, Brynn Brusseau, Charlie Russell, Crew Detamore

Our project is a glow-in-the-dark dog collar designed to enhance safety during nighttime activities. We chose this product to address the safety concerns of outdoor enthusiasts, particularly those who enjoy walking, running, or biking at night. Combining textiles, electronics, and vinyl cutting, we created a comfortable, customizable collar that automatically illuminates in darkness. Utilizing tools such as sewing machines, sensors, and Arduino controllers, we integrated these technologies seamlessly. Through this project, we learned about the integration of various disciplines and the importance of user-centric design. For our next iteration, we aim to enhance durability, battery life, and expand our product line to cater to different pets and outdoor activities.

TABLE #: APPL 1-10

Candle Boat Table Decoration

Course: APPL 110 - Introduction to Design and Making

Makers: Aidan Lee, Parker Rouleau, Hyatt Criser, Sushant Marella

Our project incorporates a 3D printed and laser cut wood ship that includes a sail using the sewing machine, and circuitry for different aspects of the boat. The circuits are battery powered and include LEDs. The boat was created to be a desk accessory with limited functionality. If we were to create a new iteration, we would improve the aesthetic design and include a rudder that could be controlled from the top of the boat.

TABLE #: APPL 1-11

"Grip Reaper" Digital Grip Strengthening Device

Course: APPL 110 - Introduction to Design and Making

Makers: Anthony Marello, David Ona, Rian King, Victor Hieu Nguyen

The Grip Reaper is a grip strengthening device fit with a digital screen that keeps count of how many reps you complete. Our device is primarily made out of metal, with 3d printed pieces made out of co-polyester. Rubber bands are used to provide tension, and the device is one-size-fits all and can be modified to increase or decrease resistance for an optimal workout.

TABLE #: APPL 1-12

Wooden Toy Plane with Motorized Propeller

Course: *APPL 110 - Introduction to Design and Making*

Makers: *Logan Richter, Xuanchen Qian, Adam Schlemmer*

We made a toy plane that doesn't fly, but is still fun! The body is laser-cut from plywood, the propeller is 3D-printed, and it's powered and controlled by an Arduino board. It also has wheels and a sticker cut from adhesive vinyl.

TABLE #: APPL 1-13

Do It Yourself! Fan Fun for Teens

Course: *APPL 110 - Introduction to Design and Making*

Makers: *Henry Swiber, Noah Lambert, Nicholas Conrad, Zachary Azra*

Our product was created to introduce adolescents to STEM with an easy-to-understand beginners project. It was created using laser-cut plywood, 3D-printed parts, nuts and bolts, and vinyl-cut stickers. During the design process, we learned how different physical processes can interact with technology and lines of code to create a viable working product.

TABLE #: APPL 1-14

Page Pal: Adjustable Book Holder

Course: *APPL 110 - Introduction to Design and Making*

Makers: *Daniel Zhang, Naveen Ramesh, Amrutha Dhulipudi, Tejkaushik Maradan*

When studying or doing work, we commonly run into the problem of trying to keep books open. This was an annoying problem, as holding your textbook or book open with one hand while trying to copy or write notes with your other is cumbersome, annoying, and sometimes you lose grip and the book just closes on you. So, to make life easier for students and professionals, we've created the Page Pal. This innovative book holder allows you to hold down your book's pages so you have your hands free to copy notes, write summaries, and generally just be more efficient.

TABLE #: APPL 1-15

Cut'n'Sort

Course: APPL 110 - Introduction to Design and Making

Makers: Kayala Purdie, Laine Cammack, Gryphon Howell, Charles Wilt

Making recipes with several different ingredients that need to be chopped can be overwhelming. Where should one prepped ingredient go while you chop the other? Our solution: Cut'n'Sort. Cut'n'Sort is a wooden box that a standard cutting board will slide right into. Connected to the box will be three drawers of various sizes with openings for a user to easily swipe and sort their ingredients. By using the attachable kitchen rag, the user can wipe their cutting board clean and start chopping the next ingredient. Cut'n'Sort features 3D-printed drawers perfect for portioning out your prepped ingredients. Additionally, Cut'n'Sort repurposes T-shirts as kitchen rags for easy and sustainable cleaning. When it is time to cook, simply remove the drawers and use your perfectly sorted and prepped ingredients!

TABLE #: APPL 1-16

Fit Check: Plan Outfits in Advance

Course: APPL 110 - Introduction to Design and Making

Makers: Natalie Vogel, Laurel Jennings, Mia Mese, Sowmya Pellakur

We came up with a new and innovative way for busy people to get ready during their fast-paced mornings. This product is called the Fit Check, and it allows users to plan their outfits for the week and try them on to see how they look without even changing their clothes. This product will be a small, spinning, circular plate with seven mannequins attached to the outer edge. These mannequins will rock any outfit the user puts on them and will save the user a lot of time in the mornings.

TABLE #: APPL 1-17

ClassMade Caddy

Course: APPL 110 - Introduction to Design and Making

Makers: Theadora Rabman, Neve King, Dylan Look, Leonard Yang

We made this product because it reduces clutter and efficiently manages school supplies such as pens, pencils, markers, and electronic devices. We used laser cutting, textiles and sewing the 3D printer and an electronic circuit. The laser cutter would be used to make the body of the box. We would use the 3D printer to make the wheels and to design the box, we would use textiles and sewing. We are also using a light for the box so people can see what is in the box. We would do that using Arduino code. This product's versatility and adaptability make it suitable for home study areas and classroom settings, offering users a way to personalize their learning environment. This product helps with organization and a personalized learning environment.

TABLE #: APPL 1-18

Tipsy Toss

Course: APPL 110 - Introduction to Design and Making

Makers: Aditi Shah, Michael Shorb, Kritsara Trihemasava, and Ahmed Abnowf

Needing a break? Feeling sober? A little too sober? Come join us in experiencing Topsy Toss, the perfect combination between Beer Pong and Ski Ball. Made with a mixture of laser cutting, Arduino, Wood working, 3D Printing, and Vinyl Cutting, Topsy Toss beautifully combines tried and true games, with an age old drink, liquor. The best thing about Topsy Toss? It's all about the journey (the shots), and not the destination.

TABLE #: APPL1-19

The Bird Box

Course: APPL 110 - Introduction to Design and Making

Makers: Srineet Manikonda, Zhilin Zhai, Pengyu You, Zachary Kaplan

Here we have an innovative bird house providing food to the birds with lights, windows, and a motion sensed roll-up door. It's all controlled by a coded arduino board.

TABLE #: APPL 1-20

Mama Coco's Casita

Course: APPL 110 - Introduction to Design and Making

Makers: Ashley Artica-Zuniga, Madison Lawrence, Satchel Causey, Genesis America Jaimes Hernandez

For this project, we intend to create a dollhouse that will allow children to explore their creativity and play house, while allowing them to learn a new language. Each piece of the dollhouse is labeled with a word in Spanish and its translation in English. We used the laser cutter to make the base of the dollhouse, we 3D printed the furniture within the dollhouse, and used textiles to complete fabric pieces inside the house. We also used the vinyl cutter to label the furniture and an arduino sequence to control lights within the dollhouse.

TABLE #: APPL 1-21

Lifesaver Penguin

Course: APPL 110 - Introduction to Design and Making

Makers: Mary Anna Stiles, Beatrice Fruth, Amanda Lin, Ava Langaker

Narcan has proven to be a lifesaver, yet so many people do not carry it with them - whether from a lack of information or societal norms standing in the way. The Lifesaver Penguin works to make Narcan both more accessible and easily recognizable to individuals in times of need. The plywood crafted box with the distinguishable penguin figurine on top will be strategically placed within a bus stop. This enables individuals to efficiently find and/or remember where the Lifesaver Penguin resides and quickly access the Narcan. The instructions laid out along the side of the plywood box and illuminated by LEDs when the sun goes down will aid in the correct usage of Narcan. In our next steps, we plan to work to implement the Lifesaver Penguin throughout Chapel Hill, making Narcan accessible.

TABLE #: APPL 1-22

Trash's Not Here

Course: APPL 110 - Introduction to Design and Making

Makers: Jake Additon, Zuhair Abouelkheir, John Hinkle, Bayan Abulabda

“Trash’s Not Here” is a kit that converts a “He’s Not Here” Blue Cup into a small trash can that clips to the back of a car seat rear pocket. The kit will consist of two 3D printed clips, a laser cut plywood assembly, a laser cut lid, and a vinyl cut “Trash” label. We wanted to show an air of sustainability through the use of repurposed materials that a UNC student will just have lying around their houses and making it into something fun and useful. We learned how to use Arduino to add a proximity sensor to inform the user that the trash needs to be taken out. We also learned how to use the BEAM makerspace which allowed us to create our prototypes and our final project. We hope for our next iteration of the project to have another sensor that will open the lid by waving your hand over it.

TABLE #: APPL 1-23

ThirstyLeaf Defender - A Hands-off Plant Watering Device

Course: APPL 110 - Introduction to Design and Making

Makers: Eric Chen, Danielle Deavers, Ali Shamsulhodaey

Our product is a self-watering system for plants that waters the plant for the user once the moisture level of the soil becomes too low. It consists of a water container and an electric pump system that can be connected to an existing planting pot to automate the watering process by pumping the water when the soil is dry. It will clip connect to a fitted cubby holder that hangs from the ceiling to give an aesthetically pleasing and tidy appearance.

TABLE #: APPL 1-24

Active Companion: An Entertaining and Functional Robot

Course: *APPL 110 - Introduction to Design and Making*

Makers: *Zihan Zhou, Yutong Wang, Sitong Liu, Hao Wu*

We choose to make our project because we want to make a product that can be used primarily in home and entertainment spaces, where the robot will serve as a fun companion with a sticker-adorned exterior that quickly catches the user's eye while also giving the user practical assistance in keeping and organizing various items. Our intended users are 4-20 year olds who are new to robots and interested in its inner workings. For young people who have just started learning about the composition of robots and the circuitry involved, our products can be their first attempt to explore robotics. We have a laser-cutted box, 2 axcel, 4 caps, and 4 wheels are 3D printed, stickers that are vinyl cutted, Arduino with LED and motor. We learned to use electricity and designing Arduino, to use fusion 360 to make sketch of wheels, and to use laser cutting and vinyl cutter. The next iteration will be upgraded by having a automated charging spot.

TABLE #: APPL 1-25

The Automatic Switch

Course: *APPL 110 - Introduction to Design and Making*

Makers: *Akshay Mankad, Nate Alexander, Gabriel Baity, Charlie Harper*

By attaching a motorized component to the edge of a light switch, our product allows the user to control the lights from anywhere in the room using a remote. Our product will be created using a 3D-Printed base with laser-cut acrylic and vinyl cut detailing. The remote will be a sensor that is controlled by an Arduino so that pressing the buttons on the remote activates the motorized component, flipping the switch.

TABLE #: APPL 1-26

The LaundryBot

Course: *APPL 110 - Introduction to Design and Making*

Makers: *Sanjana Nukala, Shriya Agarwal, Avery Walters, Yude Wu*

The Laundry Bot aims to address the inconvenience of laundry, particularly for college students. We offer a remote-controlled hamper with built-in wheels for easy transportation of clothes and laundry products. The hamper features storage compartments for detergent, a removable fabric lining for hygiene, and a sensor to indicate when it's full. It is constructed from laser-cut plywood, 3D-printed components, Arduino light sensors, and repurposed remote-controlled car wheels. We are presenting a scaled-down model for this design iteration to reduce material usage, but we plan to make a full-sized hamper for the next iteration!

TABLE #: APPL 1-27

Divvy Desk

Course: APPL 110 - Introduction to Design and Making

Makers: Alyssa Ghiles, Sanchez Luis, Elly King, Hampton Roberts

Our product is called the Divvy Desk. It divides into eight interlocking squares that include various items such as a practical mouse pad or phone holder. They also include games for the kids such as fidget toys and a bead maze. The squares come off and can be interlocked into a box, giving this product an on the go feature. Whether its traveling with toys or using the desk for work this product is one for the whole family.

TABLE #: APPL 2-1

Smart Water Bottle

Course: APPL 240 - Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements

Makers: Kaegon Matlock, William Powell

Our 3D-printed bottle includes electronic components to track the water's quality and seamlessly track the amount of water drank throughout the day. This prototype will consist of a load cell, pH sensor, and thermistor. Using an analog-to-digital converter and MATLAB programming, we will be able to display the stats of the water they are drinking and a tally of the total volume consumed. Future iterations could be battery-powered and able to sync to your devices to track such stats effortlessly via a wireless connection.

TABLE #: APPL 2-2

Portable Water Quality Monitor

Course: APPL 240 - Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements

Makers: Megana Duraipandi, John-Finnian Hourican

This water quality monitor is device/probe that when submerged in water is able to provide a score based on the overall cleanliness/quality of the water. This is done by creating baseline reading from known qualities of water and then ranking the measured sample against these. The device is housed in a 3D printed housing designed specifically for our device using a CAD software, and uses an AD3, and a breadboard. The components used to measure the water quality include an analog PH sensor with a probe, an electrical conductivity sensor, a TDS sensor, and a turbidity sensor.

TABLE #: APPL 2-3

Trash Can Digitalization

Course: APPL 240 - *Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements*

Makers: John Le; Kevin Chen; Rexen Venevongsoth

For this project, thinking of the trashcan was not because it was special or anything, but because it is an easy necessity in anyone's household that can be upgraded and improved upon by using sensors. We try this by applying strain gauges, motion sensors, and LED infrared light and phototransistor. By completing this project, the 3 of us hope to gain more experience in building projects like these, and to have better understanding of coding and working with sensors. Our next iteration would be to make a full-functional trash can with all of our ideas working.

TABLE #: APPL 2-4

Thermistor and Force Sensor Smart Fan

Course: APPL 240 - *Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements*

Makers: Tyler Jin

I used a thermal sensor and touch sensor to create a fan system responding to changes in force and temperature. I chose this project after learning about thermistors and force resistance sensors in class and wanted to apply both in a real-world product. I utilized MATLAB code to program the fan to turn on/off from sensor outputs such as a temperature threshold and force. I learned how to set up the electrical circuitry on a breadboard needed for sensor systems and my future iterations and plans are to build a desk-installed smart fan that can be manually set to turn on through touch and room conditions.

TABLE #: APPL 2-5

A DIY Modern Imaging System

Course: APPL 240 - *Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements*

Makers: Ashley Neall, Martim Gaspar

Our project functions as an open-source, low-cost camera. Our tool includes hardware to capture an image and process it through the modern imaging pipeline. If you're interested in computational imaging and displays, computer graphics, or simply want to capture photos with hacky hardware, we encourage you to recreate this! A future iteration of our low-cost camera will include a sophisticated 3D-printed encasing for our electrical components and additional imaging processing features.

TABLE #: APPL 2-6

Self-Watering Plant

Course: *APPL 240 - Developing Your Sixth Sense: Designing Sensors and Electrical Circuits to Make Measurements*

Makers: *Jerald Whitley, Madeline Underwood*

In our course APPL240, we learn how to analyze, design, and build systems of circuits involving sensors. These sensors can measure various environmental parameters, such as temperature, light, ambient sound, etc. For our final project, we decided to use the tools learned in class to create a self-watering plant system. This setup involves a soil moisture sensor and a mini photocell to measure light. A water pump waters the plant when the soil moisture sensor detects low moisture. To complete this setup, we used a voltage divider setup for the photocell, and a relay switch circuit to activate the pump. For our next iteration, we could build a larger apparatus that can be used in greenhouses to water the plants at the right time and add a soil pH sensor.

TABLE #: APPL 4-1

Umbrella Dryer

Course: *APPL 412 - Turning Your Entrepreneurial Ideas Into Reality*

Makers: *Chethana Madireddy, Mulang Shi, Kevin Chen*

We brainstormed solutions to potential problems, such as umbrellas tracking in water everywhere. We wanted to make an umbrella drying machine that doesn't require much effort or time, yet dries the umbrella quickly.

TABLE #: APPL 4-2

SnapLight: A Hands-Free Illumination Device

Course: *APPL 412 - Turning Your Entrepreneurial Ideas Into Reality*

Makers: *Kameron Thomas, Arjun Pajni, Ronan Stack*

A lack of proper lighting can lead to unnecessary difficulty or physical strain, whether on the eyes or through external injury, so it is important to have variable forms of lighting for different environments. The conventional lighting solutions available on the market appear to fall short of the diverse needs of select users and come with their own constraints such as requiring hands or being uncomfortable or stationary. The goal of this product is to satisfy these needs with a form of lighting that is easily movable, able to fit into tighter spaces, and that allows for both hands to be free for other actions while the light is in use.

TABLE #: APPL 4-3

Plant Display That Self-Irrigates

Course: *APPL 412 - Turning Your Entrepreneurial Ideas Into Reality*

Makers: *Thomas Ferguson, Tobi Adio, Shriya Nanugonda*

We chose a plant display catered to businesses as we wanted to promote natural plant growth in a space where it was hard to maintain. We used wood, handsaw, vinyl cutter, paint and more. We learned all the steps that goes into making a product to sell and the many complications and challenges you encounter from making a design into reality. Our next iteration would be bigger with a better way to irrigate.

TABLE #: APPL 4-4

The CleanStep Project

Course: *APPL 412 - Turning Your Entrepreneurial Ideas Into Reality*

Makers: *Megana Duraipandi, Mia Lam, De'rishio Reid*

Our project seeks to resolve the conflict in homes where the preference is to remove shoes, yet some residents or guests wish to keep them on. CleanStep was an outdoor mat that could clean the soles of shoes quickly and effectively. The mat was easy to use, did not take much time to clean effectively, and required minimum maintenance. CleanStep was mostly made of plastic and rubber

TABLE #: ARTS 1-1

Laser Cut Film: A Modern Addition to a Classic Medium

Course: *ARTS 215 - Darkroom Photography II*

Makers: *Sarah Ferguson*

This is a series of film negatives and prints produced from them. They have been laser cut, sometimes layered, and altered to create different effects in each print. I wanted to experiment with some of the more modern tools available to create new depth in such a classic medium as film photography. I shoot on a variety of film and this series includes 35mm, 6x7 medium format and 4x5 large format film that has been altered.

TABLE #: ASIA 1-1**Perspective in a War-Torn World**

Course: ASIA 069 / PWAD 069 - *First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan*

Makers: David McCrudden, Gwyn Benkusky, Katherine Turner, Joseph White

This artwork is showing the perspective of a civilian/family during war, as caught in-between the two fighting groups. Our artwork takes the difficult idea of perspective during wartime and depicts it in a way that is easier to grasp: a civilian caught between two sides, at risk no matter what. In this case, for the class Wars and Veterans: Iran, Iraq, and Afghanistan, the U.S. and the Taliban are shown. We used plywood shaped by a laser cutter in the BeAM Makerspace, with quotes attached to the plywood.

TABLE #: ASIA 1-2**Remembrance of Youth Soldiers**

Course: ASIA 069 / PWAD 069 - *First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan*

Makers: Dean Neelsen, Alisha Nazir, Sylvie Bon-Harper, Rio Winslow

Our group chose to make a art piece dedicated to the young men, often teenagers, who were forced into war and lost their lives. This project involved a mix of different art. We had paintings, wood, divided into four different stages.

TABLE #: ASIA 1-3**The Fragmentation of War**

Course: ASIA 069 / PWAD 069 - *First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan*

Makers: Bora Leilabady, Mira Mullis, Leah Schraff, Jake Frantz

For our final project for ASIA 69, we laser-cut images into plywood to represent the divisions between groups in the Iran-Iraq War and during the U.S. invasion of Afghanistan. We also cut clippings of propaganda and news articles to obscure faces, in a way that reflects how misinformation was used to perpetuate violence. In creating this piece, we gained more experience with using the laser cutter in the MakerSpace and would like our next iteration to be of a larger scale and include 3D-printed elements.

TABLE #: ASIA 1-4

Birth, War, Death

Course: ASIA 069 / PWAD 069 - First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan

Makers: Rio Trevathan, Dean, Sylvie Bon-Harper, Alisha Nazir

The thesis of Asia 69 is how absolutely war mars the human process. We chose to represent that through a timeline of mother and son; the family cycle that is meant to continue is interrupted by war and all that is left is unresolved grief. It calls back to the story of Daniel in “Frankenstein in Baghdad,” one of the books we read. The pieces were all inspired by different moments of beauty or tragedy we learned about in relation to the class content, such as the Amiriyah shelter bombing for the war art piece. We hope it conveys how tragic the totality of pain in our world can be.

TABLE #: ASIA 1-5

The Differentiation of Peace and War

Course: ASIA 069 / PWAD 069 - First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan

Makers: Carter Brewen, Henry Damutz, Taylor Robertson, Carly Phillips

Our project consists of a book, paper clips, wooden sticks, 3D printed figures, and other items that we chose to include. We painted the book, and labeled it as a religious book to display how integral religion was in war and in peace. The book is divided, one side depicting a scene of war and the other side displaying peace. The 3D model in the middle exhibits how even in war there can be a glimpse of serenity. Our project shows the differentiation of peace and war.

TABLE #: ASIA 1-6

Dual Perspectives of Propaganda and Reality within the Iran-Iraq War

Course: ASIA 069 / PWAD 069 - First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan

Makers: Grace Lowder, Noah Belisle, Alex Brakemeyer, Arsh Madhani

Our artwork explores the sharp contrast between the propaganda that was meant to support the Iran-Iraq War effort and the reality of the experiences within the war. This artwork was inspired by the novels we read and first-hand experiences from a guest speaker in our first-year seminar. We utilized cardboard, plywood, paper, and various 3-D printed materials through Makerspace to create our artwork.

TABLE #: ASIA 1-7

Frankenstein In Asia69

Course: ASIA 069 / PWAD 069 - *First-Year Seminar: Wars and Veterans: Iran, Iraq, and Afghanistan*

Makers: Scott Yu, Shanyu Gowdu, Xiaofan Chen, Joseph Sapone

We chose to combine pieces of different modes of art. We got this idea from a sci-fi book we read in class where a creature was created in post-war Baghdad. We used 3D printing, 2 different materials of laser cutting, embroidery, and stitching.

TABLE #: CMPL 1-1

Nature's Light Amongst the Darkness of Humanity

Course: CMPL 246 / KOR 346 - *Body Politics in Modern Korean Literature*

Makers: Olivia Liu, Simar Kaur

In many texts and short stories from Korea, nature is depicted as a means of connection and unification, as well as a symbol of liberation and resistance against society's cruel hierarchies. To express this, we have created a diorama that includes figures of trees and cranes amidst humanity's darkness and cruelty, using 3D print pens, wire, and thread. The tree wrapped in red yarn embodies a young woman who refuses society's hierarchical system and instead desires to be a tree, feeding off of only sunlight. The second tree draws inspiration from a Korean poem that portrays the tree as an element of nature that, in unity, can overcome the trials and hardships faced in society. Lastly, the cranes act as a medium of commonality and exist free from societal roles and social constraints.

TABLE #: CMPL 1-2

Arachnid

Course: CMPL 246 / KOR 346 - *Body Politics in Modern Korean Literature*

Makers: Lucy Wu, Jack Li, Yerin Cho, Alannah

Our group took inspiration from "Needle" by Ch'ŏn Unyŏng and "The Human Arachnid" by Kye Yongmuk. With the use of 3D printing and acrylic paint, we created a human-spider-like creature that symbolizes control, vulnerability, and power dynamics. The two inspirational stories explore identity, transformation, and labor exploitation's toll in the exploitation era in Korean history and delve into self-discovery and acceptance amidst life-altering challenges.

TABLE #: CMPL 1-3

3D Printed Sculpture Representing Resistance in Korean History

Course: *CMPL 246 / KOR 346 - Body Politics in Modern Korean Literature*

Makers: *WooJung (Will) Kim, Mingxuan (Michelle) Tian , Eryka Eaford*

We have created 3D sculptures that represent resistance in Korean history during the Japanese colonial period and the Korean military regime. Each sculpture represents the texts “Blast Furnace” and “Firebird Shooting Sparks.” We used 3D printing to create the figures and painted them to resemble the scenery in the texts.

TABLE #: CMPL 1-4

Tree of Division

Course: *CMPL 246 / KOR 346 - Body Politics in Modern Korean Literature*

Makers: *Ayesha Tahirkheli, Kevin Chen*

Our project was based on readings we did in class about the division during the Korean War and how it was embodied/represented through different bodies. We chose to represent three texts (Persimmons by Chon Pyongu, Cranes by Hwang Sunwon, and From Winter Tree to Spring Tree by Hwang Chiu) that represented the division and turmoil between the two states through trees/animals/nature. We used the laser cutter and other arts and crafts resources at the MakerSpace.

TABLE #: DRAM 1-1

Laser Cut Banded Leather Armor

Course: *DRAM 766 - Digital Technology in Costume Production*

Makers: *Jillian Gregory*

I chose to recreate a piece of Sansa Stark’s armor from Game of Thrones to explore the use of laser cutting leather in theatrical armor making. I used digital draping software (CLO3D) to create my pattern and Sailrite Phifertex to build my base structure. I used Phifertex because the material previously used for this structure is no longer being produced and costume makers are looking for an alternative material. I cut eighty pieces of leather on the Murray Makerspace laser cutters. Twelve of the pieces had designs etched into them to mimic the traditional embossing methods used in leatherwork.

TABLE #: DRAM 1-2

Space Dress: Using Digital Technology to Design Custom Clothing

Course: *DRAM 766 - Digital Technology in Costume Production*

Makers: *Jessica Land*

The fabric for this dress was designed using photoshop and custom printed from Spoonflower. Then I used the 3-D printer to make matching buttons and jewelry to complete the look. The buttons were the most research-intensive step because I went through many iterations to test the strength, size, and effectiveness of two hole buttons, shank buttons, and different designs. The dress was patterned and constructed by Jillian Gregory.

TABLE #: DRAM 1-3

3D Printed Filament & Scraps Hoop Skirt

Course: *DRAM 766 - Digital Technology in Costume Production*

Makers: *Juniper Rakhman Gerardi*

This project was designed to be an exploration of how we might be able to use 3D printing technology in the world of fashion and clothing, specifically 3d print filaments from handheld printer “pens.” For this project, I ordered a caged crinoline hoop skirt, then reinforced all the existing bones and added vertical bones between the six gores. I then draped and made a pattern for the net skirt, before cutting out the pieces and covering all rough edges with black bias tape. After assembling the skirt, I finally went through the laborious process of covering half of it in tiny 3d doodling, and the other half of it in fabric scraps which I generated while developing my senior showcase fashion collection “heritage threads.” I especially loved including scraps from the many men’s neckties I upcycled within my collection, creating something nonconventional, eccentric, and feminine from a traditionally masculine accessory. This project showed me just one of the many ways we can use 3d filament in fashion, and in a further iteration, I would love to explore using the 3d printer itself rather than the pen to develop one-of-a-kind, sculptural couture pieces.

TABLE #: PHYS 1-1

Stopwatch Clock

Course: *PHYS 55 - First-Year Seminar: Introduction to Mechatronics*

Makers: *Ishan Joshi*

This project was for a class that required us to make some sort of a moving mechanism. I wanted to make something that can be useful somewhat and so I decided to make a manual stopwatch clock. I used laser cutters and 3D printers for the project using cardboard, CPE, ABS, nGen plastics. I learned how difficult in terms of design and implementation some seemingly simple mechanisms can be. This project taught me Adobe Illustrator and Fusion 360 and made me a Makerspace junkie! For its next iteration, I wish to make it more reliable and last longer. So, I would like to play around with better bearings and gear designs to make the clock as consistent as possible.

TABLE #: SPAN 1-1

Sleeve Garment with Weighted Cloth Bags

Course: *SPAN 344 - Latin@ American Cultural Topics*

Makers: *Luisa Penaflo*

This is a garment I made using only scraps from BeAM and glass and plastic beads I had at home. Each weighted cloth bag says a word such as 'sexismo' (sexism), 'doble estandares' (double standards), 'femicidio' (femicide), etc. to represent the weight that Latin American women have to carry as they grow up and live in a society riddled with machismo and violence. I chose to make this after listening to the stories of my mother, aunts, sisters, and grandmothers who have experienced sexism growing up, as well as watching documentaries in my SPAN 344 class about women who fight against Latin American regimes determined to squash their voices.

TABLE #: SPAN 1-2

El realismo mágico y sueño americano

Course: *SPAN 344 - Latin@ American Cultural Topics*

Makers: *Caroline Prendiville*

I created a tote bag that represent themes from my Spanish class. I used desktop embroidery for the various symbols displaying ideas of "El realismo mágico y sueño americano" from the movie, El Norte. I used the sewing machine to stitch on the designed fabric to the tote bag. I am so grateful that I got to gain life skills working in BEAM and especially thankful to the staff for all of their help!

TABLE #: SPAN 1-3

We are America: Our Shared Human Experience

Course: *SPAN 344 - Latin@ American Cultural Topics*

Makers: *Mason Kumiega*

I decided to embroider various messages on the item in order to convey topics such as the common humanness of all people who live in the Americas. I used the embroidery tools at BeAM and some fabric markers to display these messages in a colorful fashion. This project has allowed me to reflect on various themes that connect us all as people of the Americas, such as our shared land and resources, as well as our equal value as human beings created in the image of God. I do not foresee a second iteration of this piece, as I think it serves its purpose best as a standalone item so the message can retain its unique value.

TABLE #: SPAN 1-4

Unity Between Culture and Cuisine in Latin America

Course: SPAN 344 - Latin@ American Cultural Topics

Makers: Bruno Lahass

My project encompasses what it means to combine Latin American culture with its cuisine. This is accomplished through the design of the project being displayed on a cutting board which is used in nearly all Latin American cuisine. The design shows unity between the different countries through the shaking of hands above the geographical map.

TABLE #: SPAN 1-5

Scarf with Sewn Patches: Cultural Messages of Latin America

Course: SPAN 344 - Latin@ American Cultural Topics

Makers: Gabriella Ercolino

I was inspired by the story of Las Madres (the mothers) de la Plaza de Mayo, a group of Argentinian women who donned white scarfs with the names of their lost children while both protesting the corrupt government in the streets and as social activists in the community. In a similar way, we learned about the fight for equity that many groups of Latin Americans have partaken in over the past few decades, and the way in which they've clung to hope despite hardship reminded me of the story of the mothers. I used the sewing machine, recycled fabric pieces, paint, and a thrifted white scarf to create my project. I first painted various messages on cut out pieces of fabric before then sewing them onto the scarf. By completing this project, I learned how to sew basic patterns on a sewing machine. If I were to repeat the project again, I would love to embroider the patches myself instead of hand-paint them.

TABLE #: SPAN 1-6

T-Shirt with Pressed Vinyl Messages from Spanish Class

Course: SPAN 344 - Latin@ American Cultural Topics

Makers: Tanjida Shamsuddin

I decided to make a t-shirt because it is a product that I can use in my daily life which is more sustainable than other types of projects that I wouldn't be able to use after my class. I used cotton fabric and heat-transfer vinyl with the industrial vinyl cutter to be able to transfer designs of cultural messages from themes that we've learned about it in class. I learned a lot about the design process and navigating Adobe Illustrator and other design softwares. My next steps are probably to use this new skill for personal use, such as making stickers or wall decals.

TABLE #: SPAN 1-7

A Tote Bag with Something to Say

Course: SPAN 344 - Latin@ American Cultural Topics

Makers: Chloé Bell

I took a pre-existing tote bag and decorated it with an original design that represents a relevant Latin American social issue, as discussed in my class SPAN 344: Latin American Culture through Documentaries and Films. I took inspiration for this project from a song we studied in class, entitled “Ojalá Que Llave Café” by Juan Luis Guerra. Based on ideas and phrases showcased in Dominican folklore, the song highlights the harsh reality of poverty and social injustice in various regions of Latin America, a topic I have studied extensively as a Global Studies major with focuses in both Global Economics, Trade, & Development, and Latin American studies. The song symbolizes hope for a better tomorrow and draws attention to the cyclical relationship between rural Latin American communities and structural poverty. My tote bag also echoes this sentiment, illustrating the belief that communities like those highlighted in Guerra’s song will only benefit from change if that change originates from structurally reformed local governments. To create my tote bag, I used acrylic paint and a sewing machine: I sketched and painted the designs by hand and used the sewing machine to embellish and texturize the straps. The next iteration of this project would replace the bag’s hand-painted drawings with colorful vinyl-cut designs to create a cleaner, more easily replicable finish. Overall, designing this tote bag taught me how to use a sewing machine to elevate existing materials and has made me a much more avid and confident sewer!

TABLE #: INDIV 1-1

Our Chapel Hill: A Mini Model of Chapel Hill

Makers: Ishan Joshi

I wished to represent Chapel Hill in a nutshell - all its lovely elements portrayed in a small model. I call it “Our Chapel Hill” because it belongs to everyone here and I say this as an international student. I used 1/4” cardboard, CPE, ABS, nGen plastics (3d prints) and I used laser cutters, 3D Printers and vinyl cutters for the project. I learned a ton about designing and bridging the gaps between ideas and actually materialising them. I can now use Fusion 360, Adobe Illustrator, Blender and other software in a much better, detailed capacity. All the items you see in this model have been iterated multiple times to get to that point where I felt it somewhat satisfied my vision. Though, I would like to make a moving model of the same. What exactly? We shall see!

TABLE #: INDIV 1-2

Survivor Puzzles

Makers: Duncan Easter

With a friend we organised an amazing race style event for our friends. These puzzles were used as a part of the competition and I'd love to have people try them out. They are recreations of puzzles from the Survivor TV show.

TABLE #: INDIV 1-3

Wooden Flower Press :)

Makers: Reece Clark

I chose to make this project because I have a lot of flowers that need to be pressed and it would be a little bit more convenient to have something to do that for me instead of shoving them in notebooks and putting books on top of them. Also! I wanted to participate in this cool exhibition. I really just used some wood and wing nuts to put this together in the wood shop. I hope you think it's neat!

TABLE #: INDIV 1-4

Reverie Engravings

Makers: Edward Yang

Reverie Engravings is an online store selling laser engraved LED lights. Originally, I made one as a gift for my sister, and then realized I could sell them. Modifying the original design, I decided to niche down and create some fan-made products for the FPS shooter Overwatch. I've created a ton of designs, over 30 at this point, making one for each playable character. I learned a lot about engineering, and about running a business: I used Adobe Illustrator, learned how to bookkeep, optimize my online store for searchability, and much more.

TABLE #: INDIV 1-5

OpenFlexure Microscopes

Makers: Eric Chen, Akshay Elango, Joshua Adekunle

We have built 3 different microscopes using the OpenFlexure Project plan designed to make high-powered and complex microscopes available to anyone with a 3D printer and generally low-cost parts. This project is meant to demonstrate the concept of a regular person being able to create what is typically a very expensive microscope for a fraction of the price, making microscope technology more accessible to the general public.

TABLE #: ORG 1-1

The Library MakerSpace

Makers: Jordan Green

The Library MakerSpace supports innovation and creativity as part of the University Libraries. It hosts workshops, offers 3D design consultations, and has workspaces for tinkering during open hours. Sew, solder, or use the 3D printers for your next research project or assignment, or just for fun! At MakerFest, we are displaying a selection of projects in different mediums demonstrating resources available at the Library MakerSpace including 3D prints, paper crafts, and fiber arts. Check out our exhibit for more information and interactive activities!

TABLE #: ORG 1-2

Chapel Hill Drone Club

Makers: Joseph Sharp, Jun Ikeda, Susan Cohen

The Drone Club encourages students to build and fly unmanned-aerial-systems for leisure, or to aid in the production of art or science. On display are two racing drones built with off-the-shelf electronics, custom-cut carbon fiber frames, and many zip-ties. Used in FPV racing, they are highly maneuverable, going 0-60mph in less than a second.