The Fifth Annual
Iona Scholars Day
Celebrating student research at Iona College

Tuesday, April 8, 2014
SCHEDULE OF EVENTS

Presentations: Noon - 2:00 pm
Hynes Athletics Center, Mulcahy Gymnasium

Welcome Reception: 2:00 - 3:00 pm
Lounge Area, Romita Auditorium

Thank you for joining us today!

This event is sponsored by
The School of Arts and Science at Iona College

IONA COLLEGE

MISSION STATEMENT

Iona College is a caring academic community, inspired by the legacy of Blessed Edmund Rice and the Christian Brothers, which embodies opportunity, justice, and the liberating power of education.

Iona College’s purpose is to foster intellectual inquiry, community engagement, and an appreciation for diversity.

In the tradition of American Catholic Higher Education, Iona College commits its energies and resources to the development of graduates recognized for their ethics, creativity, and problem solving abilities; their independent and adaptable thinking; their joy in lifelong learning; and their enduring integration of mind, body, and spirit.

(Adopted May 2, 2012)
A MESSAGE FROM THE PRESIDENT

Dr. Joseph Nyre, President

We inherit our name from the island of Iona, located off the west coast of Scotland. The Isle of Iona was a center for faith and learning which contributed significantly to the religious and cultural development of Western Europe. It was in the spirit of this heritage that the Catholic order of educators, the Congregation of Christian Brothers, inspired by the legacy of the Blessed Edmund Rice, founded Iona College in 1940. Their legacy and mission continue almost 75 years later and is realized in the tremendous scholarly work of our students and faculty.

Iona Scholars Day provides us an opportunity to celebrate the exciting research and scholarship our students and faculty are engaging in each day. There is a palpable sense of partnership here, which feeds academic curiosity, encourages and fosters re-evaluating accepted ideas, testing new hypotheses; and thinking “outside the box”.

I am pleased to congratulate our researchers presenting today. At Iona we believe that learning is best achieved through collaboration, innovative thinking, a clear vision, and a commitment to scholarship. These are the necessary ingredients to move the world and propel the advancement of knowledge and ingenuity.
FROM THE OFFICE OF THE PROVOST

Dr. Michael T. Marsden, Interim Provost

I congratulate the students and the faculty on their collaborative research, scholarship and creative activities. The breadth and depth of these projects are impressive and they are also excellent representations of the exciting educational environment we have here at Iona College.

This annual celebration of faculty and student collaborations allows us to pause and reflect on one of the ways in which Iona College is truly distinctive. The ability for students to work closely with their faculty mentors on projects is both an engaging extension of the formal classroom and a clear indication of academic excellence. Research, scholarship and creative activities contribute to the overall teaching and learning environment in ways that are difficult to fully assess. But we are grateful for the opportunity to learn from these projects which define the very best of the true nature of teaching and learning,
FROM THE DEANS

Dr. Sibdas Ghosh, Dean of Arts & Science

Faculty mentored research is one of the highest examples of academic excellence in the School of Arts and Science. There is no better way to foster passion and encourage exploration than through student collaboration, coupled with faculty guidance and mentoring. The outstanding results of these efforts are readily apparent and reflect the extraordinary efforts of our students and faculty here at Iona. I am very excited at the prospect of watching our students grow through discovery and knowledge and most importantly seeing them applied as they move out into the real world.

Dr. Vincent Calluzzo, Dean, Hagan School of Business

Knowledge is the reward of research and discovery. Skills such as creative thinking, analysis, problem solving, attention to detail, and adaptability are learned at the Hagan School of Business. Our scholars develop and learn how to apply these skills and attributes which are sought after by the business world. The accomplishments of our students and faculty are to be applauded and I have no doubt that together they will play an important role in moving the world.
FROM THE COORDINATORS

Scott Cleary, Department of English  
Cathryn Lavery, Department of Criminal Justice  
Sunghee Lee, Department of Chemistry  
Tricia Mulligan, Department of Political Science  
Carol Shansky, Department of Fine and Performing Arts

When we look behind us at the past five years of Undergraduate Research Days, this committee is happily amazed at the simply breathtaking progress along the path of scholarly endeavor and success Iona students have made since URD began in April, 2010.

This April, the Iona community celebrates the diversity of student research and creative activities on campus. That diversity is reflected not only in the representation of each major discipline, but also the introduction of graduate scholarship to a once exclusively undergraduate event. It is thus the ideal opportunity for students and faculty to interact and share ideas, while inspiring achievement for both faculty and student scholars in a friendly and supportive atmosphere.

As we shape the future and move the world one bold stroke at a time, this committee will continue to support a culture of scholarship and faculty/student mentoring that is reflected in the new moniker for the contexts of scholarship reflected in this booklet: Iona Scholars Day. Not surprisingly, we are impressed and proud to see such a display of high quality, original and diverse scholarship and creative activities from students, their mentors, and our colleagues.

– The Team of URD/ISD Coordinators.
1. Ashley Bresnahan

The Effects of Excess Calcium on Cardiac Development in Zebrafish (Danio rerio)

2. Vincent Cefalo, Constance Maurer

Genetic variation in populations of Asclepias tuberosa

3. Jessica Jacobacci, Michael Guzzardi

Exogenous Folic Acid is Not Able to Inhibit the Effects of Methotrexate on the Folate Pathway in Zebrafish Embryos

4. Melvin Hydleburg, Courtney Veilleux

The Effects of Interferon-beta on Oxidative Stress in Neurons

5. Courtney Veilleux

Dopamine and Proline Treatment Results in Abnormalities Analogous to NRG1-ErbB4 Pathway Disruption Using Two Unique Models of Schizophrenia.

6. David Blessington

An Analysis of the Effect of Weather Related Events on Nitrites in the Water Treatment Process

7. Peter Vitale

A Novel Crystallization Technique for Glycine

8. Omoakhe Tisor, Michelle Muzzio, David Lopez

Adaptability of Monoglyceride-Templated Crystallization

9. Peter Milianta, Michelle Muzzio, Rosario Giacomini, Zuzanna Michalak

Effect of Monoglyceride Structure and Cholesterol Content on Water Permeability of the Droplet Bilayer

10. Scott Friedbauer

Isolation of ACC-Deaminase Containing Bacteria to Reduce Ethylene Levels and Promote Growth in Plants
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ASHLEY BRESNAHAN

*Biology*

**Presentation Title:** The Effects of Excess Calcium on Cardiac Development in Zebrafish (Danio rerio)

Zebrafish (Danio rerio) are a widely used model organism due to their ease of care and rapid growth. The embryos are transparent allowing for visualization of processes occurring during development. Studies have shown that after ventricular damage, zebrafish have the ability to regenerate their myocardium, the middle layer of the heart wall, to full working potential. We, therefore, induced heart dysfunction by introducing excess calcium ions into the embryo during development. Cardiac function and regeneration were monitored in response to treatment. Understanding how the zebrafish can regenerate its myocardium can ultimately lead to production of better cardiovascular therapies for individuals suffering from heart disease.

**Faculty Mentor:** Teresa G. D’Aversa, *Biology*
VINCENT CEFALO, CONSTANCE MAURER
Biology and Biochemistry

Presentation Title: Genetic variation in populations of Asclepias tuberosa

Asclepias tuberosa, also known as butterflyweed, is a plant that is found throughout much of the contiguous United States but is disappearing particularly in the northeastern United States and is a protected plant in New York state, considered to be “Exploitably Vulnerable.” Using a PCR-based approach, this study aims to determine if different populations of the plant in different states (New York, Louisiana, Iowa, Florida, and Tennessee) are genetically distinct from one another or if they are part of one large interbreeding population. Results will be presented and the implications will be discussed.

Faculty Mentor: Yourha Kang, Biology
**Presentation Title:** Exogenous Folic Acid is Not Able to Inhibit the Effects of Methotrexate on the Folate Pathway in Zebrafish Embryos

Methotrexate (Mtx) is a teratogen that causes severe abnormalities on developing fetuses. Mtx is also used for treatment of rheumatoid arthritis and leukemia. Folic acid (FA), a B vitamin that is present in prenatal vitamins, and Mtx use the same cellular pathway to cause their effects on organisms. It is of great interest to determine whether FA can overcome the effects of Mtx on a developing embryo. Since Mtx is a competitive inhibitor of dihydrofolate reductase, the enzyme used to make FA, it is hypothesized that an increase in FA will overcome the inhibitory effects of Mtx. Zebrafish (Danio rerio) embryos were treated with Mtx and/or FA. The data demonstrate that FA could not rescue the embryos from the teratogenicity of Mtx. Therefore, women that suffer from rheumatoid arthritis, leukemia, or other medical conditions that use Mtx as a treatment should not try to conceive or become pregnant as the teratogenic activity of Mtx is harmful to the developing embryo.

**Faculty Mentor:** Teresa G. D'Aversa, Biology
MELVIN HYDLEBURG, COURTNEY VEILLEUX
Biology

Presentation Title: The Effects of Interferon-beta on Oxidative Stress in Neurons

Multiple sclerosis (MS) is an autoimmune disease characterized by demyelination which results in neuronal damage and death, as well as inflammation of the central nervous system (CNS). Individuals with MS show an increase in reactive oxygen species and hydrogen peroxide (H2O2) in affected areas of the brain. While the etiology of MS is unknown and no cure exists, one of approved therapy is interferon beta (IFNβ). Although IFNβ reduces disease severity, all of its effects are yet to be uncovered. We hypothesize that one mechanism by which IFNβ exerts its effects is by protecting neurons from oxidative damaged. Human neuroblastoma cells (SK-N-SH) were either pretreated with IFNβ then treated with H2O2, cotreated with IFNβ and H2O2 together, or pretreated with H2O2 and then treated with IFNβ. Cells were assayed for percent viability after treatment. It was found that IFNβ was able to significantly decrease the number of cells that died as a result of H2O2 treatment. These results indicate that some of the ameliorating effects of IFNβ may include the inhibition of oxidative damage of neurons during the course of the disease, thereby sparing them from further damage and perhaps cell death.

Faculty Mentor: Teresa G. D’Aversa, Biology
COURTNEY VEILLEUX  
*Biology*

**Presentation Title:** Dopamine and Proline Treatment Results in Abnormalities Analogous to NRG1-ErbB4 Pathway Disruption Using Two Unique Models of Schizophrenia.

Schizophrenia (SCZ) is a neurodegenerative disease characterized by delusions, hallucinations, and severe cognitive decline. It is suspected that a combination of genetic and environmental factors trigger SCZ. At the forefront of research is the examination of potential susceptibility genes, specifically genes coding for NRG1 and its receptor ErbB4. Myelination and neurotransmitter receptor expression require the NRG1-ErbB4 pathway, and alterations in these processes are suspected in SCZ. Experiments in zebrafish (Danio rerio), a model organism used for developmental studies, have shown that when these genes are removed, the zebrafish develop unique morphological and craniofacial defects which are expressed five days post fertilization. As the receptors for proline and dopamine are commonly targeted by SCZ drugs, we treated zebrafish and human neuroblastoma cells (SK-N-SH) with dopamine and/or proline. Both models showed abnormalities that would be expected after disruption or alteration of the NRG1-ErbB4 pathway. Proline and/or dopamine treatment of zebrafish embryos resulted in atypical craniofacial cartilage development as well as aberrant swim patterns, and treatment of SK-N-SH cells resulted in decreased viability compared to untreated cells. These data support what has been shown when the NRG1-ErbB4 pathway is disrupted, and these models can be used to investigate future drug targets for SCZ.

**Faculty Mentor:** Teresa G. D’Aversa, *Biology*
**DAVID BLESSINGTON**  
*Biochemistry*

**Presentation Title:** An Analysis of the Effect of Weather Related Events on Nitrites in the Water Treatment Process

Nutrients including nitrogen can be essential to the survival and flourishing of ecosystems. However, too large a quantity present can spell disaster for aquatic ecosystems. As a state that is bisected by a large bay and relies on the ocean for a majority of its commerce, Rhode Island cannot afford to experience fish kills as consistently as it did in the past. In order to protect the economy and ecology of Rhode Island, limits have been placed upon the release of these nutrients from wastewater treatment facilities. By studying the effect that weather can have on these nutrient levels, the state can better prepare itself to prevent release of these nutrients. Composite samples were collected from the influents and effluents of two wastewater treatment facilities and tested to determine their nitrite concentrations, which can indicate the amount of nitrogen passing through the facility. The concentrations of these samples were sorted and analyzed based on rainfall events, temperature of the mixed liquor, and collection date. Preliminary studies indicate a correlation between all three variables and nitrite concentrations, however, further study is needed to account for some discrepancies arising between the samples from the two facilities.

**Faculty Mentor:** Teresa G. D’Aversa, *Biology*
PETER VITALE  
*Biochemistry*

**Presentation Title:** A Novel Crystallization Technique for Glycine

Glycine, the simplest amino acid, is an important active pharmaceutical ingredient. It is a component of a number of drugs that aim to treat a variety of neurological disorders, such as psychoemotional stress and aggression, social adaptation, mental performance, and schizophrenia. Glycine is known to crystallize in two polymorphs, alpha and gamma, and previous studies have demonstrated that the specific crystal structure of the glycine incorporated into the drug plays an important role in drug efficacy. Our research focuses on development of novel techniques of crystallization to better control glycine polymorphs, as well as providing insights into the understanding of crystallization processes. In this presentation we will discuss our new method of crystallization that provides a promising new way for controlling the glycine polymorph on a bulk scale.

**Faculty Mentor:** Sunghee Lee, *Chemistry*
OMOAKHE TISOR, MICHELLE MUZZIO, DAVID LOPEZ*
Biochemistry, New Rochelle High School*

Presentation Title: Adaptability of Monoglyceride-Templated Crystallization

Crystallization is a very important chemical phenomenon that has numerous applications in various fields such as biomineralization, crystal engineering, and the advancement in the production of organic-inorganic hybrid materials that can be used in medicine, and nanotechnology. We report the use of self-assembled monolayers of various monoglycerides at an oil-water interface as templates for the nucleation of crystallizable solutes in microdroplets. Monoglycerides have been shown to have sensitivity to the presence of trace quantities of anionic additives, in a manner dependent upon the chain splay of the hydrocarbon tail of the surfactant. The ability of monoolein, monovaccenin, and monoelaidin to induce crystal nucleation can be enhanced by specific chaotropic anions, while monoglycerides with greater chain splay such as monolinolein are not affected. Our intriguing results demonstrate the flexibility and adaptability of lipid monolayer at the liquid-liquid interface, and sensitivity to the surrounding medium containing various additives.

Faculty Mentor: Sunghee Lee, Chemistry
PETER MILIANTA*, MICHELLE MUZZIO*, ROSARIO GIACOMINI, ZUZANNA MICHALAK
Biochemistry*, Chemistry

Presentation Title: Effect of Monoglyceride Structure and Cholesterol Content on Water Permeability of the Droplet Bilayer

The process of water permeation across lipid membranes has significant implications for cellular physiology and homeostasis, and its study may lead to a greater understanding of the relationship between the structure of lipid bilayer and the role that lipid structure plays in water permeation. In this study, we formed a droplet interface bilayer (DIB) by contacting two aqueous droplets together in an immiscible solvent containing bilayer-forming surfactant. Using the DIB model, we present our results on osmotic water permeabilities and activation energy for water permeation of an associated series of unsaturated monoglycerides as the principal component of droplet bilayers, each having the same chain length but differing in the position and number of double bonds, in the absence and presence of a varying concentration of cholesterol. Our findings suggest that the tailgroup structure in a series of monoglyceride bilayers is seen to affect the permeability and activation energy for the water permeation process. Moreover, we have also established the insertion of cholesterol into the droplet bilayer, and have detected its presence via its effect on water permeability. We demonstrate that the DIB can be employed as a convenient model membrane to rapidly explore subtle structural effects on bilayer water permeability.

Faculty Mentor: Sunghee Lee, Chemistry
SCOTT FRIEDBAUER  
Chemistry

Presentation Title: Isolation of ACC-Deaminase Containing Bacteria to Reduce Ethylene Levels and Promote Growth in Plants

Plant growth can be drastically improved by decreasing ethylene levels in soil. The enzyme 1-aminocyclopropane-1-carboxylate (ACC) deaminase, breaks down ACC which is one of the precursors to ethylene production. This enzyme can be produced by specific bacteria and the bacteria can be added to soil to enhance plant growth. The goal of this project is to isolate and identify endospore forming bacillus that produce ACC deaminase. Endospore forming bacteria are resistant to extreme conditions and can be readily added to different soil types to enhance plant growth. Soil samples were collected from various regions around the country. The samples were treated to isolate endospore forming bacillus. The isolated bacteria were then tested for ACC deaminase activity using colorimetric analysis. Currently, we have identified one isolate that meets the necessary criteria.

Faculty Mentor: Christina Costa, Chemistry
ALICJA PAWELEC  
Chemistry

Presentation Title: On the Use of Density Functional Theory (DFT) Methods for Describing the H2-H2 Potential Energy Landscape

Environmental concerns have provided the impetus for a tremendous amount of research activity in the pursuit of alternative energy sources. Hydrogen has received significant attention as a fuel on account of its abundance and energy density. However, there are still many technical challenges that must be overcome, such as the matter of storing and transporting hydrogen safely, before the use of hydrogen as a major fuel can be realized. Toward this effort, computational chemistry offers the potential to assist developers when they screen for hydrogen storage materials. However, the underlying models used for the simulation of hydrogen storage must be reliable. The study described herein was an effort to determine the reliability of DFT methods using the B3LYP, B3PW91, and omegaB97X functionals. The results of numerous DFT computations were compiled in order to map out the potential energy landscape associated with H2—H2 interactions. Comparison of the latter with the results of high-level ab initio calculations indicate that DFT methods with the B3LYP, B3PW91, and omegaB97X functionals do not provide a reliable description of molecular hydrogen.

Faculty Mentor: Thomas Castonguay, Chemistry
JENNIFER BARAJAS, KRISTEN FERENCZ
Chemistry

Presentation Title: Nonionic Surfactants as AAS Releasing Agents for Calcium

The interference of phosphate in the measurement of calcium by atomic absorption spectroscopy (AAS) is well-known. To eliminate this problem, releasing agents are used to prevent the formation of a refractory compound and maintain the appropriate AAS signal. A common releasing agent for calcium is lanthanum chloride, but the use of nonionic surfactants to eliminate this interference has also been suggested. We investigated the validity of a new method for interference elimination using Triton-X as the releasing agent. This surfactant has the advantages of a lower cost and the production of less hazardous waste.

Faculty Mentor: Kathleen Kristian, Chemistry
OLIVIA BRADLEY-WILLEMANN, CHRISTOPHER FOREHAND, KESTER GUI SCHARD
Computer Science

Presentation Title: The Virtual Classroom - Mobile Application

Our proposed mobile application is called The Virtual Classroom. It will provide two separate user interfaces. The first interface will be accessed via tablet (Apple iOS – iPad) and will be used by students. The second interface will be accessed via web browser and will be used primarily by the instructor. The application provides a simple and easy way for students to stay engaged in class and a means for instructors to gauge student involvement. In addition to other utilities, the two main features of the application are: 1. Note-taking mechanism for students to record notes during their classes by drawing directly on images, such as PowerPoint slides or photos captured from the classroom blackboard. 2. Question submission mechanism that allows students to ask the instructor questions during or after class meetings. The students must also categorize their question based on 4 question types: Memory, Convergent, Divergent, or Evaluative. In addition to the interactive user interface, the note-taking feature offers students a convenient way to organize and review their notes for each class session over the course of a semester.

Faculty Mentor: Chia-Ling Tsai, Computer Science
CHELSEA FRENGS
*Computer Science (MS Program)*

**Presentation Title:** Insight into Motifs in Digestive System Pathways of Mammals for Better Understanding and Prediction of Biochemical Processes

This thesis addresses the issues of the need for the discovery of real-life meaning and applications of bioinformatics data. It is aimed at classifying metabolic pathways’ biochemical reactions, so as to assist in the interpretation of certain biological pathways that are common to mammals of different species. This is achieved by gathering data of mammals’ digestive pathways and applying data mining algorithms to discover biochemical patterns among the data. The pathway information is mined from the Kyoto Encyclopedia of Genes and Genomes (KEGG) database. This thesis involves data mining from the KEGG databases of: Pathway, Orthology, Reaction, Genome, Gene and Compound. Together these databases allow for the ability to establish motifs in the digestive pathways of several mammals. The concept of supervised learning is applied, for more in-depth identification and further analysis of those patterns. The data mining through the databases with additional input allows for motifs with meaning to arise.

**Faculty Mentor:** Aaron Kershenbaum, *Computer Science*
AMANDA COFFEY, DARIEN CRUTE, LULJAN BACAJ

Computer Science

Presentation Title: The Graduate Advisor

The Graduate Advisor application's goals are to provide assistance to the school of business at Iona in the planning of future class schedules of MBA Students at Iona College. The current system is to do things by hand, tailoring each individual student's schedule, and it is very labour intensive. The goal of the application is to eliminate this altogether. The application will contain a decision engine which the project team will deliver that will automate the process of generating class schedules and advisement reports so that students may see and track the way towards graduation.

Faculty Mentor: Chia-Ling Tsai, Computer Science
DEREK LOMIBAO  
*Computer Science*

**Presentation Title:** Real-Time Magnification of Imperceptible Motion in High-Definition Video Using a GPU

Many phenomena involve motion too subtle for the human eye to perceive. By amplifying this motion in video, hidden information can be revealed, providing unique insights into an unseen world. Early research into magnifying subtle motion focused on explicit motion tracking of video, but had high computational demands. In 2012 a new approach based on Eulerian Video Magnification (EVM) was introduced which makes imperceptible motion visible by amplifying the temporal changes in pixel intensity. Despite the reduced computational requirements of EVM, serial CPU computation is too slow for real-time processing of high definition (HD) video limiting the technique's potential applicability. We present a system that exploits the parallel nature of EVM computation by using a graphics processing unit (GPU) to achieve orders of magnitude faster performance over serial implementations of EVM.

**Faculty Mentor:** Lubomir Ivanov, *Computer Science*
NIZAR CHERKAOUI
Computer Science

Presentation Title: A Cuda C Implementation of The Kinetic Monte Carlo Algorithm for Atomic Simulations

Atomic-level simulations of chemical processes are an integral part of chemical research and complement experimental lab work. For processes evolving on large time scales Molecular Dynamic (MD) simulations are infeasible. The Kinetic Monte Carlo (KMC) algorithm is a widely used alternative, which allows atomic simulations to be carried out on time scales as large as seconds or more. For large simulated systems a parallel implementation of KMC is highly desirable in order to obtain simulation results in reasonable time. The focus of this research is on the application of the Kinetic Monte Carlo method for modeling chemical processes on a General Purpose Graphics Processing Unit (GP-GPU). Serial and parallel implementations of KMC are presented and applied to the analysis of ion radiation of interstitials and vacancies in Si. A second simulation, of adsorption and desorption of gas particles, is also briefly considered.

Faculty Mentor: Lubomir Ivanov, Computer Science Department
**Jay Velasco**  
*Computer Science*

**Presentation Title:** Enhancing Bagging and Boosting Machine Learning Methods with a Domain Specific Data

This work describes a novel ensemble learning method that improves classification of Direct Marketing data. Ensemble methods Bagging and Boosting are widely used Machine Learning methods for combining different classifiers. Often the ensemble methods outperform any individual classifier. Bagging creates base classifiers from different sample sets extracted using a uniform distribution and aggregates their prediction by taking their majority vote. Such an approach is less susceptible to overfitting because it reduces the variance between base classifiers. Boosting dynamically changes probabilities of instances being selected for base classifiers using criteria such as misclassification in a previous base classifier. In this research, adding domain specific knowledge into the learning process enhances Bagging and Boosting. This method is tested on Direct Marketing data from a Portuguese bank. Sixteen attributes such as month and call duration represent each phone call attempt to subscribe a customer to opening an account with the bank. There are 45,211 calls in the database. The goal is to predict successful call attempts. Several improvements achieved are statistically significant with 95% confidence in comparison to the base method alone and methods applied in published literature.

**Faculty Mentor:** Smiljana Petrovic, *Computer Science*
Author attribution has become a field of study linking the humanities to computer science. The Text Analysis Project of the Institute for Thomas Paine Studies (ITPS) at Iona College is developing data mining techniques to be used for author attribution. Because Paine often wrote anonymously, many of his works are miscredited or not credited at all. We combine many authorship attribution techniques and stylistic features to compare an unknown author’s work to works of potential authors. Commonly used features include function words, character and word n-grams and part-of-speech. After extracting stylistic information, the document is classified using machine learning methods, including neural networks and support vector machines. Our method assigns a degree of support of authorship of the document to each possible author, and attributes it to the author with the highest support. The accuracy of our method tested on documents of known authorship is often over 80%. Data mining methods narrow down possibilities of authorship, at which point we apply historical analyses. Moreover, our method can direct historians to evaluate authors they did not previously consider. In this way, computer-based and historical analyses complement each other in approaching the authorship attribution problem.
RYAN DEL MONACO  
Mathematics  

Presentation Title: Linear Programming: Investigation of Problem Structure  

Many people enjoy watching professional sports. With so many teams spread throughout the country, a complex scheduling problem arises. For this thesis, professional basketball will be examined, however any sport could be compatible with the problem formulation. The crux of this project is to investigate problem structure and to develop an understanding of how the functional form of the constraints and objective function affect the solution. At the most basic level, scheduling an entire season for professional sports is combination of graph theory and integer programming. If the problem has enough structure, it can be relaxed to a linear programming problem. We begin with the most basic constraint: every team must play every other team once and must play one game in a week. From this we shall build up more constraints to match real life situations and speculate the outcome in different situations. Changing the function to be objectified creates different scenarios. For example, if we choose the objective function to be cost minimization the outcome will be different then if the objective function is distance traveled. Understanding the effects of changing constraints and objective functions to produce different outcomes is the ultimate goal.  

Faculty Mentor: Aaron Kershenbaum, Computer Science
ANASTASIA NITIS  
Mathematics

Presentation Title: The Quantification of Perception

It may be simple to quantify values and numerals, but sensations such as sights, sounds, tastes and countless other stimuli are not normally given numerical values. Studies have been done to determine whether it is possible to quantify perceptions or sensory events. G.T. Fechner determined that a logarithmic model best described the way humans perceive sensations. Stanley S. Stevens challenged this model, claiming that a power model best described the way humans perceive sensations. Since Stevens’ discovery, stimuli including sound, brightness, visual length, visual area, taste, heaviness, electric shock, speaking rate, and listening rate have been tested and were best described by a power function. This study sought to determine whether Stevens’ Law is applicable to the way humans perceive changing text sizes.

Faculty Mentor: William Gratzer, Mathematics
**SEAN DAVIS**

*Physics*

**Presentation Title:** The Simulation of Hydrogen Storage using the Kinetic Monte Carlo Method

A number of factors are spurring research activity aimed at the pursuit and utilization of alternative energy sources. Hydrogen has received serious consideration as a possible energy carrier. Among some of the challenges to realizing H2 as a major energy source are the inherent difficulties of storing and transporting hydrogen safely. In this study we describe the development of a computer program that can be used to simulate the interaction of molecular hydrogen with a host material. The program implements the Kinetic Monte Carlo (KMC) method for modeling H2 diffusion and adsorption/desorption within an arbitrary two-dimensional lattice. The program is able to reproduce the analytical result that describes the approach to equilibrium as well as the equilibrium surface coverage. Future efforts will explore the modification of the code to simulate hydrogen storage in three-dimensional systems.

**Faculty Mentor:** Thomas Castonguay, *Chemistry*
GREGORY BADURA AND WILLMOR PENA  
*Physics and Chemistry*

**Presentation Title:** Introducing a new polarizable model of hydrogen for molecular dynamics simulation

The prospect of a hydrogen-based fuel economy is the impetus for a tremendous amount of research activity. A major challenge that researchers face concerns the issue of hydrogen storage. Metal organic frameworks (MOFs) are considered to be among the more promising candidates for hosting molecular hydrogen at near liquid densities. Although simulation approaches can assist tremendously in screening MOFs for the ideal host material, the corresponding models must be able to describe molecular-level interactions in a realistic fashion. Herein, we describe a model of H2 that is based on the Amoeba polarizable force field. The optimization of model parameters will be discussed and compared with ab initio data. The results of simulations describing H2 diffusion in IRMOF-1 and activation energy barriers will be presented and compared with non-polarizable models. To the best of our knowledge, this is the first time polarizable effects have been introduced into molecular dynamics simulations of H2 diffusing in IRMOF’s.

**Faculty Mentor:** Thomas Castonguay, *Chemistry*
STEPHEN RODRIGUEZ, EVAN JOHNSON, MATT STELNICKI, ELENI CATECHIS, TAYLOR MAKINEN, RINA REXHA, ALEXIS PEREZ

Computer Science and Speech Pathology

Presentation Title: An Adaptive Online System for Calculating Lexical and Sublexical Components of Children’s Literature

An online adaptive calculator that analyzes linguistic properties found in children’s literature is under collaborative development between students of Computer Science and Speech Communication Studies. The proposed system supports a growing database, generates a corpus on-the-fly using a query processor, and analyzes the multiple properties of text in children’s literature. Online calculators that perform these computations do exist. However, no such calculator focuses on language input (via children’s storybooks) for preschool-aged children. Our online calculator will resolve this need by creating a unique calculator designed for the modern speech pathologist. With new querying capabilities, a user can generate a customized corpus from the database with the additional constraints on author, book, word type, age range, and gender of the listener. In addition to the analysis of the lexical properties typically found in existing calculators in the literature, this system can display reported data in a variety of charts. In order to assist a large research community, the system also allows users from other institutions to contribute literature corpora to the database. By doing so, we hope to achieve a dynamic resource that grows along with its users and provides relevant and coherent data for the researcher of the 21st century.

Faculty Mentor: Chia-Ling Tsai, Computer Science
Recidivism amongst probationers is highest after their first year on probation. This presentation statistically analyzes a data set containing information on 24,071 probationers from a large United States county probation agency. I examined how characteristics of probation agencies influence recidivism. I use logistic and other multivariate regression techniques to investigate the following. What are the effects of different treatment programs (including anger management, drug rehabilitation, and alcoholics treatment) on rates of re-arrest both during and after probation sentence? To what extent have these various treatments been a success or failure? My findings generally confirm those from other studies. For example, more intensive treatment seems to produce better results, i.e., lowered recidivism. In my conclusion, I acknowledge that other variables, such as personal probationer characteristics, which are not included in this data set, are likely influences on recidivism, and that further research is needed. This research is useful because clarifying what promotes or hinders probationer re-offending can help us pinpoint policy recommendations.

Faculty Mentor: Josh Klein, Criminal Justice
ELIZABETH BELMONT
Criminal Justice

Presentation Title: Issues with Right to Counsel

Right to counsel gives any offender the right to a lawyer when he cannot afford one. This was decided in the case Gideon v. Wainwright. There are many issues that surround the right to counsel. Some of the issues include that these standards are often not executed, contracts are often given to the lowest bidder without regard to the quality of service, organizational structures are weak, workloads are high, and funding is not keeping pace with other components of the criminal justice system. The effects can be severe, including legal representation of such low quality to amount to no representation at all, delays, overturned convictions, and convictions of the innocent. Presently, the lack of adequate, efficient legal representation for indigent defendants raise the question of the legitimacy of criminal convictions and the goodness of the criminal justice system as a whole.

Faculty Mentor: Cathryn Lavery, Criminal Justice
AMANDA GEITZ, SHAYNA NIGRO  
*Criminal Justice*

**Presentation Title:** Gun control legislation: Who is really being punished?

This research examined the pros and cons of gun control and the impact on the criminal justice system. The proponents’ and opponents’ views on guns, and the new laws being put into place to avoid crimes involving firearms is presented. New legislation on gun laws are viewed and whether or not they violate our second amendment right to bear arms. These administrative laws are due to recent illegal activity that has taken place involving firearms. What happens to those who obtain and possess their firearms legally? By examining recent research and data collection, an unbiased presentation on the new gun control acts will be discussed.

**Faculty Mentor:** Josh Klein, Cathryn Lavery, *Criminal Justice*
TIMOTHY BANNEN, ROB AMERICO, JOHN CATALANOTTO
Criminal Justice, Psychology, International Studies/Criminal Justice

Presentation Title: The Underground Nexus of Violence and Bondage: Establishing a Connection between Terrorism and Human Trafficking

This research project discusses the correlation of terrorism and human trafficking as well as the nexus point for the two. To better understand the issue at large, the research focuses instead on three distinct subcategories to form a more specialized thesis to address the topic. Three subcategories include the psychology of the traffickers and victims, the international factors and consequences of the nexus, and the criminological consequences. Human trafficking and terrorism’s nexus poses a unique obstacle to the international community. While the U.S. has taken an active role in fighting terrorism, it is beginning its specialization in the field of human trafficking. This research discusses human trafficking as a means to support terrorist cells and the economic outcome these means of finance pose. The consequences for the Criminal Justice system include legal, community safety, and policing. Legal consequences include human rights, international laws and issues regarding National Security. The impact on one’s mental health from each of these acts can differ, and the psychological trauma incurred is extremely difficult to treat. The sense of fear, betrayal, helplessness, and guilt observed within victims of human trafficking is analyzed in detail.

Faculty Mentor: Cathryn Lavery, Criminal Justice
ANGELIQUE BLAKE  
_Criminal Justice_

**Presentation Title:** Intimate Partner Violence and Pregnancy: Factors, Prevalence, and Consequences

The content of this presentation examines the issue of Intimate Partner Violence (IPV) and pregnancy in an attempt to shed light and bring awareness to this topic as a public health concern. Within the project there are statistics, meta-analysis, and research of the growing problem. The presentation gives an in-depth overview of IPV and the motives and factors of it. It explores different levels and types of IPV and investigate the problem at hand. The goal of this presentation is to bring awareness about IPV: why it is caused, how it has grown over time, why is it often overlooked, why is it at its peak during pregnancy? It explores the cycle of domestic violence and the consequences of IPV during pregnancy. There are close examinations on the topic of Birth Control Sabotage and how this ties into IPV. Highlights of the presentation contains different types of recommendations on how to control this problem. It consists of literary research from different perspectives and aspects. In conclusion, this research is useful because it is a very important issue that is often overlooked.

**Faculty Mentor:** Cathryn Lavery, _Criminal Justice_
MARY VAUGHAN  
_Education_

**Presentation Title:** Literacy Portfolio

A Literacy Portfolio is a unique assessment tool in which a teacher determines a student’s estimated independent, instructional, frustration, and potential reading grade levels in order to decipher a learning plan for that particular student. In other words, a teacher determines a starting point and a potential end point for the student in terms of his/her literacy. I worked with Jack, a fifth grade student, to develop a Literacy Portfolio specifically that would show his progress in Reading, Writing, and Oral Language over the course of several lessons. Prior to engaging Jack in any assessments, I conducted an interview with Jack in order to gain knowledge and insight into his views on reading. With the use of a “Graded Words in Context” form and a “Graded Reading Passages Form”, I assessed Jack’s instructional reading grade level and, then, identified his needs in the areas of Reading, Writing, and Oral Language. Specific lessons were planned based on Jack’s determined needs in each of these areas. Through the use of literacy strategies, Jack was able to demonstrate his progression in consistently collected data. The Literacy Portfolio was completed as I analyzed Jack’s achievements and provided recommendations for further learning.

**Faculty Mentor:** Eugene Wolfson, _Education_
CARA RUTIGLIANO  
*Education*

**Presentation Title:** Constructing Effective Literacy Portfolios

Constructing literacy portfolios is an essential part of being an effective teacher who monitors and aids students in growing both academically and socially. Literacy portfolios consist of specifically designed assessment strategies that are used to monitor and document literacy growth and development in young students. Effective literacy portfolios utilize differentiated instruction, assessments, and activities so that all students will be able to understand and succeed. These effective literacy portfolios will document and monitor literacy growth for struggling readers and writers, students whose first language is not English, as well as students with learning disabilities. Literacy portfolios are an effective means of examining student development because they are an authentic type assessment and can be used to monitor the growth of students during a period of time. I have employed a literacy portfolio in an elementary school classroom in order to further define the literary skills of a strong reader in the class. Although I was working with a strong student there were still areas in which the student could improve. This is a critical aspect of using literacy portfolios; even strong students have areas in which they can make improvements and grow academically.

**Faculty Mentor:** Eugene Wolfson, *Education*
ANDREW BARILE, NICHOLAS VITULLI

School Psychology & Special Education

Presentation Title: Inclusion Comes to Higher Education

This study presents how inclusion at a college began as a partnership that was forged to enhance the lives of students with disabilities. The students transition from high school to college and the study describes a successful pathway to their career exploration and how the program positively impacts teacher and psychology candidates’ development. GAELS RICE has built capacity at the college to develop a program with natural supports that scaffolds neuro-diverse individuals, as they emerge from the confines of a structured high school setting and relocate to a college environment that fosters independence and career exploration. This postsecondary educational program has tenets that should be replicated at colleges and universities to better serve not only young adults with disabilities, but also to enhance the content knowledge and disposition of special education and psychology candidates. The study’s focal points include; building an effective partnership; promoting and broadening special education and school psychology candidates’ content knowledge; positively impacting teacher and school psychology candidates’ dispositions; encouraging problem solving strategies that lead to effective individualized instruction.

Faculty Mentor: Marlene Zakierski, Education
SARAH QUINTANO, CHANTEL CHANDLER

Experimental Psychology

Presentation Title: Cross-Cultural Analysis of Mortality Salience, Education, and Agreeableness Amongst the Politically Extreme

Previous research has provided unique insights into the motivations behind political positioning. The purpose of this study is to analyze key motivational factors related to political views cross-culturally. The authors utilize the General Social Survey (GSS, 1972-2010) and the World Values Survey (WVS, 1991-2008) databases to examine the similarities between political groups based upon the rigidity of the right and the ideological extremity hypotheses. Specifically, this study explores the relationships between extreme political positioning and high levels of mortality salience (based on the Terror Management Theory), low levels of educational attainment, and high levels of agreeableness. These associations are analyzed using ANOVA tests as well as Chi Square correlations. Cross-cultural similarities between politically extreme groups are found, most strongly for high levels of agreeableness. Future research should focus on additional personality traits across extreme political groups and include direct measures when possible. Keywords: political views, political positioning, extremes, similarities, Terror Management Theory, IQ, agreeableness, rigidity of the right, ideological extremity

Faculty Mentor: Kisok Kim, Psychology
ELISSA LEVY
*International Studies*

**Presentation Title:** Central Park In Urban Development

This paper examines the effects Central Park has had on the social, economic, and ecological urban environment of New York City both historically and at present. Central Park was originally designed to serve three purposes: to exist as a work of art, to serve as a tool for social control, and to improve the health and well-being of those in the city. The paper explores its second and third original uses more in depth as its presence as a work of art with its amazing architecture and landscaped beauty is self-explanatory. Connecting present and past issues, the park’s vital function to improve air quality historically and today is touched upon as is the park’s darker role as a direct cause of gentrification. Though the wealthy clearly benefit more from the park’s creation, all do benefit from Central Park and its creation is something New York City could not survive without.

**Faculty Mentor:** Joshua K. Leon, *Political Science*
**Presentation Title:**  Body Images and the Media: How Does The Media Influence Women’s Body Images?

Media images of the perfect body-type have filled magazines, commercials, and ads. Studies have been done that indicate woman’s body image and self-esteem is affected negatively by media portrayal of body perfection. This research is important because discovering the connection between a women’s body image and the media’s portrayal of a women’s body image could allow for better understanding of the phenomenon (e.g., eating disorders, low self-esteem). The purpose of this study was to examine the immediate body dissatisfaction effects from the media’s portrayal of attractive body images. It was hypothesized that participants who are exposed to attractive body images are less satisfied with their own body compared to those who are exposed to unattractive and average body images. A convenience sample (n=90) was recruited from Iona College, New Rochelle, NY. Participants completed a body-satisfaction questionnaire (6-point, Likert-type scale). Data was analyzed using 1-way ANOVA, factorials with 3 levels (attractive body images targets, average body images targets, unattractive body images targets). Results were not significant (p> .05). Although the hypothesis is not supported, results indicate that participants felt confident about their own body image regardless of target photo shown. Replication of this research should be done by exposing the participants to the images for a longer period of time, and assessing participant body image category (e.g., heavy, thin, average).

**Faculty Mentor:** Regina Carlo, Psychology
JESSICA VELASCO  
*Sociology*

**Presentation Title:** How Student Involvement Affects the Satisfaction of the College Experience

Student leaders are known to be responsible young adults who form great relationships with their peers and the faculty. Though not every college student is a student leader, student involvement enhances the student’s learning experience. The researcher examines if there is a relationship between the levels of those who are involved and how satisfied they are with their college experience. Despite the levels of social involvement in a university, there are differences whether one enjoys being involved or not. This survey-based research project explores relationships between student involvement and the satisfaction of their experience with the hypothesis that freshmen are less likely to immerse themselves in activities than seniors due to their desire as identifying themselves as a college student.

**Faculty Mentor:** Marcus Aldredge, *Sociology*
**ALY LUISO**  
*Speech and Language Pathology*

**Presentation Title:** Perception Ignorance Communication Theory

The purpose of this theory is to research how people perceive those with mental and physical disabilities and illnesses. This study examines how these perceptions either negatively or positively influence communication interactions with this population of people. If we fail to ask how people communicate with those who are different from them, will we never be able to study and learn from our actions? A human communication theory centered around interaction with those that are “disabled” or “ill” is essential for the future enhancement of communication as a whole. This theory proposes that society is unaware of their perceptions and how those perceptions are negatively affecting social communication.

**Faculty Mentor:** Diane Ferrero-Paluzzi, *Speech Communication Studies*
MICHAEL HODGEN  
*International Studies*

**Presentation Title:** Human Rights and Economic Development

Legal characteristics and relationships between human rights and economic development are studied. The two concepts have hitherto been considered similar but distinct topics, interrelated and codependent for the security of human rights. Yet, there exists a disproportionate distribution of legal regulation and overall equitable systematic processes codified by international law. Can economic exploitation be a human rights violation? Do modern economics desensitize our consideration for human rights? If so, should purposeful legal structures be in place to protect against the greed of human nature? However, regulating greed may be like a violation of an individual’s sovereignty. The paper will examine countries in the Caribbean as case studies.

**Faculty Mentor:** Tricia Mulligan, *Political Science*

SARAH LONERGAN-ROTHSCHILD  
*International Studies*

**Presentation Title:** Human Trafficking in Guatemala and Honduras

This paper will explore human trafficking in Guatemala and Honduras. It examines various economic, political, and social factors that exist within these countries and how they contribute to the issue of concern. It evaluates the policies and approaches of those governments in addressing the trafficking issue and will determine if they are likely to be removed from the Tier 2 list of non compliant countries in the near future.

**Faculty Mentor:** Tricia Mulligan, *Political Science*
ALEXANDRA VINCI  
International Studies

Presentation Title: Protecting the Human Rights of Stateless People: The Case of Haitians in the Dominican Republic.

This paper examines the issue of stateless people in the Dominican Republic and the challenges to their human rights. Statelessness results in the denial of national identity and thus the denial of certain security, political, and socioeconomic rights. This study deals with the multiple issues of statelessness of Haitians born in the Dominican Republic since 1930 and evaluates and explores the recourses available to redress this problem.

Faculty Mentor: Tricia Mulligan, Political Science

RYAN BACCI  
International Studies

Presentation Title: EU Admission and Human Rights in Croatia and Serbia

This paper discusses the role of human rights violations as a consideration in the EU accession process, comparing the cases of Croatia and Serbia. It evaluates the criteria used to evaluate both applications and whether differential standards were applied in these cases. The perception of the Serbian government of Slobodan Milosevic as the aggressor in the Croatian War of Independence (1991-1995) and the Bosnian War (1992-1995) developed from the view that the atrocities committed by the Serbian military were more malicious than the actions of the opposition forces. The international and domestic responses to Slobodan Milosevic’s ICTY case, the Vukovar Massacre (1991) illustrate the imbalance of international scrutiny of Serbia’s human rights violations in the face of Croatian and Bosnian violations evidenced by the Gospic Massacre (1991), the Varivode Massacre (1995), and the Kravica Attack (1993), respectively.

Faculty Mentor: Tricia Mulligan, Political Science
ANISHA HAYNES
Childhood Education with English Concentration

Presentation Title: Effective Teaching Using Literacy Portfolios

Through Literacy Portfolios, teachers and administration are given the opportunity to attain information about a student’s level and tracks the student’s progress of Literacy in the areas of Reading, Writing and Oral Language. This method is beneficial for both the teacher and the student. The teacher is provided with information that guides authentic strategies of teaching to further progress in the student’s education. The students that are assessed include struggling readers and writers, students of bilingual or ESL families, and students with various learning disabilities and needs within the classroom environment. Firstly, the assessor builds a rapport with the student through a Reading Reflections Interview. The teacher is allowed to ask the student questions about his interests and perceptions of Reading and Writing. Afterwards, the teacher conducts a Word Knowledge and Reading Comprehension Assessment by providing a list of Grade Level Vocabulary to the student with a corresponding Grade Level Reading Passage. The assessment indicates the level of strengths and needs of the student in Reading Comprehension, Word Knowledge, Writing, Oral Language, and Critical Thinking. To provide the student with further instruction to build learning experiences, the assessor plans a specific guide of differentiated instruction catered to the student’s academic Reading and Writing level. After the data driven instruction has been completed, the overall achievements of the student in each area of Literacy are shown and the assessor provides recommendations for further instruction that include specific skills and instructional strategies tailored to the student’s remaining needs with Literacy.

Faculty Mentor: Eugene Wolfson, Education
ELISSA LEVY

International Studies

Presentation Title: The Human Right of Sanitation in Rural India

This paper will attempt to examine what challenges exist to the provision of sanitation, a key right developed as a part of the Millennium Development Goals (MDGs) and the passage of resolution 2/104 by the Human Rights Council. The paper focuses on rural India as a case study, evaluation legislative measures in place and and policy options to address water and sanitation concerns.

Faculty Mentor: Tricia Mulligan, Political Science

JOHN PAUL CATALONATTO

International Studies

Presentation Title: Human Trafficking and Human Rights

In an era when human trafficking victims exceed the number of people held in slavery in the past, it is critical that the international community and national governments cooperate to address this. This paper investigates national and international efforts to address the problem and an evaluation of successes and shortcomings. It examines the strategies that international and domestic actors have pursued, including Tier 1 and Tier 2 ranking, and the successes or failures of these policies to curtail modern slavery.

Faculty Mentor: Tricia Mulligan, Political Science
CHANTEL CHANDLER  
General-Experimental Psychology

Presentation Title: Social Intelligence, Narcissism, and the Big Five on Online Social Network Utilization

This study examines the relationship between social intelligence, narcissism, and the Big Five on online social network utilization, specifically the types of behaviors and feelings of attachment self-reported from the college student population. Previous research has limited its focus on Facebook as the representative of all online social networks. This study was inclusive and analyzed a variety of online social networks, such as Twitter, Instagram, Pinterest, Tumblr, and LinkedIn. Social intelligence was analyzed as a predictor of certain types of online social network behaviors, and levels of narcissism were associated with feelings of attachment for online social networks. The relationship between social intelligence and narcissism was also explored and the results indicate differential associations between the subscales of narcissism and social intelligence. Future research should continue to investigate the impact of personality factors on online social interactions.

Faculty Mentor: Kisok Kim, Psychology
ANNIE COATES
Early Childhood and Childhood Education

Presentation Title: Effective Teaching Using Literacy Portfolios

A Literacy Portfolio is a compilation of one student’s work to help the teacher determine the student’s abilities in Reading, Writing, and Oral Language. A Literacy Portfolio is customized for one individual student. It uses differentiated instruction to cater to the student’s specific needs in his or her literacy success. First, the teacher gives the student a Reading Reflections Interview to determine the student’s general knowledge and interest in reading. After the interview, the teacher administers a Graded-Words-in-Context List to the student to determine his Word Knowledge. Based on the previous word list, the teacher gives the student a Graded Reading Passage to determine their Reading Comprehension Skills. Based on these forms of assessments, the teacher is able to design specific literacy strategies and activities to engage the student and strengthen their literacy needs in the categories of Reading, Writing, and Oral Language.

Faculty Mentor: Eugene Wolfson, Education
MICHAEL MIRESI
Industrial/Organizational Psychology

Presentation Title: Perceptions of Job Applicants

The purpose of this study is to determine whether or not hiring biases based on gender still exist in our current time. Participants were administered a resume and cover letter for either an engineering position or a nursing position and asked to complete a short survey detailing whether or not they believed they would offer the applicant the position they were applying for. The resumes and cover letters were identical in each condition (engineering/nursing) except for the name at the top of each, one of which was male and the other female. It was hypothesized that participants would display a bias against female applicants to the engineering position and male applicants to the nursing position.

Faculty Mentor: Patricia Oswald, Psychology
**KIRSTEN STEWART**
*Psychology*

**Presentation Title:** The Influence of Prose on Performance

This study sought to investigate the effects of priming on later test performance. More specifically, it sought to examine whether reading pro-college or anti-college or content-neutral prose (control condition) would influence participants' performance on a measure of verbal and quantitative skills. Volunteers were presented with either a pro-college, or anti-college passage and were asked to complete a brief measure of verbal and quantitative skills. The control group read about global warming. It is predicted that participants who are primed with the pro-college prose will consistently perform better than participants who are primed with anti-college or neutral prose.

**Faculty Mentor:** Shaki Asgari, *Psychology*
**MELISSA SOUTAR**  
*Psychology*

**Presentation Title:** The Relationship between Self Esteem and Social Networking Use

The purpose of this study is to determine the relationship between self-esteem and social networking use, specifically Facebook and Twitter. It is hypothesized that people with lower self-esteem are more active on social networking sites. Participants will be given a survey packet containing three surveys, The Rosenberg Self-Esteem Scale, The Facebook Intensity Scale and a modified version of the Facebook Intensity Scale for Twitter use. It is predicted that individuals with lower self-esteem are more likely to use and spend long hours on social media sites.

**Faculty Mentor:** Shaki Asgari, *Psychology*

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**KEVIN S. GUERRA**  
*Psychology*

**Presentation Title:** The Relationship Between Fraternity Membership and General Satisfaction with College

This study examines the influence of participation in a fraternity organization on college satisfaction. It is predicted that students who participate in a fraternity organization will be more satisfied with their college experience overall than students who do not participate in any fraternity organization.

**Faculty Mentor:** Shaki Asgari, *Psychology*
FRANK DE SANTIS
*Psychology*

**Presentation Title:** The relationship between exercise and self-efficacy

The purpose of this study was to investigate the relationship between exercise and perceived self-efficacy. For the purpose of this study, self-efficacy is defined as the belief that one can perform novel or difficult tasks, or cope with adversity, life challenges and setbacks (Schwarzer, R., & Jerusalem, M., 1995). It was important to conduct this study because if there is an association between exercise and a person’s perception of his or her abilities, then further follow-up research can be performed to understand the mechanisms that may underlie the relationship. It is hypothesized that there will be a positive correlation between the number of hours spent exercising weekly and a person’s level of self-efficacy. Namely, more exercise is predicted to associate with a higher level of self-efficacy.

**Faculty Mentor:** Shaki Asgari, *Psychology*

DIERIL DISLA
*Psychology*

**Presentation Title:** Nutrition and Cognitive Focus

The study explores the relationship between eating breakfast and attentiveness in school. Thirty undergrad students completed a two-part survey about their eating habits and self-reported attentiveness in class. It is predicted that eating breakfast has a positive relationship with of attentiveness and focus.

**Faculty Mentor:** Shaki Asgari, *Psychology*
ANASTASIA FORMICA  
Psychology  

Presentation Title: The Effects of Popularized Stereotypes on Jury Decision-Making

We examined whether being a member of one of the following different deviant subgroups would be related to juror decision-making using a vignette design: gothic culture, cosplay (the act of dressing up as characters in television, movies, and role-playing in a virtual world), and unorthodox religious sects. It was predicted that participants presented with the profile of a stereotyped defendant from a deviant subgroup would convict more often than the participants presented with a norm group profile, and that the participants presented with the profile of a stereotyped defendant would recommend a harsher punishment than those presented with the neutral profile. No significant relationship was found between gothic culture and guilt, $X^2 (1) = 1.092, p = .296$, between cosplay and guilt, $X^2 (1) = 1.524, p = .217$, or between unusual religious sect membership and guilt, $X^2 (1) = 0.048, p = .826$. There was a significant effect of goth stereotypes on punishment decisions, $F(1,64) = 4.211, p = .045$, but the same did not occur in the cosplay and religious sect conditions. In fact, the results suggested that the cosplay condition had the opposite effect than hypothesized.

Faculty Mentor: Colleen Jacobson, Psychology
CHELSEA CHAMPION  
*Sociology and Spanish*

**Presentation Title:** Slacktivism or Activism?: A Study of Online and Offline Civic Engagement in College Students

The current college aged cohort – members of the millennial or Y Generation– has been characterized as well-educated, self-entitled, idealistic, and tech-savvy. This generation is increasingly “connected” in nearly all aspects of life through new virtual-based technologies and new social media. It is no wonder that with the maturation of this generation and the continued refinement of virtual and cyber-based technologies there is also a shift toward online forms of civic, social, and political engagement. Since youths are among the most frequent users of the internet and social media, college students represent a significant population to sample for this exploratory study. This study aims to collect information regarding the online and offline forms of civic engagement participated in by undergraduate students at Iona College. The hope is that this study will produce information regarding any possible connections or social patterns that exist between online and offline civic engagement and its relationship to certain demographic variables. It is hypothesized that the sample will aggregately exhibit greater involvement in online civic practices as compared to offline behaviors and their attitudes will also reflect this preference for online forms of participation.

**Faculty Mentor:** Marcus Aldredge, *Sociology*
KERRI-LEIGH HEESEMANN, ALEXA MAGALHAES, YANISSA GARCIA
Speech Language Pathology

Presentation Title: Examination of the effects of a sibling relationship on language development.

The study examines the impact of a sibling on the language development of another sibling. A survey was administered to adult participants seeking their opinions and personal experiences with siblings. The data collected was examined to determine the potential correlation between language development and the presence or absence of siblings. The researchers have hypothesized that an older sibling will decrease a younger sibling’s language, specifically in terms of pragmatic language and expressive language. This study investigates the potential relationship between language and the presence of siblings and provides speech language pathologists with an additional resource for understanding patient histories.

Faculty Mentor: Dorothy Leone, Speech Communication Studies
AREINI ARZU, EMERALD GREEN, MEGAN ADINOLFI, TIFFANY HENDERSON
Speech Language Pathology

Presentation Title: Parent’s Language Related Abilities and Phonological Awareness in Children

Phonological awareness describes an individual’s sensitivity to the segmental structure of spoken language (Skibbe, Behnke, & Justice, 2004). There is little or no previous research explaining if there is any correlation between a child’s PA abilities and a parent’s language abilities. However, there are previous studies explaining that PA plays a central role in reading for younger children (Skibbe, Behnke, & Justice, 2004). In the present study, 20 child-parent dyads’ language and reading abilities were assessed. Children (ages 6-8) were tested using Phonological Awareness Test 2 and parents were given an informal assessment analyzing their reading comprehension and decoding abilities. The parent reading assessment began with a background questionnaire, which inquired about the parent’s reading background, as well as his or her child’s reading and school abilities. Following, the parent was asked to listen to two short excerpts and answer four comprehension questions. Lastly, the parent was asked to read one brief story. Children were administered portions of the The Phonological Awareness Test 2 Battery (e.g., rhyming, segmentation, isolation, and blending subtests). Results indicated that there was a positive correlation between a child’s phonological awareness and his or her parent’s language and reading abilities. Thus, the results of this study highlight a connection between parent and child in regards to literacy. These results may facilitate speech language pathologists’ identification of significant information in clients’ case histories, particularly in regards to familial background.

Faculty Mentor: Dorothy Leone, Speech Communication Studies
JOHN BERTINO, JOELLE CHEATEM, KATRINA FREDERICK, ANDREW JORDAN, SAVANNAH LANG, JAMES MURPHY, TIMOTHY O’DWYER, THOMAS SEVERIN
Political Science/ Economics

Presentation Title: Property Taxes and Low-Income Seniors: Case Study of Current Policies and Alternatives in Westchester County

Eight Iona College undergraduate students have been recruited to participate in the inter-collegiate Think Tank. The research design combines public policy, state and local government literature, theory review, and data collection via qualitative case studies of Westchester County and selected comparable counties. Questions for research include: Why are school taxes and property taxes at their current levels? How are these tax dollars spent? What are the possibilities of reducing taxes by way of local governmental collaboration in sharing responsibility for service delivery? What are possibilities for reducing taxes on older adults via state law, e.g., several states allow special property tax assessments on home residences for older adults based on household income.

Faculty Mentor: Mary Hagerty, Political Science
MARIA PELOSI  
*Sociology*

**Presentation Title:** More Than Just Helping People: Motivations Behind Volunteerism at Iona College

Inspired by previous research along with my own personal experiences of volunteerism, qualitative research is proposed to be done at Iona College in New Rochelle, New York regarding the motivations behind volunteerism. Using a list compiled by the Office of Mission and Ministry, participants will be randomly selected and interviewed by the researcher. For the context of this paper, the only students who were interviewed are those who participated on a mission trip and those who are considered to be a student leader in the *Iona in Mission* program. Participants will be asked to describe their own volunteer experiences and what their motivations were to participate on a mission trip were. Data was collected and analyzed for Iona Scholars’ Day

**Faculty Mentor:** Marcus Aldredge, *Sociology*
MICHELLE MUZZIO  
*Biochemistry/English*

**Presentation Title:** Perspectives and Peru

*Iona in Mission* provides students the chance to bridge academia with experience. Such immersion promotes interdisciplinary dialogue in academia because it requires participants to address the questions of injustice from every possible angle: sociological, economical, and so on. The objective of “Perspectives and Peru” is to use photography as a means to enter into and contribute to interdisciplinary dialogue already in progress concerning the Canto Grande neighborhood of Lima, Peru where a group of Iona in Mission students travelled to January 2014. The project uses the juxtaposition of photographs taken on disposable cameras by Peruvian school children with digital photographs taken by Iona students to comment on social, educational, and technological disparities between the cultures. However, more than this, the photographs taken portray the humanity in poverty that is seldom ever discussed and rarely ever directly witnessed through images. Portraits of several Peruvian families comparable to what would be typical in any American home were taken and printed with one obvious difference: in some cases, it was a family’s first family portrait ever. Using technology, as well as the fine arts, to integrate poverty as well as the humanity in poverty is discussed.

**Faculty Mentor:** Michael Jordan, *Philosophy*
MATTHEW CULLARO, HARRY FLEMING, ELISSA LEVY, NATALIE MURPHY, TYLER O’CONNOR, MICHAEL SCHEID, MADISYN SPENCE, CHRISTOPHER TAUSEK, VICTORIA ZITO
Economics, History, Philosophy, Political Science, Psychology

Presentation Title: A More Violent or More Peaceful World?: Contextualizing Current Affairs within the History of Violence

Scholars, pundits, and the general public all tend to have an opinion on whether our society is more, less or as violent as previous ones. In his best selling book, ‘The Better Angels of Our Nature’, the ‘public intellectual’ and acclaimed scholar, Steven Pinker contends through quantitative and qualitative analysis that we are living in the most peaceful era ever. By examining an attitude or event from recent history, each nominated student has produced a brief but thoughtful rumination which affirms, critiques and/or problematizes Pinker’s contention.

Faculty Mentor: Daniel E. Thiery, History
NATALIE ZISKIN, CHELSEA CARSON, CYNTHIA LUIK
Psychology

Presentation Title: Expressing Your Feelings Is Good for Your Health

The goal of this study was to examine the links between emotional expressiveness and gender, ethnicity, depressive symptoms, and quality of life. One hundred and sixty one college students were given a survey that incorporated multiple measures of these variables including the Measure of Verbally Expressed Emotion, WHO Quality of Life Scale, and a depression inventory. Gender, ethnicity, depression, overall quality of life, physical health, psychological health, and social relationships were found to be significantly related to emotional expressiveness. Results showed that the relationship between comfort expressing emotions to others and quality of life was particularly strong for males (r = .57, p<.001) compared to females (r = .36). Investigating links of different demographic and health related characteristics to emotional expressiveness can provide insight for public health. For example, the findings from this study has the potential to aid in the treatment of troubled college students, and to explain the possible implications of a lack of emotional expressiveness.

Faculty Mentor: Colleen Jacobson, Psychology
LINDSAY TAMURELLO, KAYLA KILKENNY
Speech Language Pathology

Presentation Title: Vocal Fry in Spontaneous Speech

The purpose of this study was to examine the prevalence of vocal fry during spontaneous speech in college aged men and women. Research has suggested that women use vocal fry more often than men. However, these previous studies regarding vocal fry have focused solely on the participants’ vocal qualities during reading passages or sustained vowels. This may not reflect the use of vocal fry because people speak differently than how they read. For our study, we focused on spontaneous speech to get a deeper look at how people speak on a normal everyday basis. Sixty colleged-aged participants (30 men, 30 women) were audio recorded giving a monologue describing a trip to New York City. Acoustic Analysis Software (Praat) was then used to assess the occurrence of vocal fry at the end of the participants’ utterances. Visual analysis was used by looking at the waveforms and narrowband spectrograms, in addition to auditory perceptual assessment by carefully listening to the recordings. Results indicated that while women do use vocal fry more than men, the difference is not significant. In comparison with the use of vocal fry in reading passages, the use of vocal fry in spontaneous speech is much less prevalent. The results of these analyses are meaningful because they may be a helpful guide for assessment and treatment of voice and resonance disorders in the future.

Faculty Mentor: Alison Behrman, Speech Communication Studies
DANIELLA RICCIUT, KRISTEN LUCKE, VICTORIA TROOST
Speech Language Pathology

Presentation Title: Prevalence of Vocal Fry

Vocal fry, or low-pitched phonation, can be characterized by creaky, harsh sounding voice. The prevalence of vocal fry has been suggested to occur more in women. To determine the prevalence of vocal fry in college-aged men and women as well as the location of vocal fry within an utterance, thirty female and thirty male speakers between the ages of 18-22 were recruited from the Iona College campus. The participants were audio recorded while reading aloud two short passages, one requiring many voice onsets and offsets and the other containing mainly voiced sounds. The presents of vocal fry was determined using auditory perceptual analysis assisted by a visual analysis of the speech waveform and other acoustic information. Data confirmed that 27 out of the 28 female speakers demonstrated vocal fry with a combined 183 occurrences. In comparison, 23 out of the 30 male speakers demonstrated vocal fry with a combined 48 occurrences. During reading elicitation method, there was a greater occurrence of vocal fry in external boundaries of sentences (periods) for both men and women. Between the reading passages, there was a greater instance of vocal fry in the reading passage that contained mainly voiced sounds, with an average of 63% (125 occurrences), compared to the reading passage containing many voice onsets and offsets, with an average of 53% (106 occurrences). These preliminary findings suggest that college age men and women are more likely to use vocal fry in external boundaries of sentence phrases while reading aloud. These findings also support previous research, which found that the prevalence of vocal fry was greater in women.

Faculty Mentor: Alison Behrman, Speech Communication Studies
KIMBERLEIGH COSTANZO  
*Philosophy, Dance*

**Presentation Title:** Development of the Solo Choreographic Form

Through this independent study I have choreographed a new work and revisited two past choreographic works, to be performed together. The final result can be seen on the DVD video, as well as live at the Iona College Dance Ensemble Showcase on April 10 and April 11, 2014. In order to make the triptych successful, I focused on finding what contrasted about the movement (the energy, the focus, the shapes of the body, the weight) and exploring it even deeper to draw out those differences. Simultaneously I sought out similarities between the works (common movement phrases and a continuous conceptual thread). While the first two works came out of a post-modern tradition, keeping with a pedestrian, abstract quality, I sought to develop my movement language in this work beyond those bounds into a more contemporary work that uses of the codified movement language of ballet. The method I employed to achieve this was improvisation, composition and editing. In turning my attention towards the curatorial process, I considered elements like the music (or lack thereof), costuming, and staging. All of these considerations are part of the creative process that goes into putting together a performance for the stage.

**Faculty Mentor:** Catherine Mapp, *Fine and Performing Arts*
RENEE NOURI

Biology

Presentation Title: The effects that classical music can have on memory and focus on college aged students

The poster illustrates the results of an expanded and institutionally approved project that was first conducted as an informal study in the fall semester of 2013 as part of FPA 202 (Music Appreciation). Preliminary results suggested a correlation between listening to classical music and memory, compared to listening to other genres. Results had also suggested that the study was time sensitive regarding the improvement of student memory. The original and informal project surveyed 16 Iona students on the campus of Iona. During the time of the informal study, subjects attempted to memorize two independent lists of words while listening to classical music (J.S. Bach) and a popular music genre of their choice. With IRB approval, research was conducted and analyzed during the week of March 24, 2014, and engaged a larger sample size than the previous informal conducted study in order to gain more in-depth results and a stronger predicted correlation between memory and music. This research suggests important implications regarding music and memory.

Faculty Mentor: Carol L. Shansky, Fine and Performing Arts
OTIS UBRIACO, JAKE BYRNE, KYLE GORDON
Marketing

Presentation Title: Subway Advertising

Over one billion people ride the NYC subways per year, exposing them to various advertisements. We look to explore the effectiveness of placement of advertising on subways. We took an informal observational survey of two separate subway lines to see how people were using their time. We found that many people are preoccupied with phones/books/newspapers, but those who were not often were staring at the ground, presumably to avoid eye context. From this we realize that many head level advertising loses its effectiveness due to the general awkwardness between people. From these results we feel that the MTA and companies should look to put advertisements on floors or ceilings of trains (with possible growth to more interactive advertising), in order to reach even more consumers.

Faculty Mentor: Chrissy Martins, Marketing
JENNIFER PASSARETTI, RACHEL BLOM  
*Public Relations*

**Presentation Title:** Consumer Perception: Store Brands Versus National Brands

Consumer perception is the process by which an individual selects, organizes and interprets stimuli into a meaningful and coherent picture of the world. We chose to observe how consumers perceive the quality and efficiency of store-brand products versus national-brand products. An initial analysis using secondary research by New York-based Ipsos Marketing demonstrated that consumers tend to identify store brands as a product of lesser quality than national brands. For our research, we hypothesized that consumers stereotype store brands as inferior to national brands, although there are little-to-no differences in the quality. In a field study, ten college students were given samples of several store brand and national brand foods. The participants were asked to answer a series of questions, determining which foods they felt were the national brand or the store brand. As a result of our experiment and surveys, we concluded that the majority of consumers initially prefer national brands. In addition, participants stated they would be willing to purchase store brands depending on the product. As marketing students, we felt that this perception made by consumers is crucial to marketers and the tactics they employ in the future.

**Faculty Mentor:** Chrissy Martins, *Marketing*
Presentation Title: Stress and Consumer Spending in College Females

Stress is a crucial aspect and measurement variable for consumer spending habits. For this study we tested the effects that stress could have on consumer spending habits in college students. We created a 12 question survey for 50 female college students between the ages of 17 and 22 to see what they resort to when under an immense amount of stress, and if their spending habits change. Our data collected from the 50 participants showed that the most common stress-maker was school work and the most common stress-reliever was shopping. Surprisingly, we also found that when asked whether or not the participants thought their spending increased when they are stressed most indicated that they were not aware of this effect. Our conclusion after compiling those results showed that when most college female students are stressed they do enjoy shopping as a stress reliever, but due to a lack of income their spending is frugal. Our work implies that for female college students who love to shop, in general, and are stressed, the desire to shop rises. From an industry perspective businesses should provide student discounts and loyalty discount programs to keep the female college students coming back to shop whenever they feel stressed out.

Faculty Mentor: Chrissy Martins, Marketing
JAMIESON KENNEDY
Experimental Psychology

Presentation Title: Effects of Family Background on Life Satisfaction

The goal of this study is to examine the effect of various factors related to family background on life satisfaction. The General Social Survey (GSS) (1972-2012) was the database analyzed to examine these effects. The GSS focuses on the structure and development of American society and societal change using basic scientific research. The GSS is widely regarded as one of the best sources of data on societal trends over the past 40 years in the United States. The factors we examined included who raised the respondent (both parents, father & stepmother, mother & stepfather, father, mother, male relative, female relative, male and female relative, or other), the respondent’s family income in adolescence (far below average, below average, average, above average, and far above average), and whether or not the respondent’s mother was employed during their adolescence (yes or no). Some of those factors are correlated (for example those living with a father in the household were found to have a higher family income and those living with a female member of the family had a lower family income) and we also analyzed the effects of one factor while controlling other correlated factors. To measure life satisfaction we examined happiness, family satisfaction, job satisfaction, and financial satisfaction of the respondents.

Faculty Mentor: Dr. Kisok Kim, Psychology
ANDREW NEAL  
International Studies  

Presentation Title: Human Rights and Multinational Corporations  

In an globalized economy, human rights practices are gaining in importance. Multinational corporations are tasked with evaluating economic and labor rights not only in their own companies, but in their suppliers. This paper examines the extent to which multinational corporations comply with accepted international law and human right treaties. It also examines how effective existing measures are in identifying violations and altering behavior. The cases of Apple and Walmart are considered.  

Faculty Mentor: Tricia Mulligan, Political Science
MUJGAN TURGUT
Psychology

Presentation Title: Outlining the procedures for conducting a Job Analysis

Job Analysis is the process of gathering, analyzing, and structuring information about a job’s components, characteristics and requirements, which results in a job description and a job specification. These job descriptions and specifications are used in recruitment, selection and development of performance criteria. The purpose of this paper is to outline the steps required to conduct a job analysis. Using the example of the job of a Personal Trainer, the current paper outlines the steps that would be followed to conduct a job analysis for the job of a personal trainer. Suggestions for best practices in conducting a job analysis are also discussed.

Faculty Mentor: Dr. Vipanchi Mishra, Psychology
JACLYN SHURMAN
Speech Pathology

Presentation Title: Standardized Versus Naturalized: An Evaluation of Child Morphological and Syntactic Assessments

Child language acquisition can be examined using two forms of assessment: a psychometric approach, an objective form of assessment, and a descriptive approach, a natural form of assessment. This study investigated if the results of standardized assessments, such as the CELF-Preschool 2, and naturalized assessments, such as language sampling, reveal the same linguistic competence and performance of children. Children ages 3:0-7:0 were assessed with specific focus on morphology (word structure) and syntax (sentence structure). Results indicated that while the two forms of assessment both test the same underlying linguistic competence and performance, both do not necessarily reveal the same results. Administration of both forms of assessment are influenced by sampling environment, age of participant, and motivation of participant. Overall, the study found limitations and successes of the different assessment approaches.

Faculty Mentor: Dorothy Leone, Speech Communication Sciences
IONA COLLEGE INSTRUMENTAL ENSEMBLE  
Music

Presentation Title: The Iona College Instrumental Ensemble, concert preview

This brief concert is a preview of the ensemble’s annual Spring concert.

Faculty Mentor: Carol Shansky, Fine and Performing Arts

DANCE PROGRAM  
Dance

Presentation Title: The Iona College Dance Ensemble/Selected Choreography

This video presentation is a curated collection of choreography created by students in the Dance Program.

Faculty Mentor: Catherine Mapp, Fine and Performing Arts

VISUAL ARTS PROGRAM  
Visual Arts

Presentation Title: Student photos from Accumulation 2013

This video presentation is a curated collection of photos that were exhibited in Accumulation 2013, the end-of-academic-year exhibit of the best of student work.

Faculty Mentor: Carol Shansky, Fine and Performing Arts
ROUNDTABLE DISCUSSIONS

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*Freedom, Foreknowledge, and Inferno:*
*Three Perspectives on the Humanities Tradition*

**Dana Andrea**
Freedom in *Paradise Lost* and *The Social Contract*

**Marie Kalb**
The Good, The Bad, and the Consequences: Evil in Dante’s *Inferno* and *Beowulf*

**Ariel May**
Exploring Implications of Divine Foreknowledge, Atemporality, and Sempiternity in Boethius’ *Consolation of Philosophy*

SESSION 2
*Great Men, Great Nations, Great Ideas:*
*Negotiating Spheres of Influence*

**Zachary Frazier**
American Prosperity and the Military Industrial Complex

**Pasquale Malpeso**
The Instructors That Shaped Ludwig van Beethoven: Neefe, Haydn, Albrechtsberger and Salieri

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SCHEDULE OF EVENTS

Presentations: Noon - 2:00 pm
Hynes Athletics Center, Mulcahy Gymnasium

Welcome Reception: 2:00 - 3:00 pm
Lounge Area, Romita Auditorium

Thank you for joining us today!

This event is sponsored by
The School of Arts and Science at Iona College

Iona College

Mission Statement

Iona College is a caring academic community, inspired by the legacy of Blessed Edmund Rice and the Christian Brothers, which embodies opportunity, justice, and the liberating power of education.

Iona College’s purpose is to foster intellectual inquiry, community engagement, and an appreciation for diversity.

In the tradition of American Catholic Higher Education, Iona College commits its energies and resources to the development of graduates recognized for their ethics, creativity, and problem solving abilities; their independent and adaptable thinking; their joy in lifelong learning; and their enduring integration of mind, body, and spirit.

(Adopted May 2, 2012)
THE FIFTH ANNUAL

IONA SCHOLARS DAY

CELEBRATING STUDENT RESEARCH AT IONA COLLEGE

Tuesday, April 8, 2014