Research and Creative Accomplishments Symposium

THURSDAY, APRIL 23, 2015

Fairfield University
Dear Guests,

Welcome to the 2015 Research and Creative Accomplishments Symposium at Fairfield University. In collaboration with the 15th Annual Sigma Xi Poster Session, the Senior Nurses Capstone Presentations, the Service Learning Celebration, and the Core Writing Symposium, we have an extraordinary day planned on campus. These five events showcase student research and creative projects mentored by our distinguished faculty and represent an important moment of celebration of our students’ commitment to academic excellence.

At today’s series of events, we feature the scholarly work of nearly 500 undergraduate and graduate students from almost every discipline on campus. The 2015 Research and Creative Accomplishments Symposium features posters, performances, and other creative works that celebrate the vibrant spirit and intellectual vitality of our student body. Whether working individually or in concert with others the works and projects on display here also highlight the importance of Fairfield University’s Jesuit Mission and Identity to promote scholarship through service. Enjoy speaking to our talented students about their many academic accomplishments.

For helping organize the 2015 Research and Creative Accomplishments Symposium, I would like to thank members of the Fairfield University community who generously contributed their time and expertise to make this event a success. Special recognition goes to Helen Kropitis, Laura Martin, and the dozens of faculty who worked closely with our student presenters throughout the academic year. And, of course, we especially thank the students who inspire us everyday with their joy for learning.

Congratulations to the student presenters and their faculty mentors. Thank you, dear guests, for joining us on this day of celebration!

Yohuru Williams, PhD
Associate VP for Academic Affairs
Human and Narcotic Trafficking
Adrienne Sgarlato ‘17 (Lawrence Scholar)
Abstract: Human and narcotic trafficking is not solely a human rights issue, rather, an interdisciplinary problem of the social, political and economical aspects of a country. As a result of the lack of initiatives taken to resolve and eradicate human and narcotic trafficking in Nicaragua, the increase of transiting human and narcotics has increased and has become a major concern in the Nicaraguan government and society.

Survivance: What we can Learn from the Trans Community in Nicaragua
Alan Pealez-Lopez ‘15
Abstract: For the Justice and the Developing World Capstone, Alan is looking at literature in the realm of sexual orientation and gender identity in Latin America under a methodology of Black Sexual Politics in Latin America and Trans* theory, a fairly new approach in gender-studies. While working with Dr. Garvey, Alan hopes to push limits in literature about the representation of transgender, gender-non-conforming, genderqueer, and chic@s. Alan has developed a creative non-fiction piece that incorporates anthropology, indigenous story-telling and poetry produces in Nicaragua and at Fairfield. The partnership of Dr. Lopez, Dr. Garvey and Alan produce an innovative voice focusing on de-colonial theory, which operates with methodology of the oppressed influenced by trans theory to create a document that covers history of trans* and queer (sexual, political, social and economic) life in the United Stated and Nicaragua.

Violence Against Women in Nicaragua
Abigail McAndrew ‘15 (Lawrence Scholar)
Abstract: Over Spring Break, I traveled to Nicaragua for the course “Justice in the Developing World” to study violence against women in Nicaragua. Violence is a universal issue, and my project looks at a specific type of violence within a specific culture and region. My project presents laws and programs available to protect female victims of violence in Nicaragua. I also theorize about effects of violence and ideologies that perpetuate it.

Why are 6th graders in Nicaragua not continuing their secondary education?
Chastity Berrios ‘17 (Lawrence Scholar)
Abstract: Nicaragua is the second poorest country in the Western Hemisphere (Franzon, Friedersdorff, Ulloa, and Voorend, 2010). Many Nicaraguan families live under the poverty line and have children that only complete up to the 6th grade level of education because the expenses of living are already too much for them to afford. Adding on school expenses would not be realistic for families who struggle on a daily basis to make ends meet. The cause of the 6th grade dropout rates in Nicaragua is due to the high percentage of families living under the poverty line. However, I am most certain that their environmental and social challenges can be possible causes that students face when making personal and academic decisions on whether to continue their education after 6th grade.

What are the contributing factors of Malnutrition in Nicaraguan Children?
Jerika Martinez ‘17 (Lawrence Scholar)
Abstract: Children in the developing world are undernourished. Nicaragua being the poorest country on the western hemisphere is unfortunately no exception to this trend. As a consequence, their human rights are violated. This creates a concern because not only are they malnourished, but the direct effects of malnutrition can lead them to have impaired immune systems, poorer cognitive development, lower productivity as adults, and greater susceptibility to diet-related chronic diseases later in life. As a guide to the direction of future efforts, this research hopes to successfully identify, in a smaller scale, factors that contribute to Malnourishment.

Econometric Analysis of Top Ten Military Expenditures
Humza Malik ‘16
Abstract: This project attempts to find the determining variables for setting a military expenditure budget. The nations studied include the United States, China, Russia, Saudi Arabia, France, Japan, UK, Germany, India, and Brazil. It is panel data that spans from 1979 to 2012. The model uses OLS regression via STATA. This is an incredibly complex topic and this model will not be applicable for use, however, it will lay the foundation for a future study. This decision, however, is an arbitrary political and strategic decision, but perhaps after further study there can be an economic model for which governments can use. Inflation is adjusted to 2011 USD.

Course: Justice and the Developing World
Faculty Mentor: Dr. Sally O’Driscoll

Course: Justice in the Developing World
Faculty Mentor: Dr. Sally O’Driscoll

Course: Developing Nations
Faculty Mentor: Dr. Anna-Maria Aksan

Course: Econometrics
Faculty Mentor: Dr. Anna-Maria Aksan
Quantitative Easing and the Macroeconomy
Matthew Edgar ’16
Abstract: My project explores the effects of Quantitative Easing, an unconventional form of monetary policy implemented by the Federal Reserve Bank following the 2008 financial crisis, on macroeconomic conditions. As a proxy for economic health, I run multiple regressions including headline economic data such as Gross Domestic Product (GDP) and the Consumer Price Index (CPI) and explore correlations due to policy implementations. As independent variables, I describe Quantitative Easing using data from 2000-2014 of Mortgage-backed Securities and Treasury Securities held on the central bank’s balance sheet. In addition, due to the ambiguity of the economic environment, I also run a set of regressions utilizing Aaa and Baa-rated corporate bond spreads and loans issued by commercial banks as dependent variables in order to better gauge the credit environment. Ultimately, our results are benchmarked against classic forms of monetary policy in order to uncover the potency of Quantitative Easing.

The Affect of Poverty on Graduation Rates
Rebecca Hurley ’16
Abstract: This research aims to assess exactly how much influence the proportion of students in poverty in U.S. school districts has on the graduation rate. This is done in Stata using OLS regression and holds constant the proportion of Black, Hispanic and Asian students and the total expenditure per student. The data used is from the National Center for Education Statistics (graduation rate, race, expenditure and total number of students) and Census Bureau Small Area Income and Poverty Estimates (number of children in poverty) for the 2005-2006 school year. There turns out to be a significant, but marginal positive relationship between the proportion of students in poverty and the graduation rate. This is statistically significant at the 5% level. These results demonstrate the need for policies that aim to break the poverty cycle.

A Collaborative Approach to Educational Reform
Nancy Davidow ’15 (Lawrence Scholar)
Abstract: My paper explores how we as a society can work collaboratively to combat the effects of poverty on education. By incorporating analyses of state-intervention and non-governmental organization models and approaches both in the United States and Nicaragua, I have come up with a potential resolution that involves stakeholders on all levels to utilize education and interpersonal relationships as a means of empowerment in order to overcome the challenges of living in low-income.

On the Note of Music in the Classroom
Kathryn Dennen ’15 (Lawrence Scholar)
Abstract: I investigated the benefits of integrating music into the elementary classroom. My research spans scientific theories, current theories of the potential effect of music on children’s learning, my experience teaching in Lithuania, and various observations of music in the classroom I have made during my time as an undergraduate. My investigation culminated in the forms of both a Capstone Report and a blog, which is a visual representation of my thesis, as well as a resource for teachers.

Peroxiredoxin Regulation in MCF-7 Breast Cancer Cells
Greg Pettit ’15 (Lawrence Scholar), Felicita Heinen ’15
Abstract: Peroxiredoxin proteins are unregulated in MCF-7 breast cancer cells. Our research investigated what caused this family of proteins to be unregulated. We studied different possible transcription factors that could be turning on the transcription of these genes, which would lead to the increase levels of Peroxiredoxins. We investigated how inhibiting these transcription factors affected the Peroxiredoxin level in MCF-7 cells.

Design and Development of 3D Nickel Micro Foams for Effective Energy Utilization
Cody J. Pereira ’15, Tyler Conley ’15, Stephen Neugebauer ’15 (Lawrence Scholars) and David Jose ’15
Abstract: Micro/nano-structured materials possess exclusive thermal, electrical, mechanical, and surface properties that are crucial for many important applications, such as thermal management, electrochemical energy storage and conversion, high-strength and lightweight structures, sensors, and drug delivery carriers. In order to effectively utilize these materials, advanced methods need to be developed for large-scale fabrication and integration with meso/macro scale systems. In this project, fabrication of bulk open celled nickel micro foams with high porosity using polymer templates will be studied. The majority of the techniques to fabricate metal foams use a polymer template process because the template offers direct control over resulting pore size and porosity. Even though there exist techniques to fabricate micro and nano sized metal foams, they suffer from the shortcoming that they result in either thin films or structures with thickness on the order of a few millimeters. We aim to fabricate a bulk 3D nickel metal foam with pore size around 25 μm and thickness on the order of 15 - 20 mm using a polymer sphere template process that is cost effective, scalable and short in
duration. The polymer sphere templates are initially assembled using a suction pump with filter setup or alternatively using a centrifuge with filter setup. These polymer sphere templates are then converted into micro metal foams using electroless plating. These metal foams with pore sizes on the order of tens of microns could be used as pathways for electrons and ions. It is expected that the metal micro foams will result in electrodes that would have better performance than the carbon electrodes due to their inherently high conductivity. The development of this scalable and cost-effective manufacturing process would aid in generating new solutions to the critical issue of effective energy utilization.

The Economic Effects of Sports Stadium Construction on U.S. Metropolitan Areas
John G. McGoldrick '15
Abstract: This project utilizes regression analysis to investigate the relationship between the construction of new professional sports stadiums in the United States (NFL, MLB, NHL, NBA) and the change in real per capita income in 26 standard metropolitan statistical areas over the period 2000-2013. The empirical framework of this study accounts for the construction of new stadiums; changes in population of the metropolitan areas; disturbances in both national and local economies; as well as the effect that multiple stadium constructions in the same metropolitan areas have. Using a unique data set and strategy, I expect to find that my results will closely resemble those of economists who have attempted similar experiments in the past: sports stadium construction has a negative effect on real per capita income, and/or that it has no impact at all.

Fairfield University Campus Garden
Michelle Pleban '16 and Emma Bryant '15
Abstract: The Fairfield University Campus Garden Project is a collaborative effort to maintain a vegetable garden on campus with a focus on using sustainable practices. Our goals include providing:
• Local, sustainably grown produce to the campus community and the Connecticut Food Bank
• Opportunities for the campus community to participate in the practice of growing food and engage with a community of people interested in the broader consequences of food production
• An outdoor laboratory for courses and faculty/student research collaborations.

Interpreting Community Engagement and Expecting the Unexpected in NOLA, Spring Break 2015
Abigayel Phillips '17 (Lawrence Scholar), Kathryn Dennen '15 (Lawrence Scholar), Casey Helley '16 (Lawrence Scholar) and Kelsey Sullivan '17
Additional Team Members: Jessica Romeo '17 (Lawrence Scholar), Ally Niccoli '17, Lauren Cellucci '16 and Molly Gregory '16
Abstract: Our group sought to immerse itself in the service and education oriented discourse of the Freret Neighborhood in New Orleans, Louisiana over Spring break through upholding a long-standing community partnership with the Freret Neighborhood Center and through a newly developed community link with the APEX Youth Center. At APEX, we integrated applicable conduits for creative activities during the time spent volunteering at its after-school program and at the Freret Neighborhood Center, we helped to upkeep the center in support of its cause to offer appropriate tools and learning to the members of the Freret Neighborhood. What our group quickly found, through active participation both at the Neighborhood Center and through the activities in engaging youth at APEX, is that the service work contributed by community leaders provides immense and critical support to a New Orleans that faces gentrification, educational struggles and pervasive obstacles in re-building post Hurricane Katrina.

Tension for Dominance Among the Sisters in the Wolf Pack
Sabrae Boisvert '16 and Meghan Cronin '16,
Abstract: The Connecticut Beardsley Zoo in Bridgeport, CT is the home of three Mexican Wolves (Canis lupus baileyi) one of the rarest subspecies of gray wolf in North America. The Mexican wolves at the Beardsley Zoo are eight-year-old sisters that live in the same enclosure. Like wolves in the wild, the sisters have established a hierarchy, which includes the dominant female, the Alpha, and the submissive wolf, the Omega. The third sister, who is much smaller than both the Omega and Alpha, was consistently observed by keepers to be bearing wounds, which suggested that she had been engaged in serious aggressive interactions. It was believed that the third sister was initiating the aggression, which resulted in her injuries. To assess the situation between the Mexican wolves, we engaged in an observational study during the spring 2015 semester. Through our observations and research into the roles in wild wolf packs, we suggest that the roles of the individual wolves are not what were originally believed. We suggest that the third smaller sister may actually be the smaller Omega wolf, who takes the beatings from the other two wolves to relieve the tension in the pack. The tension may be caused by the original “Omega” who may be attempting to exert dominance over the Alpha.

Aurora Kinases: How Did We Get From One to Many?
Fnu Wathone '17
Abstract: Aurora kinases play an important role in cell division. As such, there has been tremendous interest in these genes and their potential role in development of some forms of cancer. Up until now, most research on aurora kinases has focused on higher metazoans such as vertebrates. However, aurora kinases have been found in all known metazoans such as arthropods, nematodes and echinoderms. One of the simplest animals, the sponges, has only one gene copy for aurora kinase whereas more complex animals such as the nematode C.elegans and insects have at least two copies. We are investigating the origin of aurora kinase genes and the evolution of their roles in regulating cell division by establishing their distribution and their functions at the most basal level of the animal kingdom.

Food Bank
A Voice in the Desert
Carina Nieto '16 (Lawrence Scholar)
Abstract: A Voice in the Desert explores the lives of female Nicaraguan farmers. More specifically, A Voice in the Desert depicts the mindset and struggles of these female farmers. This film poses the question of how these women find solutions to their problems and go about their daily lives.

Household Expenditures on Bottled Water Consumption: An Economic Analysis of Survey Responses from Guatemala
Jake Shemtob '15 and Joanna Durgin '15
Abstract: This presentation investigates bottled water consumption and expenditures using household survey data from San Lorenzo, Guatemala. Hurdle models are estimated to account for the fact that 73.3% of sampled households do not consume bottled water. Additionally, survey findings indicate that only 3.2% of respondents believe that tap water is safe to drink, meaning that a vast majority believes that the tap water is unsafe to drink. Results from model estimations indicate that bottled water consumption and expenditures are positively correlated with household income and access to markets. Household size has a negative effect on the likelihood of consuming bottled water. However, once the household has decided to consume bottled water, its consumption, and therefore its expenditures, increases with each additional household member. No evidence was found to support the hypothesis that bottled water consumption is a risk mitigation strategy, but there is evidence to support an income effect.

Factors of Residential Energy Consumption
Lane Kelleher '15
Abstract: Sustainability has become a critical issue in today’s society. With more awareness and concern for the negative effects that emissions have on our environment, there is an urge to capitalize on the growth of the energy efficiency sector and create policies to regulate and improve these conditions. The public housing stock in particular, built mainly throughout the 1960s and 1970s, could benefit greatly from becoming more sustainable. Due to housing program eliminations in the 1980s, these homes and apartments are both outdated and lacking essential financial and structural support. Increased energy bills for tenants are just one result of this inadequacy. Focusing on metropolitan areas in the United States and exploring the various factors that influence residential energy consumption, it is possible to quantitatively identify these relationships, explain their effects on the public housing market and propose new ways to incentivize energy efficiency.

Impacts of Climate Change on Precipitation in the US
Jack Giegerich '17
Abstract: With climate change awareness becoming increasingly present and water sustainability being the focus of Fairfield University this semester, I studied the impact that climate change had on annual precipitation in the United States.

Investigating Causes of the Gender Wage Gap
Francesca Lombardo '15
Abstract: The gender wage gap has been prominent in our society since women have entered the workforce. Despite the immense equality standards we have achieved, there is still a prominent gap that exists between men and women in various industries. The purpose of this study is to investigate the factors that are causing the persistence of this gap. The data utilized is on an individual level, providing an alternate perspective compared to other studies.

The Causes of Crime
Peter Renna '15
Abstract: For my research topic, I am studying crime rates in America. I will be breaking down the total amount of violent crime per state in a panel data approach. My data are referenced only to the year 2000 and I attempt to look at the variables that I believe are correlated to crime rate. I will be looking at: poverty rate per state, percent of state population that is a senior citizen, median household income, the unemployment rate, and the percent of the population that is over 25 and has at least a Bachelor’s degree. I will be attempting to find which of these explanatory variables does the best job in explaining the causation of crime in the United States.

Using time series data from 1960-2010, I regressed the average precipitation for each year on the anomaly in temperature for each year with the base being the average temperature between 1960 and 2010 along with the CO2 emissions for each year. The analysis of the data shows that variation in temperature is significant when predicting precipitation. Upon further investigation, the larger the anomaly in temperature, the larger the anomaly there was in precipitation. This conclusion is in line with popular belief, however the direction of the change in precipitation varies.

Growth Inhibiting Effect of Ribbed Mussel (Geukensia demissa)
Pallial Fluid on Gram negative and Gram positive bacteria
Alexa Annunziata '15, Allison Beattie ’15 (Hardiman Scholar), Cathryn Duemmler '16 and Meghan Warchol '16 (Lawrence Scholar)
Abstract: The purpose of this study was to investigate bactericidal activity of the pallial fluid from the salt marsh mussel, Geukensia demissa. These experiments tested the hypothesis that G. demissa pallial fluid has a growth inhibiting effect on both gram-negative and gram-positive bacteria. Preliminary experiments tested two gram positive (Staphylococcus aureus and Bacillus subtilis) and two gram negative (Vibrio parahaemolyticus and Escherichia coli) bacteria. Results from these experiments revealed a greater growth inhibitory effect on S. aureus and E.coli, leading to further experimentation with these two bacteria specifically. Pallial fluid inhibited gram negative growth by an average of 73% in...
gram negative bacteria and by 40.5% in gram positives. The results of a non-parametric test of the equality of distributions showed p<0.05 for all experiments indicating a significant difference in growth when the cultures were exposed to palial fluids. After enumerating the number of control and treated colonies after the 24-hour growth period, colony size was also measured using the NIH Cell Profiler software. Results indicated that the palial fluids significantly decreased the growth area of the treated colonies when compared to the controls. Our results determined that the palial fluid of G. demissa has antimicrobial properties, which may act as the first line of defense against infection from various pathogenic microorganisms found in the environment.

Poster

**Jaw muscle activation in batoids (stingrays)**

Lauren Brodeur '15 (Hardiman Scholar), Dave Neubauer '16 (Lawrence Scholar) and Matt DeCaprio '15

**Abstract:** Batoids (skates and rays) have specialized jaws that can function independently due to their cartilaginous skeleton, a lack of a ligamentous connection between the jaws and skull, and the presence of a highly flexible symphysis at the center of both the upper and lower jaws. Bilateral implantation of the jaw muscles has lead to a greater understanding of the activity occurring on the left and right sides of the jaw during feeding events. A previous study has shown that skates activate their jaw muscles unilaterally without any activation of the contralateral side when processing complex prey. Therefore, the goal of our study was to investigate pairwise activation of the jaw muscles in two stingrays Dasyatis sabina and Potamotrygon motoro when feeding on different sized prey in order to determine if unilateral activation is a characteristic of batoid feeding mechanisms. We hypothesized that these rays would use synchronous activation when feeding on small prey and unilateral activation to process large prey. Electrodes were implanted bilaterally into two jaw adductors, a hyoid depressor and hyoid levator and the rays were fed squid pieces standardized to mouth size. Two asynchronous indices were used to quantify the duration of muscle activation and the lag, or degree by which muscles are activated out of phase. Contrary to our hypothesis, both species show that muscle pairs are activated synchronously for all prey types: there is no difference in duration or lag indices (P > 0.05). Future studies will investigate two additional stingrays (one basal, one derived) for all prey types: there is no difference in duration or lag indices (P > 0.05).

**Temperamental and Cognitive Risk Factors for Anxiety**

Katherine Brundage '15 (Hardiman Scholar)

**Abstract:** Previous research has found that temperamental vulnerabilities and cognitive biases may exacerbate feelings of stress and anxiety among college students in the early years of college. Anxiety is a prevalent and troubling issue in society, especially in college-age populations as the transition to college life may pose a unique stressor that could fuel feelings of anxiety. The transition to college represent a dramatic environmental shift for late adolescence, and generate new demands for autonomous social, behavioral and cognitive functioning. We are interested in understanding factors that impact stress to the point of making the stress detrimental. Some variables that we are examining are behavioral inhibition, anxiety sensitivity, judgment biases and anxiety outcomes.

**Method:** Participants were given a series of computer-based questionnaires that assess judgment bias, behavioral inhibition, anxiety sensitivity, and anxiety outcomes. Participants were given research credit for their “General Psychology” courses in exchange for participation.

**Hypothesis:** We predicted that high trait anxiety would be related to high judgment bias, high anxiety sensitivity and high behavioral inhibition.

**Course:** Independent Study

**Faculty Mentors:** Dr. Diane Brousseau and Dr. Phyllis Braun

---

**Mental Health Issues of Women of Color at Predominantly White Institutions**

Janice Herbert '15 (Lawrence Scholar)

**Abstract:** Institutions which house predominantly white student populations (PWIs) continue to be on the rise; however, understanding of the factors related to their mental health of women of color at PWIs at these institutions is not well researched. The experiences of these young adults are rooted in the relationship between racial factors in addition to their adjustment to college. Using the lens of intersectionality, we see that racial-gender identity, micro aggressions and support services are vital to the mental health development of these students. I offer suggestions for how PWIs can better support the mental health of Women of Color through an intervention program that can provide support throughout their four years.

**Course:** Independent Research

**Faculty Mentor:** Dr. Margaret McClure

---

**Synthesis and Characterization Of Water Soluble zinc(II) Model Complexes For Liver Alcohol Dehydrogenase**

Nicholas Bernier '16 (Hardiman Scholar)

**Short Abstract:** Liver alcohol dehydrogenase (LADH) is a zinc metalloenzyme that catalyzes the oxidation of alcohols to aldehydes and ketones and the reduction of a ketone or an aldehyde to an alcohol. The resting enzyme has a zinc(II) metal center which is pseudo-tetrahedrally ligated with one N-histidine side chain, two S-cysteine side chains, and one water molecule. Our work involves the synthesis as well as NMR spectroscopic characterizations of novel water-soluble tridentate pincer ligand precursors. Our work also involves the syntheses, NMR spectroscopy, and electrospray mass spectrometry characterizations of potential functional models of the zinc active site in LADH. We model the zinc active site using a family of tridentate pincer ligands coordinating S,N,S donor atoms. A detailed description of the syntheses and characterization of the ligand precursors and model complexes will be presented.

**Course:** Chemistry Research

**Faculty Mentor:** Dr. John Miecznikowski

---

**Environmental Conflict Crisis**

Ashley Flanagan '17, Albert Fitch ‘17, Simon Galligani ’17

**Abstract:** Throughout the semester we have been researching climate change specifically with the effect of the food supply globally and explored the environmental impact that climate change has on food through various avenues.
such as marine life, agriculture, and bees. Our analysis began with showing how wildlife quickly becomes displaced as a result of climate change and the rapidly altering ecosystem. Our research has taken us on a much different path than originally anticipated: the extensive data we compiled on climate change has lead us to believe that there is a direct correlation between climate change and conflict currently in isolated areas of the world through the food supply. With the data we have noticed common trends that appear to show that conflict will become an inevitable outcome of furthering climate change into the future. Environmental stewardship is everyone’s responsibility and the literature connecting global warming and conflict suggests that the health of the planet is a strategic issue that we can no longer afford to ignore.

Poster
Course: Introduction to Management
Faculty Mentor: Dr. Michael Cavanaugh

Universal Shipping Tracker - CircleTrack
Sambir Shrestha ’15
Abstract: I’ve developed a Shipping Tracker Application for web and mobile devices, which I’m planning to launch within a month. This application can be used by anyone around the world. It’s FREE for personal use while businesses or e-commerce subscribe for a paid membership. It is a web application where the user can enter tracking numbers from FedEx, UPS, USPS etc., and it will show a visual preview of their delivery status.

• The status of the delivery shows in a Google map. A tracking direction line will appear on top of the map showing the directions from where the item was shipped and to the current location of the item.
• The sidebar of the application shows shipping details including: carrier, current location, expected delivery, shipped from, shipped date, weight, tracking activities, etc.
• Tracking bar shows the status of the delivery and changes colors based on the status: E.g. Tracking bar will change to green color once the item is delivered.
• Embed in your website with the auto-generated JavaScript embed code.

Poster
Faculty Mentor: Independent