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# Festival of Student Achievement (FOSA) Program

## Overview of Thursday, April 23rd, 2015

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<td>Opening Ceremony Speaker: Pasquale Trozzolo</td>
<td>2:30 p.m. - 3:00 p.m.</td>
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<td>Academic, Service and Leadership Awards Ceremony</td>
<td>3:30 p.m. - 4:00 p.m.</td>
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<td><strong>Sedgwick Hall - 3rd Floor and Library</strong></td>
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<td>Art Exhibition</td>
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<td>Celebration Reception</td>
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<td>Celebration Reception</td>
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<td>FOSA Closing Ceremony</td>
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<td>Performance of &quot;You can't take it with you&quot;</td>
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Music

Massman Hall Fishbowl
2:30-3:00
By Lucas Sikorski

Opening and Award Ceremonies

Massman Hall Fishbowl
3:00-4:00
Opening Ceremony
3:00-3:30

Student MCs: Maggie Hummel and Katrina Bergman

Welcome: Father Thomas Curran, President of Rockhurst University

Opening address: Alumnus Pasquale Trozzolo

Alumnus Pasquale Trozzolo, ‘75
St. Ignatius Award

Pasquale is the founder and executive chairman of Trozzolo Communications Group. With more than 35 years of marketing communications experience, he is the architect behind numerous successful marketing campaigns. From rollout to roll-up, Pasquale’s work has been recognized with awards from groups such as the Business Marketing Association, Public Relations Society of America, and Healthcare Marketing Association. Trozzolo Communications has grown in reputation and size, and today is recognized as one of the most accomplished independent marketing communications and public relations agencies in the Midwest. In 2014, the Greater Kansas City Chamber of Commerce named Trozzolo Communications as one of the top ten small businesses in Kansas City.

Pasquale served six years, including two terms as president, of the Kansas City Chapter of the Juvenile Diabetes Research Foundation. He currently serves on the board of directors for the Kansas City chapter of the American Red Cross, St. Teresa’s Academy, and the Nonprofit Leadership Alliance. Pasquale is a frequent speaker on branding, loyalty marketing and entrepreneurship, and teaches a graduate class on branding at the University of Kansas. He is also a former race car driver who has successfully competed in national championship road racing events with the Sports Car Club of America.

Pasquale and his wife, Joan, live in Kansas City, Missouri. Their son Angelo, ’02 MBA, and daughters Jill and Sarah all hold key positions in the family business.
**Academic, Service and Leadership Awards 2015**
3:30-4:00

MC: Dr. Glenn Young, Assistant Professor of Theology and Religious Studies, and Faculty of the Year 2014

**Departmental & Program Awards 2015**

**Graduate and Professional Studies**

**Ignatian Outstanding Student Teaching Award**
Jennifer Schenk, BA, Elementary, Spring 2014
Megan Butler, M.Ed., Elementary and Special Education, Fall 2014
Jennifer Rokos, M.Ed., Elementary, Fall 2014

**Missouri Outstanding First Year Teacher**
Rebecca Haden, M.Ed., French

**CSD SWELLS Awards**
For Learning: Eva Baltz
For Leadership: Corinne Reeser
For Service: Shana Diamond

**Helzberg School of Management Awards**

**Dean’s Highest Honor Award**
Truilt W. Gray and Courtney R. Lock

**Delta Sigma Pi Key Award**
Courtney R. Lock

**Research College of Nursing Awards**

**Missouri League for Nursing Outstanding Graduating Student Nurse Award**
Laura Gabriel

**William V. Longmoor Award**
Adrienne Calumpong

**Rev. Robert F. Weiss Award**
Christina Layton

**Barbara A. Clemence Award**
Kathleen Sullivan
Departmental & Program Awards 2015

College of Arts and Sciences Awards

American Institute of Chemists Award for Excellence in Biochemistry
Nick Distefano

American Institute of Chemists Award for Excellence in Chemistry
Jillian Thaden

Reva R. Servoss Chemistry Prize
Melody Woods and Katherine Polednik

Edward Kos Award for Academic Achievement in Cell and Molecular Biology
Liam Duffy and Taylor Skala

Marshall Andersen Award for Academic Achievement in Macrobiology
Megan Reid and Emily DeVore

Barbara Wynne Outstanding Biology Student Award
Nicole Nuckolls

Father Aloysius Breen, S.J. English Award
Bryant Callahan

Scrivener Medal
Kaytlyn Dahn

Dowling Oratory Medal
Gina Palumbo

Robert W. Miller Speech Award
Meghan Kilkenny

Charles M. Kovich Dramatist Award
Jessica Ostertag

Michael D. O'Connor Psychology Medal
Gina Palumbo

Rossner Philosophy Medal 2014
Tyler Head

Hugh M. Owens Prize in History
Emma Priesendorf

Theta Alpha Kappa
Alan Ratermann
President’s Volunteer Service Awards 2015

Rockhurst University is an official certifying organization for the President’s Volunteer Service Award. The awards are for students who participate regularly in voluntary community service or service-learning and contribute positively to the community beyond campus boundaries through service.

**Bronze Award (100 – 174 hours of service)**
- Mary Mantese
- Andrew Garcia
- Megan Jeffries
- Michael Lydon-Lorson
- Britni Nelson
- Samantha Zavertnik
- Emily DeVore
- Maria Trujillo
- Jeremy Kamper
- Robert Peterson

**Silver Award (175 – 249 hours of service)**
- Jessica Zeiss

**Gold Award (Over 250 hours of service)**
- Chanelle Zak
- Andrea Heinemann
**Student Development Awards 2015**

**Student Activities Board President Award (SAB Gavel)**
Paige Spillman

**Student Senate President (Senate Gavel)**
Rachel Pearson

**Outstanding Student Organization**
Nominees:
- Ambassadors
- Black Student Union
- International Club
- Student Alumni Association
- Student Senate

**Outstanding Support for Diversity**
Nominees:
- Black Student Union
- Peter Soukenik
- Unity
- Voices for Justice

**Outstanding Community Service**
Nominees:
- Alpha Phi Omega
- Fraternity/Sorority Community
- Karaoke for a Cause
- Office of Residence Life

**Striving For Excellence**
Nominees:
- Black Student Union
- Nick Early
- Pi Kappa Alpha
- Student Senate
- Connor Moynihan
- Student Ambassadors
- Alecyah Thompson
- Chelsea Zacharias
- Chanelle Zak
Student Development Awards 2015

Living the Mission Emerging Student Leader Award
Nominees:
Tessa Boots
Morgan Coil
Brianna Kelly
Sarah Pezold
Kevin Pugh
Maylaya Thies
Shayla Weiser
Aleeyah Thompson

Living the Mission Advanced Leadership Award
Nominees:
Matthew Beermann
Maggie Bernard
Briana Bondon
Jane Delworth
Colleen Garvey
Sean Kane
Becca Keevan
Maggie McGartland
Claire Minnick
Megan Nitchals
Rachel Pearson
Alan Ratermann
Lynsey Riemann
Alex Schelble
Helen Schultz
Student Senate
Peter Soukenik
Katie Survillo
Chanelle Zak
Student Development Awards 2015

Outstanding Student Leader Award
Nominees:
Nick Blair
Briana Bondon
Jane Delworth
Elaine Esjornson
Aldair Gongora
Addie Holdmeyer
Maggie Hummel
Maggie McGartland
Claire Minnick
Megan Nitchals
Alan Ratermann
Lynsey Riemann
Helen Schultz
Taylor Skala
Peter Soukenik
Katarina Waller

Hawk of the Year
Nominees:
Matthew Beermann
Rebecca Keevan
Alan Ratermann
Lynsey Riemann
Helen Schultz

Faculty of the Year
Nominees:
Jason Arthur, Ph.D.
Rocio De la Rosa Duncan, Ph.D.
Anna (Acey) Lampe, Ph.D.
William Haefele, Ph.D.
Shatonda Jones, M.A., CCC-SLP

Staff Member of the Year
Nominees:
Chris Buerke
Angie Carr Robinett, M.A.
Terry Forge
Jessica Johnson
Riley O'Dell, M.S.


**Student Development Awards**

**Description**

**Social Activities Board Chairperson**
The Social Activities Board (SAB) is the primary programming board on campus open to all students, and they are responsible for providing diverse and frequent programs for Rockhurst.

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**Student Senate President Gavel**
Student Senate promotes the interests and concerns of the undergraduate student body and works to improve the experience of all Hawks!

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**Outstanding Student Organization**
The Outstanding Student Organization Award is presented to a student group that has shown exemplary leadership in the areas of student programming, service, community outreach, the improvement of the quality of life on campus, and a commitment to the Rockhurst mission.

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**Outstanding Support for Diversity**
The Outstanding Support for Diversity award is given to one student or student group who has shown continued commitment to diversity programming, promotion, and education.

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**Living the Mission Emerging Student Leader Award**
The Living the Mission Emerging Student Leader Award is presented to two students who are either areshman or sophomores who have shown an excellent amount of leadership throughout the past year through academics, involvement with student organizations, service, and a commitment to the Rockhurst mission.

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**Living the Mission Advanced Leadership Award**
The Living the Mission Advanced Student Leader Award is given to two upperclassmen who have shown an excellent amount of leadership throughout their time at Rockhurst through academics, involvement with student organizations, service, and a commitment to the Rockhurst mission.

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**Outstanding Student Leader**
The Outstanding Student Leader Award annually recognizes students who have gone above and beyond in their service to organizations on campus during their time here.

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**Striving for Excellence**
The Striving for Excellence award is presented to one student or organization that has shown above and beyond improvements, and has transformed and impacted the Rockhurst community in a positive manner.
Student Development Awards
Description

Outstanding Community Service
The Outstanding Community Service Award is presented to one student or student organization who has shown continued commitment to the campus or the surrounding community.

Hawk of the Year
This award is given annually by Student Senate. Voted upon by the student body, this award is designed to recognize a senior student who has gone above and beyond in their service to other students and campus organizations during their time here.

Faculty and Staff Member of the Year
Each year Student Senate gives the Student Body the opportunity to select a faculty member and staff member of the year through an online voting process.
Concurrent Sessions

Science Center
4:30– 6:15
Rockhurst Outstanding Research Seminar
RORS

The Rockhurst Outstanding Research Seminar (RORS) was created in 2010 as a forum for students of all disciplines to present outstanding work in research.

Under a faculty recommendation, nominations for RORS speakers are presented by faculty/student teams to the Undergraduate Research Scholarship and Creative Activities Committee for review. The chosen talks reflect the diversity and excellence of student research at Rockhurst.

RORS talks 2015
SCI 115 5:00 - 6:00

Diplomas to students and faculty mentors will be awarded in this session by Dr. Renee Michael, Interim Dean of the College of Arts and Sciences.

Student MCs: Meredith Larson

5:00-5:15
Title: Measuring Postural Sway Variability in a Concussed Population Using a Smartphone Accelerometer Application
Students: Brittany Oppland and Kelsi Rempe
Advisor: Mr. Dave Heller, Exercise and Sports Science Department

5:20-5:35
Title: Genetic and Cytological Characterization of Synaptonemal Complex mutants in Drosophila melanogaster
Student: Nicole Nuckolls
Advisors: Dr. Laura Salem and Dr. Scott Hawley, Stowers Institute

5:40-5:55
Title: The First Crusade and the Development of Christian and Islamic Holy War Doctrine
Student: Jeremy Adkins
Advisor: Dr. Joanna Carraway Vitiello, Department of History

6:00-6:15
Title: Service Trip to Guatemala
Student: Ryan Kelly
Advisor: Mr. Bill Kriege
How has research changed your approach to academics?

“Undergraduate research sparks curiosity, fulfills intellectual discovery, and provides an outlet for creativity. Designing and executing your own research project requires independent thinking, confidence in your abilities, and dedication. When completing research, a great extent of learning occurs, a type of learning that cannot happen during traditional coursework. Classroom knowledge is reinforced and students are given the opportunity to apply that knowledge. Research has given me a better understanding of and a greater appreciation for the discipline of Biological studies. Working under experienced faculty, such as Dr. Hawley, I benefited from the wisdom and experience of a mentor. I recognize now that science is so much more than the books, chalkboards, and memorization of facts. It is the application of that knowledge and using it to investigate the world around you that has changed my approach to academics.”

Nicole Nuckolls

“Through this research experience, I have been afforded a splendid opportunity to fully evaluate not just the perceptions of medieval thought, but to ascertain a better understanding of modern day geopolitical issues that have affected my own life. Utilizing historical research to develop independent and unbiased interpretations of the complex relationship between Christianity and Islam through the ages has allowed me to grow as an individual and as an historian. The research process tied to this project has undoubtedly improved me as a person, and improved my ability to engage in deep process and reflection. I am, without question, grateful for this experience, and for the wonderful opportunity to visualize history in such a manner that it comes to life. I also could not be more appreciative of my mentor, Dr. Joanna Carraway-Vitiello, who undoubtedly lent her grace to my efforts. My approach to academics has been greatly enhanced due to the research process that this project required, and this process has cemented academic values that now apply to my everyday life. I wholly appreciate the intensity, preservance and time required to conduct academic research.”

Jeremy Adkins
Title: Measuring Postural Sway Variability in a Concussed Population Using a Smartphone Accelerometer Application
Students: Brittany Oppland and Kelsi Rempe
Advisor: Mr. Dave Heller, Exercise and Sports Science Department

Smartphone accelerometer applications have become a quick, simple method of collecting clinical data on postural sway in athletes who have experienced a concussion. Normalized path length (NPL) and standard deviation (SD) have been used as measures of variability in alternative postural sway studies. The correlation between the two measures has yet to be established. The purpose of this study was to investigate the relationship between SD and NPL of net acceleration data as a measure of variability in postural sway in collegiate athletes. 8 individuals participated in this study including basketball, soccer, and lacrosse players, both male and female. Of the subjects, 4 had previously experienced a concussion, while 4 served as controls. Subjects were asked to complete a series of 17 trials composed of differing conditions including, open and closed base, tandem stance and single leg on foam or tile. These trials were completed with the eyes closed and open. Each trial was performed for 20 seconds and recorded using a smartphone accelerometer attached to the waist. NPL and SD of net acceleration were calculated to quantify the variability in postural sway exhibited by each subject. These two measures were then correlated to investigate their relationship. The correlation of NPL and SD of net acceleration data using a smartphone accelerometer was significant ($r = 0.977, p < 0.05$). While the correlations remained significant when disaggregated ($r = 0.9755, p < 0.05$ for concussion, $r = 0.9508, p < 0.05$ for controls), there was no significant difference in correlation due to concussion status ($z = -0.25, p > 0.1$). A strong correlation exists between NPL and SD of net acceleration data taken using a smartphone accelerometer. This correlation holds for both concussed subjects and controls. There is no significant difference in the strength of the correlation between the two groups. Therefore, both NPL and SD of net acceleration data can both be considered valid metrics for the measurement of variability in postural sway. Further research will correlate these measures with other indicators of variability in postural sway such as root mean squared and center of pressure data.

Title: Genetic and Cytological Characterization of Synaptonemal Complex mutants in Drosophila melanogaster
Student: Nicole Nuckolls
Advisors: Dr. Laura Salem and Dr. Scott Hawley, Stowers Institute

Drosophila melanogaster is a model system for many processes common to eukaryotes, including female meiosis. Research on this species can be applied
to human oogenesis, providing insight into the meiotic defects that cause diseases such as Trisomy 21 and Turner syndrome. This is done by creating mutants in D. melanogaster and using them to study the proteins involved in meiosis. Screening for mutants with meiotic phenotypes identified two mutants, M1 and M2, both of which are located on the 3rd chromosome. Both stocks are homozygous viable and sterile and showed high levels of chromosome missegregation via FISH (fluorescent in situ hybridization). I characterized these mutants using immunofluorescence studies in oocytes. I have found that the two mutations are in the same complementation group and the meiotic defects appear to involve the maintenance of the synaptonemal complex (SC), a protein complex assembled between homologous chromosomes during meiotic prophase I. The two mutations are independently mapping to a distal portion of the right arm of the third chromosome.

Title: The First Crusade and the Development of Christian and Islamic Holy War Doctrine
Student: Jeremy Adkins
Advisor: Dr. Joanna Carraway Vitiello, Department of History

The concepts of “jihad” and “just war” as defined by Islamic and Christian scholars developed over centuries of interpretation based upon the geopolitical events that shaped the perspectives of those defining a war justified for and in defense of God. The purpose of this research is to conduct historical analysis of the definitions of the terms “just war” and “jihad,” in order explore why the animosity between the two religions developed into the widespread warfare that we now know as the Crusades. An overarching comparison of how peoples who practiced the Islamic and Christian faith perceived each other’s religion and culture can lead to a basic understanding of the differing viewpoints within each religion. Pope Urban II and his call to Crusade were more complex than simply an order to conquer Jerusalem. Urban’s call to arms was idealistic in its vision of crusade as armed pilgrimage, and it was clearly part of a growing movement in the late 11th century to extend and assert the authority of the papacy. It was also an opportunity to rapidly respond to a swiftly shifting geopolitical sphere and unite two sects of Christianity under one house in the face of a severe military and political threat. Analysis of both primary and secondary sources as they relate to specific events, such as military victories achieved by the Seljuk Turks, as well as the continuous development of anti-Islamic sentiments throughout Europe can lead us to a holistic understanding of the development of the first Crusade and its ramifications, and can lend support to our understanding of modern conflicts between Islam and Christianity.
Oral Presentations

Session 1
SCI 207 4:50-5:30

Certificates to students and faculty mentors will be awarded in this session by Dr. Douglas Dunham, Vice President for Academic Affairs.

Student MC: Sarah Jones

4:50-5:00
Title: Paracelsianism and the Foundation of Chemical Medicine
Student: Emma Priesendorf
Mentor: Dr. Joanna Carraway-Vitiello

5:05-5:15
Title: Where there is despair; hope
Student: Christiana Hayden
Mentor: Mr. Bill Kriege

5:20-5:30
Title: The Political Economy of Medical Value Travel
Student: Rachel Franklin
Mentors: Dr. Martin Stack
**Oral Presentations**

**Session 2**  
**SCI 207 5:35-6:30**

Certificates to students and faculty mentors will be awarded in this session by Dr. Paula Shorter, Associate Vice President for Academic Affairs.

**Student MC:** Sarah Jones

5:35-5:45  
**Title:** Aventures dans les contes de fées français: un nouveau point de vue  
(Adventures in French Fairy Tales: A New Point of View)  
**Student:** Jessica Ostertag  
**Mentor:** Dr. Claudine Parmentier Evans

5:50-6:00  
**Title:** Screen for Extragenic Suppressors of Dynein Light Intermediate Chain (DLIC) Mutants in Neurospora crassa  
**Student:** Eric Penton  
**Mentor:** Dr. Ryan Elsenpeter

6:05-6:15  
**Title:** History of the Acadian migration  
**Student:** Lilli Barrilleaux  
**Mentors:** Dr. Kathleen Madigan

6:20-6:30  
**Title:** What Is a Teacher?  
**Student:** Gregory Noonan  
**Mentors:** Dr. Alan Penrose
**Oral Presentations Abstracts**

**Title: Paracelsianism and the Foundation of Chemical Medicine**  
Student: Emma Priesendorf  
Mentor: Dr. Joanna Carraway-Vitiello

This paper explores legacy of alchemy and its relationship to modern science. It proposes that one important link between alchemical traditions to the spirit of the coming scientific revolution can be found in the writings of Paracelsus, a sixteenth century Swiss German alchemist and physician. Paracelsus gives substance to the proposal that alchemy went well beyond gold making and elixirs of life: drawing upon a scientific spirit and the alchemical tradition of uniting theory and practice, he created a controversial chemical worldview that challenged orthodox Hellenistic ideas of medicine. Through their medical practices and the controversy that ensued, Paracelsus and his followers made lasting contributions to the medical, pharmaceutical, and scientific worlds.

**Title: Where there is despair; hope**  
Student: Christiana Hayden  
Mentor: Mr. Bill Kriege

This oral presentation is about my Service Immersion Trip experience to San Lucas, Guatemala. This presentation focuses on the brief history of Guatemala, and the stories of the people I met. Guatemala underwent a brutal civil war that lasted approximately fifty years. 200,000 people were killed, while 100,000 went missing. The corruption from this war is still happening. From the government level to the local level, violence can be found. However, among all the corruption and violence, hope can also be found in Guatemala. I witnessed this hope for myself in San Lucas, Guatemala within the people. These are their stories.

**Title: The Political Economy of Medical Value Travel**  
Student: Rachel Franklin  
Mentors: Dr. Martin Stack

Medical value travel is the industry of patients from developed countries seeking procedures in less-developed areas due to price concern. Rising healthcare costs in areas like the US drive demand in this growing industry. This research examines the impact of non-elective medical tourism on Israel, Costa Rica, and Singapore. This includes outlining the non-tourist healthcare system. How is care generally provided in these cultures from disparate geographic regions, with their varying levels of governmental presence? What percent of the industry is medical tourism, and how does care, system structure, and pricing offered differ from what is available to the country's population? These questions must be answered to discuss inequalities in care and the true impact of medical value travel.
**Oral Presentations Abstracts**

**Title: Aventures dans les contes de fées français: un nouveau point de vue**  
(Adventures in French Fairy Tales: A New Point of View)  
Student: Jessica Ostertag  
Mentor: Dr. Claudine Parmentier Evans

Completed for a Fellowship during the summer of 2014, this project is composed of seven works of original French creative writing that retell classic French fairy tales from a different point of view. This presentation will reveal the style and formats I used to create new storylines within the framework of the original fairy tales, and how I interpreted certain characters or plots and why. The fairy tales I researched and reworked are: La Belle et la Bête (Beauty and the Beast), Le petit chaperon rouge (Little Red Riding Hood), La belle au bois dormant (Sleeping Beauty), Barbe Bleue (Blue Beard), Cendrillon ou La petite pantoufle de verre (Cinderella), La Princesse Rosette (The Princess Rosette), and Le Roi et le Chat botté (Puss in Boots). These seven fairy tales in their original French versions may not be familiar to everyone, but many of them have influenced other retellings that are well known and loved today. It is this fascinating transferal of stories from charming old tales to popular modern adaptions that inspired me to write my own.

**Title: Screen for Extragenic Suppressors of Dynein Light Intermediate Chain (DLIC) Mutants in Neurospora crassa**  
Student: Eric Penton  
Mentor: Dr. Ryan Elsenpeter

Dynein is a motor protein complex that moves a wide range of cargoes along microtubules that not only affect single cells, but also the development of larger organisms. In order for dynein to function correctly, there are many accessory proteins that must work in concert. One of those factors, Dynein Light Intermediate Chain (DLIC), if altered, leads to a change in the growth of Neurospora crassa, a filamentous fungus. Current research is focused on locating and identifying possible extragenic suppressor mutations that restore wild-type growth to the fungus.

**Title: History of the Acadian migration**  
Student: Lilli Barrilleaux  
Mentors: Dr. Kathleen Madigan

This presentation recounts the history of the Acadian migration - French people who left France to settle in Acadia (modern-day Nova Scotia). Then, it describes their return to France, or settlement in the thirteenth colonies and
eventually in Louisiana. A comparison of the creole and Cajun French dialects with standard French is performed, followed by a description of Cajun cuisine and music. Lastly, I relate this topic to my own familial history, based on the research of my great aunt, Goldie.

**Title: What Is a Teacher?**  
Student: Gregory Noonan  
Mentors: Dr. Alan Penrose

As learners we are able to grow and develop through our experiences. As cultural psychologist Lev Vygotsky understood it, learning is experienced through experiencing the world around us. We may experience learning through our parents, books, or in the classroom. This brings up the question: just what makes classroom teachers "different" or even "necessary" for learning? Over the Fall 2014 semester I interviewed several subjects ranging from children to political advisers and asked them the question, "What is a teacher?" I compiled these answers into a 30-minute documentary and posted it online. Though the video is too long to show, this talk will explore my findings and why I felt it necessary to ask "What is a teacher?"
Poster Sessions
1 and 2
**Poster Session 1**
**Science Street 4:30-5:15**

Certificates to students and faculty mentors will be awarded during this session by Dr. Julie Nauser, Dean of the Research College of Nursing.

1. **The Relationship between Physical Function and Resilience in Community Dwelling Older Adults**  
   Rachel Smith and Samantha Cooper  
   Faculty mentor: Ann Marie Decker

   The purpose of this study is to determine the relationship between resilience and physical function in community-dwelling older adults. We hypothesized that older adults who scored higher on the Resilience Scale are also more likely to have a high score on physical function tests.

2. **Measuring the efficacy of the learn to move programs in a modified school-based setting**  
   Molly Gutteridge, Becca Pearson, Jordan Pfeifer, Katie Telling and Natalie Hanshaw  
   Faculty mentor: Katie Ryan-Bloomer

   This research study evaluated the efficacy of the Learn to Move, Move to Learn (LTM, MTL) and Learn to Move, Moving Up (LTM, MU) programs to improve sensory processing and occupational performance in five children attending a behavior-based school within a large metropolitan Midwest city. The study's design was an experimental, quantitative, before and after design. Five participants received the LTM programs once a week for the duration of six weeks. The LTM programs are theme- and literature-based curricula that are grounded in sensory integration. Baseline measurements were taken before the program began and six weeks into the start of the program. Two MANOVA tests were run to compare pre- and post-intervention measures for study participants. The Sensory Processing Measure (SPM) measured sensory processing, and the Vineland Adaptive Behavior Scale, 2nd edition (VABS-2), measured occupational performance. There was not a significant difference between pre and post-intervention scores for student's sensory processing or occupational performance. The researchers expect significant differences by the final data collection after the full implementation of the program.

3. **Play and playfulness in older children and adolescents with visual impairments**  
   Angela Gerstenkorn, Alexa Redford, Amber Mahoney, Kaylin McNamara and Lindsey Detten  
   Faculty mentor: Katie Ryan-Bloomer
This mixed methods, cross-sectional study aimed to describe play and playfulness of older children and adolescents with visual impairments. Twenty-one participants between the ages of 8-20 with visual impairments were recruited from a Midwestern state school for the Blind for participation in the study. Researchers collected 15-minute videos of participants playing both indoors and outdoors at the school residence halls or in the participant's home environment if they were non-residents. Playfulness was assessed observationally using the Test of Playfulness (ToP), and play was assessed using the Pediatric Play Interest Profiles. To better analyze play, a qualitative thematic analysis was conducted. Differences in both play and playfulness of children and adolescents with visual impairments were observed. Increased stimulation of and reliance on other senses were. Social interactions appeared to be affected, and environmental factors impacted the participants' play.

4. **Comparison of learning methods chosen by older adults when learning to use handheld technology**
Lindsay Dunham, Allison Feist, Stacey Schwartz, Traci Hawkins, Brantley Niendick
Faculty mentor: Mary Jane Youngstrom

Integration of technology use into performance of everyday life occupations has been increasing over the past several years. Older adults' reluctance to adopt new handheld technology and difficulty learning to use these devices could potentially threaten their occupational engagement. We examined learning methods for new handheld technology by comparing the preferred learning methods of older adults with the methods they are actually using to learn new handheld technology. Barriers identified by older adults were analyzed to determine possible limiting factors that prevented the use of their preferred learning methods.

5. **Occupational therapy life skill training for older youth within the juvenile justice system**
Naomi Allmayer, Danielle DeTour, Andrea Hullman, Julie Kramper, Colt Moller, Mary Walterbach, Mary Kate Phillips, Morgan Mapes
Faculty mentor: Mylene Shriner

The purpose of this research is to examine the impact of an occupational therapy intervention program focusing on life skills training for youth in the juvenile justice system who are exiting the foster care system. An occupational therapy program addressing life skills has the potential to prepare youth in this population to live independently in the community and reduce the rate of recidivism. A pretest addressed the core areas of: daily living, self-care, relationships and communication, housing and money management, work and study life, career and education planning, and looking forward. The results from the pretest were used to create a client-centered occupational therapy intervention program addressing the individualized group deficits. After the participants
attended six group occupational therapy sessions, the results showed a significant improvement between pretest and posttest means and significant improvement in the areas of deficit. The significant results of this study demonstrate that occupational therapy can have a positive impact within the juvenile justice and foster care systems.

6. Chutes and Ladders Probability Research
Hayley Nemeth
Faculty mentor: Keith Brandt

I have worked with Dr. Brandt to design a computer program that simulates the Chutes and Ladders game. Using the program, we are able to calculate the mean number of rolls to complete a game and the standard deviation. I have designed probability/statistics exercises which allow the calculation of confidence intervals and hypothesis tests by using the data obtained from the program. This research led to the conclusion that a lognormal distribution can be used to describe the data.

7. Internship at Cerner
Aaron Jackson
Faculty mentor: Keith Brandt

I have been working at Cerner for a little less than a year as a Business Apprentice, on the Global Mobility Team. My daily tasks have included multiple data entry jobs, reviewing invoices, and running weekly queries for data validation. Along with my daily tasks I have been given multiple projects to take the lead on and complete. These projects have span all the way from creating excel estimator tools to writing new company policies. Personally I have enjoyed my time at Cerner Corporation. I have had the chance to gain experience and knowledge on how companies function and their inner workings. Along with learning how companies function, I have been able to use the skills acquired in classrooms and apply them to work situations.

8. Why Are Our Brains So Big?
Tara Brinkoetter
Faculty mentor: Steven Brown

Human history began with hominid species much different from modern humans but each new development led to the creation of the people we are today. One of the biggest reasons credited for making humans human is our large brain size. But why would a large, expensive brain be selected for in human evolution? Due to the mixed factors of human diet, tool use, language, and social interactions, researchers have come to understand how big brains could have bestowed a profound effect on human evolution. My presentation will focus on the selective advantages humans have enjoyed as a consequence of their big brains.
9. An Assessment Tool for Group Work
Jessica Moore
Faculty mentor: Zdeňka Guadarrama

Classroom group work creates a collaborative learning experience for students to develop process skills while exploring and developing content specific concepts. We define effective group work as the ability of a group to implement a work plan, successfully divide responsibility, and resolve conflicts among group members, as well as produce a high quality output. In order to assess effective group work, we propose a composite index that assigns weights to the students' general evaluation of their work plan, self-evaluations and evaluations of each group member by other group members, and the quality of the final product.

10. The Influence of the Amygdala on Memory
Lucas Kurz
Faculty mentor: Steven Brown

The overall purpose of this research project is to evaluate how emotion influences memory. Specifically, this poster narrows the focus on the influence of the amygdala on memory formation and recall. After giving a brief overview of basic anatomy and function of the amygdala, this poster evaluates how amygdala activity alters the pathways used in memory formation and recall, the influence of stress on the amygdala, and the impact of damage to the amygdala on other brain functions related to memory.

11. Lithium Depletion Age of the TW Hydrae Association
Katie Boyce
Faculty mentor: Mark Pecaut

TW Hydrae Association (TWA) is the youngest of the nearby moving groups. In order to better constrain the ages of this benchmark stellar association we reexamine the Lithium depletion age for TWA. We adopt Lithium equivalent width measurements from the literature along with improved luminosity estimates based on newly available trigonometric distances. We correlate the observed Li depletion in our sample to those of published stellar evolutionary tracks to obtain the Li depletion age for TWA. We compare this Li depletion age to isochronal ages obtained from their Hertzsprung-Russel diagram positions. The implications of revised ages for TWA and its role as the youngest of the nearby moving groups are reported.
12. Multicultural Competence
Alexandria Rodriguez
Faculty mentor: Saz Madison

The current study was conducted as part of the preliminary development and evaluation of a self-report measure of multicultural competence. It is predicated on the literature's conceptualization of "multicultural competence" as involving an individual's ability to: interact with others of differing cultural groups (skills), appreciate that differences are valuable (awareness), and understand those attributes that both define and are valued by a cultural group (knowledge). To investigate these abilities, researchers compiled a pool of test items designed to assess multiple dimensions of multicultural competence. The pools of questions were administered to the university students and faculty. The results of the data will then be entered into factor analysis in order to determine whether or not the four hypothesized factors are borne out.

13. Genetic Investigation of Drosophila mutations in the areas of fertility and viability
Zack Zakibe
Faculty mentor: Jamie Dyer

Through a collaboration with the Stowers Institute for Medical Research, we are using basic genetic crosses to map sterile and lethal mutations in the Drosophila genome to their respective genes. Deficiency mapping is being used to narrow down the location of the mutations found in several previously derived sterile and lethal fly stocks. The specific mutations being mapped are the female sterile mutant fs(1)M116, and the lethal mutations l(1)10Ad and l(1)1019Fe5, through the use a variety of deficiencies. We have mapped the lethal mutations to specific areas on the X chromosome. Future directions for these experiments would be to narrow down the locations of these mutations even more to individual genes through the use of complementation testing. Ultimately, the identification of these mutated genes in Drosophila may lead to a better understanding and possible treatments in the areas of human fertility and viability.

14. Creation of an Isoform-Specific Knockout of the etr-1 gene in C. elegans
Collin Gilmore and Tessa Boots
Faculty mentor: Jamie Dyer

Neural development requires a large number of tightly regulated molecules to direct the movements of neurons to their proper locations throughout the brain and body, as well as provide the signals necessary for proper synapses to form between these cells and other neurons and tissues. Though numerous molecules and signals have been determined to direct neuron migrations and axon pathfinding, our understanding of how these molecules and other as of yet uni-
identified molecules direct these movements is still in its infancy. One example is the ETR-1 protein, which is homologous to a protein involved in muscular dystrophy. In order to study the role of ETR-1 in neural development, isoform-specific knockouts of the etr-1 gene will be made. This project involves using the newly developed Cas9-triggered homologous recombination method to specifically target the genomic location of the etr-1 gene. In order to construct worm strains with isoform-specific knockouts, plasmids must be constructed to target the Cas9 nuclease to the specific etr-1 locus by engineering a target sequence into the plasmid containing Cas9 and the sgRNA targeting molecule. After constructing these plasmids, the effects of the isoform-specific knockouts of ETR-1 on neural development in C. elegans will be determined in future studies.

15. Increased Consumption of Vegetables Among College Students Using Applied Behavior Analysis
Caitlyn Tilden and Audrey Fiudo
Faculty mentor: Saz Madison

Vegetables are a crucial element to a healthy and balanced diet. College aged individuals are an extremely at-risk population for inadequate consumption of vegetables. With this problem identified two members of Rockhurst University's Psychology Seminar decided to conduct a single-subject reversal design experiment utilizing a token economy. The token economy utilizes tokens to act as reinforcers for eating a daily target goal of vegetables. In this presentation, we will discuss our findings and their implications.

16. An Examination of Symptoms and Treatments Related to Unilateral Neglect
Chelsea Zacharias
Faculty mentor: Steven Brown

Unilateral neglect is caused chiefly by stroke and is an inattention to half of the body in some form. This poster will examine the symptoms, diagnosis, and treatment options of unilateral neglect. Neglect is diagnosed chiefly by assessing the space affected, the mode of output of the hemineglect (either motor or sensory), and the sensory modality. Of the various treatments available some of the research describes mirror therapy, constrain-induced movement therapy, and optokinetic stimulation.
**Poster Session 2**  
**Science Street 5:30-6:15**

Certificates to students and faculty mentors will be awarded in this session by Dr. Douglas Dunham, Vice President for Academic Affairs.

**17. Independent Study**  
Katrina Bergman  
Faculty mentor: Laura Janusik

This independent study was created to help determine what career interests me most after graduation. Alongside Dr. Janusik, I have researched different career fields. I have chosen three careers to look at closely which include public relations, healthcare administration, and law (mediation). I have written a research paper on each as well as a set of informal interview questions. I will be interviewing someone in each field. This independent study's primary function is to inform me on the possibilities that could be available after I finish my degree.

**18. Professional continuing competence practices of occupational therapists**  
Kristin Heuerman, Andrea Schreiner, Annette Simmons and Brittany Waybright  
Faculty mentor: Ketti Coffelt

Continuing competence standards for occupational therapists have recently been developed to guide and promote the professional behaviors for developing and maintaining professional credibility. This descriptive research study examined the types of professional development activities selected and valued by occupational therapists to ensure continuing competence in practice areas. A modified e-survey was sent to occupational therapists from across the United States through convenience sampling and snowballing. Frequency analyses and a Chi Square cross-tabulation were used to analyze the valid surveys. Data about the frequency and patterns about how occupational therapists recognize and select professional development activities to maintain continuing competence will be presented as well as practitioner demographic information comparing OT degree level and number of practice years in the profession.

**19. Exploring perceived health-related quality of life in community-based stroke survivors: a mixed methodological approach**  
Rachel Prewitt, Hillary Henke, Anh Tran and Kylie Watts
The purpose of this mixed methods study was to explore aspects of health-related quality of life (HRQoL) that were deemed important to community-based stroke survivors and to describe the nature of the relationship between HRQoL and social support. Focus group interviews, a HRQoL assessment, and a social support questionnaire were used to gather data. The following themes emerged as being important to stroke survivors: can-do attitude; renewed purpose; emotions, personality, and perceptions; shared experiences and social support; exercise, activity, and continued education; and occupational limitations. Results indicated that the level of social support satisfaction is associated with stroke survivors' perceptions of HRQoL. Results suggest that OT practitioners expand practices with stroke survivors to include a greater focus in community participation and cultivation of meaningful social relationships. Results of the study will be presented and the findings, limitations, implications for future research and implications for OT practice will be discussed.

20. The effectiveness of portable (iPad®) video modeling intervention to promote home skills with children with autism spectrum disorder
Ethan Boren, Robyn Everist, Megan Hansen and Morgan Heard
Faculty mentor: Ketti Coffelt

Video Modeling is an emerging intervention strategy that has been useful in teaching functional skills to children with Autism Spectrum Disorder (ASD). However, research is lacking specifically in the home environment, with the use of the iPad®, and within the occupational therapy domain. The current research examined the use of video modeling for functional home tasks in a ten-year-old child with ASD. The objectives of this study were to explore if video modeling intervention strategy is effective in increasing independence, decreasing prompts from caregiver, decreasing time, decreasing inappropriate behaviors, and increase caregiver satisfaction of task.

21. Personality Traits and Psychological Factors in Adults with Functional Dysphonias. A Systematic Review
Kaitlin Hopkins and Michelle Laaper
Faculty mentor: Katherine Ermgodts

The objectives of this systematic review are to determine the role of psychological characteristics and personality traits in the development of functional dysphonia (FD) and to compile a comprehensive profile of the personality traits and psychological factors of patients with FD. A comprehensive search of the literature published between 2000 and 2014, which included data on the psychological characteristics or personality traits of adult populations with a diagnosis or the presenting symptoms of FD, was conducted using a combination of electronic and hand searches. This review identified six studies, five
case-control designs and one within-subject design that involved a total of 522 participants (456 females, 66 males). Of these 522 participants, 208 (40%) had FD, 49 (9%) had spasmodic dysphonia (SD), 26 (5%) had vocal fold paralysis (VFP), 37 (7%) had vocal nodules (VN), 19 (4%) had social anxiety (SA), and 183 (35%) were controls. According to a hierarchy of levels of evidence for research questions on etiology, majority of the included studies are considered to be level III-3, which is at the lower end of the evidence hierarchy. The results of the quality appraisal revealed that none of the included articles met all standards of scientific rigor appropriate for evidence-based research. The best available evidence does not clearly define the relationship between personality traits, psychological processes and the development of FD, but it does imply that patients with FD have a distinct set of personality traits and psychological processes.

22. Measuring the Effect of Time Elapsed Post-Concussion on Postural Sway Using a Smartphone Accelerometer
Brittany Oppland and Kelsi Rempe
Faculty mentor: David Heller

Recently, increased emphasis has been placed on concussion research. It has been shown that a direct correlation exists between concussion occurrence and increased postural sway variability. Previous research indicates this variability returns to baseline values after an elapsed time of 3-5 days. However, pilot data taken for this study may indicate a longer recovery timeline. The purpose of this study was to investigate the effect of time elapsed post-concussion on the variability in postural sway using a smartphone accelerometer app. Student athletes, some with concussion histories, some without, were asked to complete 17 randomized stance tasks including standing on either tile or a foam pad with eyes closed, eyes opened, closed base, opened base, or tandem base while their net acceleration was recorded with the smartphone accelerometer app. for approximately 20 seconds. No significant differences in postural sway were found between subjects, but the notion that postural sway variability decreases with increasing time elapsed post-concussion was supported. A return to baseline postural sway variability within 6 months from the concussion event was shown. Pilot data taken for this study hints at the possibility of a longer return to baseline levels from a concussion event.
23. The effect of tannin variability on bacteria growth
Amber Stout, Rebeca Arias and Ryan Cheung
Faculty mentor: Chad Scholes

Tannins are naturally occurring secondary metabolites found in many plants. Their known functions include delaying decomposition, antimicrobial activity, and binding and precipitating proteins. Populations vary with respect to most characteristics, probably including their qualitative and quantitative tannin production and their bacterial inhibition. Previous research has shown that tannins from pin oaks (Quercus palustris) are the most effective inhibitors of bacterial growth. We collected acorns from fifteen different pin oaks in the Kansas City region. Tannins were extracted from the acorns by using methanol and water to separate the tannins from the rest of the acorn powder. The extracted tannins in solution with methanol and water were placed on discs which were placed on agar plates with different Gram negative and Gram positive bacteria species. After incubation the diameter of zone of inhibition was measured around each disk. Our initial results suggest that the ability of these tannins to inhibit bacteria growth do vary.

Luke Narke, Andrea Haake and Shereen Salfty
Faculty mentor: William Sturgill

Three categories of emotion word (neutral, positive, and hostile) were rhyme-encoded using cue/TARGET pairs. While the original encoding cue generally led to best immediate recall, a new rhyme cue was just as effective for positive words. Results are discussed in terms of broaden and build theory of emotion and cognition.

25. The effect of gluteus medius strengthening on balance ability in asymptomatic older adults
Rachel Gross, Kyle Haake, Lindsay Norton, Abby Seider and Jake Stuhlsatz
Faculty mentor: Jim Dronberger

The aim of this study was to evaluate the effect of gluteus medius strengthening on balance in the asymptomatic older adult utilizing the Mini-Balance Evaluation Systems Test (Mini-BESTest). We hypothesized that strengthening the gluteus medius would improve Mini-BESTest scores.
26. Effects of Cortisol and Carvacol on Zebrafish Hatching Time and Immune Response
Faye Temrutrynit, Katherine Polednik and Samantha Zavertnik
Faculty mentor: Lisa Felzien

The innate component of the immune system provides the initial response against foreign pathogens, which includes the process known as inflammation. When the immune response is triggered, phagocytes race to the infection site, engulf pathogens, and destroy them. Some phagocytic cells, such as macrophages, are capable of signaling other immune cells to fight more specifically against pathogens. The zebrafish, a common freshwater aquarium fish, is an excellent vertebrate model for studying innate immunity, because zebrafish embryos are transparent and the inflammatory response can be easily seen with a microscope. This is very valuable for counting the total number of neutrophils, which are the first immune cells that gravitate toward an injury. In this study, we triggered inflammation through an injury induced by piercing the caudal fin with fine-gauge needles. This model of injury generally resulted in a V-shaped tear with a population of neutrophils surrounding it. As zebrafish were injured, they were allowed to rest in solutions, such as cortisol and thyme oil, that were hypothesized to inhibit the immune response. Scientists are currently studying the effects of pro-inflammatory and anti-inflammatory molecules, such as carvacrol in thyme oil in other systems. Results of their research and our experiments using zebrafish will help us better understand the immune system and its response.

27. The correlation of standard deviation and normalized path length using smartphone accelerometer data to measure postural sway post concussion
Kelsi Rempe and Brittany Oppland
Faculty mentor: David Heller

Smartphone accelerometer applications have become a quick, simple method of collecting clinical data on postural sway in athletes who have experienced a concussion. Normalized path length (NPL) and standard deviation (SD) have been used as measures of variability in alternative postural sway studies. The correlation between the two measures has yet to be established. PURPOSE: The purpose of this study was to investigate the relationship between SD and NPL of net acceleration data as a measure of variability in postural sway in collegiate athletes. METHODS: 8 individuals participated in this study including basketball, soccer, and lacrosse players, both male and female. Of the subjects, 4 had previously experienced a concussion, while 4 served as controls. Subjects were asked to complete a series of 17 trials composed of differing conditions including, open and closed base, tandem stance and single leg on foam or tile. These trials were completed with the eyes closed and open. Each trial was performed for 20 seconds and recorded using a smartphone accelerometer attached to the waist. NPL and SD of net acceleration were calculated.
to quantify the variability in postural sway exhibited by each subject. These two measures were then correlated to investigate their relationship. RESULTS: The correlation of NPL and SD of net acceleration data using a smartphone accelerometer was significant ($r = 0.977$, $p < 0.05$). While the correlations remained significant when disaggregated ($r = 0.9755$, $p < 0.05$ for concussion, $r = 0.9508$, $p < 0.05$ for controls), there was no significant difference in correlation due to concussion status ($z = -0.25$, $p > 0.1$). CONCLUSION: A strong correlation exists between NPL and SD of net acceleration data taken using a smartphone accelerometer. This correlation holds for both concussed subjects and controls. There is no significant difference in the strength of the correlation between the two groups. Therefore, both NPL and SD of net acceleration data can both be considered valid metrics for the measurement of variability in postural sway. Further research will correlate these measures with other indicators of variability in postural sway such as root mean squared and center of pressure data.

28. Assessing risk aversion from asset allocations of households
Quang Nguyen
Faculty mentor: Sudhakar Raju

For this fellowship research project, data from the "Survey of Consumer Finances" on U.S. Households socio-economic characteristics and financial asset allocation is used to assess the level of risk aversion before and after the financial crisis. An analysis of household investing patterns indicate that households with above $1 million or more in net worth are more vulnerable to a crash in the financial market because they have a larger portion of their wealth invested in risky financial instruments such as equities. However, even though a larger portion of wealth is invested in the market, they exhibit greater asset diversification as compared to household with a net worth of less than $1 million. Finally, after observing the investment preferences across households, I find that households with less than $1 million in net worth are more invested in high risk assets than wealthier households.

29. The Relationship between Parents' Bilingual Proficiency and Raising Bilingual Children
Nicky Alfonsin
Faculty mentor: Jennifer Oliver

The purpose of the current study was to examine the relationship between a parent's proficiency level in a second language and the likelihood that their children would learn a second language. There were 90 parent participants; 20 were male, 70 female. There were 77 participants with some experience in a second language, and 13 participants with no experience in a second language. The participant ages ranged from 20 to 63, with the average age being 41. All participants had children. A 10-question survey was distributed to parents in a variety of settings in the Kansas City area, and the surveys were completed and
returned immediately. The researcher hypothesized that parents with higher skill levels in a second language will be more likely to advocate bilingualism for their children. The hypothesis was supported by the findings in regards to second language learning in general and in spoken forms, but not in regards to sign language as a second language. Currently, a parents' proficiency level in a second language seems to only impact the likelihood that their child will learn a second language in a spoken form.

30. Assess the efficacy of a natural compound, Carnosic Acid (CA) in prevention of human ductal carcinoma in situ (DCIS) progression to invasive ductal carcinoma (IDC).
Emily Steffensen
Faculty mentor: Laura Salem

Ductal carcinoma in situ (DCIS) is the most common type of non-invasive breast cancers. The five-year survival rate for women diagnosed with non-invasive DCIS and locally invasive breast cancers are 98% and 83.3% respectively, while, the five-year survival plummets to 27.1% for cancers that have spread to distant sites. Molecular profiling of DCIS at distinct stages of in situ to IDC using our in vivo DCIS MIND models led to the identification of BCL9 (B cell lymphoma-9). BCL9 is a nuclear co-factor that enhances Wnt-stimulated, β-catenin-mediated transcription. De la Roche and colleagues screened for small molecular inhibitors of β-catenin binding to BCL9. Their screen identified carnosic acid (CA), a compound found in rosemary. The hypothesis is that BCL9 promotes DCIS progression to invasion and thus pharmacologic inhibition of BCL9/β-catenin may be a viable therapeutic strategy for prevention of IDC. Methods: Performed MTS assays to assess cell proliferation; also performed migration and invasion assays using matrigel and fibronectin in transwell plates. Results: We demonstrated that CA significantly reduced cell proliferation in DCIS.com cells after 24 hours at the 50% inhibitory concentration of 25 uM. We were also able to significantly reduce DCIS.com invasion through matrigel and migration through fibronectin transwells at 40, 50, and 60uM. Future direction: To assess the safety and efficacy of CA in prevention of DCIS invasive progression using our in vivo DCIS cell line MIND models. If our studies demonstrate efficacy for prevention of DCIS-IDC transition, CA may serve as a future therapeutic strategy for prevention of IDC.

31. The Effects of Augmentative and Alternative Communication on Language Development for Children with Childhood Apraxia of Speech: A Systematic Review
Stephanie Pham
Faculty mentor: Catherine Torrington-Eaton

Childhood Apraxia of Speech (CAS) is a speech sound disorder that primarily affects the motor planning and sequencing of muscles used in speech production in children. Although the prevalence of CAS is relatively low, the effects it
can have on a child's ability to communicate are significant. The development of language can also be significantly delayed in children with CAS. Speech language pathologists may treat CAS with a variety of approaches. One method of treatment for children with moderate to severe CAS is the use of Augmentative and Alternative Communication (AAC). AAC involves compensating for impairments and limitations of individuals with speech-language production and/or comprehension disorders. This could involve the use of technology, sign language, pictures, etc. This study presents the results of a systematic review of the existing literature regarding the effectiveness of AAC on language development for children diagnosed with CAS. The findings of this systematic review suggested that the use of AAC in children with CAS appears to have a positive effect on language development. Further research with well-controlled studies and larger participant sizes is needed to better establish the effects of AAC on language development in children with CAS.

32. Nesting Behavior of Native Mason Bees
Emily DeVore
Faculty mentor: Mary Haskins

The goal of the research was to examine the nesting behaviors of native Mason bees at differing distances from water/mud resource. The nesting boxes were located in a Jackson County, Missouri pasture on evenly spaced fence posts. Nesting boxes were placed outside in June of 2014. Boxes were transported to the lab, taken apart and tubes opened November 2014 through February 2015. Number of used tubes in nesting box was recorded, as well as number of live bee larvae/pupa/adults. Significantly more nesting activity was seen in nesting houses further from water/mud resource.

33. The effects of group responsibility on behavior in school age children
Samantha Keeling
Faculty mentor: William Haefele

The purpose of this study was to test if group responsibility in peers play a role in children's behavior. A naturalistic observation was preformed on students enrolled in the after school program at Notre Dame De Sion. The sample size included 30 students in the fifth through third grade. I observed and tallied the baseline of disruptive behavior during quite time on an individual student bases., over the course of a week. I then implemented my group intervention technique for one week. The number of outbursts were recorded and compared to the baseline.

34. Functional Limitations on School Age Children with Executive Dysfunction Post-TBI: A Systematic Review
Rica Rivera
Faculty mentor: Shatonda Jones
This systematic review examined studies regarding functional limitations of school age children with executive dysfunction post-Traumatic Brain Injury (TBI). A comprehensive search of electronic databases was used to find studies published between the year 2000 and 2014. Studies meeting the inclusion and exclusion criteria were appraised for quality of evidence and categorized. The review included six studies related to the research question, including 290 participants diagnosed with mild, moderate, or severe TBI between the ages of eight and twelve. This review identified functional limitations on executive dysfunctions in school age children, secondary to TBI. Additional research is needed to provide more generalizable findings regarding follow-up assessments, with improved specificity of age range at onset to post-testing of TBI, within longitudinal studies. Limitations of the review included difficulties with standardization of assessments for thoroughly assessing participants for all executive dysfunctions due to the complexity in nature of executive functions.

**35. Encyclopedia of 21st Century Pop Culture Trends**  
Mary Cate Brauner, Carolyn Rouw and Samantha Osterloh  
Faculty mentor: Jason Arthur

In this project we attempted to identify multiple trends of current pop culture. We took a scholarly approach to analyze up and coming trends within media and our technological age in which we live. We removed the superficial nature of the presented topics and granted them an unbiased opinion, worthy of academic review. Some topics that we explored included the growing popularity and the attention towards the selfie, and the worth of new social networking applications such as Yik Yak. In this encyclopedia these themes commonly deemed unimportant are viewed in a new, more intellectual light.

**36. Rockhurst Review**  
Seán Kane and Megan McCool  
Faculty mentor: Patricia Miller

*Rockhurst Review*, which is published each spring through Rockhurst's English Department, is Rockhurst's fine arts journal. It publishes poems, short stories, satirical essays, photographs, and photographs of drawings, paintings, and sculptures. Students have played a pivotal role in selecting and editing submissions to the journal since its inaugural issue, more than 25 years ago.
Closing Ceremony and Theater Play

Mabee theater
7:15-10:00
Closing Ceremony

Student MC: Meredith Larson

Closing Remarks: Dr. Douglas Dunham, Vice President for Academic Affairs.

Theater Play

“You can’t take it with you”

The play centers around the Vanderhof household where anarchy and eccentricity reign. Included in this eclectic mix are Grandpa, the free-spirited patriarch who keeps snakes and doesn’t believe in paying taxes; Penny, a distracted playwright; Essie, a candy maker and aspiring, but inept, ballerina; Paul, a tinkerer who makes firecrackers in the basement; and Alice, the “normal one,” who has an office job.

The play is directed by Alan Nichols.
Thank you!!!

Thank you, to our donors for their generous support of the Festival of Student Achievement.

Thank you, to all parents, friends and alumni who came and joined this celebration.

Thank you, to all student awardees for their hard work and dedication to our mission of learning, leadership and service.

Thank you, to all contributing students and faculty for showcasing academic excellence at Rockhurst.

Thank you, Pasquale Trozzolo, for delivering the opening address.

Thank you, to all administrators for their encouragement and participation.

Thank you, to the Undergraduate Research, Scholarship and Creative Activities Committee for all their hard work organizing this event.

Thank you, to Physical Plant, Computer Services, Chartwells, and all the people that made the day possible from “behind the scenes”.