



Fall 2020

Business Student Research Showcase

To encourage student engagement in business research, foster both creative and critical thinking, and help students enhance their public communication skills and professional development

2:00 PM – 3:30 PM
Friday, December 4, 2020

Business & Economics Research Committee

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General Schedule

Introduction

2:00 pm – 2:10 pm	Set-up Opening Remarks (Dr. Bernard McSherry, the Founding Dean of the School of Business) Introduction of Judges
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Student Research Presentation Competition

2:10 pm – 2:25 pm	Mobilization of Healthy Foods to Urban Food Desert in Jersey City <ul style="list-style-type: none">Natalia De La Fuente, Anthony Picciano
2:25 pm – 2:40 pm	Optimization of Ambulance Service Location in the City of Jersey City <ul style="list-style-type: none">Natalia De La Fuente
2:40 pm – 2:55 pm	Application of Machine Learning to predict stock movement <ul style="list-style-type: none">Saket Kumar
2:55 pm – 3:10 pm	3M vs. Honeywell: Financial Statement Analysis and Beyond Ying Hu
3:10 pm – 3:25 pm	How Cities and Businesses Can Work Together for Exponential Growth Rachel Brandon

Closing Remarks

3:25 pm – 3:30 pm	Closing Remarks
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Abstracts

Student Research Presentations

Major: M.S. in Business Analytics and Data Science, B.S in Supply Chain, Logistics and Maritime Port Management

Natalia De La Fuente, Anthony Picciano

Advised by Dr. EunSu Lee

Title: Mobilization of Healthy Foods to Urban Food Desert in Jersey City

The disaster of COVID-19 has forced the citizens of Jersey City to struggle even more in order to access fresh food, creating more urban food deserts. This project aims to research the impact that COVID-19 has had on the accessibility of food for lower income communities in Jersey City, to identify areas that are most vulnerable, and improve their access to healthy food by using weekly visits from mobile health-food unit. This study proposes a location model to minimize total travel distance required between the most affected citizens located in lower income census tract areas in the city of Jersey City and their closest access to healthy food, while considering the demand by households in affected areas. The study utilizes a nonlinear programming model (NONLP) for minimizing travel distance from households to pre-assigned mobile food units, and meet demand while considering a predictive analysis. This topic is extremely important because our community has been deeply struck by COVID-19, and the vulnerable areas are still suffering from urban food deserts. By accepting this solution, the study can be adopted in the near future by any non-profit organization, creating a relief for our community.

Major: M.S. in Business Analytics and Data Science

Natalia De La Fuente

Advised by Dr. EunSu Lee

Title: Optimization of Ambulance Service Location in the City of Jersey City

Ambulance services are important to the residents of Jersey City. The population is one of the most densely populated regions in the United States. Unfortunately, there have always been claims of inefficiency from some ambulance services at the time of arrival, but Jersey City has tried to improve, learn and develop a better quality over the years. Therefore, the study will investigate the ambulance locations across the city to see if they are reasonably distributed to respond to 911 calls within in 5 minutes and if there are enough to cover all Jersey City's neighborhoods. By doing so, the study proposes a new optimal location for an ambulance hub. The study used a nonlinear programming model (NONLP) in where the objective function is to minimize the total annual travel time from census tracts to incidents while considering 911 calls as a demand, and advising a new spot for ambulance centers. This investigation seeks helping the local community of Jersey City and health care departments to develop and implement new

strategies that can be used in delivering ambulatory services to citizens in a better, efficient and sustainable way.

Major: M.S. in Business Analytics and Data Science

Saket Kumar

Advised by Dr. Xiaodi Zhu

Title: Application of Machine Learning to predict stock movement

There are billions of dollars getting spent by organizations on innovations and new strategies in the areas of research and development, infrastructure to gain the competitive advantage. The stock market plays a major role in our current social and economic life. In modern financial market, need of the hour is to make quick and effective decisions using techniques that can process high-quality news information as well as the stock historical indicators. The challenge of processing two different data modes can be solved by a simple strategy of combining the data modes into a common vector. The purpose of this project is to enable the retail investors an investment tool that introduces machine learning related technologies for retail investors. I have explored dataset derived from company annual reports (or 10K filings), one of the most important mandatory information disclosures to assess the predictive potential of the attributes. I have made use of financial performance indicators as features, compared against the machine generated features using common evaluation criteria. The machine learning model process include data scrapping and visualizations, feature selection techniques and classification models to predict stock movement using financial data.

Major: M.S. in Accounting

Ying Hu

Advised by Dr. Mingshan Zhang

Title: 3M vs. Honeywell: Financial Statement Analysis and Beyond

I investigate two companies that produce industrial products: 3M and Honeywell in this project. I focus on financial statement related metrics and go beyond. The research methods include horizontal and vertical analysis, ratio analysis and DuPont analysis in aspects of profitability, liquidity, efficiency, solvency and valuation. The results show that both 3M and Honeywell have a sound financial outlook. Comparatively, 3M excels in a better profitability and liquidity situation, a more efficient inventory management, and a favorable financial leverage. The market-related measures show both 3M and Honeywell have experienced the increased institutional and insiders' ownership in latest years which indicate better governance and confidence from corporate insiders. The coronavirus outbreak brings solid demand for personal protective equipment and will increase the near-term profitability for both companies. However, the market downturn will also impact negatively on the aerospace segment for Honeywell. Combined both financial ratios, market-related measures and future economic prospect, I think 3M is worth holding in the long term.

Major: M.B.A. Organizational Management and Leadership

Rachel Brandon

Advised by Dr. Xiaodi Zhu

Title: How Cities and Businesses Can Work Together for Exponential Growth

Both residential and commercial development is obligatory to keep urban neighborhoods pristine. However, if developers are not limited to land use, required to provide affordable housing and build sustainable properties---public services cannot accommodate a growing population nor fund vouchers for affordable housing in a densely populated area. Hyper-gentrification, defined as a mature stage in the gentrification process when merely affluent residents are displaced by the truly rich, and when commercial real estate properties reach a market value that makes it difficult for anyone but a national or global corporation to pay the asking price. This is the true harm to small businesses and the displacement of residents. This analysis will explore ways in which commercial development and the articulate placement of businesses before hyper-gentrification can drive socioeconomic growth in a more equitable way. This will be done by analyzing age, income, and residential and commercial rent prices.

Acknowledgement

The Business Student Research Showcase Group would like to thank Dr. Bernard McSherry, the founding Dean of School of Business, for initiating the showcase and financial support. We also thank our board of director and all judges for their countless efforts and contribution to assist this Showcase.

BERC Board of Director

- Michael Bell, J.D., Accounting Department, mbell@njcu.edu
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Judges for Research

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- Sungbeen Park, Ph.D, Management Department, spark5@njcu.edu
- Lukas Helikum, Ph.D, Accounting Department, lhelikum@njcu.edu