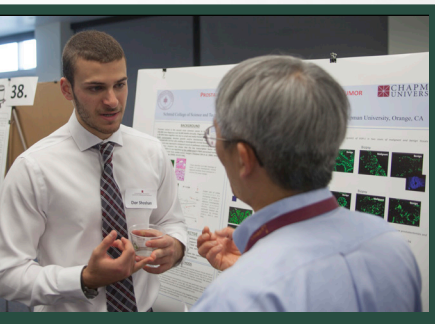
CHAPMAN UNIVERSITY

STUDENT RESEARCH DAY

WEDNESDAY, MAY 13, 2015

SPRING SESSION

ABSTRACT VOLUME




CHAPMAN UNIVERSITY | OFFICE OF UNDERGRADUATE RESEARCH

Message from the Co-Directors

Greetings and welcome to the 2015 Spring Chapman University Student Research Day. This celebration highlights the breadth and depth of scholarly research and creative activity conducted by Chapman undergraduate and graduate students. It is a truly exciting day to learn about, explore, and appreciate the efforts that students and faculty have put into a wide variety of research and creative projects across the campus. It is our hope that all members of the university community can engage in and benefit from the Chapman University Student Research Day.

To students--take a look at the impressive range of projects in which your classmates have been involved over the past year, and become inspired to continue or participate for the first time in research yourselves during your time here at Chapman University.

To faculty - recognize the hard work of the students you have mentored, taught, and supervised, and celebrate the culmination of their efforts in a professional presentation setting.

To all - enjoy learning about this unique aspect of a Chapman education that allows students to engage in scholarly activity at the highest level: expanding knowledge and pushing at the boundaries of one's academic discipline.

Thanks for coming, and enjoy the day!

Dr. Christopher Kim is Co-Director of the Office of Undergraduate Research and Associate Dean of Academic Programs in the Schmid College of Science & Technology at Chapman University.

Dr. Anna Leahy is Co-Director of the Office of Undergraduate Research and Associate Director of the MFA program in creative writing at Chapman University.

KEYNOTE SPEAKER: MG LORD

Since 1995, M. G. Lord has been a freelance author and critic. Her work has appeared in the *New York Times Book Review,* the *Los Angeles Times, Discover, Travel + Leisure, Vogue, Artforum, Salon,* and *The New Yorker.* She is a full-time Senior Lecturer at the University of Southern California, where she teaches memoir, writing science, and writing the personal essay. She is a founding faculty member of the Yale Writers Conference and has taught at the University of California, Riverside, and the Squaw Valley Community of Writers. In 2013, she served as one of five jurors for the National Book Award in Nonfiction.

Lord is the author most recently of *The Accidental Feminist: How Elizabeth Taylor Raised Our Consciousness and We Were Too Distracted By Her Beauty To Notice* (Bloomsbury/Walker), which won the Los Angeles Press Club Award for Best Book on an Entertainment Subject in 2012. Her previous book *Astro Turf: The Private Life of Rocket Science* (Bloomsbury/Walker) is an informal cultural history of NASA's Jet Propulsion Laboratory and a family memoir of aerospace culture during the Cold War. She was awarded an Alfred P. Sloan science-writing grant to support her research for that book.

Lord is perhaps best known for *Forever Barbie: The Unauthorized Biography of a Real Doll,* which has been in print for more than 20 years. In March, her essay "You'd Be Such a Good Mother, If Only You Weren't You" was published in *Selfish, Shallow and Self-Absorbed: Sixteen Writers On The Decision Not to Have Kids,* an anthology edited by Meghan Daum. It was also published online at *DAME* magazine, where it immediately went viral.

Lord grew up in Southern California and graduated from Long Beach Polytechnic High School. As an undergraduate at Yale University, she served as the political cartoonist for the *Yale Daily News.* After graduating *cum laude* in 1977, Lord was hired by *Newsday* to be its editorial-page cartoonist. In 1994, the success of *Forever Barbie* led her to leave daily newspaper work. Today, she has again picked up her drawing pen and is working on a graphic novel. She is also finishing an MFA at the Vermont College of Fine Arts, where she will teach in a new inter-disciplinary program in 2016.

If you want to see her in a very different context, catch one of her stand-up shows. She has appeared at the Comedy Store, the HaHa Café, Flappers and other L.A. venues.

Schedule of Events

8:00 – 9:20am	**Check-in/poster setup** *Poster Session 1*	**Sandhu Conference Center**
9:30 – 11:30am	**Poster Session 1** *Arts, Education, Humanities, and Social Sciences*	**Sandhu Conference Center**
11:30 am – 1:00 pm	**Check-in/poster setup** *Poster Session 2*	**Sandhu Conference Center**
12:00 – 1:30pm	**Lunch Keynote Speaker** *MG Lord* *RSVP required*	**Bush Conference Center** *Beckman Hall, Room 404*
1:00 – 3:00 pm	**Poster Grading & Review Session** *Crean/Schmid Faculty Only*	**Sandhu Conference Center**
3:00 – 5:00pm	**Poster Session 2** *Behavioral, Health, and Natural Sciences*	**Sandhu Conference Center**

Table of Contents

Poster Session 1: Abstract Titles
Graduate Students

Dodge College of Film & Media Arts

1. **Least Among Brethren**
   Presenter(s): Dami Onifade
   Advisor(s): David S. Ward, Martha Coolidge

College of Educational Studies

2. **Critical Pedagogy and Higher Education in Saudi Arabia**
   Presenter(s): Eman Almutairi
   Advisor(s): Dr. Peter McLaren, Dr. Geraldine McNenny

Wilkinson College – Department of Communication Studies

3. **Designing for Repurposing and Reinvention as a Diffusion Strategy**
   Presenter(s): Mona Sleiman, Christian Keroles
   Advisor(s): Dr. Kerk Kee

Poster Session 1: Abstract Titles
Undergraduate Students

College of Educational Studies

4. **Characterizing Psychological Management Practices of College and University Athletic Trainers in Orange, California**
   Presenter(s): Paulina Tselikis, Hannah L. Alexander
   Advisor(s): Dr. Michelle Cleary, Dr. Jason Bennett

College of Performing Arts – Department of Dance

5. **The Benefit of Movement: Dance/Movement Therapy and Down Syndrome**
   Presenter(s): Chloe Albin
   Advisor(s): Robin Kish

6. **Effectiveness of rehabilitation techniques for non-injury, post activity muscle pain**
   Presenter(s): Daisy Mohrman
   Advisor(s): Robin Kish

Wilkinson College – Department of Art

7. **Tracing the Line of Japonisme: A Look at the Influence of Calligraphy on Western Art**
   Presenter(s): Asia Adamshick
   Advisor(s): Dr. Wendy Salmond

8. **Viscera**
   Presenter(s): Caitlin Albritton
   Advisor(s): David Kiddie

9. **Conversation 'Peace': The State of Islamic Art in the Post-9/11 West**
   Presenter(s): Alexandra Allen
   Advisor(s): Dr. Karen Lloyd, Dr. Wendy Salmond

10. **Waiting Time**
    Presenter(s): Monica Beyon
    Advisor(s): Marcus Herse

11. **Reconstructing Constructivism: Tatlin's Tower**
    Presenter(s): Alanna Carnahan
    Advisor(s): Dr. Wendy Salmond

12. **Eva Hesse: A Part Of and Apart**
    Presenter(s): Clarissa Hampton
    Advisor(s): Dr. Wendy Salmond

13. **Self**
    Presenter(s): Tanya Lueck
    Advisor(s): Marcus Herse

14. **Garry Winogrand's The Animals Re-Situated in his Body of Work**
    Presenter(s): Areni Nuyujukian
    Advisor(s): Dr. Wendy Salmond

15. **Culture & Cups**
    Presenter(s): Lauren Potts
    Advisor(s): Marcus Herse

16. **Sensation/Truth**
    Presenter(s): Adelaide Saucier
    Advisor(s): Dr. Wendy Salmond

17. **Feminine Power**
    Presenter(s): Autumn Wyatt
    Advisor(s): David Kiddie

18. **Banksy, Voina, and the Legacy of Soviet Agit-Prop**
    Presenter(s): Jessica Yi
    Advisor(s): Dr. Wendy Salmond

19. **Cut Throat: The Entrancing Love Affair with Necks in Nineteenth Century Art**
    Presenter(s): Kristina Zahabi
    Advisor(s): Dr. Wendy Salmond

Wilkinson College – Department of Communication Studies

20. **The Effects of Readers' Motivation, Reviewer Sociability, and Review Ratings on Readers' Attitudes Towards Employers**
    Presenter(s): Tala Al-Ghussein, Kelsie Mattingly
    Advisor(s): Dr. Jake Liang

21. **Social Media Usage and Jealousy: Is Co-Rumination between Romantic Couples Related to Poor Health Outcomes?**
    Presenter(s): Kaajal Ali, Noemi Cardenas, Andrew Clark, Gabriela Hougton
    Advisor(s): Dr. Elaine L. Davies

22. **Self-Esteem and Deception on Tinder**
    Presenter(s): Alexa Biglow, Lauren Dennis, Alexa Hernandez, Cortney Holloway, Gregory Johnson, Amelia Williams
    Advisor(s): Dr. Veronica Hefner

23. **College Students' Communication about Nonmedical Use of Prescription Stimulants: Applying the Theory of Planned Behavior**
    Presenter(s): Darren Breese, Ana Andreoli, Darren Breese, Kylie Deschenes, Lindsey Sarver
    Advisor(s): Dr. Sara LaBelle

24. **Fear and Media: The relationship between crime related television consumption and the fear of crime among americans**
    Presenter(s): Timothy Breitfeller, Tatiana Broukhim, Angelina Riccio, Leah Whitenack
    Advisor(s): Dr. Michelle Miller-Day

25. **Gender Differences in "The Bachelor": A comparative analysis of task, maintenance, and individual group roles.**
    Presenter(s): Gabriela Cevallos, Brooke Bierman,Taylor Harris, Alix Joubran, Kevin Roberts
    Advisor(s): Dr. Elaine L. Davies

26. **Racial perceptions in Television: Cosby show v. Blackish**
    Presenter(s): Hailey Dempster, Vaughn Adams, Darren Breese, Hailey Dempster, Jamie Ricklin, Sophie Pennes
    Advisor(s): Dr. Riva Tukachinsky

27. **Media Framing and Its Effects on Perception of Character**
    Presenter(s): Brian Dutton, Alexandra Friedman, Alex Read, Madeleine Stephens
    Advisor(s): Dr. Riva Tukachinsky

28. **Meet cutes**
    Presenter(s): Andi Frisina, Kylie Deschenes, Jordan Gex, Carly Greer, Lindsey Sarver
    Advisor(s): Dr. Veronica Hefner

29. **Communication Processes For Emerging Collaborations**
    Presenter(s): Lucas Halopoff, Negeen Lofti, Abigael Smith
    Advisor(s): Dr. Kerk Kee

30. **A Typology of Water Conservation Messages in California**
    Presenter(s): Lauren Henderson
    Advisor(s): Dr. Jake Liang

31. **Computational Tool Development: How to Achieve and Sustain Widespread Adoption**
    Presenter(s): Sami Jarjour, Lincoln Crane, Ryan Hurd, Sami Jarjour
    Advisor(s): Dr. Kerk Kee

32. **Examing the Effect of Counterstereotypical Examples of African American Women in the Media on People's perspective of the African American Woman**
    Presenter(s): Jasmine Johnson
    Advisor(s): Dr. Wenshan Jia

33. Fitspiration or Death

Presenter(s): Nicole Jourdain, Natalie Bowles, Mary Ellet, Christine Liu, Arianna Tortomasi
Advisor(s): Dr. Veronica Hefner

34. The Effect of Stereotypical Portrayals of Minorities in Comedy on Viewers

Presenter(s): Isabel May, PJ Elbakri, Christine Rubenstein, Rachel Shatz
Advisor(s): Dr. Riva Tukachinsky

35. Asian American Character Identification and Ethnic Pride with Fresh off the Boat

Presenter(s): Michelle Mendoza, Tyler Deliman, Jason Sleiman, John Ward
Advisor(s): Dr. Riva Tukachinsky

36. Ethos in Social Media

Presenter(s): Michelle Mendoza
Advisor(s): Dr. Veronica Hefner, Sarah Robblee

37. Testing Nontechnological Explanatory Mechanisms for the Proteus Effect: Priming and Motivated Preparation

Presenter(s): Sarah Miller
Advisor(s): Dr. Jake Liang

38. #GetFit

Presenter(s): Colby O'Connor, Ana Andreoli, Zashya Nitzkowski, Rain Scott, Hector Solis
Advisor(s): Dr. Veronica Hefner

39. Unrequited Love, Disclosure, and Hurt: Does Your Love Style and Communication Put You in the "Friend Zone?

Presenter(s): Ronald Pun, Hector Solis
Advisor(s): Dr. Elaine L. Davies

40. Snapchat: The Gateway to Sexting

Presenter(s): Kevin Roberts, Hayley Chandler, Will Hyman, Courtney Pascual, Jeri Santos
Advisor(s): Dr. Veronica Hefner

41. Sharing and Persuasion

Presenter(s): Shelby Stanton, Tim Seavey, Shelby Stanton
Advisor(s): Dr. Jake Liang

42. Communication Processes That Support Successful Virtual Organizing

Presenter(s): Dominique Stewart, Mackenzie Campbell, Michael Naoumovitch
Advisor(s): Dr. Kerk Kee

43. **Mil-lie-nials: Examining the relationship between social media use and online deception of young adults**
    Presenter(s): Tessa Urbanovich, Matthew Dinerman, Tessa Urbanovich, Michelle Williams, Rebecca Young, Emily Zelter
    Advisor(s): Dr. Veronica Hefner

44. **Eye Witness News: Up Close with the Perception of Race in Photographs**
    Presenter(s): Karin Weber, Kelly Osborn, Nikki Payne, Ciera Ramos, Corinne Weber
    Advisor(s): Dr. Riva Tukachinsky

45. **Towards a Hybrid Model of Communication & Organizing in the Modern Workplace**
    Presenter(s): Michelle Williams, Mona Sleiman
    Advisor(s): Dr. Kerk Kee

Wilkinson College – Department of History

46. **Mediums of Memory**
    Presenter(s): Gabriella Canales
    Advisor(s): Dr. Marilyn Harran, Dr. Koerber

Wilkinson College – Department of Political Sciences

47. **The Angry Electorate - Affect and Voting Decision Making**
    Presenter(s): Negeen Amirieh
    Advisor(s): Dr. Ann Gordon

48. **The Relationship between Religiosity, Civic Engagement and Political Participation**
    Presenter(s): Jessica Atwood
    Advisor(s): Dr. David Shafie

49. **Economic Voting: Election Outcomes at the Toss of a Coin?**
    Presenter(s): Damaris Bangean
    Advisor(s): Dr. Ann Gordon

50. **Political Participation of Millennials in the United States and Western Europe**
    Presenter(s): Jenny Bhatia
    Advisor(s): Dr. David Shafie

51. **How media influences American perceptions of Iran and Middle East foreign policy**
    Presenter(s): Avery Bissett
    Advisor(s): Dr. Ann Gordon

52. Muslim-Americans and Party Identification
Presenter(s): Brianna Blaschke
Advisor(s): Dr. Ann Gordon, Dr. Patricia See

53. War on Terror' Through American Eyes
Presenter(s): Jacob Blaznek
Advisor(s): Dr. Ann Gordon

54. Environmentalism and Voter Ideology
Presenter(s): NIcholas Burghard
Advisor(s): Dr. Ann Gordon

55. Effects of Public Attitudes on Immigration
Presenter(s): Manuel Cardoza
Advisor(s): Dr. Ann Gordon

56. News Media Consumption as a Generational Phenomenon and the Relationship to Perceptions of Civic Duty in the American Electorate
Presenter(s): Kelsey Cena
Advisor(s): Dr. David Shafie

57. Predictors of Support for a Women President
Presenter(s): Frances Chang
Advisor(s): Dr. Ann Gordon

58. Yo soy latino: Does my vote matter?
Presenter(s): Jonathan Charres
Advisor(s): Dr. David Shafie

59. Negative Campaigns and Their Influence on the Electorate
Presenter(s): Estefan Colindres
Advisor(s): Dr. David Shafie

60. The Impact of the Racial Gap on Capital Punishment
Presenter(s): Ashleigh Ellis
Advisor(s): Dr. Ann Gordon

61. Campaign Spending and Political Efficacy: Why Average Americans Aren't Voting With Dollars
Presenter(s): Lauren Ewashko
Advisor(s): Dr. David Shafie

62. Public Opinion and Judicial Elections

Presenter(s): Nick Fernandes
Advisor(s): Dr. David Shafie

63. Humanitarian and Military Interventions: Understanding Where Isolationists and Internationalists Diverge

Presenter(s): Rachel Fox
Advisor(s): Dr. David Shafie

64. Voting Preference and Religion's Superiority to Ethnicity

Presenter(s): Benjamin Gourley
Advisor(s): Dr. Ann Gordon

65. Public Opinion on Iran's Nuclear Programme

Presenter(s): Mehran Haghirian
Advisor(s): Dr. Ann Gordon

66. The Effect of Voter Identification Laws on Voter Turnout

Presenter(s): Robert Heins
Advisor(s): *Dr. Andrea Molle*

67. Religiosity and Political Efficacy

Presenter(s): Nicolette Hoekstra
Advisor(s): Dr. David Shafie

68. Re-Examining the Gender Gap: A Closer Look at "Women's Issues"

Presenter(s): Katerina Ioannides
Advisor(s): Dr. Ann Gordon

69. Voter Turnout Among the Youth

Presenter(s): Conner Larkin
Advisor(s): Dr. Ann Gordon

70. Fear of Economic Collapse: Financial Anxiety and Institutional Distrust

Presenter(s): Matthew Lyons
Advisor(s): Dr. David Shafie

71. Veterans and Higher Education Benefits

Presenter(s): Jason Mehta
Advisor(s): Dr. Lisa Leitz

72. How partisanship affects foreign policy attitudes towards defense spending.
Presenter(s): Sauran Mussin
Advisor(s): Dr. Ann Gordon

73. Bowling Online: Youth, Participatory Politics, and New Media
Presenter(s): Kathryn Newburn
Advisor(s): Dr. Ann Gordon

74. Distrust in Government and Political Activism
Presenter(s): Josh Nudelman
Advisor(s): Dr. Ann Gordon

75. Media's Effect on International Engagement
Presenter(s): Brenna Parish
Advisor(s): Dr. David Shafie

76. Women Campaigning on "Women's Issues"
Presenter(s): Brianna Pressey
Advisor(s): Dr. Lori Cox Han

77. Who Supports Welfare?
Presenter(s): Matthew Reminick
Advisor(s): Dr. Ann Gordon

78. Problems in Political Recruitment of Women: Systemic or Personal?
Presenter(s): Marissa Reynolds
Advisor(s): Dr. David Shafie

79. What You Watch and What You Think: The Role of Crime Media Consumption in Reinforcing Punitive Attitudes and Counterfactual Beliefs about the Perceived Increase of Violent Crime
Presenter(s): *Robert Roussel*
Advisor(s): Dr. David Shafie

80. Campaign Finance Makes America Go Round: A Demographic Study of Individual Campaign Contributions
Presenter(s): Geneva Sherman
Advisor(s): *Dr. Ann Gordon*

81. Civics and Politics
Presenter(s): Lauren Siaumau
Advisor(s): *Dr. David Shafie*

82. Public Perception of Income Inequality in the United States
Presenter(s): Deepak Sithu
Advisor(s): Dr. Ann Gordon

83. Who Cares About Income Inequality? And Why?
Presenter(s): James Trocme
Advisor(s): Dr. Ann Gordon

84. Economic Woes: Do we blame Political Corruption?
Presenter(s): Dorji Tshoden
Advisor(s): Dr. Ann Gordon

85. The Decline of Marginal Districts in Congressional Elections
Presenter(s): Daniel Zimmerman
Advisor(s): Dr. David Shafie

Wilkinson College – Department of Religious Studies

86. Powerful Embodiment of Marginality
Presenter(s): Alexandria Beatificato
Advisor(s): Dr. Julye Bidmead

87. Marian Apparitions: Mary, Is That You?
Presenter(s): Rosalva Berber
Advisor(s): Dr. Julye Bidmead

88. Examining Elie Wiesel's Moral Compass developed from Jewish ethics and tradition in Contemporary Public Addresses
Presenter(s): Margot Fux Kahn
Advisor(s): Dr. Marilyn Harran, Jeffrey Koerber

89. Seeing the Face of the Other: The Role of the Seductress in the Hebrew Bible
Presenter(s): Marilyn Love
Advisor(s): Dr. Julye Bidmead

90. How Disney is "Kingdom Hearts?" A Comparison Between Disney Films and the Video Game
Presenter(s): Andrew Vo, Kassidy Vo
Advisor(s): Dr. Julye Bidmead

91. "Demanding Diversity: The Student-Driven Push for a Multicultural Center at Chapman University"
Presenter(s): Cristiana Wilcoxon
Advisor(s): Dr. Julye Bidmead

Wilkinson College – Department of Sociology

92. The Process of "Managing" Volunteers: The Ironic Importance of Helping Your Helpers
Presenter(s): Samantha Cressey
Advisor(s): Dr. Roberta Lessor

93. A Comparative Analysis of Diversity Resources: Chapman University and Loyola Marymount University
Presenter(s): K.B. Jenny Kim
Advisor(s): Dr. Stephanie Takaragawa, Dr. Lynn Horton

94. Experiences of International Students in the United States: Identity Change and Cultural Perceptions from the Female Perspective
Presenter(s): Sarah Persau
Advisor(s): Dr. Lynn Horton

95. The Babysitter as Family Member or Employee?: A Unique Case of Altercasting
Presenter(s): Michaela Torrie
Advisor(s): Dr. Roberta Lessor, Dr. Patricia See

96. Moving Back to the 18th Century View's of Women's Role and Perception of Their Lives: The case of motherhood
Presenter(s): Yelena Liepelt
Advisor(s): Dr. Véronique Olivier, Dr. Wendy Salmond

97. Service Animals in Media Representation
Presenter(s): Sarai Urzua, Beth Haller, Chelsea Jones
Advisor(s): Dr. Art Blaser

Poster Session 2: Abstract Titles
Graduate Students

Crean College – Department of Physical Therapy

1. **Reliability of Precision in Motion Software**
   Presenter(s): Kristen Petrillo, Nicole Laura
   Advisor(s): Dr. Marybeth Grant-Beuttler, Dr. Richard Beuttler

2. **R Project in the Clinic**
   Presenter(s): Brianna Roberts, Matthew Asmus, Brittney Tanaka
   Advisor(s): Dr. Marybeth Grant-Beuttler, Dr. Richard Beuttler

Schmid College – Computational and Data Sciences

3. **Current state of the Hadoop ecosystem and the transition to in-memory big data analysis with Spark**
   Presenter(s): Kyle Anderson, Louis Ehwerhemuepha
   Advisor(s): Dr. Atanas Radenski

4. **Neural Networks for Cell Identification, Classification and Tracking**
   Presenter(s): Cody Arbuckle
   Advisor(s): Dr. Erik Linstead, Dr. Milton Greenberg

5. **Forecasting Cryptocurrencies' Future Values Using Multivariate Time Series Techniques**
   Presenter(s): Alexander Barrett
   Advisor(s): Dr. Cyril Rakovski

6. **How Climate Change Affects Thermohaline Circulation in the North Atlantic**
   Presenter(s): Rachel Baugh
   Advisor(s): Dr. Hesham El-Askary

7. **Automated Analysis of Gait in Preterm and Full Term Infant Walking**
   Presenter(s): Richard Beuttler
   Advisor(s): Dr. Cyril Rakovski, Dr. Mohamed Allai, Dr. Marybeth Grant-Beuttler

8. **Autism Management Platform's addition of Features Pertinent to Special Education**
   Presenter(s): Ryan Burns, Duy Nguyen, David Tyler, Anthony Young
   Advisor(s): Dr. Erik Linstead

9. **Regression-Based Estimation of the Level of Conservativeness of the Exact P-value Test**
   Presenter(s): Louis Ehwerhemuepha
   Advisor(s): Dr. Cyril Rakovski

10. **A modified K Nearest Neighbor (KNN) algorithm**
    Presenter(s): Louis Ehwerhemuepha, Kayla Ziegler
    Advisor(s): Dr. Cyril Rakovski

11. **An assessment and comparison of classical stepwise logistic regression model variable selection methods**
    Presenter(s): Louis Ehwerhemuepha
    Advisor(s): Dr. Cyril Rakovski

12. **An Improved Model for Predicting 30 Days Readmission using the Pediatric Rothman Index and other Clinical Information of Patients during Admission**
    Presenter(s): Louis Ehwerhemuepha, Anthony Chang, Bill Feaster, Francis Kim, Spiro Mousses
    Advisor(s): Dr. Cyril Rakovski

13. **Exploration of Weak Value Measurement Applications for Radar**
    Presenter(s): George Escalante
    Advisor(s): Dr. Jeff Tollaksen

14. **Hurricanes, Aerosols, and the Their Interactions: A Case Study of Hurricane Sandy**
    Presenter(s): Andrew Fontenot
    Advisor(s): Dr. Hesham El-Askary

15. **An Evaluation of the relationship between intensity and learning outcomes in the treatment of autism spectrum disorder.**
    Presenter(s): Ryan French, Hilary Adams, Dennis R. Dixon, Rene German, Doreen Granpeesheh, Julie Kornack, Alva Powell, Elizabeth Stevens, Jonathan Tarbox
    Advisor(s): Dr. Erik Linstead

16. **Change Detection Analysis on Arabian Gulf Coast Reefs Using Remote Sensing Images Utilizing Unsupervised K-Mean Algorithm and Verifying with On-site Supervised Classification**
    Presenter(s): Kendall Holmes
    Advisor(s): Dr. Hesham El-Askary

17. **Nondeterministic Finite State Complexity**
    Presenter(s): Kayleigh Hyde
    Advisor(s): Dr. Hesham El-Askary

18. Lie Algebras using Membrane Computing

Presenter(s): Jon Inouye
Advisor(s): Dr. Hesham El-Askary

19. A Comonadic Formalization for Digital Signal Processing Through Category Theory And implications for the general class of data science algorithms

Presenter(s): Justin Le
Advisor(s): Dr. Hesham El-Askary

20. An Analysis of Hybrid Vehicle Sales Success Using Linear Mixed Effect Models

Presenter(s): Alexander Leipf
Advisor(s): Dr. Cyril Rakovski

21. Long Term Ground Based Precipitation Data Analysis: Spatial and Temporal Variability

Presenter(s): Luciano Rodriguez
Advisor(s): Dr. Hesham El-Askary

22. Multi-Sensor Physical Observations at CEESMO to Study Earth's Electromagnetic Geospheres Interaction

Presenter(s): Adam Velez, Calderon I., Haztzopoulos N., Ouzounov D.
Advisor(s): Dr. Menas Kafatos

Schmid College – Food Science

23. Effects of Degree of Roast and Application Form of Incorporated Coffee on Inhibition of Oxidation in Raw Refrigerated Minced Pork and Sensory Analysis of Cooked Pork Patties with Added Coffee

Presenter(s): Tiffany Hashimoto
Advisor(s): Dr. Lilian Were

24. Effect of phytosanitary irradiation on the quality of Chandler Pummelo (Citrus maxima (Burm.) Merr.)

Presenter(s): Akanksha Jain, J.J Ornelas-Paz, Karina Rodriguez, Shantae Thornton
Advisor(s): Dr. Anuradha Prakash

25. Effects of Varying Roast Degree and Application Form of Coffee on Oxidation in Frozen Raw Minced Pork Meat Stored Under Modified Atmosphere Packaging

Presenter(s): Katrina Jully
Advisor(s): Dr. Lilian Were, Dr. Criselda Toto

26. Use of DNA-Based Methods to Identify Species in Ground Meat Products Sold in the United States

Presenter(s): Dawn Kane
Advisor(s): Dr. Rosalee Hellberg

27. Identification of Species in Commercially Sold Game Meats using DNA Barcoding

Presenter(s): Charles Quinto, Rebecca Tinoco
Advisor(s): Dr. Rosalee Hellberg, Dr. Lilian Were

28. Antimicrobial Susceptibility of Listeria Monocytogenes to Bacteriophage P100 During Germination of Alfalfa Sprouts (Medicago Sativa)

Presenter(s): Tushar Sawant
Advisor(s): Dr. Rosalee Hellberg

29. Comparative Evaluation of the effect of methyl bromide fumigation and phytosanitary irradiation on the shelf life of air freighted strawberries

Presenter(s): Tamar Serapian
Advisor(s): Dr. Anuradha Prakash

Poster Session 2: Abstract Titles Undergraduate Students

Crean College – Department of Health Sciences

30. IL-15 induces irisin expression in skeletal muscle

Presenter(s): James Krolopp, Shantae M. Thornton
Advisor(s): Dr. Marcia Abbott

31. Dystrophin and Utrophin gene expression levels are not dependent on IL-15

Presenter(s): Kendra Rickard, James Krolopp
Advisor(s): Dr. Marcia Abbott

Crean College – Department of Psychology

32. Reducing the Negative Effects of Media Exposure on Body Image: The Effectiveness of Subvertising and Warning Labels

Presenter(s): Yasmin Akbari, Gaganjyot Sandhu, Terri Scott
Advisor(s): Dr. David Frederick

33. The Benefits of Mindfulness Therapy vs Cognitive Behavioral Therapy For The Treatment of Female Sexual Dysfunction

Presenter(s): Jenna Alley
Advisor(s): Dr. Steven Schandler

34. Parkinson's and Therapeutics Success: An Approach Comparison

Presenter(s): Lilian Andrade
Advisor(s): Dr. Steven Schandler

35. The Picture Exchange Communication System: Effects on Social-Communication Skills and Functional Language

Presenter(s): Reagan Blason
Advisor(s): Dr. Steven Schandler

36. Come Closer: Cognitive Dissonance Between Strangers

Presenter(s): Melissa Bond
Advisor(s): Dr. Connie Shears

37. What Constitutes Sexual Consent and Assault? The Effects of Verbal, Physical, and Linguistic Cues

Presenter(s): Megi Herring, Crystle-Joie Agbayani
Advisor(s): Dr. David Frederick

38. Personality Types and Attachment Styles Underlying Body Dissatisfaction

Presenter(s): Milad Khosravi
Advisor(s): Dr. Steven Schandler, Dr. David Frederick

39. To Push or Not to Push: That is the Question

Presenter(s): Timothy Lee
Advisor(s): Dr. Connie Shears

40. The Immigrant Paradox: Mental Health Outcomes of Foreign Born Versus Native Born People in the United States

Presenter(s): Lisette Martinez
Advisor(s): Dr. Steven Schandler

41. State of Mindfulness during Pregnancy and Associations with Positive Mood

Presenter(s): Kylee Moore, Amanda Appel, Mariann Howland
Advisor(s): Dr. Laura Glynn

42. Do happiness and optimism promote healthy and unhealthy food consumption in daily life?

Presenter(s): Karynna Okabe-MiyamotoRoxana Nouri, Olivia Silke, Bailey Waln, Jin Wen
Advisor(s): Dr. Julia Boehm

43. Why doesn't negative behave? Inferences from emotional language

Presenter(s): Erika SamAdriana Ariza, Melissa Bond, Amy Cohen, Jay Kim, Maisy Lam, Mackenzie Smith
Advisor(s): Dr. Connie Shears

44. Mindfulness Meditation Therapy versus Cognitive Behavioral Therapy for the Treatment of Major Depressive Disorder

Presenter(s): Olivia Silke
Advisor(s): Dr. Steven Schandler

45. Treatment of Post-Traumatic Stress Disorder in a Veteran Population: Efficacy of Complementary and Alternative Medicine Therapies

Presenter(s): Brooke Snelgrove
Advisor(s): Dr. Steven Schandler

46. Gluten Free Casein Free Diet Impact on Children's Autism Behavior

Presenter(s): Allison Stein
Advisor(s): Dr. Steven Schandler

47. The Effect of the Parent on Child Anxiety Treatment

Presenter(s): Taylor N. Stephens
Advisor(s): Dr. Steven Schandler

48. Gender Stereotypes and Memory

Presenter(s): Alexis Taylor
Advisor(s): Dr. Connie Shears

49. Comparing the Effectiveness of Cognitive-Behavioral Therapy with Other Forms of Treatment for Posttraumatic Stress Disorder in Adults

Presenter(s): Bonnie Truong
Advisor(s): Dr. Steven Schandler

50. Prevalence of Depressive Symptoms in Women Who Have Induced Abortions

Presenter(s): Kathryn Wann
Advisor(s): Dr. Steven Schandler

51. Understanding Biopsychosocial Resilience Across the Menopausal Transition
Presenter(s): Kathryn Wann
Advisor(s): Dr. David Pincus

52. The Effects of Excessive use of Social Network
Presenter(s): Jin Wen
Advisor(s): Dr. Steven Schandler

53. Effects of Digitally Enhanced Learning Tasks on Cognitive Functioning
Presenter(s): Reyn Yoshiura
Advisor(s): Dr. Steven Schandler

Schmid College – Biochemistry & Molecular Biology

54. Characterizing a Novel Immune-Deficient Transgenic Alzheimer's Model
Presenter(s): Lauren Camargo, Samuel Marsh
Advisor(s): Dr. Elaine Schwartz

55. Applying a Chemilumenescent Assay to Measure the Effect of Selective Antagonists on Adenylate Cyclase Activity in CHOM2M3 Cells
Presenter(s): Andrew Cox
Advisor(s): Dr. Michael Griffin

56. Multi-Walled Carbon Nanotube-Peptide Conjugates as Drug Delivery System
Presenter(s): Matthew Etesham, Naglaa Salem, Dr. Amir Shirazi
Advisor(s): Dr. Keykavous Parang, Dr. Rakesh Tiwari

57. Consequences of Global Warming: Physiology-Behavior Correlations in an Intertidal Model Species
Presenter(s): Jeremy Feck
Advisor(s): Dr. William Wright, Dr. Marco Bisoffi

58. Exploring EGR-1 as a Master Regulator of Prostate Field Cancerization
Presenter(s): Kristin Gabriel, Emily Frisch
Advisor(s): Dr. Marco Bisoffi

59. Exploring the Effect of the Curcumin Analog ca27 on the Androgen Receptor in Human Prostate Cancer Cells
Presenter(s): Homa Hayatyfar
Advisor(s): Dr. Marco Bisoffi

60. The Effects of Fine-grained, Arsenic-bearing Particulate Matter on Alveolar Macrophage Gene Expression

Presenter(s): Jack Jacobs
Advisor(s): Dr. Marco Bisoffi, Dr. Christopher Kim

61. Assessment of the Effects of Pomegranate Juice Extract and Caffeine on the Mcl-1, p-Akt, and PIM-3 Anti- Apoptotic Proteins in the COLO-357 Pancreatic Ductal Adenocarcinoma Cells

Presenter(s): Sarah Lanoie, Ben Geleris, Lena Haddad
Advisor(s): Dr. Melissa Rowland-Goldsmith

62. Synthesis and Evaluation of Fatty Acyl Derivatives of (HR)4 Peptides as Cell Penetrating Peptides

Presenter(s): Taryn Miyake, Naglaa Salem El-Sayeda, Amir Shirazi
Advisor(s): Dr. Rakesh Tiwari, Dr. Keykavous Parang

63. A Comparison of Growth Factor and Platelet Concentrations Using Different Methods of Platelet Rich Plasma Separation

Presenter(s): Amir Olfat, Hossein Vaziripour, Bryn J. Henderson
Advisor(s): Dr. Elaine Schwartz

64. Fecal source identification and quantitative microbial risk assessment at Ventura County beaches

Presenter(s): Allison Orr
Advisor(s): Dr. Elaine Schwartz, Dr. Michael Griffin

65. Gi-Protein Suppresses Behavioral Sensitization in Aplysia californica

Presenter(s): Jonathan Redrico, Alex Himstead
Advisor(s): Dr. William Wright

66. Effect of exposure time on Cu(II) adsorption and retention to iron oxyhydroxide nanoparticles

Presenter(s): Anthony Torossian, Jack Jacobs
Advisor(s): Dr. Christopher S. Kim

67. Analyzation of Metabolic Reprogramming in Drug-Resistant MCF-7 Cells

Presenter(s): Andrew Vo, Derick Han, Peter Leung
Advisor(s): Dr. Melissa Rowland-Goldsmith

Schmid College – Biological Sciences

68. Structural basis of drug discovery targeting SK channels for Amyotrophic lateral sclerosis
Presenter(s): Tia Alexander
Advisor(s): Dr. Miao Zhang

69. Do genetic variations in the oxytocin receptor and social support interact to protect women against postpartum depression?
Presenter(s): Shiva Amanat, Taylor Delaney
Advisor(s): Dr. Jennifer Hahn-Holbrook

70. Effects of Sleep and Stress on Bone Mineral Density
Presenter(s): Jennifer Becker
Advisor(s): Dr. Frank Frisch, Dr. Jason Keller

71. The Synthesis and Evaluation of Cyclic and Linear (HR)4 and (HR)5 as Cell Penetrating Peptides
Presenter(s): Stephani Buchholz, Jimmy Clark ,Naglaa Aboud, Dr. Amir Shirazi,
Advisor(s): Dr. Rakesh Tiwari, Dr. Keykavous Parang

72. Effects of ecologically realistic heating profiles on feeding in the intertidal hermit crab, Pagurus sameulis
Presenter(s): Paige Davis
Advisor(s): Dr. William Wright

73. Genetic Predictors of Postpartum Wellness
Presenter(s): Taylor Delaney, Shiva Amanat
Advisor(s): Dr. Jennifer Hahn-Holbrook

74. The Effects of a Caloric Restrictive diet on Bone Mineral Density and Bone Strength in Male and Female Rats
Presenter(s): Haley Folta
Advisor(s): Dr. Kenneth Sumida

75. Exploring the Anti-Migratory and Anti-Invasive Effects of Curcumin Analogs in Prostate Cancer Cell Models
Presenter(s): Ashley Forman
Advisor(s): Dr. Marco Bisoffi

76. Identification of Functional Pathways of Prostate Field Cancerization: Regulatory Role of EGR-1

Presenter(s): Emily Frisch
Advisor(s): Dr. Marco Bisoffi

77. Evaluation of the Innate Immune Responses to Alginate Microcapsules and Xenogeneic Porcine Islets

Presenter(s): Tina Gettas, Michael Alexander, Gianni Fiore, Rahul Krishnan, Christina Grace Kummerfeld, Jonathan Lakey, Miranda Stiewig
Advisor(s): Dr. Milton Greenberg

78. Assessment of the Effects of Pomegranate Juice Extract and Caffeine on the Mcl-1, p-Akt, and PIM-3 Anti- Apoptotic Proteins in the COLO-357 Pancreatic Ductal Adenocarcinoma Cells

Presenter(s): Lena Haddad, Ben Geleris, Sarah Lanoie
Advisor(s): Dr. Melissa Rowland-Goldsmith

79. Acidic ocean conditions compromising predator perception in marine invertebrates.

Presenter(s): Alex Hall
Advisor(s): Dr. William Wright

80. Molecular Analysis of Prostate Field Cancerization Markers: Focus on p53 Mutations

Presenter(s): Nicole Hollenbeck
Advisor(s): Dr. Marco Bisoffi

81. Ecology of Displacement: Consequences of Catastrophic Dislodgement on Owl Limpet Ecology

Presenter(s): Ryan Kabala
Advisor(s): Dr. William Wright

82. The impact of a 20% vs. a 40% caloric restrictive (CR) diet on BMD during the growth period in male rats

Presenter(s): Kassandra Lee
Advisor(s): Dr. Kenneth Sumida

83. Late onset Alzheimer's disease risk variants and duration of cognitive impairment show association with end-stage plaque load in the hippocampus.

Presenter(s): Timothy Lee, Malcolm B. Dick, Aimee L. Pierce, Wayne Poon, Alexander J. Rajic, Michael T. Wojnowicz
Advisor(s): Dr. Elaine Schwartz

84. Clinical Applications of a Combination Chemotherapy Using 8-Chloro cAMP and 8-Chloro Adenosine

Presenter(s): Erik Munoz, Andrew Cox, Andrea Saich
Advisor(s): Dr. Peter Chang

85. Evolutionary responses of California grassland species to variation in precipitation and soil nitrogen

Presenter(s): Amy Ortega, Monica A. Nguyen, Kurt L. Nguyen
Advisor(s): Dr. Jennifer Funk

86. Glutamine Synthetase and Nitrogen Resorption in coastal sage scrub species

Presenter(s): Luke Sanborn, Niki Ruso
Advisor(s): Dr. Jennifer Funk

87. Prostate Field Cancerization – Thinking Outside the Tumor

Presenter(s): Dor Shoshan
Advisor(s): Dr. Marco Bisoffi

88. Growing Aware: Ontogenetic Change in Olfactory Response to Predators

Presenter(s): Max Sunoo
Advisor(s): Dr. William Wright

89. Hermit crab consumption of chemically protected prey is correlated with extensive "mouth handling"

Presenter(s): Hayley Thomas
Advisor(s): Dr. William Wright

90. Elucidating the Pathophysiology of White Matter Damage in Repeat Mild Traumatic Brain Injury

Presenter(s): Casey Tiefenthaler, Brian Cummings, Eric Gold
Advisor(s): Dr. Melissa Rowland-Goldsmith

91. Effect of Curcumin Analog Ca27 on Androgen Receptor Translocation in Prostate Cancer Cells

Presenter(s): Lijah Vann Gardner
Advisor(s): Dr. Marco Bisoffi

92. The Effects of Human Activity on the Tameness of Common Loons (Gavia immer) in Northern Wisconsin

Presenter(s): Seth Yund
Advisor(s): Dr. Walter Piper

Schmid College - Chemistry

93. Removing Lead and Hydrogen Sulfide From The Test Procedure For Stabilizer in Meta-Phosphoric Acid In The Pursuit of Green Chemistry

Presenter(s): Christopher Atlas, Ron Lacock
Advisor(s): Dr. Dan Wellman

94. Characterization of dissolved organic matter in coastal marine and salt marsh pore waters using excitation-emission matrix (EEM) fluorescence spectroscopy and parallel factor (PARAFAC) analysis

Presenter(s): Jennifer Bowen
Advisor(s): Dr. Warren De Bruyn

95. Biological degredation of acetaldehyde in Southern California wetlands

Presenter(s): Anthony Castagnola, Sovandara Hok, Brandon Lamb, Mary Senstad
Advisor(s): Dr. Warren de Bruyn, Dr. Catherine Clark

96. Biological degredation of acetaldehyde in Southern California wetlands

Presenter(s): Brandon Lamb, Anthony Castagnola, Sovanndara Hok, Mary Senstad
Advisor(s): Dr. Warren de Bruyn, Dr. Catherine Clak

97. Electrical Conductivity in Two Types of Secondary Water Treatment

Presenter(s): Jennifer Magana
Advisor(s): Dr. Elaine Schwartz

98. Biological degradation of acetaldehyde in marine waters.

Presenter(s): Mary Senstad, Ori Barashy, C.D. Clark, Sovanndara Hok
Advisor(s): Dr. Warren de Bruyn, Dr. Catherine Clark

99. Tumor-Targeting Peptide Drug Delivery System

Presenter(s): Andrew Shiroishi, Naglaa Salem El- Sayed, Amir N. Shirazi
Advisor(s): Dr. Rakesh Tiwari, Dr. Keykavous Parang

Schmid College – Computer Science

100. Performance Optimization: Understanding Developers' Techniques to Improve Program Efficiency

Presenter(s): Rao Hamza Ali
Advisor(s): Dr. Adrian Nistor

101. Full Adder power consumption comparison.

Presenter(s): Earl Huskey
Advisor(s): Dr. Peiyi Zhao

Schmid College – Environmental Science and Policy

102. Lithium-ion Battery Recycling: Analyzing Methods of Resource Reclamation

Presenter(s): Devon Bloss
Advisor(s): Dr. Christopher S. Kim

103. Saharan Dust Storms and Hurricane Katrina's Cyclogenesis: Examining Correlative Patterns by using Remote Sensing Imagery

Presenter(s): Devon Bloss
Advisor(s): Dr. Hesham El-Askary

104. Energy Efficiency at Chapman University

Presenter(s): Jenny Bowen
Advisor(s): Mackenzie Crigger

105. Resident Hall Lighting Retrofits

Presenter(s): Luis Genis
Advisor(s): Mackenzie Crigger

106. Environmental Science and Policy Senior Capstone Audit: Behavior Change on Main Campus

Presenter(s): Darcy Hardwick
Advisor(s): Mackenzie Crigger

107. Main Campus Lighting Retrofits

Presenter(s): Nicolas Lapointe
Advisor(s): Mackenzie Crigger

108. Chapman Environmental Audit 2015: Policies and Recommendations

Presenter(s): Amanda Le
Advisor(s): Mackenzie Crigger

109. Assessing an Energy Behavior Change Program within Chapman University's Residence Halls

Presenter(s): Jacob Lopez
Advisor(s): Mackenzie Crigger, Dr. Christopher Kim

110. 2015 Environmental Audit: Retro-commissioning in the residential halls

Presenter(s): Mia Montanile
Advisor(s): Mackenzie Crigger

111. Building Retrocommissioning for Chapman Main Campus

Presenter(s): Christopher Thatcher
Advisor(s): Mackenzie Crigger

112. Chapman University 2015 Campus Environmental Audit: Argyros Forum LEED EBOM

Presenter(s): Patsornkarn Vorapharuek
Advisor(s): Mackenzie Crigger

113. Air pollution: a case study of Bangkok, Thailand using remote sensing technology

Presenter(s): Patsornkarn Vorapharuek
Advisor(s): Dr. Hesham El-Askary

114. E-Cigarette Retailer Distribution and Youth Targeted Marketing

Presenter(s): Patsornkarn Vorapharuek, Brett Galland, Clayton Heard
Advisor(s): Dr. Georgiana Bostean

115. An Exploration of Beekeeping: A Dynamic Equilibrium Between Art and Science

Presenter(s): Elizabeth Flowers
Advisor(s): Dr. Jason Keller

116. Remote Sensing of Antarctic Peninsula Krill Populations using Adelie Penguins as an Indicator Species

Presenter(s): Elizabeth Flowers
Advisor(s): Dr. Hesham El-Askary

117. Green Department Certification Program

Presenter(s): Darcy Hardwick, Brett Galland
Advisor(s): Mackenzie Crigger

118. The Effect Arsenic Exposure has on Feeding Habits of Hermit Crabs

Presenter(s): Makenna Hopwood
Advisor(s): Dr. Christopher S. Kim, Dr. William G. Wright

119. How much of our pollution is OUR pollution?: The transport of anthropogenic aerosols across the Pacific Ocean from China to the United States

Presenter(s): Ariane Jong
Advisor(s): Dr. Hesham El-Askary

120. **Evaluation of Temperature Anomalies and Ocean Productivity during the 2004 Sumatra – Andama Earthquake**
Presenter (s): Brenna McNabb, Cora Byers
Advisor(s): Dr. Hesham El-Askary

121. **Precursor Events to Earthquakes and the Resulting Effects on Organic Material in the Surrounding Water Bodies**
Presenter(s): Kiyoko Nakatsui
Advisor(s): Dr. Hesham El-Askary

122. **Puffs and Tufts: A Comparison of Trichodesmium Colony Formations and Nutrient Availability Across the North Atlantic Ocean Using Remote Sensing Methods**
Presenter(s): Marc Rosenfield
Advisor(s): Dr. Hesham El-Askary

123. **Air Pollution Differences Between Nations with Different Economic Profiles**
Presenter(s): Lauren Sato
Advisor(s): Dr. Hesham El-Askary

124. **Effects of El Niño on Ecological Growth Along Californian and Peruvian Coasts**
Presenter(s): Alexandra Sidun
Advisor(s): Dr. Hesham El-Askary

125. **Assessing water quality in the Gulf Of Mexico using remote sensing data.**
Presenter(s): Alliyah Thomas
Advisor(s): Dr. Hesham El-Askary

Schmid College – Physics and Computational Science

126. **Mechanics of Golf**
Presenter(s): Jake Gross
Advisor(s): Dr. Ali Nayeri

Poster Session 1
Abstracts

Graduate Students
Arts, Education, Humanities, and Social Sciences

Posters 1-3

Dodge College of Film & Media Arts

Poster 1
Least Among Brethren
Presenter(s): Dam I Onifade
Advisor(s): David S. Ward, Martha Coolidge

I was in the second row of Dr. Jules Herrell's psychology class on a brisk day in Washington DC when I heard about the prison experiment at Stanford University during a college lecture. Naturally, I was shocked to learn young men my age that had gone in as equals could turn on each other for a meager salary and free meals. I wanted to show this quality of people in situations involving intimidation, peer pressure and envy. My co-writers and I found a way into the narrative through the bond of two friends, Prince and Malachi. This allowed us a chance to get past the trivial details only shown in documentaries and put the audience on an adventure they can invest in emotionally for every moment when a just man is mistreated or when a peacemaker becomes fed up with being neutral. The story makes viewers complicit in personal conflicts born of this deviation from equality and justice, letting them pick sides between the guards and the prisoners.

College of Educational Studies

Poster 2
Critical Pedagogy and Higher Education in Saudi Arabia
Presenter(s): Eman Almutairi
Advisor(s): Dr. Peter McLaren, Dr. Geraldine McNenny

A growing amount of literature attests to the importance of critical theory and critical pedagogy. Researchers have concluded that critical thinking study skills learned in school will far surpasses school life, will greatly benefit people's living conditions and will improve professional competence in the workplace. Critical thinking has the potential to bring significant benefits to individuals and society. The development of students' critical-thinking skills in higher education is crucial because employers in most professional workplaces are expected to be critical thinkers. This article will explore some obstacles, challenges and the best possible ways to implement critical pedagogy in Saudi Arabia higher education.

Wilkinson College – Department of Communication Studies

Poster 3

Designing for Repurposing and Reinvention as a Diffusion Strategy

Presenter(s): Mona Sleiman, Christian Keroles
Advisor(s): Dr. Kerk Kee

In order to harness big data for science, pioneering scientists often need to custom-make new tools (Kee et al, 2011). Beyond fulfilling their original purpose, these tools will survive for the long term if they are adopted beyond their inception projects. Essentially, a successful tool catches on and diffuses across multiple disciplines in the research community. By analyzing 40 interviews with the grounded theory approach (Corbin & Strauss, 1990), we argue in this poster that designing a tool with the vision of repurposing and reinvention (Rice & Rogers, 1980) will promote the likelihood of subsequent tool diffusion. Interview data analysis reveals that successful tools are often repurposed as they are diffused across disciplines; however, developers constantly grapple with the tension between creating specialized versus generalized tools. Moreover, community feedback encourages the evolution of the tools, as responsive tool developers adapt the tools to the needs of new users, making the tool what Neff (2004) describes as being 'permanently-beta'.

Poster Session 1
Abstracts

Undergraduate Students
Arts, Education, Humanities, and Social Sciences

Posters 4- 97

College of Educational Studies

Poster 4

Characterizing Psychological Management Practices of College and University Athletic Trainers in Orange, California

Presenter(s): Paulina Tselikis, Hannah L. Alexander
Advisor(s): Dr. Michelle Cleary, Dr. Jason Bennett

An increase in the prevalence, types, and severity of psychological disorders among adolescents and young adults is being recognized. A multidisciplinary team approach to address mental health concerns among student-athletes, including well-developed referral and management plans, is important in the health care setting. Athletic trainers are often the first to notice subtle changes indicative of psychopathology, and have the ability to appropriately intervene and refer student-athletes as necessary. The purpose of this study was to investigate the psychological management practices of college and university athletic trainers in Orange, California. A descriptive exploratory online questionnaire was used to obtain information regarding psychological management protocols, multidisciplinary health care teams, experience with psychological concerns among student-athletes and education programs about mental concerns for staff and students. Analysis of data included descriptive percentages of the total sample. Results compared the psychological management practices of participants to the gold standard outlined by the National Athletic Trainer's Association Inter-Association Recommendations for Developing a Plan to Recognize and Refer Student-Athletes With Psychological Concerns at the Collegiate Level: An Executive Summary of a Consensus Statement. Findings of the study concluded the compliance level of college and university athletic trainers in Orange, California to the recommendations set out by NATA. Furthermore, the study outlined the clinical implications for athletic trainers and identified areas of improvement for the profession.

College of Performing Arts – Department of Dance

Poster 5
The Benefit of Movement: Dance/Movement Therapy and Down Syndrome
Presenter(s): Chloe Albin
Advisor(s): Robin Kish

A successful therapy program is one that is as unique as the individual. The use of dance as a form of therapy aids the motor, sensory, and cognitive development of children with Down syndrome. This approach alters the trend of sedentary lifestyle associated with children with Down syndrome. This therapy promotes the use of activity, which has numerous health benefits for these children. Movement promotes sensorimotor integration; the communication between these systems is crucial for development. Learning new skills and experiencing movement could improve motor skills, emotional processing, language capabilities, and academic success. The formation of an ideal dance therapy program for children with Down syndrome is possible by combining information from extensive literary review with information collected from interviews. Drawing on information from other forms of therapy and research, a highly effective dance therapy program can be created. A broad focus must be used in order to guarantee the consideration of all factors when structuring a therapy program based in movement.

Poster 6
Effectiveness of rehabilitation techniques for non-injury, post activity muscle pain
Presenter(s): Daisy Mohrman
Advisor(s): Robin Kish

Delayed-onset muscle soreness (DOMS) is pain that starts 24-48 hours post-activity, and is the most commonly experienced non-injury pain in dancers. Causes of DOMS are not yet understood, but speculation includes lactic acid (movement-induced metabolic waste) build-up, inflammation, and muscle damage. Current treatments for DOMS focus on creating lymphatic movement and raising blood circulation in order to promote healing. They are sorted into two categories: active and passive techniques. Active recovery consists of continuing exercise at a lower impact, while passive techniques consist of various strategies to relieve the pain while allowing the muscle tissue to rest. Through an extensive literature review and a series of qualitative studies, this poster presents the pros and cons of various rehabilitation techniques to facilitate healing and offers suggestions to prevent and treat DOMS for all dancers, athletes, and movers.

Wilkinson College – Department of Art

Poster 7
Tracing the Line of Japonisme: A Look at the Influence of Calligraphy on Western Art
Presenter(s): Asia Adamshick
Advisor(s): Dr. Wendy Salmond

Discussions of the Japanese aesthetic influence on the Western art world, or Japonisme, most often revolve around the Japanese woodblock print. The impact of this genre of Japanese art is obvious, especially in the works of Art Nouveau artists. However, little attention has been given to the equally distinctive calligraphic line that appears across a range of Japonisme works by European artists during the Art Nouveau period. Guided by examinations of historical context and close visual analysis, this research will explore what motivated European artists to adopt this graphic stylistic element and what they believed they gained by incorporating it into their own art. It will also examine how the calligraphic line was associated with the concept of the "exotic".

Poster 8
Viscera
Presenter(s): Caitlin Albritton
Advisor(s): David Kiddie

If I asked you to visualize the insides of your body I have no doubt that you could. We've all seen the pictures in textbooks, simplified and separated to make the chaos of the human structure comprehensible. We can all see it, but none of us have ever seen the insides of our own bodies.

The various body systems and parts influence the forms I've created. The forms are meant to seem strange and alien, however aspects of the structures feel familiar. It looks nothing like anything you'd ever expect to find in your body, but just familiar enough for you to wonder where they came from. It serves as a quiet suggestion that we may not be as familiar with our bodies as we think. I find it outstanding that our understanding of our bodies is entirely comprised of other people's interpretations of other people's bodies. We know what the inside of our bodies look like, but will never see it ourselves.

I abstracted recognizable features of a human body to create vague, biomorphic shapes. Smooth and white like bones, but contrasting between their curves and angles. They are presented as segments, pieces from a whole that were separated with a clean, straight edge. This connotes clinical, medical, and forensic themes. The setting and set up encourages investigation and exploration. The fragments are placed deliberately on a low, seemingly sterile surface, as if they are being primed for examination and study.

Poster 9
Conversation 'Peace': The State of Islamic Art in the Post-9/11 West
Presenter(s): Alexandra Allen
Advisor(s): Dr. Karen Lloyd, Dr. Wendy Salmond

This thesis aims to explore the ways in which the definitions of Islamic art have transformed throughout the nearly fifteen years since 9/11, specifically within the context of museum exhibitions and permanent collections. With most of the world's largest museums located in Western Europe and North America, a reevaluation of methods for acquiring and displaying collections of 'Islamic' art is necessary given the possible influence of political and social tensions between the Middle East and the West. Is religion a category too narrow to define the arts of what, in reality, spans many cultural, regional, and ethnic backgrounds? What is the responsibility of a cultural institution to change the conversation? This project will use examples of specific exhibitions in major museums such as the Los Angeles County Museum of Art and the Metropolitan Museum of Art, paying particular attention to the implications of categorizing contemporary works by Muslim artists as exclusively 'Islamic'.

Poster 10
Waiting Time
Presenter(s): Monica Beyon
Advisor(s): Marcus Herse

In my artwork, I am interested in exploring the usage of the web cam and the loading sign. The artwork is four split screen videos with me playing around within the space of my room and a loading gif video. The loading sign is a symbol, a universal symbol in the digital realm. It is ubiquitous to anyone. The loading sign is a symbol to foreshadow, to wait, to reflect, to anticipate, to present, and to indicate a happening. An awkward tension between the character in the video and the digital sign and the audience is confused what to expect. In this exploration, I hope to lead the audience into a conclusion this girl is silly but it seems like she's doing something. It allows the person to see the artist's process and the loading process together. Loading is clear and simple; the coding to load a website is hidden. The audience justifies the difference between where they would enter into my head and try to decipher what is the intent and thought behind the artist. The juxtapose leads to question the context of the works as a whole. People figure out the difference between the person in the video and loading sign. It questions the relationship between the human experience and the digital experience to explore the space.

Poster 11
Reconstructing Constructivism: Tatlin's Tower
Presenter(s): Alanna Carnahan
Advisor(s): Dr. Wendy Salmond

Reconstructing master works has been a part of most cultures since the beginning of time for a variety of political, conceptual, or cultural purposes. One key work of Russian Constructivism, Vladimir Tatlin's Monument to the Third International (1920), has been recreated many times. Tatlin was revered for being one of the founding fathers of Russian Constructivism, a movement committed to making useful art that benefitted the entire population. Tatlin's tower was a model for a building that was never made, but in modern times it is seen as a monument to the ideals of this art movement and the technological advancements that were seen after the Industrial Revolution. My research will first investigate Tatlin's concept for his tower and the eventual model stages of the work. Then I will investigate why the tower never came to fruition and how the tower is compared to other monuments both physically and conceptually. I will also research the reconstructions of the tower and whether they are meant to pay homage or to parody Tatlin. As a result, evidence will emerge that explains the new meanings of Tatlin's tower that creates dialogue with the original Constructivist concept.

Poster 12
Eva Hesse: A Part Of and Apart
Presenter(s): Clarissa Hampton
Advisor(s): Dr. Wendy Salmond

An artist's social and historical context traditionally provides a framework for analyzing his/her works. When Eva Hesse, an artist active in New York's Minimalist and Post-Minimalist communities, asserts her separatism, the viewer is denied this readymade framework and its associated iconographic references. Instead, viewers have the task of understanding the work within the personal context of the artist's tragic life, without "sensationalizing" the work. Close visual analysis of two of Hesse's most prominent works, Hang Up (1966) and Right After (1969), combined with readings of Hesse's journals, interviews, and biographies by historians and curators provide insight into how she both interacted with and rejected the dominant aesthetic expressions surrounding her. Both the visual and documentary materials indicate a connection, almost a narrative link between Minimalism, Hesse, and Feminist Art. In my research I seek to reveal how her work is informed by Feminism and Minimalism and how the two manifest as a formal duality. I contend that this conflation makes her work important as a predecessor to the Post-Minimalist movement because it resists easy categorization.

Poster 13
Self
Presenter(s): Tanya Lueck
Advisor(s): Marcus Herse

As the title implies, Self is an exploration of my own identity, particularly as a creator. I have chosen personal subject matter in order to comment on the artists' ongoing presence in the work, and to call into question the complex and ever-changing relationships between creator, viewer, and art object.

I have used these traditional mediums of ceramic sculpture and wall painting to create a non-traditional installation in which each piece relies entirely on the other for interpretation. Such a connection is created through their 'eye contact' that the viewer seems to be interrupting the gaze and invading 'personal space' by walking between them. This perceived eye contact creates a sense of life or spirit, although each piece is clearly an inanimate object.
The relationship is defined by size as well. The sculpture is a very physically relatable figure; approximately life-size, three-dimensional, sitting in a casual pose. The painting, however, is such a large scale that its flat presence feels more like a projection. Its relation to the sculpture, having the same pose, and our familiarity with self-portraiture makes the painting seem to be an outward projection of the sculptures own self-image.

By relating them in this way I hope to create a dialogue about these objects and how their position as creations of an artist effect the way we view of them. Through the removal and simultaneous depiction of myself, I hope to also raise questions about the process of creation and the position of the artist.

Poster 14
Garry Winogrand's The Animals Re-Situated in his Body of Work
Presenter(s): Areni Nuyujukian
Advisor(s): Dr. Wendy Salmond

In 1964, young photographer Garry Winogrand was awarded a Guggenheim Fellowship, which supported him in a photographic investigation of American life, allowing him to travel across the country, imitating the legacy of Swiss born photographer Robert Frank. Winogrand's first book The Animals, however, strayed from his initial focus. First published in 1969, this book does not align with Winogrand's notoriety as a photographer of social issues in America. Rather, it explores the relationship between humans and animals, providing a dark yet comical perspective on humanity and wildlife we have detained in aquariums and zoos. Following a second Guggenheim Fellowship, Winogrand published Public Relations in 1977, which turned his attention back towards American society and mass media, leading to his solo exhibition at MoMA. The final book published before his death was Stock Photographs: The Fort Worth Fat Stock Show and Rodeo (1980). It shows Winogrand's return to the themes he explored in The Animals, which argues for his first publication's maturity and relevance in Winogrand's body of work. Many exhibitions and scholars praise his portrayal of social issues and American culture in Public Relations and do not pay enough attention to his profound observations in The Animals. This thesis will assert the importance of The Animals and it's ability to demonstrate complex subject matter and the work's influence in shaping his formal style.

Poster 15
Culture & Cups
Presenter(s): Lauren Potts
Advisor(s): Marcus Herse

My senior BFA exhibition is a project bringing awareness and reflection to the college subculture of drinking. I am creating a large installation (approx. 10x20ft) made out of over 4,000 red plastic cups in the shape of a Catholic Church altar. The cups are stacked and glued together in order to create patterns to separate the forms of the altar (three stairs, columns, the facade arches). The installation is shown at Chapman University's Guggenheim Gallery and must be site specific in order to reflect the nature of its existence and purpose. The installation reflects a parallel between forms of ritual: the ritual of binge drinking college students participate in, and the rituals associated with being in church. By using the form of an altar to display the cups, I hope to signify that drinking is a form of ritual. The form also represents a place of worship, as it seems as if students often seem to worship or place unusual reverence on the drinking and partying culture as if it had divine importance. Most viewers will be able to instantly recognize the red cup as a popular drinking vessel made famous by its symbolism of college party culture. I hope to harness this symbol and create a physical space with repetition of the material in order to question the culture in which I currently live in.

Poster 16
Sensation/Truth
Presenter(s): Adelaide Saucier
Advisor(s): Dr. Wendy Salmond

The arbitrary relationship between a word and the idea mentally conjured by that word is represented in the Abstract Expressionist work of Barnett Newman. Understanding and experience are in constant interplay: as a theoretician Newman manifests his understanding of how titles influence the “read” of a canvas, while as an artist, he grants to the audience intimate interpretative experience with art. This thesis will argue for the “strength” in Newman’s representations, the “trueness” with which they reach the essence or nature of each thought, idea or object, and the way his titles cue feelings and memories in the viewer. Newman’s work exposes that internal development, and as a result is the strongest and truest representation of the title. It is in the abstract feeling, not the clear verbal definition that this trueness is achieved. I will study Newman’s paintings Adam (1951-52) and Eve (1950) as examples of how he uses the concrete anchorage of a title to ground sensory experience. With his use of titles Newman recognizes that humans must order the world, but his paintings mirror the indefinability of human internalization of that world.

Poster 17
Feminine Power
Presenter(s): Autumn Wyatt
Advisor(s): David Kiddie

I created three pieces that explore creation and feminine power. The first piece is a diptych, which features a man and a woman in the stars. The male silhouette is on the left canvas and the female silhouette on the right. The piece is intended to represent creation due to the fact that both figures are blowing out the stars. It symbolizes equality and how men and women both hold an equal role in creation and should be seen as equals. The second piece I created for the show is spread across four different sized canvases. On each canvas a different feature of a woman's face is painted; two of them have eyes, one has a nose, and the other has a mouth. From each of these features the universe is being expelled. She is breathing out the universe, crying out the universe, and emitting out the universe. This piece is meant to emphasize the female creator. With many religions, the god or creator is usually male even though a woman actually births life and creates life within herself. It emphasizes the feminine power and strong feminine energy that is usually overlooked, and it forces the viewer to come face to face with that power. My third piece features two body impressions in a fetus position, symbolizing twins within the womb. In the center of the piece is a charcoal drawing of two twin fetuses curled around each other and being protected and guarded by the two larger body impressions.

Poster 18
Banksy, Voina, and the Legacy of Soviet Agit-Prop
Presenter(s): Jessica Yi
Advisor(s): Dr. Wendy Salmond

Soviet agit-prop played an important part in expressing the unrest of the Russian proletariat and uniting the people into a cohesive collective. In the post-Soviet era public artists and activists are still using the same techniques today. My paper examines the legacy of these techniques in contemporary political art operating in two very different political and social environments. By comparing the work of Banksy and the Voina Art Collective it will be apparent that the avant-garde tactics of Soviet agit-prop has been used to tackle different political and social situations: Western globalism and authoritarian rule in Russia under Vladimir Putin. Banksy throws a curveball at a narrow-minded Western capitalist society utilizing public spaces and ironic stencil art. Voina, strictly opposed to using money to fund their artistic outreach, uses their sparse resources and performance art to bring attention to the lack of left-wing politics in Russian art and the social inequality artists face in regards to their freedom of expression. These activists carry on the torch of the traditional Soviet agitation propaganda through blatant activism and art for the people.

Poster 19
Cut Throat: The Entrancing Love Affair with Necks in Nineteenth Century Art
Presenter(s): Kristina Zahabi
Advisor(s): Dr. Wendy Salmond

"Cut Throat: The Entrancing Love Affair with Necks in Nineteenth Century Art" examines the heightened interest in the female neck reflected in nineteenth-century European painting. The neck appears to be more than just an element of feminine beauty or an overt symbol. The elegant elongation and over dramatic gestures of the neck were portrayed in female subjects as a recurring motif. Through visual analysis of Ingres's La Grande Odalisque, Fuseli's Nightmare, several works by members of the Pre Raphaelite Brotherhood, and Gustav Klimt's Judith I, I reveal the cultural dynamics that played a part in these artists' fascination with the feminine neck as a representation of various forms of feminine weakness and strength, ranging from suicide/homicide and ideas of female fragility to femme fatales and sexual prowess/fetishisms. These motifs have a strong foundation in Nineteenth Century European culture, specifically dealing with Lavater's physiognomic studies and the Romantics' preoccupation with suffocating love and vampiric literature; they also lend themselves to Freudian theories of fetishism and psychoanalytic theory.

Wilkinson College – Department of Communication Studies

Poster 20
The Effects of Readers' Motivation, Reviewer Sociability, and Review Ratings on Readers' Attitudes Towards Employers
Presenter(s): Tala Al-Ghussein, Kelsie Mattingly
Advisor(s): Dr. Jake Liang

People frequently search for reviews about potential employers, however little or no research has examined the attributes of online reviews and how the attributes affect the readers. The current study aims to explore the effects of various attributes of online reviews on readers' attitudes towards employers. We predict that the effect of reviews on attitudes depends on job seeker motivation and specifically the sociability of the reviewers (i.e., how well the reviewer gets along with other coworkers). We propose to utilize an original experiment that induces readers' motivation (high/low), the sociability of reviewers (favorable/unfavorable), and aggregate user representation (positive ratings/negative ratings) in order to test our prediction. We posit some implications for prospective findings.

Poster 21

Social Media Usage and Jealousy: Is Co-Rumination between Romantic Couples Related to Poor Health Outcomes?

Presenter(s): Kaajal Ali, Noemi Cardenas, Andrew Clark, Gabriela Hougton
Advisor(s): Dr. Elaine L. Davies

Recent research has shown co-rumination has been linked to poor mental health outcomes for young adults who use technology frequently to vent their frustrations to friends (i.e., Murdock, Gorman, & Robbins, 2015). Moreover, studies have shown jealousy is often a common response to social media posts because individuals often make social comparisons between their own lives and relationships with others who post frequently. This study explores if jealousy and co-rumination in romantic relationships are associated with adverse effects health effects. Specifically, we predict that individuals who report higher amounts of co-rumination following jealousy-inducing posts on social media will report poor psychological and physical health.

Poster 22

Self-Esteem and Deception on Tinder

Presenter(s): Alexa Biglow, Lauren Dennis, Alexa Hernandez, Cortney Holloway, Gregory Johnson, Amelia Williams
Advisor(s): Dr. Veronica Hefner

The purpose of this research study is to determine to what extent a person's degree of self-esteem affects their level of deception on their Tinder profile. Tinder is an extremely prevalent social media dating application that young adults are using everyday. There has been little research done on this application, therefore we find it important to discover the effects deception can have when using this dating application. The way we want others to view us, and eventually how we want to see ourselves, is either supported or hindered by our self-esteem. Every college student's level of self-esteem can possibly affect their level of deception on social media outlets, such as Tinder. The sample of male and female students being surveyed will be full time Chapman University students, ranging from ages 18 to 25. There will be two different surveys administered online at one time. The first survey is a four point likert scale that will measure a person's degree of self esteem, and the second survey is a five point likert scale that will measure a person's level of deception on their Tinder profile. With the information we find, it will allow us to discover a person's level of self-esteem, and the amount of deception a person engages in on their Tinder profile. We hypothesize that students who have higher degrees of self-esteem will engage in less deception on their Tinder profile, and students who have lower degrees of self-esteem will engage in more deception on their Tinder profile.

Poster 23

College Students' Communication about Nonmedical Use of Prescription Stimulants: Applying the Theory of Planned Behavior

Presenter(s): Darren Breese, Ana Andreoli, Kylie Deschenes, Lindsey Sarver
Advisor(s): Dr. Sara LaBelle

The study examines college students' communication surrounding nonmedical use of prescription stimulants (NPS). Using a hypothetical scenario, the researchers will employ the Theory of Planned Behavior to investigate if students' attitudes and perceived social norms affect their intent to intervene on behalf of a friend who is engaging in what they believe to be excessive NPS. College students' will complete anonymous web-based surveys, reporting on each of the study variables as well as demographic information. Self-reports of both perceived and actual knowledge of engaging in NPS, as well as students' levels of communication health literacy, will also be collected as control variables. The study seeks to investigate the following hypothesis: College students' attitudes, subjective norms, and perceived behavioral control will predict their intention to intervene on behalf of a friend engaging in excessive nonmedical use of prescription stimulants (NPS) when controlling for knowledge of NPS and communicative health literacy. The subjects of this research study will be approximately 200 college students of mixed gender and ethnic backgrounds. Students will be recruited from the Chapman University Communication studies subject pool. Correlational and regression analyses conducted in a statistical analysis software program for the social sciences (i.e., SPSS 19) will be used to analyze the survey responses.

Poster 24

Fear and Media: The relationship between crime related television consumption and the fear of crime among americans

Presenter(s): Timothy Breitfeller, Tatiana Broukhim, Angelina Riccio, Leah Whitenack
Advisor(s): Dr. Michelle Miller-Day

This paper explores the relationship between crime-related media consumption, shows about actual and fictional crime, internet-related problems, and the fear of crime. Our research proves that there is a direct relationship between crime-related media consumption, internet-related issues, and the fear of crime. The Chapman Survey of American Fears (Bader, 2014) identified fear of crime among various categories and included seventeen questions that were the subject of the key variables and were measured on a four point Likert scale. A series of questions directed at 1,573 respondents regarding the variables resulted in findings of positive correlations between crime-related media consumption and the fear of crime. The research findings were consistent with previous research related to this topic.

Poster 25

Gender Differences in "The Bachelor": A comparative analysis of task, maintenance, and individual group roles.

Presenter(s): Gabriela Cevallos, Brooke Bierman,Taylor Harris, Alix Joubran, Kevin Roberts
Advisor(s): Dr. Elaine L. Davies

Benne, & Sheats (1948) typology of group roles has been used to examine team behaviors in a variety of contexts. These behaviors are classified into three main categories: task, maintenance, and individuals. Traditionally, task and maintenance roles are viewed as positive for team productivity and morale, whereas individual roles have been identified as detrimental. However, to date, the empirical literature has yet to investigate if the various task and maintenance roles enacted may have a negative impact on a group if an individual's goal is self-serving and not the betterment of the group. Moreover, past research fails to address if sex differences exist between usage of the various roles. Therefore, this study aims to address these two gaps in the existing literature.

Poster 26

Racial perceptions in Television: Cosby show v. Blackish

Presenter(s): Hailey Dempster, Vaughn Adams, Darren Breese, Jamie Ricklin, Sophie Pennes
Advisor(s): Dr. Riva Tukachinsky

The study investigates how Black and White participants respond to the representation of Black families on television comedies. Specifically, the study will focus on audience's perceptions of realism, stereotypicality and overall enjoyment of television sitcoms. Black and White participants watched a short clip from either the show Blackish or The Cosby Show that contained a family dialogue. In The Cosby show their discussion surrounding being honest with their parents if they were ever in trouble. The clip from Blackish dealt with maintaining the family's cultural roots. After the stimulus participants completed a short questionnaire. It was hypothesized that White participants will think that Blackish is more realistic than Black participants, and Black participants will think that Blackish propagates more stereotypes (positive or negative) than White participants. Overall, it was hypothesized that White participants will find the show Blackish more humorous than Black participants. It was expected that both White and Black audiences will find The Cosby Show less realistic and less stereotypical than Blackish, and overall, Black audiences will find The Cosby Show more enjoyable than Blackish in contrast to White audiences.

Poster 27
Media Framing and Its Effects on Perception of Character
Presenter(s): Brian Dutton, Alexandra Friedman, Alex Read, Madeleine Stephens
Advisor(s): Dr. Riva Tukachinsky

Pictures that accompany a news story can play a dominant role in how media consumers perceive crimes depicted in the news. The gatekeepers have the power to choose which pictures are going to be featured in the news and how they will present each individual, which results in the public's first perception of the accused criminal. The present study examines this process specifically in the context of police use of deadly force. The study examined how positive and negative images that accompanied a news story about an unarmed man short by a police officer might affect two outcomes - judgment of the police officer and justification of the shooting decision. White undergraduate students read an ambiguous news story depicting a police officer shooting an unarmed person. Four different images accompanied the news article, with each individual image appearing on twenty-five percent of the participant's articles. Each image either showed a White or a Black suspect in a negative or positive way. This news story was then followed by a questionnaire describing the participants' attitudes toward the suspect and whether the police officers' decision was just. The end of the questionnaire contained items about the information of the participant such as: age, gender, arrest record, and consumption of local and national media outlets. Thus two hypotheses were tested; (1) White college student exposed to an ambiguous news story will report less favorable perceptions of the police officer and his decision to shoot when the story is accompanied by negative images compared to positive images. Furthermore, (2) White college students will report less favorable perceptions of the police officer and his decision to shoot when exposed to the story featuring the White suspect than those exposed to the story featuring the Black suspect.

Poster 28
Meet Cutes
Presenter(s): Andi Frisina, Kylie Deschenes, Jordan Gex, Carly Greer, Lindsey Sarver
Advisor(s): Dr. Veronica Hefner

Previous studies displayed that exposure to romantic comedy films influence our expectations, values, and beliefs about romance; as well as the powerful impact on one's behavior. Romantic comedies alter individuals perceptions of real world scenarios in which both partnered and single viewers can identify with. This study focuses on the different effects romantic comedies have on partnered and singles viewers. We find it important to understand how romantic media consumption can strongly impact our romantic beliefs. Our hypotheses predict that after viewing romantic comedies individuals will be greatly affected. An experiment was conducted to test the effects of romantic comedy exposure in regards to enjoyment, mood and romantic beliefs. In our study, 358 students participated from a southwestern university in a post-questionnaire survey after viewing a selected romantic comedy containing measures of romantic beliefs. Results demonstrated that enjoyment, mood, and romantic beliefs were positively significant influence on individuals after viewing a romantic comedy.
Keywords: Romantic Comedies; Romantic Beliefs; Mood; Enjoyment

Poster 29
Communication Processes For Emerging Collaborations
Presenter(s): Lucas Halopoff, Negeen Lofti, Abigael Smith
Advisor(s): Dr. Kerk Kee

This study aims to investigate the key processes that create and sustain emerging collaborations among dispersed strangers. By using Shirky's (2009) framework of collaborative systems, this study analyzes 7 interviews with users and developers in the open source and scientific computing community. Thematic analysis reveals that the process is a fusion of reasoning, innovation, and diffusion. It begins with a reasoning of a "plausible promise" (Shirky, 2009, p.?), the beginning essential piece of a virtual organization. Through the "plausible promise" the basic goal is developed. After creating a plausible promise, an "effective tool" will be used by the virtual community. This tool sets the guidelines for the initial goals of the community. Finally we found that a virtual community needs an "acceptable bargain" that establishes, the roles, norms, and expectations of the community. Results show that these three aspects are necessary for an effective virtual community to be created and sustained.

Poster 30
A Typology of Water Conservation Messages in California
Presenter(s): Lauren Henderson
Advisor(s): Dr. Jake Liang

This research examines current messaging efforts to promote water conservation in response to the worst drought in California's recent history. We reviewed existing research on water conservation messages and propose a typology based on 11 message strategies. These include policies, conservation tips & strategies, evidence of drought, social norms, social identity, social comparison, goal-setting, commitment, loss aversion, humor, and referrals & redirections. By applying this typology, we randomly sampled 100 messages from current water conservation campaigns in California and coded these messages into the different strategies. A subsequent correlational analysis revealed some evidence of complementary message types and strategies. The current work represents a preliminary effort to categorize water conservation messages with the goals of testing their efficacy, to ultimately aid in the development of more effective conservation messages.

Keywords: Water conservation, message typology, framing strategy, drought, California

Poster 31
Computational Tool Development: How to Achieve and Sustain Widespread Adoption
Presenter(s): Sami Jarjour, Lincoln Crane, Ryan Hurd
Advisor(s): Dr. Kerk Kee

By using grounded theory analysis (Corbin & Strauss, 1990) and the NVivo software to analyze eight interviews, this research explores how members of virtual organizations in e-science work together to create tools that other scientists in the larger community will desire to use. Thematic analysis shows the specific demands of tools and how important it is to have a community drive adoption. Furthermore, for a tool to have longevity, it is imperative that there is an efficient support system (in an open source fashion) to assist with user inquiries and to create a devoted user-base. We conclude with implications that will better help the creation of future tools.

Poster 32
Examing the Effect of Counterstereotypical Examples of
African American Women in the Media on
People's perspective of the African American Woman
Presenter(s): Jasmine Johnson
Advisor(s): Dr. Wenshan Jia

Ever since the concept of the cultivation theory was introduced in the late 60s, researchers have looked at the correlation between the messages displayed on television and how those messages can effect a person's mindset in real life situations. This body of literature suggests that the portrayal of African Americans, even more specifically African America women, on television, has had a negative effect on how people view the African American race in general. Although this has been proven in many different ways, there has been very little research done to find ways to counteract or improve the images of African American women on television in order to subsequently improve people's perceived reality of the African American women. This study seeks to update the current body of literature and add to it by proposing counterstereotypical examples as a way to improve the image of the African American woman on television and in life. This study is composed of two parts with the first being a case study analysis that examines the portrayal of three popular images of the African American woman on television during the Spring 2015 season: Cookie from Empire, Annaliese Keaton from How to Get Away with Murder, and Olivia Pope from Scandal and whether or not they are counterstereotypical examples of the African American women. The second part is analysis of the blogosphere around each portrayal to understand the effect each portrayal is having on the society's perceptions of the African American women.

Poster 33
Fitspiration or Death
Presenter(s): Nicole Jourdain, Natalie Bowles, Mary Ellet, Christine Liu, Arianna Tortomasi
Advisor(s): Dr. Veronica Hefner

The purpose of this study was to see the relationship between social media use such as mobile applications, micro-blogs, as well as traditional blogs and its affect on compulsive exercising and eating disorders, with self-esteem as a moderator. This study evaluated students at Chapman University based on how they viewed their body as well as their eating and exercising habits.

The Compulsive Exercise Test (Goodwin, Haycraft, Taranis & Meyer, 2011) was used to evaluate exercise habits, EAT-26 (Garner et al., 1982) was used to evaluate overall eating habits and questionnaires regarding the use of traditional blogs, micro-blogs, use of social media, as well as mobile applications, such as nutritional applications, was used.

This study created a mean of the use of mobile applications as well as the blogs (traditional and micro-blogs) to calculate “thinsm” – thinspiration, social media. The regression for “thinsm” and eating disorders as well as “thinsm” and compulsive exercising was very significant.

This study indicated that the use of mobile applications and micro-blogs was very significant with eating disorders. Traditional blogs were not significant with eating disorders. On the other hand, the use of mobile applications was very significant to compulsive exercising. That being said, the use of traditional blogs and micro-blogs was not significant to compulsive exercising. Mobile applications were significantly correlated with compulsive exercising.

Poster 34

The Effect of Stereotypical Portrayals of Minorities in Comedy on Viewers

Presenter(s): Isabel May, PJ Elbakri, Christine Rubenstein, Rachel Shatz
Advisor(s): Dr. Riva Tukachinsky

Television may have some implications for the endorsement of stereotypes in society. Viewers, whether White or Black, might learn racial stereotypes through exposure to certain television shows and through identification with stereotypical characters. Thus, concerns have been raised about how specific ethnic groups tend to be portrayed in the media. Because of this, there is now more of a need in the media for a more positive and less stereotypical character portrayal with ethnic minorities being viewed in a more egalitarian manner.

The present study was conducted to further understand the effect of exposure to racially stereotypical television shows. It was hypothesized that exposure to stereotypical versus non-stereotypical humor will affect the viewers' endorsement of stereotypes. Furthermore, it is hypothesized that Whites and Blacks viewers' level of identification with the characters in non-stereotypical shows will be greater than identification with the characters in stereotypical shows.

We conducted an online experiment. Using a snowball sample, White and Black participants' ages 18 and older were invited to participate. They watched a clip from Blackish or The Cosby Show, which portrayed a family meeting, led by the father, who is trying to have a discussion about an important topic with his children. Both clips have similar content, however Blackish depicts a more stereotypical portrayal of a Black family, whereas The Cosby Show is a less stereotypical depiction. This study is important because it allows us to better understand the effects of television programs and the characters portrayed in them on viewers.

Poster 35
Asian American Character Identification and Ethnic Pride with Fresh off the Boat
Presenter(s): Michelle Mendoza, Tyler Deliman, Jason Sleiman, John Ward
Advisor(s): Dr. Riva Tukachinsky

Television shows with storylines that are centered around ethnicity, such as the comedy Fresh off the Boat, arouse controversy about the media's role in shaping perceptions about race. As racially-charged shows continue to evade prime time television, it is important to consider the effects of depicted stereotypes on the audiences. Current research puts most focus on the effects of racial media on members of ethnic majorities. Typically, studies explore the effects of racial media on Caucasian viewers. This study is specifically concerned with the impact that racial media has on the ethnic minority group portrayed. To do so, this study investigated the effect of television on character identification and ethnic pride levels among Asian American viewers. Specifically, Asian American participants were randomly assigned to watch either an Asian character struggling to fit in school in a clip of Fresh off the Boat, or a White character in a similar situation in a clip from the movie Mean Girls. Participants' levels of character identification and ethnic pride were assessed following each viewing. It was hypothesized that Asian American viewers would identify more with the Asian character on Fresh off the Boat than with the White characters in the Mean Girls clip. Also, it was hypothesized that Asian American viewers of the Asian character would report more ethnic pride than viewers of the White character. The results of this study will provide understanding of the impact that race-centric television has on members of the race it depicts.

Poster 36
Ethos in Social Media
Presenter(s): Michelle Mendoza
Advisor(s): Dr. Veronica Hefner, Sarah Robblee

This textual analysis demystifies the issue of ethos in social media. Social media users make an art of creating themselves online for their following audience to see. The impressions an audience of followers makes about a social media user comprise that user's ethos, or character. Utilizing the studies of both communication and rhetoric, this study will produce understanding of social media's omnipresent affect on interpersonal identity creation and interpretation. This study will apply rhetorical criticism to examples of social media, treating them as rhetorical artifacts to analyze, understand, and appreciate. What constitutes ethos within social media will ultimately be discovered through deep reflection of current research and electrification of tools of criticism that have been used by rhetoricians dating back to classical times.

Poster 37
Testing Nontechnological Explanatory Mechanisms for the Proteus Effect: Priming and Motivated Preparation
Presenter(s): Sarah Miller
Advisor(s): Dr. Jake Liang

The current study examines the Proteus Effect (Yee & Bailenson, 2007) and its underlying explanatory mechanism. Prior research support priming as the dominant explanation for the effect (e.g., Pena, Hancock, & Merola, 2009), yet newer theoretical account suggests that motivated preparation (Cesario, Plaks, & Higgins, 2006) may serve as an alternative explanation for priming. The current study extends prior work on pretending (Kashian et al., 2012) by utilizing a nontechnological approach (i.e., using paper bag masks instead of avatars). Participants in Study 1 (N = 54) interacted with a confederate following the generalized protocol established in Yee and Bailenson (2007). Priming and motivated preparation were induced individually to compare their effects relative to a control condition. Unlike findings in Kashian et al., results showed no significant difference in terms of proxemics (physical distance) and number of self-disclosures, which may be attributed to the physical space (Cesario et al., 2010). In a larger experimental space, Study 2 (N = 20) critically tested the Proteus Effect by utilizing priming and motivated preparation simultaneously, to compare the effects relative to a control condition. The results support the priming mechanism based on proxemics data. The discussion overviews implications for the Proteus Effect and contexts for applying the current results in a nontechnological environment.

Poster 38
#GetFit
Presenter(s): Colby O'Connor, Ana Andreoli, Zashya Nitzkowski, Rain Scott, Hector Solis
Advisor(s): Dr. Veronica Hefner

Previous research has shown that there is a significant correlation between perceived social pressures people feel from their friends and family to be thin and the tendency to develop an eating disorder as well as the compulsion to exercise. This study examined whether social media has an effect on this relationship. A survey was given to participants to measure their attitudes towards exercise, eating healthy, self-image, their beliefs on how others view their body image, the pressure they feel to lose weight, and the amount of social media they use that focuses on exercising. Perceived social pressure was the independent variable and eating disorders and compulsive exercising were the dependent variables. The study found that use of social media focused on exercising is a mediator between perceived social pressure from family and friends to be thin and eating disorders and compulsive exercising.

Poster 39

Unrequited Love, Disclosure, and Hurt: Does Your Love Style and Communication Put You in the "Friend Zone?

Presenter(s): Ronald Pun, Hector Solis

Advisor(s): Dr. Elaine L. Davies

Unrequited love occurs when one person has unreciprocated romantic feelings for another. Following this type of revelation, both, the rejected party and the rejector, often have to make decisions about whether to maintain a friendship or disengage from the relationship. This study seeks to examine if one's Love Style (Hendrick, Hendrick, & Dicke, 1998) or what types of messages are associated with successful relational maintenance following unreturned romantic overtures. The second goal of this project is to use the Relational Turbulence Model, to develop a deeper understanding of how one's personality traits and communicative behavior may be related to the experience of hurt following unreturned romantic disclosures.

Poster 40

Snapchat: The Gateway to Sexting

Presenter(s): Kevin Roberts, Hayley Chandler, Will Hyman, Courtney Pascual, Jeri Santos

Advisor(s): Dr. Veronica Hefner

The purpose of this study is to investigate the popular mobile social media application Snapchat, which uses an ephemeral data technology. The goal of this study is to better understand the effects that Snapchat and sexting have had on current college students (ages 18-24) and their self-esteem levels. While there is much research on Snapchat and sexting, there is very little research on whether Snapchat leads to sexting activities. By examining past research that has gone into sufficient depth on both social media, and sexting's effects on user self-esteem, and comparing that research with the research we will be conducting on college students, we hope to find a correlation showing Snapchat use may lead to a prevalence of sexting among college students. Previous research is lacking, since Snapchat is a fairly new phenomenon, launching in 2011. However, its popularity has grown immensely. The disappearing and impermanence of data is appealing for teens, because there seems to be less long-term effects. This study looks at the harmful implications of sexting, and Snapchat's role in it all. It is hypothesized that an increase in Snapchat use will correlate positively with an increase in sexting. Information will be gathered from a survey, and previous instruments measuring sexting use have been adapted. All findings are rationalized by way of the Social Comparison Theory.

Poster 41
Sharing and Persuasion
Presenter(s): Shelby Stanton, Tim Seavey
Advisor(s): Dr. Jake Liang

The traditional characteristics of persuasive messages have been well researched in Communication. More recently, Web 2.0 technology enables users to receive and to share (e.g., being reposted on Facebook, clicking on "share" on different platforms) persuasive messages directly with other users more quickly and broadly. The current research focuses on identifying the characteristics of messages that are both persuasive and sharable. An original experiment explored when these concepts align by inducing variations in established message characteristics that relate to persuasiveness (e.g., argument quality and emotional appeal). In addition, the experiment utilized a novel way to induce the perceived sharability of a message by using properties of Web 2.0, specifically aggregated user-representations (i.e., how many people viewed, liked, and shared an article). The results suggest that sharing ratio impacts peoples' perception of whether or not an article will be popular, whether they are likely to comment on the article, or talk about it with their friends. Furthermore the sharing ratio in combination with the argument quality impact whether or not a person is surprised by the articles' content. The argument quality was the greatest determinant in regard to whether or not people were likely to discuss the article with their friends.

Poster 42
Communication Processes That Support Successful Virtual Organizing
Presenter(s): Dominique Stewart, Mackenzie Campbell, Michael Naoumovitch, Dominique Stewart
Advisor(s): Dr. Kerk Kee

This research examines the communication processes that support the development and diffusion of computational tools implemented by virtual organizations in e-science. Based on grounded theory analysis (Corbin & Strauss, 1990) of eight interviews, four important key processes were identified: compartmentalization, the use of open source systems, documentation, and interest in the project. Compartmentalization, having different sub-groups within a virtual organization, maximizes focus and promotes a checks-and-balances system. Second, by using an open-source structure, virtual organizations have the opportunity to receive feedback for no cost, and respond to the feedback for an online audience. Third, most successful virtual organizations have a way of documenting how the tool is used. Many even document the way the organization is run and managed in order to create a cohesive and productive working environment online. Last, the stronger the interest a scientist has in the activity or project, the greater the involvement of the scientist. A stronger interest also leads to greater ownership for people within the organization to take on more work. These findings show an arrangement of different communication processes that can be used within a virtual organization to provide successful tool development and adoption. The findings also provide examples and reasons for why each of the processes is positively related to successful communication within e-science virtual organizing.

Poster 43

Mil-lie-nials: Examining the relationship between social media use and online deception of young adults

Presenter(s): Tessa Urbanovich, Matthew Dinerman, Michelle Williams, Rebecca Young, Emily Zelter

Advisor(s): Dr. Veronica Hefner

As social media becomes an increasingly prevalent aspect of today's world, it is important to understand its consequences and societal impacts. One key effect of social media use is its ability to affect one's deceptive behavior. This study examines the scope of these deceptive behaviors, such as attitudes toward lying and frequency of one's online misrepresentation, in relation to one's intensity of social media use, and to what extent an individual's sex plays a role. Data collection is nearly complete, collected through online surveys and analyzed quantitatively using SPSS software. Our findings will provide insightful knowledge that will impact how people manage their own social media usage as well as their ability to identify deceptive behaviour online.

Poster 44

Eye Witness News: Up Close with the Perception of Race in Photographs

Presenter(s): Karin Weber, Kelly Osborn, Nikki Payne, Ciera Ramos, Corinne Weber

Advisor(s): Dr. Riva Tukachinsky

In today's society, the media has the ability, with the help of framing and gatekeeping, to manipulate public perception of a person or event. This study, loosely generated by the controversial twitter trend, #IfTheyGunnedMeDown, takes a closer look into the ability to frame perceptions. The priming theory suggests, "when individuals receive information, they will use the most easily retrievable or accessible information already existing in their cognitive networks to make sense of the new information" (Ferrucci, Tandoc, Painter & Leshner, 2013). The study looked to unveil whom the participants favored, simply based on race and prior knowledge of race from the media's influence. With this in mind from previous research patterns, four hypotheses were posed to suggest the participants would be more favorable of someone their own race, rather than the opposite race, based on their subconscious knowledge they've gathered from prior events. The participants, white undergraduate students from a Southern California private university, were given a news article detailing an ambiguous incident, in which, a man was shot by a police officer. The text remained identical in all conditions, with the only manipulation being the photo of the victim's race. There were four photos varying in the victim's race (Black or White) and perceived delinquent behavior (innocent or delinquent). After reviewing the articles, participants were asked to complete a survey corresponding to the likability of the male victim, along with Symbolic Racism Scale. The survey will help to reveal the influence of photos in the context of news media and the racial controversies highlighted in the news today.

Poster 45

Towards a Hybrid Model of Communication & Organizing in the Modern Workplace

Presenter(s): Michelle Williams, Mona Sleiman
Advisor(s): Dr. Kerk Kee

In a world where real-life problems often require a unique combination of expertise, dispersed professionals must come together in order to maximize their success. Virtual organizations emerge as dispersed professionals attempt to coordinate and collaborate; however, these professionals experience setbacks due to a range of communication challenges that consequentially compromise their success. As the practice of virtual organizing becomes more prevalent, there is an urgent need to understand the processes that are required for successful virtual communication. Through grounded theory analysis (Corbin & Strauss, 1990) of 40 interviews, this poster investigates virtual interactions in contrast to face-to-face interactions and how the two processes can be combined to create a hybrid system that that optimizes communication between dispersed participants. This hybrid model can improve the way groups collaborate in the modern workplace.

Wilkinson College – Department of History

Poster 46
Mediums of Memory
Presenter(s): Gabriella Canales
Advisor(s): Dr. Marilyn Harran, Dr. Koerber

The word memory surfaces frequently in the pages of Elie Wiesel's writings. It "combines almost all [his] obsessions, all [his] priorities." Elie Wiesel teaches us that memory has an immense power and ability of keeping those who have passed alive within us, but if memory is not honored in the appropriate way, it can be misused or left to wither and disappear. Wiesel believes that "in order not to betray the dead and humiliate the living, this particular subject demands a special sensibility, a different approach, a rigor, strengthened by respect and reverence and, above all, faithfulness to memory." Each manifestation of memory created by man, comes with immense possibilities and dooming limits. Wiesel has expressed his concerns, within his writing and speeches on how memory should be preserved, "today the question is not what to transmit, but how." To Wiesel, a book is composed of "words that you say - but more words that you do not say." A book allows for ones imagination not to be limited and ones thoughts to be pushed. But in 1978, Wiesel took on the task of creating a museum, a physical testament of a memory that "defies communication." During Wiesel's remarks at the dedication ceremony for the museum, he said that "his museum is not an answer; it is a question mark. If there is a response, it is a response in responsibility." For the museum prompts emotional experience through a physical story and social interaction. But when it comes to film he believes that many fall short in honoring the event respectfully. "The Holocaust has become a fashionable subject, so film and theater producers and television networks have set out to exploit it, often in the most vulgar sense of the word." While examining three distinct forms of memory; written word through Night, The United States Holocaust Memorial Museum, and major motion pictures in general, we come across reasons as to which Wiesel chooses to honor some rather than others.

Wilkinson College – Department of Political Sciences

Poster 47
The Angry Electorate - Affect and Voting Decision Making
Presenter(s): Negeen Amirieh
Advisor(s): Dr. Ann Gordon

Political scientists do not typically focus on the affect, but rather they focus exclusively on cognition. Relying on the 2012 ANES, the present study seeks to understand and analyze the importance of how a voter's emotions specifically anger towards a political figure can effect the voter's actions. In this paper, the factors that are essential in understanding emotions in politics are: effect of anger in comparison to other affects, distrust in media and reliance on party identification, and the role of cognition in relation to affect, the correlation between affect and cognition with voting behavior. The present research answers the question of how affect and cognition relate strongly in the direction of voting behavior in relation to partisan media. The body of research is essential in understanding how a voter's feelings towards a candidate makes them form a specific emotional connect or disconnect for the candidate. Among the interesting findings, affect specifically anger plays an important role in candidate evaluations, in the sense that people will vote for a candidate that makes them feel a certain way.

Poster 48
The Relationship between Religiosity, Civic Engagement and Political Participation
Presenter(s): Jessica Atwood
Advisor(s): Dr. David Shafie

My research this semester will focus on political participation and the relationship between religiosity and voting patterns. Previous studies that surveyed voters on which religions they affiliated themselves with and how they voted have not found very noticeable differences in voting patterns with relation to religious affiliation. However, for my research project, I would like to see if more religious involvement created a more noticeable pattern in civic engagement, voting behavior and political activism. Different forms of political participation would serve to be the dependent variable and religious involvement would be the independent variable. Using data from the General Social Survey of 2012, I will be able to study details of the possible effects that a plentiful amount of religiosity may have on how much one is involved with his or her community, as well as local and national politics as well.
The primary question that my research and analysis will answer is does involvement in religious institutions and being more civically engaged lead to increased political participation and political activism? Based on previous research I've completed about voting patterns in relation to religious participation, I hypothesize that citizens who are more involved in their religious institutions will be more politically active, citizens who are more involved in their religious institutions have more consistent/ predictable coting habits over time, and citizens who demonstrate high levels of civic engagement in relation to their religiosity will be more politically active.

Poster 49
Economic Voting: Election Outcomes at the Toss of a Coin?
Presenter(s): DamarisBangean
Advisor(s): Dr. Ann Gordon

Given the severe shock of the 2008 economic crisis, this paper examines the relationship the relationship between individual and aggregate economic evaluations and democratic accountability through data analysis of the 2012 American National Election Studies. It includes statistical analysis of presidential and congressional approval, personal restrospective and prospective economic evaluations, macroeconomic restrospective and prospective evaluations, and other relevant variables, such as income and ideological preferences to broaden the scope of analysis on political behavior. As the notion of democratic accountability is a foundational pillar of the American political system, such studies are critical to election years following economic fluctuations, where election-induced accountability for economic conditions is most apparent. This is also central to the values of American individualism by assessing where voters may "cast the blame" for unfavorable personal financial conditions. Economic voting theory maintains a strong relevance in voter behavior analysis, especially given the economic crisis of 2008. Such dramatic interference of economic volatility on election outcomes may lead one to pose the question: what if the economy had stayed on its ill-fated rise for just one more year, and had burst only after the election?

Poster 50
Political Participation of Millennials in the United States and Western Europe
Presenter(s): Jenny Bhatia
Advisor(s): Dr. David Shafie

Millennials are a very large generation, the second largest in the US history. More than half of the millennials are already of voting age adults, have graduated from schools or college, and are into careers. Millennials are often described with more than a bit of a sneer, as the new "me" generation and have always participated in politics at a lower rate due to a various reasons such as the generation’s size, demographics, and views on cultural, foreign policy, role of government, and economic issues which somehow, make them unique when compared to the older generation. This research will analyze data and test the hypothesis from The Voice of the People End of the year 2012 Survey which has presented that the outcome of young adults with a graduate degree, have lower voting rates of only 12% than adults of ages 55-65 who have higher voting rates of about 21%. These numbers are quite astonishing since we automatically assume that the younger generation are prone to be affected by current public policies. This research will compare the millennials of the United States to Western Europe and determine whether millennials in Western Europe were just as unlikely to participate in politics or if they consider voting to be their civic duty.

Poster 51
How media influences American perceptions of Iran and Middle East foreign policy
Presenter(s): Avery Bissett
Advisor(s): Dr. Ann Gordon

American foreign policy in regards to Iran has been among the most visible stories in recent years and will certainly continue to be as negotiations over Iran's nuclear program continue. Although many factors influence how Americans view other countries, one of the most important factors is the media and how it covers Iran. In addition to investigating how specific media outlets shape our views of Iran, it will also investigate how the medium (print, TV, online, radio) influences our perception. It will use data from the 2012 American National Election Study, which asked participants whether they believe Iran is pursuing nuclear weapons and what action they favored taking (sanctions, invasion, etc.). The research will review whether "experts" believe these options are prudent. The research will also review literature to determine whether people choose a particular media outlet because it conforms with and reinforces their views, or whether the outlet influences the consumer's views; additionally, it will review what other factors, such as history, influence Americans' views of Iran.

Poster 52
Muslim-Americans and Party Identification
Presenter(s): Brianna Blaschke
Advisor(s): Dr. Ann Gordon, Dr. Patricia See

The majority of research and understanding conducted on religion's relationship with partisan identification in the United States has often ignored religious minorities in political behavior studies, particularly Muslim-Americans. However, numbering between 2.3 and 7 million, Muslim-Americans contribute to an undeniably growing presence in the modern day fabric of America, one that increasingly demands attention in studying the impact of religion and religiosity on political behavior. This essay focuses on the political tendencies of Muslim-Americans and how various factors (i.e. attitudes towards this population, attempts by parties to recruit members of this religion, extent of religious participation, etc.) contribute to the development of Muslim-American partisan identification, and secondarily, tendency to vote more liberally or conservatively. I hypothesize that varying degrees of religiosity and the proposed alienation and attitudes toward Muslim-Americans results in a higher tendency for this population to avoid identifying with a political party. Additionally, I will seek to understand the tendency of Muslim-Americans to vote more liberally, and how this may increase alignment with the Democratic Party. I will be analyzing data from the 2007 survey of Muslims in America collected by the Pew Research Center to understand the nuances of how Muslim-Americans are likely to vote, considering for the factors of religiosity and perceived attitudes, and consequently the impact on party affiliation.

Poster 53
War on Terror' Through American Eyes
Presenter(s): Jacob Blaznek
Advisor(s): Dr. Ann Gordon

The 'War on Terror' has been a highly debated topic since President Bush first said it after the attack to the United States on September 11th. Many articles and books have been written about the growing problem of terrorism and how the United States is handling it. Each article provides different ways that the United States has wrongly handled the situation and ways that they could improve their efforts to reduce terrorism. After the terrorist attack on World Trade Center and The Pentagon, the United States went to War against Al-Qaeda. Today, the US is still in a highly dangerous and expensive battle with these terrorists. My study examines the relationship between how people from both sides of the political spectrum have voiced their concerns with the war and have claimed it was not worth the cost. However public opinion claims that the US has to keep up the fight with deterring terrorism. September 11th was a wakeup call to America showing a need to change the US Foreign Affairs policies and increase the Defense Budget. The 'War on Terror' is looking to be politically and intellectually unsustainable unless new changes are made.

Poster 54
Environmentalism and Voter Ideology
Presenter(s): Nicholas Burghard
Advisor(s): Dr. Ann Gordon

It has been known in recent years, that there is a connection between political party choice, and the importance of the environment to their members. However, this correlation may only be skin deep. The objective of this research is to delve into the specific correlations between the importance of the environment to the voter, and their gender, religion, and propensity to joining New Social Movements (NSM's). With environmentalism becoming a strong topic in candidate and voter discussions today, studies are being done to see what the audiences are backing environmentalism, and promoting its integration into modern American society. Therefore studies are being carried out to see what demographics will be more likely to back the green movement. Some recent studies have concentrated on the relationship between environmental concern and value orientation, or the correlation between environmental concern and membership of other NSM's. However, it is the goal of this research to give a succinct analysis of the factors of the demographics of the above groups. This research paper will draw conclusions on the correlations between gender, religion, and voter propensity to joining New Social Movements, which will explain their chance on joining in on environmentalism, tying into the above studies mentioned. This research is conducted using the American National Election Studies data of 2012. The testing on this data is showing that there are statistically significant correlations of the above topics with environmentalism, which tie back into the ideology of the respondent.

Poster 55
Effects of Public Attitudes on Immigration
Presenter(s): Manuel Cardoza
Advisor(s): Dr. Ann Gordon

Throughout history the United States as a nation saw many waves of immigrants who collectively shaped and helped build the America we see today. Today immigration has become a prevalent issue that is impeding progress and potentially facilitating the rise of new conflicts in a country plagued by civil injustices toward minority groups who are feeling marginalized and discriminated. Immigration desperately needs the attention of the U.S government in order to reach a solution and stop a community from being ostracized. Much of this great nation has been formed and built on the fundamental idea of immigrant forces coming together to form a melting pot, ultimately helping to create a more perfect nation filled with opportunities. Post September 11, both public and political opinions have changed and focus has been placed on protecting this nation from both foreign and domestic enemies. Today the immigrant community is seen as a threat to the well being of the nation, therefore affecting the opportunities they may have. This analysis will investigate the effects of immigration in the social and economic aspects of American life. It will address the question and belief of whether political attitudes and racial views are affecting how people view the effects of immigration in the country and if this ultimately leads to the lack of opportunities and policy changes for the immigrant community. This analysis will contribute to a more comprehensive understanding of the true impact of attitudes on immigration and how they have a bearing on immigration policy.

Poster 56
News Media Consumption as a Generational Phenomenon and the Relationship to Perceptions of Civic Duty in the American Electorate
Presenter(s): Kelsey Cena
Advisor(s): Dr. David Shafie

The expanding nature of the current news media environment allows news consumers access to countless outlets and forms of news. In this climate, there is a trend toward 'soft' news or entertainment-oriented sources, such as political comedy shows, over more traditional forms of 'hard' news, like Newspapers. Studies have shown these soft news outlets do contribute to political discourse, and some can help citizens to vote accurately in their best interests, however, there is also evidence to suggest the expanding news environment allows some individuals to ignore politics altogether. Scholars have pointed to different possible motivations for choosing soft news over hard news, but one of the most significant predictors in determining what kind of media a participant consumes has been age. These conclusions lead to the research questions presented in this study: Do generational factors have an impact on a person's choice to consume soft news over hard news? What connection does this decision to consume soft news have to a person's sense of civic duty? In order to assess the possible generational nature of this trend toward soft news and its impact on civic duty, questions taken from the American National Election Studies 2012 Time-Series Study will be analyzed.

Poster 57
Predictors of Support for a Women President
Presenter(s): Frances Chang
Advisor(s): Dr. Ann Gordon

In recent years, the number of women holding a higher political position is rising; additionally, more and more women are running for office. Furthermore, female politicians are increasingly being elected as the head of nations globally. Although the number of women in the government is increasing, they are still underrepresented politically compared to men and are still facing obstacles while running for office. The United States is one of the strongest countries around the world, with a successful democracy for hundreds of years. The country emphasizes liberty and equality; however, the United States has not yet had a female president. Scholars have wondered why the country has not yet elected a female president, and why the participation rate of women in office is still underrepresented. The present study relying on the 2012 American National Election Studies (ANES) explores the factors that influence the voting decision and public's view toward women candidates. These factors include gender stereotypes and party affiliation. This study's objective is to explore the predictors of support for a female president. Based on this information, I predicted that the U.S. citizens would not elect a female president within the next 20 years.

Poster 58
Yo soy latino: Does my vote matter?
Presenter(s): Jonathan Charres
Advisor(s): Dr. David Shafie

It has been said by many political scientists that the Latino population in the United States has the potential to be a huge political player in political elections, especially with their steady growing population. However, population growth is not translating into an increase of political participation. Although many studies have been made to understand why Latino political participation is low, I will take a different approach and focus on Latino political efficacy, comparing different states. Using the Inter-university Consortium for Political and Social Research (ICPSR) Latino National Survey, I will seek to answer whether Latinos feel more politically empowered in states where they are the majority then those states in which they are not. I hypothesize that in Latino dense states, Latinos have a higher efficacy then states in which there is less Latino presence.

Poster 59
Negative Campaigns and Their Influence on the Electorate
Presenter(s): Estefan Colindres
Advisor(s): Dr. David Shafie

There is a legitimate debate over negative campaigning and whether it either mobilizes voter participation or suppresses it. Previous studies suggest that the relevant political information brought by negative campaigns play a significant role in mobilizing the electorate (Finkel and Geer, 1998). On the other hand, some studies explain that negative campaigns challenge the legitimacy of the electoral process and consequently drain the electorate (Krupnikov, 2011).

As such, my research question asks of the effect of negative campaigning on voter participation - are people turned off and to what extent? What kind of impact does negative campaigning have on voters and their sense of civic duty? My study aims to understand how perception and attitude of campaign negativity affects the behavioral attitude of the electorate.

The data used for the study is gathered from the CBS News/New York Times National Poll, October 3, 2012. The independent variable in the study is the public's perception on the negativity of the 2012 presidential campaign. The dependent variables that will be correlated with the independent variable are, amongst others, public opinion on how likely voters are to participate, voting enthusiasm, and their ideological stance on certain issues.

Appropriately, my analysis will empirically test the notion that negative campaigns have significant behavioral consequences on the electorate. I expect that the respondents' are more likely to vote and when campaigns are more negative. Additionally, I expect that the more negative the campaign the higher the respondents voting enthusiasm will be.

Finkel, Steven E., and Geer, John G.. 1998. "A Spot Check: Casting Doubt on the Demobilizing Effect of Attack Advertising." American Journal of Political Science, 1998. 573. JSTOR Journals, EBSCOhost (accessed November 16, 2014).

Krupnikov, Yanna. 2011. "When Does Negativy Demobilize? Tracing the Conditional Effect of Negative Campaigning on Voter Turnout." American Journal Of Political Science no. 4: 797 Academic OneFile EBSCOhost (accesed November 17, 2014).

Poster 60
The Impact of the Racial Gap on Capital Punishment
Presenter(s): Ashleigh Ellis
Advisor(s): Dr. Ann Gordon

Overtime, support for capital punishment has evolved. Compared to previous decades, support has changed amongst different variables such as: age, race, gender, and political perspective; therefore, today, these variables have changed the amount of support for it. For example, as of today, 6 states have repealed the death penalty with New Jersey being the first in 2007 to do so in 40 years. As memories of Jim Crow and the Civil Rights era have faded due to generational replacement, American society today still has this racial gap, however it is due to this racial resentment or symbolic resentment that the Caucasian community has been empirically supported to have adapted to instead. Racial or symbolic resentment is the idea that African Americans are 'unwilling to work for themselves' and due to that mindset, this has linked to a decrease in support of government spending to assist African Americans and other minority groups today. When studying this racial gap between Caucasians and African Americans today, we see an apparent difference in between support for the death penalty. Among some of the most interesting findings, I found that race had the most significant impact on support for the death penalty. Due to generational changes overtime, I hypothesized that support for the death penalty would also be changed by age however, I found little data to support the impact of this variable. This paper concludes with the support that racism continues to play a significant role in the criminal system today.

Poster 61
Campaign Spending and Political Efficacy: Why Average Americans Aren't Voting With Dollars
Presenter(s): Lauren Ewashko
Advisor(s): Dr. David Shafie

With the marked increase in campaign spending and thus campaign fundraising we have seen an increase of Super PAC donations to political campaigns. The decline of political efficacy and political trust in the United States is sometimes linked to the increase of these kinds of big money donations in elections. It has been argued that the average civilian no longer feels like their donation counts towards achieving a win in political campaigns. There are those who say that the fact that politics is dominated by a small number of big donors has lead to a decline in individual contributions by citizens. Contrary to this belief individual contributions still make up the largest percentage of campaign donations. The system, it seems, would be more fair and representative if more citizens contributed money to candidates they favored. By increasing the percentage of citizen participation and donations big donors would be more limited in their influence. So, my question is: Why in an era when the cost of elections is on the rise do we see a decline it citizens donating their own money to the candidates they like in an effort to affect political elections? Using National Election Survey data pertaining to questions about political participation, political efficacy, and campaign donations this essay will examine the relationship between efficacy and campaign contributions.

Poster 62
Public Opinion and Judicial Elections
Presenter(s): Nick Fernandes
Advisor(s): Dr. David Shafie

High profile Supreme Court cases have become increasingly commonplace, particularly with the Citizens United court decision granting unprecedented rights to corporations. Many in the media have decried these as examples of increasing "judicial activism". This trend has trickled down to the state supreme courts as justices have increasingly played a more active role in developing policy. Gay marriage has become legalized in numerous states due to this trend. While public sentiment is unlikely to affect the appointed Supreme Court, it could have a substantial impact on state judicial elections.

This paper will specifically be looking at judicial elections in Kentucky. This paper will examine public opinion towards the role of the court and how it influences their views on how the judiciary is chosen, whether through appointment or election.

If ordinary voters retain the opinion of mass media, they're more likely to also decry the trend in "judicial activism". How will this affect their voting patterns? This paper posits that voters who disagree with the notion that supreme court judges have a great deal of leeway in their decisions when they claim to be "interpreting" the Constitution are more likely to favor retaining statewide judicial elections.

Poster 63
Humanitarian and Military Interventions: Understanding Where Isolationists and Internationalists Diverge
Presenter(s): Rachel Fox
Advisor(s): Dr. David Shafie

As the United States continues to be the dominant power on the global stage, there is an expectation to address the responsibilities that come with such great power. When it comes to potential humanitarian or military interventions, the country often comes up against the political and legal realities of domestic politics. The political elites must then muster the domestic political will necessary to engage in military action to prevent or thwart humanitarian crises. Both domestic and international security, as well as ending the perpetration of human rights, requires the state's use of military force. The importance of public support for military and humanitarian intervention is, therefore, essential for the decisions made by policy elites, Congress, and the President.

This paper examines public opinion in regard to both humanitarian and military interventions in an attempt to identify where differences in the public's understanding diverge. Using survey data on American public opinion and foreign policy attitudes for The Chicago Council on Global Affairs in June 2010, I argue that people who have stronger isolationist values are negatively associated with higher levels of support for both humanitarian and military interventions. Conversely, people who maintain a stronger internationalist stance are positively associated with higher levels of support for both humanitarian and military interventions. Moreover, understanding support for humanitarian and military intervention is particularly important for members of Congress who seem to pay attention to level of public support for using force when they make decisions about supporting or opposing humanitarian and military interventions.

Poster 64
Voting Preference and Religion's Superiority to Ethnicity
Presenter(s): Benjamin Gourley
Advisor(s): Dr. Ann Gordon

Voting in the Presidential election always comes down to the wire, which leads political scientists to contemplate the most efficient ways for candidates to target and seize voters. The study explores how ethnic and religious values affect a voter's party identification. This study will identify theories of opinion formation and connect these theories to the values that religious and ethnic voters rely on when voting for a candidate. This study hypothesizes three things: first, religious groups will tend to vote for candidates that hold the same religious values. Second, Ethnic groups will tend to vote for candidates that share the same ethnic background; and lastly, it hypothesizes that religion is a more reliable indicator of partisanship than ethical values that voter's hold. In this research paper, the independent factors that are being observed are religious values such as importance of religion, guidance in day-to-day life, as well as church attendance and ethnic diversity. The research will help candidates better target the audience they currently have and maintain good relations as well as seek where lack of constituency is with certain ethnic groups. Among the expected results is that while ethnic groups support candidates that relate to their shared ethnicity, religion will be a leading indicator on how a constituent will vote.

Poster 65
Public Opinion on Iran's Nuclear Programme
Presenter(s): MehranHaghirian
Advisor(s): Dr. Ann Gordon

Using the American National Election Study of the 2012 Presidential Elections, the research will focus on the American public opinion towards Iran's nuclear program. The study has five survey questions on Iran's nuclear program from the study. The research will not only analyze the American public opinion derived from the survey, rather it will focus on the negotiations between Iran and the world powers on its nuclear programme. Utilizing the periodic updates since September 2013, derived by academic articles, polls and surveys, and the international media's reaction.

The Iranian Nuclear program is the primary concern of the United States, since 2002 and has execrated annually. The threat of Iran having a nuclear weapon is not accepted by the American people and the United States government along with the international community. In the past thirteen years many factors have contributed to the escalation of tensions, and options have varied from direct diplomatic negotiations, or talks of military action. Their has been ongoing nuclear negotiations between Iran and the E3+3 since 2002, that had no positive outcome until the newly elected president in Iran, Hasan Rohani promised rigorous negotiations with the world powers to resolve the nuclear issue. This promise led to the Geneva Joint Plan of Action in November 2013.

The variation of public opinion towards Iran can be examined by analyzing the different dependent and independent variables relating to the issue. Support for Israel, opinions on military action, and the public's support of President Obama's handling of foreign policy. The hypothesis states that the American public opinion is against a military action in Iran despite the great influence and support for Israel, and diplomatic negotiations are favored to dismantle Iran's alleged nuclear weapons development. It is evident today, after eighteen-months of intense and vigorous negotiations between both sides, that a final comprehensive deal is within reach.

Poster 66
The Effect of Voter Identification Laws on Voter Turnout
Presenter(s): Robert Heins
Advisor(s): Dr. Andrea Molle

My research project studies the relationship between voter turnout and voter identification laws. This is a very controversial topic, with proponents for each side arguing that the change, or lack of change, would affect voter turnout in some way. Some states have implemented different forms of voter identification, and by comparing the state's voter turnout before and after the new polices, the effects of voter identification laws become more apparent. Studies have been completed on this topic, however many are contradictory and do don't address specific changes but overall trends.

My independent variable is the status of voter identification laws in each state, being strict photo ID, strict non-photo ID, photo ID requested, non-photo required, and none required. The dependent variable is the voter turnout rate for each individual elect, which, should be affected by the identification requirements. My goal is to compare the voter turnout in different states before and after changes in identification requirements, either the tightening or loosening of control. Similar elections will be compared so voter turnout will not be altered due to more interest in presidential or senatorial elections.

Poster 67
Religiosity and Political Efficacy
Presenter(s): Nicolette Hoekstra
Advisor(s): Dr. David Shafie

I will be examining the relationship between someone's level of religiosity and how it affects their level of political efficacy, i.e. whether they feel their vote matters. This in turn will effect how much the participate politically. My question is whether a person's religiosity does in fact effect how they feel about their vote and whether they can make a difference in politics. My hypothesis is that the more religious one is and the more involved they are in church, the higher their political efficacy is. I will be using the 2008 National Election Study to examine the data that demonstrates this relationship. I will also examine how someone's religiosity effects their political efficacy, for instance is it their religious involvement that has more of an effect or their church leader's influence on them, ect.

Poster 68
Re-Examining the Gender Gap: A Closer Look at "Women's Issues"
Presenter(s): Katerina Ioannides
Advisor(s): Dr. Ann Gordon

The 2012 election was rampant with rhetoric about "women's issues," specifically, welfare, education, and reproductive rights which are commonly framed as gender specific issues based on women's perceived positions as primary caregivers. From these assumptions stem symbolic and issue-based attempts to to target the much coveted "women's vote," which has been subject to much scrutiny since the emergence of the gender gap. Much of this literature treats women as a monolithic voting bloc, falsely separates gender into a binary, and frames "women's issues" into a marginal category outside of mainstream political issues. Building from literature that emphasizes women are not a voting bloc, this paper uses data from the NES 2012 election study to reassess the relationship between the gender of a respondent and attitudes towards welfare, education, and reproductive rights. The present study also examines whether gender is the best organizing mechanism to assess voter's political attitudes, and looks at other demographic factors that have larger chasms than gender. The paper concludes with a re-examination of "women's issues" and the larger implications & repercussions for targeting voters based on essentialist assumptions.

Poster 69
Voter Turnout Among the Youth
Presenter(s): Conner Larkin
Advisor(s): Dr. Ann Gordon

Low voter turnout amount young adults in the United States is problematic especially compared to older adults. This paper will explore why there is a low young voter turnout rate. Recent literature has proposed that educational achievement and economic advancement has accounted for higher voter turnout in older adults, while the lack there of is attributed to lower young turnout. Other literature also points to apathy as a possible causation for low youth votes. The Youth don't realize the impact they can have on an election, or the impact the election can have on them, because of lack of interest. The latent variables underlining this is they haven't attained a level of education or economic assets they don't have as much sane to influence their voting participation. Through the use of the National Election Study of 2012, three charts are constructed: two bar graphs that show the relationship between education or income as a prediction of turnout and a multivariate regression chart to show apathy towards elections. Once analyzed, it will be determined if there is a significant correlation between educational attainment, economic status, and apathy as all possible independent variables for why the youth do not vote.

Poster 70
Fear of Economic Collapse: Financial Anxiety and Institutional Distrust
Presenter(s): Matthew Lyons
Advisor(s): Dr. David Shafie

The 2014 Chapman Survey of American Fears revealed that more than 45 percent of Americans are very worried or worried about coming economic collapse. The present study seeks to understand the causes of this anxiety, which is not only widespread, but potentially concerning if, as economic theory contends, expectations produce real effects. Utilizing data from the Chapman Survey of American Fears, the present study expects that this concern stems from an issue of institutional distrust. This is examined by testing hypotheses that compare worry about economic collapse with worry about government corruption, feelings that others can be trusted, and measures of life satisfaction. Demographic variables, as well as political party affiliation and political ideology are also examined. The study relies on the literature on political trust to illuminate likely causes of both interpersonal and institutional distrust, and the connection between them.

Poster 71
Veterans and Higher Education Benefits
Presenter(s): Jason Mehta
Advisor(s): Dr. Lisa Leitz

The issue of Veteran's Benefits has been a major topic in U.S. news, politics, and public opinion. Discussion of the VA's impact, especially the difficulty in accessing higher education benefits, has increased as more veterans return home. However, some veterans find it more difficult than others when trying to use their education benefits. The dependent variable I will be focusing on is the reported difficulty in accessing benefits. For my independent variables I will be focusing on age of respondents at enlistment, their level of education prior to enlistment, race, gender, and rank. Preliminary research using existing survey data from 2011 of veterans enrolled in Arkansas colleges and universities data suggested a link between age prior to enlistment and reported difficulty in the higher education benefits process. Upon further research, a link between educational levels of parents, exposure to military prior to enlistment, and ability to navigate the claims process was found. Given this, the paper seeks to examine the actual causes of real or perceived difficulty in accessing higher education benefits. The present study hypothesizes that it is the level of education prior to enlistment and during service that determines the degree of ease or difficulty veterans undergo while attempting to use their higher education benefits.

Poster 72
How partisanship affects foreign policy attitudes towards defense spending.
Presenter(s): Sauran Mussin
Advisor(s): Dr. Ann Gordon

Throughout the Cold War era matters of US foreign policy have been met with increasing bipartisanship as a result of the looming threat of a possible military confrontation with the USSR. Divergence between the two parties was sidelined due to the necessity for unity on account of the military and economical threat that rivaled US interests. Following the dissolution of the Soviet Union, more recently post 9/11 era and the launch of the Global War on Terror there has been an increasing partisanship disagreement within the US government towards foreign policy. This research paper will attempt to explain the relationship between partisanship and attitudes towards foreign policy specifically how it affects views on defense spending. The crosstab data revealed that 18.3% of Republicans favored increasing defense spending compared to 11.5% of Democrats. Interestingly enough my initial hypotheses that Republicans will favor increasing defense spending more than Democrats was not supported by the findings due to the weak correlation between the variables. Further research will be required to determine why this occurs since it contradicts existing literature that supports my hypothesis.

Poster 73
Bowling Online: Youth, Participatory Politics, and New Media
Presenter(s): Kathryn Newburn
Advisor(s): Dr. Ann Gordon

Understanding the ways youth engage in politics is vital to the preservation of democracy, as they will eventually be its administrators. Young Americans are disconnecting from formal political participation; election turnout is weak and membership in political parties and organizations is declining. However, the turn away from traditional, institutional political participation has been accompanied by the rise of an alternative political tool: new media. Social networks, blogs, and other virtual communities now offer alternative, informal platforms through which youth have found a political voice. Research has largely been divided into examinations of waning institutional engagement and, separately, the rise of informal, participatory involvement. Although the former may be corroding democracy, the latter may be transforming it. This fracture limits broader analysis of the trends of youth participation. To better understand the shift away from formal participation, this investigation will first assess youth confidence in the political system. It will use the 2012 American National Election Study data to measure internal and external efficacy, as well as satisfaction with the political system. It will then evaluate institutional engagement, measuring political party membership, campaign contributions, and petition signing, for example. Moreover, it will measure informal, or participatory, forms of engagement by analyzing youth access, circulation, and production of political content through new media. By comparing such practices, this analysis will examine whether participatory engagement acts as a substitute or a supplement to institutional involvement. Most importantly, it will consider the value of participatory engagement and its role in the democratic system.

Poster 74
Distrust in Government and Political Activism
Presenter(s): Josh Nudelman
Advisor(s): Dr. Ann Gordon

22 percent of United States citizens believe that they can trust the government in Washington to do the right thing most of the time, and Congress has an 11 percent approval rate according to a Gallup Poll. These numbers statistically indicate that citizens do not believe that the individuals they elected to represent them are truly representing them and are advocating on their own behalf. Individuals do not believe congressmen and women have their best interest at hand and are simply trying to please party leaders so they can get reelected. Elected officials are often times wrapped up in scandals trying to hide their misdoings which creates a strong distrust among constituents. In recent news citizens have taken initiative to make the change they wish to see, as evidence such as the Occupy Movement, and the Ferguson Shooting. Each case was a examples of when individuals took matters into their own hands and became politically active due to their low trust in government to make a move. When individuals feel as though they do not trust the government do they get involved and take up issues for themselves, or do they just back and watch and become apathetic to these events and become a bystander to a corrupt government? This paper strives to find a correlation between the distrust individuals feel about Congress and the activism citizens take up when they feel as though their voice is not being heard.

Poster 75
Media's Effect on International Engagement
Presenter(s): Brenna Parish
Advisor(s): Dr. David Shafie

The internet's interactive composition and fluid interface has changed the way in which individuals acquire information, and has given consumers of news media a means to access a large amount of information regarding political content and international issues. Furthermore, the internet provides users the choice of the information that they consume, which contrasts the rigid, predetermined nature of televised news media. Because of this, this research project will compare the effects of both television and internet media on engagement in international affairs in order to examine the difference between old and new forms of media. Through a statistical analysis of data from the 2008 National Election Study, this project will test the hypothesis that those who acquire news media online are more likely to prioritize foreign policy issues of promoting human rights and combatting global hunger than consumers of television media.

Poster 76
Women Campaigning on "Women's Issues"
Presenter(s): Brianna Pressey
Advisor(s): Dr. Lori Cox Han

Traditionally, women's issues have included: abortion rights, contraception rights, equal pay, and occasionally education reform. When a woman decides to run for office, therefore, the general public tends to assume that a female's campaign with emphasize these issues. In this paper, I will analyze the role "women's issues" play in a female candidate's ability to be elected. Specifically, I will compare socially conservative Republican women who campaigned against many of these ideals in the 21st Century with liberal Democratic women who did the opposite. The comparisons will be used to draw conclusions about whether the role "women's issues" plays a larger role than political party in a female's ability to be elected to office.

Poster 77
Who Supports Welfare?
Presenter(s): Matthew Reminick
Advisor(s): Dr. Ann Gordon

Although there is much debate over the effectiveness of social programs, there has not been much research attempting to discover who exactly supports spending government resources on welfare. Previous research suggests that the American people are divided over creating a welfare state. Many economic data shows that providing assistance is beneficial short-term, but can have varying effects in the future. The research I conducted attempts to define and analyze welfare while surmising which groups of Americans are most likely to back increased federal spending towards welfare. Using the ANES 2012 data, I evaluated voter responses to election surveys, paying close attention to a respondent's demographic. Through statistical analysis, I have discovered that a family's income level appears to have the most direct correlation with support for welfare. As a whole, Americans tend to want to reduce welfare spending. Surprisingly, age does not play a major role in determining a person's opinion on welfare. I hypothesize that those who are more conservative will not support welfare, as right-minded economics and Republicans are typically against federal spending in this area. I also hypothesize the ultra wealthy are also in support of welfare because they are philanthropically compelled to give to those who are not as privileged and are more likely to approve of spending in general.

Poster 78
Problems in Political Recruitment of Women: Systemic or Personal?
Presenter(s): Marissa Reynolds
Advisor(s): Dr. David Shafie

In today's current political environment, it's becoming more and more evident that women make up a significantly smaller portion of Congress than men do. A lot of this difference could have something to do with recruitment of candidates running for office. I set out to find why men, more often than women, win seats in the House and Senate. To do this, I intend to discover whom exactly recruits candidates and what the individual motivations are for each candidate and their decision to run. With this information, I should be able to trace back to the root of the problem and ascertain whether or not the lack of women in political office is due in large part to recruitment or rather, individuals' personal self-confidence.

Poster 79
What You Watch and What You Think: The Role of Crime Media Consumption in Reinforcing Punitive Attitudes and Counterfactual Beliefs about the Perceived Increase of Violent Crime
Presenter(s): Robert Roussel
Advisor(s): Dr. David Shafie

This paper focuses on public opinion of crime salience and punitive attitudes, looking specifically at how crime-news consumption affects such attitudes. Sensationalized local TV news has become heavily focused on crime and accidents in recent decades, and many researchers claim that heavy consumption of local crime news lead one to overestimate crime rates. Not only do people perceive that there is more crime, but they often feel a personal threat to their safety, and consequently advocate more severe criminal justice policies. Even if it does lead people to erroneous beliefs, the quasi-sanctity of freedom of the press in the U.S. will make reform extremely unlikely, and the market will continue to produce crime-media because it is so appealing. The death penalty and support for mandatory sentencing are two measures of criminal punitiveness that this paper will use as it attempts to evaluate the role that local crime media consumption plays in forming such beliefs. Data from the Chapman Social Reality Survey (2014) will be used to look at the relationship between perceived crime, local media consumption, and punitive attitudes. An important implication of this question is whether crime news' overrepresentation of black suspects may mean that white viewers are more likely to find blacks as supposed criminals. Another important implication is whether that may be responsible for the disproportionate sentencing blacks face in the American judicial system today or if it is simply a byproduct of a socialized prejudice reinforced, not created, by crime media.

Poster 80
Campaign Finance Makes America Go Round: A Demographic Study of Individual Campaign Contributions
Presenter(s): Geneva Sherman
Advisor(s): Dr. Ann Gordon

How political campaigns are financed directly affects every citizen in the United States. This can be attributed to the fact that campaign money is correlated to the laws that pass through congress and the interests that are taken into consideration. Although the 2010 passage of Citizens United has increased the influence of corporate and wealthy interests, individual campaign donations represent a major percentage of funds raised and are heavily relied upon. The present study investigates what type of individual makes these political contributions based on household income, education level, age, gender, race, political party identification and trust in government. The study will build upon past research as well as compiling and analyzing data collection from the 2012 ANES time series election study to find the largest demographic of contributors and the motives behind the donations. I believe that the knowledge acquired from my findings will paint a clearer picture of who is directly affecting politics and the population as a whole. My research thus far has found that the majority of contributors are white males above the age of 55 with a post high school education. These individuals are also part of the middle and upper middle class, identify with the Democratic Party and have some skepticism of the integrity and honesty of the government in Washington.

Poster 81
Civics and Politics
Presenter(s): Lauren Siaumau
Advisor(s): Dr. David Shafie

In the midst of a rapid decline of an active youth in the political scene, it would seem appropriate that the causes of such a phenomenon would be researched in an effort to find an explanation and possibly a solution to this problem. Previous research on this issue has yielded various possible factors. I intend to focus on the education aspect, specifically a civic education and how that translates to our youth being more politically active. The question posed in regards to this issue is are civically educated individuals more inclined to be politically active? While other research has brought up other valid contributing factors, education seems to be the more consistent determinant of political involvement. Hence, I plan to strengthen that relationship in this paper. I hypothesize two possible outcomes in my examination of civic education's role in political involvement in our youth. The first being that a civic education leads to a greater identification with the needs of a community. Secondly, once those needs are identified, those who are civically educated will turnout to vote on policies directly related to those needs. The data set I intend to test these hypotheses against is ICPSR Youth Post-Election Survey conducted by the Commission on Youth Voting and Civic Engagement (2012). In theory, there will be a conclusion that aligns with my previously mentioned hypotheses in order to to draw greater attention to the need for quality civic education to create politically active youth.

Poster 82
Public Perception of Income Inequality in the United States
Presenter(s): Deepak Sithu
Advisor(s): Dr. Ann Gordon

Income inequality has been increasing in the United States since the 1970s. The recession and recovery only exacerbated this disparity, with the top earners rising in wealth at unprecedented levels, while wages for middle class people remained stagnant. However, this issue of increasing income inequality has not been seen as an issue of importance in mainstream discussion and little has been done by politicians to address it. While research has been conducted regarding the relationship between peoples' perceptions of inequality and factors such as the political economic system, expectations of the economy, cultural values, and actual levels of inequality, there are still factors to be examined. Using data from the American National Election Studies 2012 Time Series Study this paper explores the factors of political identity, level of education, and income in their effect on perceptions of income inequality in the U.S. Political identity in terms of the American two-party system and education have not been studied directly as causes for perceptions of inequality in the U.S. In addition, while there are several researchers who do attribute an individual's personal wealth and income to being a primary factor affecting their perception of inequality, there is antithetical evidence, including data from the ANES study, indicating that there is actually an insignificant correlation between income and perceptions of income inequality. By examining the relationship between these factors, the disconnect between the reality of the increasing economic divide in the United States and the lack of action against this movement can be understood.

Poster 83
Who Cares About Income Inequality? And Why?
Presenter(s): James Trocme
Advisor(s): Dr. Ann Gordon

Inequality is one of the most pressing economic issues in today's world. High levels of economic inequality are associated with a large number of negative economic side effects and with correspondingly high levels of political inequality. This results in the voices of the few being heard more loudly than the voices of the many and a disruption of democracy. However, in the United States there seems to be very little political will to take action that might curb the problem of inequality. Many scholars agree that the defining aspect of a person's opinion on the subject is their own self-interest, but perception of self-interest is influenced by a number of factors. These include but are not limited to political affiliation, age, income level, and level of education. All of these impact the extent to which an individual might feel that inequality of wealth and power is a problem. Using 2012 ANES election data, I have attempted to determine what impact, if any, income and other variables may or may not have on perceptions of inequality. I hypothesized that, as income increases, worries about the danger of inequality decline. While my hypothesis was confirmed to a limited extent, it has become apparent that other factors, namely political affiliation, are much more important determinants than income, some even by an order of magnitude.

Poster 84
Economic Woes: Do we blame Political Corruption?
Presenter(s): Dorji Tshoden
Advisor(s): Dr. Ann Gordon

The World Bank defines corruption as "the abuse of public office for private gain" and while this social phenomenon exists at many levels of institutions, I will be focusing on corruption in the American political system in this analysis. This paper seeks to focus on the impact of one's distrust in the government and how they perceive the economy and corruption in the government. Therefore I will be testing the subsequent hypothesis of: people who view the government officials to be corrupt, will be more likely to be of the notion that the state of the economy is bad than those who otherwise do not. Factors like the media or social standing of a person comes into play to heavily influence a person's socially constructed views of the Government. Thus this paper seeks to establish how these social factors work to influence people views, which in turn will lead people to hold that corruption in the government is responsible for the bad state of the economy. Interestingly I found that certain studies argue that corruption is good for the economy.

Poster 85
The Decline of Marginal Districts in Congressional Elections
Presenter(s): Daniel Zimmerman
Advisor(s): Dr. David Shafie

Recent research suggests that competition in Congressional elections has been on the decline for more than 50 years, based on incumbent reelection rates and the percentage of close races. Recent elections show the least competitive outcomes dating back to the Post-War era. Currently, there is a multitude of proposed explanations attempting to figure out why there has been such a significant decline in marginal districts. This includes the advantages incumbents have in the reelection process, the effects of redistricting/gerrymandering, the impact of recent partisan polarization, and the significance of campaign finance. In my research I will look at precinct and congressional level data provided by the Secretary of State in 2010 and 2014 statewide elections in California districts, to discover the effects that partisan versus non-partisan gerrymandering has, the level of competition between open and incumbent seats, and the impact that partisan polarization has had in recent elections. I will investigate these results along with looking at former research to determine what has caused the intense increases in "safe" districts in congressional elections.

Poster 86
Powerful Embodiment of Marginality
Presenter(s): Alexandria Beatificato
Advisor(s): Dr. Julye Bidmead

The societal governances that contour the lives of “Hindu” women have been birthed from an adherence and response to the “scriptural” renditions of India. These laws and responsibilities have been manifested in the Vedic texts, the Epics, and both popular "Hinduisms" and the bhakti movements. Woman’s roles and responsibilities in society have been contingent necessarily upon these ritual practices and ordained duties heavily reliant upon and constructed by the notions of purity and pollution. In this religious and philosophical way of being, the Cosmos’ operation and effectively maintained balance is orchestrated through a codependent relationship ritually sustained by and with the Divine. The way woman is able to be and act out of her existence is framed by these laws of both duty and ritual, structured by and founded upon the instances of purity and pollution. Because woman’s polluted status marginalizes her, Western “feminists” have argued “Hindu” woman is disempowered through these seemingly limited subjugations voiced within the “Hindu” literature. Dependent upon which lens we choose to perceive through, woman is both able to be empowered or disempowered due to the rational discourse concerning these “texts”. I would like to argue that it is in this mode of being, in woman’s marginalized existence, that she inherently embodies non-hegemonic, auspicious power as a physical embodiment of the Divine, and as an integral half to the whole that is human. I argue that in her marginality, woman overcomes subjugation in the affirmation of her agency and resultant projects therein.

Poster 87
Marian Apparitions: Mary, Is That You?
Presenter(s): Rosalva Berber
Advisor(s): Dr. Julye Bidmead

This research will focus on the religious phenomena of the Marian Apparition. I will evaluate the recorded occurrences, both ancient and modern. I will assess the commonalities as well as the differences of these appearances by the Virgin Mary. For example, when she revealed herself to Sister Agnes in Japan she had an Asian appearance. However, when she appeared in Mexico it is said that she resembled Juan Diego’s people. I will also explore the social context in which these occurrences took place. What was occurring at that time in the society where it happened? What do the witnesses have in common? I will also examine the differences between the witnesses. Do those differences impact the interpretations? Do these appearances only occur to the most devout of people? I will shed some light on all of these subtopics, but most importantly I aim to focus on whether or not these appearances real or imagined.

Poster 88
Examining Elie Wiesel's Moral Compass developed from Jewish ethics and tradition in Contemporary Public Addresses
Presenter(s): Margot Fux Kahn
Advisor(s): Dr. Marilyn Harran, Jeffrey Koerber

Elie Wiesel identifies himself as a chassid, a pious and observant Jew. This research will further explore the teachers and sages that taught and inculcated such a strong moral structure in Elie Wiesel, and how his ethical framework shapes his actions in public demonstrations of peace and righteousness. According to Maimonides, one of the founding figures of Jewish philosophy explains that there are four types of ethical personalities: (1) The Natural Man – a human that has good intentions and acts instinctively towards others. He or she does not, however, follow any formal moral code of action. (2) The Functional Ethicist – a person who seeks correct behavior by avoiding extreme situations and controlling his passions. He or she does not refer to any divine source of guidance, however. (3) The Imitator of God – who adopts God as his model. He makes careful decisions based on the rules of halachah. (4) The Chassid – a man or woman who is concerned with imitating God, but whose main concern is personal holiness. According to Maimonides, this person is a hacham, meaning a wise person. This person gives selflessly and completely, acting lifnim mishurat hadin, or in English, beyond the letter of the law—taking the written word to physical action. Based on the "Chassid man" mentality, I will analyze three of Wiesel's famous public speeches: the Bitburg Adress in 1985, Wiesel's Nobel Peace Prize Acceptance Speech of 1986, and his remarks at the opening of the US Holocaust Memorial Museum in 1933.

Poster 89
Seeing the Face of the Other: The Role of the Seductress in the Hebrew Bible
Presenter(s): Marilyn Love
Advisor(s): Dr. Julye Bidmead

This project examines how foreign women in the Hebrew Bible paradoxically subvert and assimilate into patriarchal power structures. The stories of Tamar, Ruth, and Esther will be interpreted through linguistic, postcolonial, and feminist lenses, and particular attention will be paid to the role of the trickster/seductress in ancient Hebrew literature.

Poster 90
How Disney is "Kingdom Hearts?" A Comparison Between Disney Films and the Video Game
Presenter(s): AndrewVo, Kassidy Vo
Advisor(s): Dr. Julye Bidmead

Disney is known for movies that often entail gendered morals for boys and girls. This research examines Kingdom Hearts, a video game developed by Disney and Square Enix, to show how the game has "Disney morals" that are progressive in terms of gender, race, and religion.

Poster 91
"Demanding Diversity: The Student-Driven Push for a Multicultural Center at Chapman University"
Presenter(s): Cristiana Wilcoxon
Advisor(s): Dr. Julye Bidmead

Chapman University faces controversy for failing to provide adequate diversity resources for its entire campus community, as demonstrated by the 2013 WASC site visit report that described attention to diversity as "underdeveloped." Furthermore, the 2010-11 HERI survey demonstrated that faculty respect for the expression of diversity is considerably lower at Chapman *28.2%) than at peer institutions (41.3%). President James L. Doti received criticism in Fall 2014 when a student journalist revealed that he stated that a multicultural center would "ghettoize" the university in a 2011 deposition. Through a satisfaction survey, this project assesses the Chapman community's opinions on the creation of a multicultural center on campus as correlated with participants' background information, including but not limited to age, race, sexual orientation, citizenship, and disability status. This project also compares Chapman's existing diversity resources with its peer institutions, and contrasts the demographics of Chapman's Honors Program with university-wide statistics. The intent of this project is to open up a discourse with other Honors programs regarding the need for diversity and multicultural resources on college campuses. This project also seeks to engage Honors programs in an ideological discussion about how diversity and/or multiculturalism is represented and celebrated on campus.

Wilkinson College – Department of Sociology

Poster 92
The Process of "Managing" Volunteers: The Ironic Importance of Helping Your Helpers
Presenter(s): Samantha Cressey
Advisor(s): Dr. Roberta Lessor

It is imperative that staff of non-profit organizations effectively "manage" their volunteers to ensure their needs are met: this is the two-directional process of volunteering. Volunteering events at "People Helping People", a small non-profit in Southern California that caters to homeless families with minor children, demonstrate the importance of helping your helpers. This study identifies four social types of people who come to volunteer at these events – all for different reasons. It is the staff member's responsibility to read the social type and effectively address the needs of each volunteer in order to create a positive volunteering experience where volunteers have a desire to return and are likely to donate financially. This study examines the staff members reading of the social types of volunteers and their efforts to meet each volunteer's expectations in order to advance their non-profit within the community.

Poster 93

A Comparative Analysis of Diversity Resources: Chapman University and Loyola Marymount University

Presenter(s): K.B. Jenny Kim

Advisor(s): Dr. Stephanie Takaragawa, Dr. Lynn Horton

The object of my thesis research is to examine the existing diversity initiatives and campus climate of Chapman University and a comparative institution, Loyola Marymount University. The focus area of study will be racial/ethnic diversity within the various levels of the institution, with the primary focus on students and institutional support. The topic by nature is nuanced and complex, with interwoven layers of hierarchy and various scopes of campus climate including but not limited to: academic curriculum, co-curricular programs, availability of human resources in related expertise, and general accessibility of resources pertaining to diversity. The main objective is to examine the availability and accessibility of resources pertaining to diversity to the student body at these two institutions of higher education and utilize the observational and qualitative research to guide future endeavors at Chapman University; to create a sense of urgency to improve our existing diversity initiatives to better reflect the mission statement and values of our community by utilizing the voices of current students and those in our surrounding competitive circle. Using the concepts and sociological theory of critical race theory, racialization of space and place, and diversity in higher education, the various methods of evaluation will bring to fruition the comparative analysis of Chapman and LMU and their existing diversity initiatives and resulting campus climate. By utilizing the real voices of students at both institutions as the basis of sociocultural lived experiences, this research aims to better understand the challenges Chapman faces moving forward to a more inclusive and accepting environment.

Poster 94

Experiences of International Students in the United States: Identity Change and Cultural Perceptions from the Female Perspective

Presenter(s): Sarah Persau

Advisor(s): Dr. Lynn Horton

How do the expectations of international students align with the reality of their experience? Do female international students face their own specific challenges? How does the experience of living and studying in America alter these students' sense of identity? Using interviews from female international students attending a four year private university in Southern California, this study will explore these questions to get at the root of these students' experiences and the way exposure to a different culture changes their own sense of identity as well as their connection to and perception of their home culture. Preliminary findings suggest that students have an easier time adjusting to a new culture than in the past due to advances in technology and early exposure to Western ideas. Additionally, identity change is inevitable in these students. Whether the individual has combined the two cultures into one or has adopted two separate identities for each country they reside in, these students are highly affected by the exposure to American culture and ideals.

Poster 95
The Babysitter as Family Member or Employee?: A Unique Case of Altercasting
Presenter(s): Michaela Torrie
Advisor(s): Dr. Roberta Lessor, Dr. Patricia See

The role played by the babysitter is unique in that it involves intimacy and parenting, but in the context of employment. While some families expect that the babysitter maintain a professional and rather distanced role from the family, others begin to act toward the babysitter as a family member. Altercasting, first described by Eugene Weinstein and Paul Deutschberger in 1963, is the projection of an identity onto an individual that is congruent with one's own goals. The subject casting the identity is the altercaster, while the subject receiving the identity is the altercastee. The altercaster is often in a position of power over the altercastee, whether it be through structural authority, manipulation or emotional control. While conducting field research as a babysitter, I observed that both the parents and children use these techniques to place the babysitter into a position that identifies them either as an employee or family member. The babysitter is then forced to manage these various identities placed upon her. This research reveals that the babysitter handles her identity in one of three ways, to accept whatever role she is given, maintain control through insisting she is only an employee, or to terminate employment with a certain family.

Poster 96
Moving Back to the 18th Century View's of Women's Role and Perception of Their Lives: The case of motherhood
Presenter(s): Yelena Liepelt
Advisor(s): Dr. Véronique Olivier, Dr. Wendy Salmond

This project will explore the role of French women of the 18th century, and specifically the problems they faced due to their gender. I will analyze the obstacles that made it difficult for strong women, such as physicist and author Madame du Châtelet, to obtain happiness. These include the complicated identity of educated and ambitious women who lived within a strict gender binary system.
I will compare Châtelet's concept of happiness from a female perspective to Jean-Jacques Rousseau's view of women's happiness and maternity. Rousseau believed women played an important role in society; however, their existence was always relative to men. Thus, a female who was not a mother was not a woman. By including Rousseau's beliefs, I will demonstrate the accepted views of the time period and how they differed from Châtelet.
This research will seek to reframe the legacy of leading French women, including Émilie du Châtelet, Simone de Beauvoir, Marie Darrieussecq, and the contemporary feminist writer Élisabeth Badinter, while challenging the accepted notion of motherhood within society.
I will discuss contemporary events regarding motherhood, including elective egg-freezing in the workforce, as well as statistics created on the Chapman campus, to prove that a woman's biology remains a major aspect that is out of her control. Creating a historical trajectory of these leading women, and comparing their ideas to current events, lends a position of relatability to the contemporary viewer.

Poster 97
Service Animals in Media Representation
Presenter(s): Sarai Urzua, Beth Haller, Chelsea Jones
Advisor(s): Dr. Art Blaser

Through the Disability Studies minor courses, an interest in disability representation in the media is analyzed in multiple situations. Representations in the media are important forms of representation of our society, because it directly reflects the viewpoints and the assumptions that are being made. Service animals are known to provide support for people with a variety of disabilities. These disabilities include physical, mental, psychological, and other disabilities through support, physical guidance, and companionship. These animals are providing service for the individuals in a manner that an individual person would not be able to perform the tasks in the same time constrains. The representation in news sources of service animals plays a grand role in the manner in which the service animals are presented, stereotyped, and perceived. In the research project, news sources along with other forms of media are analyzed to determine the overall perceptions that are prevalent in our current society.

Poster Session 2
Abstracts

Graduate Students
Behavioral, Health, and natural Sciences

Posters 1-30

Crean College – Department of Physical Therapy

Poster 1
Reliability of Precision in Motion Software
Presenter(s): Kristen Petrillo, Nicole Laura
Advisor(s): Dr. Marybeth Grant-Beuttler, Dr. Richard Beuttler

Background: There is a current lack of affordable 3-D motion analysis systems available to physical therapists for documenting objective data.

Objective: Compare data from inexpensive 3-D motion capture system using the Kinect, to the Codamotion, a traditional active marker, motion analysis system. Determine data reliability.

Design: Reliability-method comparison study

Methods: Seventeen subjects (9 females, 8 males) were instructed to walk down marked runway, arms across chest while both systems recorded data. Data was collected with Kinect on the same and opposite side as the Coda. Kinect and Coda data were interpolated and normalized for comparison. A program for heel strike detection was written in R for both systems, which determined stride length and stride time. Interclass correlation coefficients (ICC 3,1) were calculated for stride length, stride time, and joint angles for all subjects.

Results: All stride length ICC ≥ 0.70 shows acceptable clinical reliability. One of four stride time ICC < 0.70 for opposite leg step 1 likely due to occlusion of test leg by other leg during step. Joint value comparisons show high variability in reliability of Kinect software. Seventy-seven % of the same side knee data and fifteen % of the hip same side data from Kinect is clinically reliable.

Limitations: Kinect and Coda use different skeletal models.

Conclusions: Kinect software updates are needed to improved accuracy. Kinect system was significantly easier to use than Coda and may eventually be a cheaper alternative to traditional motion analysis systems that could be used by clinicians to monitor patient progress.

Poster 2

R Project in the Clinic

Presenter(s): Brianna Roberts, Matthew Asmus, Brittney Tanaka
Advisor(s): Dr. Marybeth Grant-BeuttlerDr. Richard Beuttler

Background.
The R project is a free online statistical environment which allows users to import, analyze, and produce visual representations for data. R may be useful in a busy clinical environment to provide objective evidence of progress in physical therapy for clients and payers.

Objectives.
Demonstrate how R can efficiently document physical therapy outcomes to justify treatment to patients and third party payers.

Case Description.
Case 1: Functional Independence Measures, collected once a day for 48 days, were used in inpatient rehabilitation to track progress of bed mobility, transfers, wheelchair mobility, gait, and stairs.

Case 2: Alberta Infant Motor Scale, independent sitting and quadruped time recorded biweekly for 8 weeks utilized to tracking gross motor development in a typically developing infant.
Case 3: Knee passive range of motion and hop tests recorded once a week, while Landing Error Scoring System and Knee Outcome Survey scored every 6 weeks, to track a male for 6 months after an ACL reconstruction and meniscal repair.

Outcomes.
For each case, R was used to create graphs that visually illustrate progress of each individual. These graphs include stacked line and scatter line plots to show change over time.

Limitations.
Basic statistical knowledge is a suggested prerequisite, however R is convenient once the program is downloaded and foundation in R basics is established.

Conclusions.
R was successfully used to track patient progress in various types of Physical Therapy settings. R was helpful in visually demonstrating objective patient progress over time.

Schmid College – Computational and Data Sciences

Poster 3
Current state of the Hadoop ecosystem and the transition to in-memory big data analysis with Spark
Presenter(s): Kyle Anderson, Louis Ehwerhemuepha
Advisor(s): Dr. Atanas Radenski

We investigate the Apache's Hadoop big data echo-system through analysis of its current state, its strengths, and its deficiencies. We analyze the current trend for in-disk to in-memory big data processing. We review Spark, the emerging in-memory alternative to the classic Hadoop MapReduce framework. This research can be beneficial to researchers and practitioners who need to choose a suitable big data execution model for their current needs.

Poster 4
Neural Networks for Cell Identification, Classification and Tracking
Presenter(s): Cody Arbuckle
Advisor(s): Dr. Erik Linstead, Dr. Milton Greenberg

The effective classification and tracking of cells obtained from modern staining techniques has significant limitations due to the necessity of training and utilizing an expert in the field who must manually identify each cell in each slide. Often times these slides are filled with “noise” cells that are not of particular interest to the researcher. The use of computation methods has the ability to effectively and efficiently enhance image quality, as well as identify and track target cell types over large data sets. Slides obtained from various staining techniques can be segmented and enhanced in order to counter the varying degrees of pixel intensity obtained throughout the staining process. The collection of characteristics obtained from each cell then allows for the accurate removal of cells that are not relevant to the current research. This process alone could greatly enhance the ability of researchers to obtain information from large batches of cell stain data, however the use of neural networks to identify and track target cells can alleviate the need of manual classification altogether. Utilizing slides containing only target cells neural networks can then be trained to successfully identify and track the movement and morphological changes of target cells. The use of computation techniques allows for the detection of large-scale trends and subtle changes to cell behavior that would not otherwise be possible. The information that is then gained can be used to more effectively understand and potentially target cells. The use of neural networks as well as computation image enhancement techniques has the potential to gather information and trends regarding target cells more efficiently and accurately than current manual techniques.

Poster 5
Forecasting Cryptocurrencies' Future Values Using Multivariate Time Series Techniques
Presenter(s): Alexander Barrett
Advisor(s): Dr. Cyril Rakovski

We first introduce and discuss Bitcoin and give a brief overview of its protocol. We then look at several similar cryptocurrencies that have popped up in Bitcoin's wake and address some of their minor differences. Next, we discuss Generalized Estimating Equations (GEE's) and other multivariate time series techniques which we then use to forecast average daily value time series data for each cryptocurrency by explicitly utilizing the significant pairwise cross-correlations.

Poster 6
How Climate Change Affects Thermohaline Circulation in the North Atlantic
Presenter(s): Rachel Baugh
Advisor(s): Dr. Hesham El-Askary

Thermohaline circulation is immensely important to global climate. For example the warm Gulf Stream current is the major cause for the city of London's relatively warm temperatures, even though it is located at a high latitude. If a major disturbance were to occur, it could plunge Northern Europe and other areas of the Northern Hemisphere into a miniature ice age. Thermohaline circulation is dependent on artic ice formation in the creation of salty dense ocean waters that are able to sink deep into the earth's ocean basins and travel around the globe. A major influx in freshwater could cause a breakdown of the current, originating in deep water in the North Atlantic and disrupt thermohaline circulation. This kind of event has occurred in the recent past during the Younger Dryas event, and could occur again if Greenland begins to experience a major melt event. This study will look at Greenland ice sheet trends in the last 30 years to see if melting has been occurring. Satellite data used are from the NSIDC and they focus on melt days per year and brightness temperature. NOAA data is also used from the North Atlantic region to focus in on changes in the salinity at multiple depths.

Poster 7

Automated Analysis of Gait in Preterm and Full Term Infant Walking

Presenter(s): Richard Beuttler

Advisor(s): Dr. Cyril Rakovski, Dr. Mohamed Allai, Dr. Marybeth Grant-Beuttler

Analysis of early walking skills is important for detecting infants and toddlers at risk for motor delay with the development of ambulation important for both independence, as well as, the development of cognitive skills. Detecting early motor delays in infants born preterm may help target interventions where they would be most beneficial.

We hypothesized that both infant groups would show maturation of walking patterns over time with infants born full term developing mature gait patterns earlier than infants born preterm. This study analyzed 3-dimensional position data collected with Codamotion active marker system. Infants born preterm and full term walked with 6 markers adhered to lower extremity landmarks recorded at three time periods: beginning walking, novice walking, and experienced walking. Algorithms were used to parse out the different phases of walking and calculate joint range during gait. Utilizing R Project, a mixed model regression for continuous variables and a multinomial test for ordinal data was employed for data analysis.

Total step time significantly decreased over the three ages, confirming that the subjects have a more mature and efficient gait with experience. Hip and ankle angles during walking showed interaction effects between the groups. It is argued that these patterns show that the full term infant makes changes earlier than the preterm infant. Finally, full term infants greatly diminished toe strikes at an earlier phase than preterm infants. These results partly confirm the hypothesis that both groups develop more mature patterns with full term infants showing gains earlier.

Poster 8

Autism Management Platform's addition of Features Pertinent to Special Education

Presenter(s): Ryan Burns, Duy Nguyen, David Tyler, Anthony Young

Advisor(s): Dr. Erik Linstead

Studies show that special education requires a different kind of learning style than a typical education setting. Children with disorders such as Autism Spectrum Disorder learn and respond much more effectively when given visual cues or aids. Showing children visual examples pertaining to their current focus helps to emphasize and associate. When it comes to evaluation of performance and progress in a special education setting, there exists Individualized Education Programs (IEP's) which state goals specific to each student. These goals are comprised of what team members assigned to their case think that the student should be able to accomplish in their area of disability. IEP goals tend to include a type as well as a metric of completion, such as a percentage, and can be marked as complete whenever the teacher or caretaker sees fit. The Autism Management Platform (AMP) is a software based system originally designed specifically for parents, teachers, and caretakers of any child with Autism to manage and track the progress of development, with an external purpose of gathering data on the back end to perform data mining and trend prediction. After a few user trials in the field, the system has begun to morph into a platform for special education in general. Recent development of the system includes the incorporation of both visual cues and IEP goal association. Using wearable technology like smart-watches, AMP can now show visual cues to a child associated with an event or appointment, set for them via a web client or mobile application. To better streamline the IEP process, the AMP mobile application now has the capability of tagging a media-rich posts with any IEP goal assigned to a student. Caretakers, parents, and teachers then have access to a web application where they can view, manage, and make edits to the IEP goals.

Poster 9

Regression-Based Estimation of the Level of Conservativeness of the Exact P-value Test

Presenter(s): Louis Ehwerhemuepha

Advisor(s): Dr. Cyril Rakovski

Comparison of several multinomial distributions from independent small samples is a common statistical problem that arises in analysis of case-control and clinical trials pilot studies as well as studies with recruitment difficulties due to rare conditions, lack of interest and consent or budget and time restrictions. We implement a large simulation study to empirically estimate the type I error rates of the classical unconditional exact p-value test used to test a general null hypothesis that the samples arise from a common but unspecified multinomial distribution. Further, we employ linear regression modeling to assess the effect of parameter estimation on the level of conservativeness where adjustment due to parameter estimation is not immediately available in the absence of parametric distribution. We derive a general formula that describes the complex joint effects of sample size and number of multinomial categories on the level of conservativeness applicable to all scenarios.

Poster 10
A modified K Nearest Neighbor (KNN) algorithm
Presenter(s): Louis Ehwerhemuepha, Kayla Ziegler
Advisor(s): Dr. Cyril Rakovski

Categorical and ordinal data sets are susceptible to large number of ties in distance/similarity scores and therefore pose a potential problem for the K nearest neighbor (KNN) algorithm. In some cases, exactly K nearest neighbors to a record being classified cannot be chosen without discriminating among a set of equidistant neighbors. In this worK, we propose that in the aforementioned case, (1) recruiting all members of the set of equidistant neighbors may be a good alternative over randomly discriminating among them in order to preserve the value of K and (2) adopting a new voting policy where the set of equidistant neighbors contribute only a single vote during classification will prevent voting bias towards the equidistant neighbors. Therefore, during the recruitment of nearest neighbors, the value of K may be increased to a higher value, K_eff, while the number of votes needed to determine the predicted class will be less than or equal to K_{eff} . Preliminary findings indicate that this modification results in higher classification accuracy and, for real-valued data sets, defaults to the unmodified KNN algorithm. Results were obtained by implementing both algorithms using data sets from the UCI Machine Learning Repository and data sets used during a KDD Cup competition.

Poster 11
An assessment and comparison of classical stepwise logistic regression model variable selection methods
Presenter(s): Louis Ehwerhemuepha
Advisor(s): Dr. Cyril Rakovski

We designed and implemented a large scale simulation study to assess the ability of all classical stepwise logistic regression variable selection methods to identify the correct underlying model over an extensive range of correlation matrices, sample sizes, number of covariates, number of variables in the true model, and effect sizes. In particular, we considered all possible combination of sample sizes 300, 1000, and 5000; number of covariates 10, 20, and 40; true models with number of variables 2, 5, and 10 combined with several selections of small, moderate and large effect sizes of 0.1, 0.5, and 2. Further, for all choices of the number of covariates, we selected correlation matrices reflecting the scenarios of 1) independence across all covariates, 2) two low correlation blocks and a block of zero correlation 3) three blocks of high correlation, low correlation and zero correlation, and 4) two blocks of high correlation with low cross block correlation and a block of zero correlation respectively. In addition to existing stepwise model selection methods, we designed and assessed a stepwise model selection method based on global comparison of candidate models.

Poster 12

An Improved Model for Predicting 30 Days Readmission using the Pediatric Rothman Index and other Clinical Information of Patients during Admission

Presenter(s): Louis Ehwerhemuepha, Anthony Chang, Bill Feaster, Francis Kim, Spiro Mousses
Advisor(s): Dr. Cyril Rakovski

Objective: To assess the potential for predicting 30 days readmission in pediatrics using the Pediatric Rothman Index (pRI), covariates of the pRI and additional clinical information.

Study design: The data used for this study includes clinical information of 11,469 patient visits at the Children's Hospital of Orange County (CHOC) from November 2011 to June 2013. For each patient visit, the pRI was generated by PeraHealth Inc. and included in the list of clinical information. Furthermore, patients readmitted within 30 days of discharge were identified. After accounting for expired patients, patients without enough information to determine readmission status and patients without a single valid pRI measurement during admission, the total number of visits incorporated in this study dropped to 10,000 and was split into a training (80%) and test set (20%).

Results: A logistic regression model was built to predict readmission using a training data set. An area under the curve (AUC) of 0.78 was obtained when the model was applied to the test data set indicating that the model has strong predictive capacity. The average pRI score of patients during admission was among the most significant predictors.

Conclusions: The logistic regression model indicates that the pRI score in addition to several other clinical measures are highly predictive of 30 days readmission. It is quite interesting to note that in addition to the pRI scores, the model uses only clinical data of patients' visit and yet achieves an AUC greater than several other models of readmission such as the LACE index model.

Poster 13
Exploration of Weak Value Measurement Applications for Radar
Presenter(s): George Escalante
Advisor(s): Dr. Jeff Tollaksen

Weak Value Measurements (WVM) based on pre- and post-selected quantum mechanical ensembles were proposed by Aharonov, Albert, and Vaidman in 1988 and have found numerous applications in both theoretical and applied physics. In the field of precision metrology, WVM techniques have been demonstrated and proven valuable as a means to amplify and detect weak signals and to make precise measurements of small effects, including: optical beam deflections, frequency shifts, field gradients, the Spin-Hall effect, and many others.

WVM techniques may also be applicable in radar as a tool for precision measurements, but limited research has been done in this area. The purpose of this project is to serve as an outline, laying the foundation for a more in-depth research study on Weak Value Measurement applications with radar. Topics addressed will include:

- Extension of WVM theory to radar systems
- Quantum–inspired (i.e., classical) and quantum-based WVM radar concepts
- WVM-based signals and target signature concepts, with applications
- Discussion of technical noise models for radar-based WVMs, and potential mitigation strategies
- WVM applications for improved radar target detection; precision range, Doppler, and angle measurements; and improved target characterization
- Comparison of WVM techniques with other quantum-sensing based methods

Poster 14
Hurricanes, Aerosols, and the Their Interactions: A Case Study of Hurricane Sandy
Presenter(s): Andrew Fontenot
Advisor(s): Dr. Hesham El-Askary

"The effects of heavy aerosol loading on extreme natural events such as hurricanes have only relatively recently been investigated. Having both natural and man-made sources, aerosol loadings can alter the humidity, heat, and cloud formation in an area, and by extension its precipitation and wind. While the precise effects of aerosols on such extreme events is not entirely understood and taken partially from simulation models, they may have had an effect on Hurricane Sandy, an unexpected tropical storm that caused massive amounts of damage. The presence of a significant aerosol source from west Africa was detected from October 8th, 2012 to October 11th, 2012. A large amount of dust was transported all the way to the eastern Caribbean during that time. Its impact on the storm during its formative days is studied, showing to what extent aerosol loading occurred in the hurricane system as well as what type of aerosol loading it was."

Poster 15

An Evaluation of the relationship between intensity and learning outcomes in the treatment of autism spectrum disorder.

Presenter(s): Ryan French, Hilary Adams, Dennis R. Dixon, Rene German, Doreen Granpeesheh, Julie Kornack, Alva Powell, Elizabeth Stevens, Jonathan Tarbox

Advisor(s): Dr. Erik Linstead

Early Intensive Behavioral Intervention (EIBI) is a well-established treatment for autism spectrum disorder (ASD); however, many questions remain unanswered by research. Among the most consistently debated questions is the issue of intensity, that is, the number of hours per week treatment should be delivered to produce best outcomes. Ample research has been published showing that 30-40 hours per week of treatment produce robust outcomes. Agencies that fund treatment, however, often question whether such a high level of intensity is medically necessary, and relatively few studies have directly compared higher with lower intensity treatment. The current study evaluated the relationship between treatment intensity and learning in a large and geographically heterogeneous group of children receiving behavioral intervention in community-based settings. A regression analysis was conducted with 810 children between 1.5 and 12 years of age. Results indicated a strong linear relationship between treatment intensity and skill acquisition, where a greater number of treatment hours consistently predicted greater progress over time. Specifically, 34% of the variance in mastery of learning objectives is accounted for by treatment hours. Results of the present study add to the existing support for higher intensity EIBI programs for children with autism spectrum disorder.

Poster 16

Change Detection Analysis on Arabian Gulf Coast Reefs Using Remote Sensing Images Utilizing Unsupervised K-Mean Algorithm and Verifying with On-site Supervised Classification

Presenter(s): Kendall Holmes

Advisor(s): Dr. Hesham El-Askary

This thesis is about discovering a method to accurately detect the change in coral reef habitats using remote sensing technology and using unsupervised and supervised algorithms. We are losing the coral reef habitat globally and in a result the fish population is following in its path. The current way to study the change in coral reefs is to do ground observations which can be timely and costly. Coming up with an algorithm that can accurately identify different sea habitats that can be used with remote sensing imagery will cut down on this cost and will lead to the mapping of the world's ocean. The algorithms found to have the best result were the K-Means algorithm for an unsupervised method and a Maximum Likelihood algorithm for the supervised approach. The K-Means result could separate coral reefs, but when it came to other sea habitats like mangroves it lacked in quality. The Maximum Likelihood was much better at recognizing all of the sea habitats. The Maximum Likelihood algorithm is now completely set up with its initializers and can now be used to map other coral reef and sea habitats around the world.

Poster 17
Nondeterministic Finite State Complexity
Presenter(s): Kayleigh Hyde
Advisor(s): Dr. Hesham El-Askary

We define a new measure of complexity for finite strings using nondeterministic finite automata, called nondeterministic automatic complexity and denoted A_N(x). In this paper we prove some basic results for A_N(x), give upper and lower bounds, estimate it for some specific strings, begin to classify types of strings with small complexities, and provide A_N(x) for $|x| < 9$.

Poster 18
Lie Algebras using Membrane Computing
Presenter(s): Jon Inouye
Advisor(s): Dr. Hesham El-Askary

In this paper, we represent the commutative operations of Lie algebras using a biologically-inspired model called membrane computing. The operations of a membrane computer mimic those of biological cells, and include cell division, object-passing, and intermembrane communication (among others). However, it should be noted that the membrane computer is a theoretical model only, and has not been implemented in reality. Parallelism is implied within each membrane, unless a partial ordering is explicitly specified. Linear transformations on the lie algebras are performed using composite membrane operations. Examples of specific lie algebras that pertain to quantum mechanics (angular momentum and spin) are provided. We conclude that the operations of Lie algebras can be effectively performed by the membrane computing model.

Poster 19

A Comonadic Formalization for Digital Signal Processing Through Category Theory And Implications for the General Class of Data Science Algorithms

Presenter(s): Justin Le
Advisor(s): Dr. Hesham El-Askary

One of the most heavily explored areas in applied computation and algorithms is the realm of digital signal processing and digital image processing. Over time, approaches to this area borrowed from many common paradigms from other areas of programming. However, many of these algorithms tend to have unnatural translation from their intended idea to their implementation, and in many cases difficult to parallelize when taken in the context of compositions. These implementations also often deal with unnecessary concerns like border cases and dimensionality.

The goal of the presentation, is to be able to demonstrate that concepts from category theory and abstract algebra have the power to play a powerful role in analysis, formalization, discovery, and optimization of algorithms in data science as a whole. We will be looking in particular at the case study involving digital signal processing concepts, for their ubiquity and ease of understanding.

We attempt to draw inspiration from algebraic data structures, category theory, and their previous successful practical application in order to rephrase the language in which we state digital image processing algorithms, in hopes to find:

1. An elegant category-theoretic formulation of the digital signal processing filters and manipulations, applying findings from abstract algebra towards the optimization and simplifcation of our programs.
2. The ability to separate concerns between statements of filters and their implementations, abstracting over border conditions, implementations/backends, and even dimensionality.
3. A language of filter statement that is efficiently optimizable and admits implicit parallelization, even under composition of filters.
4. Filters as first-class objects that can be manipulated, merged, combined, and composed.
5. A language that can directly benefit from the use of equational reasoning: structural refactoring with operational guarantees of equivalence, derived only from algebraic laws, in a way with concrete results of performance.

The approach is a reformulation of many important concepts of digital image processing in the terms of the algebraic structures of comonads and cokleisli composition in hopes of benefits in performance, optimization, composability, and expressiveness.

Poster 20
An Analysis of Hybrid Vehicle Sales Success Using Linear Mixed Effect Models
Presenter(s): Alexander Leipf
Advisor(s): Dr. Cyril Rakovski

We implemented a study on alternative-fuel vehicles, in particular mass-market hybrids, in the automotive industry in the United States in order to determine and assess the effect size of the significant predictors of sale success. Data consisted of monthly sales of every hybrid vehicle sold in the US since the first in 1999 and 66 diverse characteristics of each car. We focused on modeling the recent sales trends by sub-setting the data using an appropriate cutoff point arbitrated by a non-parametric smoothing curve. We developed a novel R function that performs stepwise model selection for linear mixed effect models. We applied the function for the appropriate choice of mixed effect model - random slopes and random intercepts.

Poster 21
Long Term Ground Based Precipitation Data Analysis: Spatial and Temporal Variability
Presenter(s): Luciano Rodriguez
Advisor(s): Dr. Hesham El-Askary

California is an area of diverse topography and has what many scientists call a Mediterranean climate. Various precipitation patterns exists due to El Niño Southern Oscillation (ENSO) which can cause abnormal precipitation or droughts. As temperature increases mainly due to the increase of CO2 in the atmosphere, it is rapidly changing the climate of not only California but the world. An increase in temperature is leading to droughts in certain areas as other areas are experiencing heavy rainfall/flooding. Droughts in return are providing a foundation for fires harming the ecosystem and nearby population. Various natural hazards can be induced due to the coupling effects from inconsistent precipitation patterns and vice versa. Using the autoregressive-moving-average (ARMA) model, we were able to identify anomalies of high precipitation and droughts within California's 7 climate divisions using NOAA's hourly precipitation data from rain gauges. The identification of anomalies can be used to compare and correct remote sensing measurements of precipitation and droughts. Promising results show a possible connection with increasing tropical moisture activity.

Poster 22

Multi-Sensor Physical Observations at CEESMO to Study Earth's Electromagnetic Geospheres Interaction

Presenter(s): Adam Velez, Calderon I., Haztzopoulos N., Ouzounov D.
Advisor(s): Dr. Menas Kafatos

We aim to study the key processes in the atmosphere that modify the Earth's plasma environment system under various geophysical conditions. These conditions include natural and anthropogenic disasters. We are currently in the process of installing multiple sensors at Chapman University for measuring: (i) Vertical Electrical Field (Boltec EFM-100), (ii) Very High Frequency (VHF) signals, (ii) Very Low Frequency (VLF) signals and (iv) Real-time weather for continuous observation of transitional coupling between the atmospheric boundary layer up to the lower ionosphere. Statistical studies performed by recent scientists on similar physical observations have already proven the complex nature of the interconnection between the lithosphere and atmospheric events. These connections have also been made between the Earth and space environments through the Global Electric Circuit. One of the main drivers for such coupling is the change of the boundary layer conductivity. This conductivity can be changed by air pollution, forest fires, ion nucleation triggered by natural (geodynamics) and anthropogenic activities, and mesoscale atmospheric systems such as tropical hurricanes/typhoons. Combining data from remote sensing and ground-based (in situ) instrumentation could provide the experimental background for the modeling of these coupling effects from the earth's surface up to the ionosphere. These observations are a part of the collaboration between CEESMO and the “Multi-instrument Space Borne Observations and Validation of the Physical model of the LAI Coupling” project at the, International Space Science Institute (Bern, Switzerland).

Schmid College – Food Science

Poster 23

Effects of Degree of Roast and Application Form of Incorporated Coffee on Inhibition of Oxidation in Raw Refrigerated Minced Pork and Sensory Analysis of Cooked Pork Patties with Added Coffee

Presenter(s): Tiffany Hashimoto
Advisor(s): Dr. Lilian Were

Roasted coffee is a source of antioxidants, but antioxidant Maillard reaction products and phenolic compound levels vary depending on degree of roast and form of coffee. The research objective was to evaluate the antioxidant effect of light and dark roasted coffee added to refrigerated minced pork (0.1 g/kg) as spent, ground, and lyophilized brewed coffee. After three weeks, all treated pork samples had TBARS values that were significantly lower than that of the negative control and comparable to rosemary. Metmyoglobin levels of meat treated with dark brew were higher than all other treatments after 3 weeks, while light brew had the lowest final thiol level. Hunter L* (lightness), a* (redness), and b* (yellowness) values showed no significant differences among treated pork samples. Sensory evaluation was conducted on pork that was cooked after 1 and 3 days of storage. Results of the tetrad test from day 1 gave d' = 0.66, pc = 0.54, and pd = 0.11, indicating that no difference between samples was detected. On day 3, d' = 1.1, pc = 0.41, and pd = 0.30, indicating that participants did perceive a difference between the samples. On both days, hedonic scores of pork with and without added coffee were not significantly different ($p<0.05$) for any attributes tested. Results indicated that coffee was equally or more effective at inhibiting lipid and protein oxidation compared to rosemary, while sensory acceptability was not affected. Therefore, coffee may be a potential ingredient used to lengthen the shelf life of ground pork.

Poster 24

Effect of phytosanitary irradiation on the quality of Chandler Pummelo (Citrus maxima (Burm.) Merr.)

Presenter(s): Akanksha Jain, J.J Ornelas-Paz, Karina Rodriguez, Shantae Thornton
Advisor(s): Dr. Anuradha Prakash

In this study, we evaluated the chemical and physiological effect of low-dose gamma irradiation on the post-harvest quality of Chandler Pummelos (Citrus maxima (Burm.) Merr.), an emerging crop of interest in the U.S. Chandler pummelos from a local grower in California were irradiated at target doses of 150 Gy and 1000 Gy. Irradiated and untreated pummelos were stored at 12 °C for 3 weeks and at 20 °C for the 4th week to reflect three weeks of sea shipment at ideal temperature for storage of pummelos and an additional week of retail under ambient conditions. Irradiation reduced hardness of the pummelo rind and firmness of the flesh. Rind hardness decreased during the 3 weeks of storage at 12 °C, however, during storage at 20 °C for 1 week, hardness increased, most likely due to moisture loss from the surface of the fruit. Although, a decrease in the firmness of the pummelo flesh was observed immediately following irradiation, storage did not lead to additional softening. The external appearance of pummelos was negatively impacted by higher irradiation dose, longer storage time and higher temperatures as pitting and mold growth were evident on pummelos treated at 1000 Gy and following storage at 20 °C. When stored at ideal temperature, pummelos irradiated at 150 Gy appeared to maintain similar quality as untreated pummelos. The results suggest that Chandler pummelo quality is compromised at 20 °C and 1000 Gy treatment but irradiation with 150 Gy can serve as a potential phytosanitary treatment for Chandler pummelos.

Poster 25

Effects of Varying Roast Degree and Application Form of Coffee on Oxidation in Frozen Raw Minced Pork Meat Stored Under Modified Atmosphere Packaging

Presenter(s): Katrina Jully

Advisor(s): Dr. Lilian Were, Dr. Criselda Toto

Different roast degrees and application forms of coffee contain different concentrations of antioxidant compounds capable of prolonging the shelf life of pork. The research objective was to determine the antioxidant capacity of different coffee treatments at 0.1 g coffee/kg raw pork under modified atmosphere packaging (MAP) in comparison to the industry natural antioxidant standard rosemary. Thiobarbituric acid reactive substances (TBARS), volatile aldehydes, and were evaluated monthly over five months. The TBARS results showed light spent and dark spent coffee (0.354 and 0.383 mg malondialdehyde/kg pork, respectively) was more effective at inhibiting lipid oxidation compared to rosemary (0.555 mg malondialdehyde/kg pork). Hexanal was the predominant aldehyde measured and the results indicated light spent coffee (1704.3 µg/kg pork) to be most effective at inhibiting hexanal compared to rosemary (4693.4 µg/kg pork). Rosemary treated pork had the highest L* values (lightness) after five months (45.37), however L* values were not significantly different amongst the coffee treatment with the exception of medium ground coffee which was lower in lightness (40.84). For a* values (redness), there was only a significant difference between medium ground and medium spent coffee (7.04 versus 5.64, respectively); all other treatments were not different (6.35-6.64). The results indicate that 0.1 g coffee/kg had potential of preserving the appearance and suggests that coffee can be used to effectively inhibit oxidation in raw pork meat. Further studies should be conducted to determine which application form (whole ground or spent coffee) would most effectively extend pork shelf life.

Poster 26

Use of DNA-Based Methods to Identify Species in Ground Meat Products Sold in the United States

Presenter(s): Dawn Kane
Advisor(s): Dr. Rosalee Hellberg

Mislabeling of meat products is a form of food fraud that can lead to economic deception and interfere with dietary restrictions related to allergens or religious beliefs. In various parts of the world, including Ireland, Mexico and Turkey, high levels of meat mislabeling have been reported within the last 5 years. However, there is currently a lack of information regarding this practice in the United States. Therefore, the objective of this study was to test a variety of ground meat products sold on the U.S. commercial market for the presence of potential mislabeling. Forty-eight ground meat samples were purchased from online and retail sources, including both supermarkets and specialty meat retailers. DNA was extracted from each sample in duplicate and tested using DNA barcoding of the cytochrome c oxidase subunit I (COI) gene. The resulting sequences were identified at the species level using the Barcode of Life Database (BOLD). Any samples that failed DNA barcoding went through repeat extraction and sequencing. Due to the possibility of a species mixture, these samples were also tested with real-time polymerase chain reaction (PCR) targeting beef, chicken, lamb, turkey, pork and horse. Of the 48 products analyzed in this study, 10 were found to be mislabeled, with nine containing multiple meat species. Meat samples purchased from online specialty meat distributors had a higher rate of being mislabeled (35%) compared to samples purchased from a local butcher (18%) and samples purchased at local supermarkets (5.8%). Horsemeat, which is illegal to sell on the U.S. commercial market, was detected in two of the samples acquired from online specialty meat distributors. Overall, the mislabeling detected in this study appears to be due to reasons such as intentional mixing of lower-cost meat species into higher cost products or unintentional mixing of meat species due to cross-contamination during processing.

Poster 27

Identification of Species in Commercially Sold Game Meats using DNA Barcoding

Presenter(s): Charles Quinto, Rebecca Tinoco

Advisor(s): Dr. Rosalee Hellberg, Dr. Lilian Were

Game meats represent a multibillion dollar industry in the United States with high economic incentives associated with species substitution and mislabeling. However, there is currently a lack of information regarding the prevalence of mislabeled game meat on the U.S commercial market. The purpose of this study was to conduct a market survey of whole-cut game products sold within the United States to identify incidences of mislabeling using DNA barcoding. Identified species were also examined for classification as a threatened or endangered species. Fifty-four whole-cut game meat samples were collected from online distributors in the United States and sequenced across the 658 base-pair region of the cytochrome c oxidase subunit I (COI) gene. The sequenced DNA was identified based on top species matches in the Barcode of Life Database (BOLD) and GenBank. Data analysis revealed 18.5% of samples were mislabeled and 9.3% of samples were from a near-threatened or vulnerable species. Mislabeled game products included bison and yak identified as domestic cattle, red deer identified as llama and alpaca and black bear identified as beaver. Mislabeled products appeared to have been misbranded for economic gain or due to product mishandling. Although near threatened (bison) and vulnerable (lion) species were identified, the products were correctly labeled by the distributor. The results of this study revealed mislabeled game meat on the U.S. commercial market and suggest the need for further investigation of incidences to identify trends and prevalence.

Poster 28

Antimicrobial Susceptibility of Listeria Monocytogenes to Bacteriophage P100 During Germination of Alfalfa Sprouts (Medicago Sativa)

Presenter(s): Tushar Sawant
Advisor(s): Dr. Rosalee Hellberg

The seed germination process during sprout production provides suitable environmental conditions for the growth of pathogenic bacteria, such as Listeria monocytogenes. A potential way to control this bacterial growth is through the use of bacteriophages, which are naturally occurring viruses that specifically attack bacterial targets and have been shown to be effective antimicrobials in some foods. Therefore, the objective of this study was to evaluate the antimicrobial susceptibility of L. monocytogenes to bacteriophage on alfalfa sprouts during seed germination. Alfalfa sprout seeds were dip-inoculated with 5.5 x 10^5 CFU/ml L. monocytogenes serotypes 1/2a and 4b. This was followed by treatment with the commercial bacteriophage LISTEX P100 at a concentration of 5.3 x 10^6 PFU/ml. The seeds were then soaked and germinated for 72 h using the glass jar method. The concentration of L. monocytogenes was determined every 24 h using PALCAM agar plated in triplicate. When compared to the spiked, untreated control, treatment of sprout seeds with LISTEX P100 resulted in a statistically significant ($p < 0.05$) reduction of 1.6 log CFU/g L. monocytogenes after the initial 24 h of germination. However, the bacteriophage did not show a lasting inhibitory effect, with no statistically significant reductions in L. monocytogenes growth as compared to the control at subsequent time points. The bacteriophage remained stable over the entire germination period (6.50 ± 0.17 log PFU/g). Although biocontrol of Listeria with bacteriophages has high potential to serve as an alternative strategy to control foodborne illnesses, factors such as phage delivery and dose optimization in sprouts need to be further investigated.

Poster 29

Comparative Evaluation of the effect of methyl bromide fumigation and phytosanitary irradiation on the shelf life of air freighted strawberries

Presenter(s): Tamar Serapian
Advisor(s): Dr. Anuradha Prakash

Strawberries are a highly perishable fruit with a short shelf-life especially at ambient temperatures. The study simulated commercial airfreight shipment of strawberries to Asian markets following phytosanitary treatments and evaluated the marketability of strawberries kept under ambient temperature retail conditions. Amado and Marquee strawberries were treated with methyl bromide fumigation (2 h at a concentration of 32 g/m3 at 21 °C followed by degassing for 4-5 h) or gamma irradiation (400Gy). The strawberries were wrapped with insulated foil and ice packs for 24h to mimic air shipment then maintained at ambient temperature until the end of shelf-life. Maximum ambient storage for all treatments was 3 days following treatment, however berries treated with methyl bromide exhibited the highest occurrence of mold/decay by end of shelf life. Irradiated berries were an average of 20% softer than fumigated strawberries and 23% softer than control fruit, however, consumer sensory panels showed no difference in liking for irradiated, fumigated, or control strawberries. . Titratable acidity, soluble solids content, color values, and ascorbic acid content were unchanged due to treatments or storage time. As use of methyl bromide is phased out, low dose irradiation offers a good alternative for phytosanitary treatment of exported strawberries.

Poster Session 2
Abstracts

Undergraduate Students
Behavioral, Health, and
Natural Sciences

Posters 31- 128

Crean College – Department of Health Sciences and Kinesiology

Poster 30
IL-15 induces irisin expression in skeletal muscle
Presenter(s): James Krolopp, Shantae M. Thornton
Advisor(s): Dr. Marcia Abbott

With the rising rate of obesity, brown adipose tissue(BAT) biology has become an area of interest. BAT is unique because it contains many mitochondria that require more energy than white adipose tissue. Increasing the amount of BAT can create a larger caloric need that can positively affect body composition. IL-15, a myokine, has been shown to activate mitochondrial activity resulting in decreases in fat mass and possibly increase BAT. The purpose of this study was to determine if IL-15 is involved in mediating genes positively associated with BAT. A skeletal muscle cell line was used in these studies and upon induction of differentiation towards myotubes, cells were treated with IL-15 (100ng/ml), or vehicle, every other day for 6 days. RNA was extracted from the cells and reverse transcribed to cDNA. The cDNA was used to amplify the expression levels of BAT genes, fatty acid elongase-3(ELOVL3), CIDE-A(Cidea), and FNDC5(irisin) using real time qPCR methods. Cycle numbers were normalized to GAPDH and the ddCT method was used to calculate expression levels. Statistical analysis was carried out using a two-tailed t-test($P<0.05$). IL-15 induced gene expression of Cidea ($P=0.089$; 353%) and ELOVL3 (685%), but due to small sample size($n=3$) these data were not statistically different from vehicle control cells. Importantly, we observed a significant increase in irisin expression with IL-15($P<0.05$). We show here that IL-15 has the propensity to increase BAT associated genes. Further studies need to be conducted to unravel the relationship between IL-15 and BAT in order to develop treatments for obesity.

Poster 31

Dystrophin and Utrophin gene expression levels are not dependent on IL-15

Presenter(s): Kendra Rickard, James Krolopp

Advisor(s): Dr. Marcia Abbott

Muscular dystrophy (MD) refers to a group of degenerative skeletal muscle (SKM) diseases with no available cure. The development of MD results in weakness and degeneration of SKM mass. It is known that MD is associated with gene mutations resulting in inhibition of production of proteins for normal SKM growth. The cytokine IL-15 has been proposed to promote SKM hypertrophy, giving it the potential to have therapeutic effects for patients with MD. The purpose of this study was to determine if IL-15 induces genes associated with SKM regeneration. A SKM cell line was used in these studies. Upon induction of differentiation towards mature myotubes, cells were treated with 100 ng/ml of IL-15, or vehicle control, every other day for 6 days. RNA was extracted from the cells and reverse transcribed to cDNA. The cDNA was used to amplify the expression levels of MD associated genes, dystrophin (Dtrn) and utrophin (Utr), using real time qPCR methods. Cycle numbers were normalized to GAPDH and the ddCT method was used to calculate expression levels. Statistical analysis was carried out using a two-tailed t-test ($P<0.05$). There was no measurable difference in both Dtrn and Utr mRNA expression levels with IL-15 treatment when compared to vehicle control cells. Our data suggests that IL-15 does not significantly induce genes associated with SKM regeneration. However, IL-15 has been previously shown to induce SKM hypertrophy. Taken together, it is clear that further research is needed to determine if IL-15 is a potential therapy for the treatment of MD.

Crean College – Department of Psychology

Poster 32

Reducing the Negative Effects of Media Exposure on Body Image: The Effectiveness of Subvertising and Warning Labels

Presenter(s): Yasmin Akbari, Gaganjyot Sandhu, Terri Scott
Advisor(s): Dr. David Frederick

Women are routinely exposed to highly sexualized images of women whose bodies have been airbrushed into literally impossible standards of beauty, which can contribute to body dissatisfaction. Women who are more dissatisfied with their bodies report greater depression, social anxiety, and disordered eating patterns. This experiment examines the effectiveness of two approaches to reduce the negative effects of media exposure on body dissatisfaction: warning labels and subvertising. Some body image activists groups have proposed legislation that would require photoshopped images to include a warning label that the image has been artificially manipulated. Subvertising takes this a step farther, where activists attempt to challenge dominant social discourses, particularly those promoting consumerism. Subvertising can take various forms, but typically involves the altering or superimposing of counter-attitudes onto the original message being displayed and satirizes commercial messages through visual manipulations of these messages. In this experiment, participants were exposed to photo advertisements for swimwear featuring slender models. The independent variable was message type: warning label, subvertising, or control. Participants reported their body image satisfaction (Cash, 2000) and surveillance levels (McKinley & Hyde, 1999) using validated measures. Results were analyzed using a One-Way Between-Subjects ANOVA, comparing the effectiveness of each experimental condition against the control condition. The findings from this study will help inform researchers and public policy advocates of the effectiveness of different techniques for improving body image in response to the ubiquitous problem of exposure to sexually objectifying photoshopped images.

Poster 33

The Benefits of Mindfulness Therapy vs Cognitive Behavioral Therapy For The Treatment of Female Sexual Dysfunction

Presenter(s): Jenna Alley
Advisor(s): Dr. Steven Schandler

With the development of societal ideals shifting to a more sexually awakened standard there is increasing publicity on sexual problems and potential treatments of men and less publicly women. With this shift and lack of information for women there is increasing need for research to asses the effectiveness of various forms of sexual therapy on female sexual dysfunction treatments. An inability or discomfort with sex can hinder relationships, self-esteem, and overall quality of life. This research compared the effectiveness of mindfulness therapy versus cognitive behavior therapy (CBT) for the treatment of various forms of female sexual dysfunction. It was hypothesized that mindfulness therapy would be more effective in treating female sexual dysfunction than CBT. To test the hypothesis this study used metanalysis to examine and assess the results of past literature. Strong support for the hypothesis was found. Mindfulness therapy improved female sexual functioning on both psychological and physiological dimensions. Although CBT was effective in treating female sexual dysfunction the literature showed stronger and longer lasting improvements with mindfulness therapy interventions. Practical applications suggest that when treating female sexual dysfunction the frequently used goal-oriented treatment of CBT may be lacking emotional components that mindfulness therapy possesses. Further research is needed to more directly examine the effectiveness of mindfulness therapy compared to other therapies for the treatment of sexual dysfunction due to different causes. As well as research that goes past reducing dysfunction symptoms to actually enhancing female sexual satisfaction.

Poster 34
Parkinson's and Therapeutics Success: An Approach Comparison
Presenter(s): Lilian Andrade
Advisor(s): Dr. Steven Schandler

Parkinson's Disease (PD) is the second most common age-related neurological disorder that causes progressive loss of motor and cognitive skills. It is currently estimated that seven to ten million people have been diagnosed with PD world wide, a projected half a million in the United States alone. Although it is hypothesized that PD is caused by both genetic and environmental factors, there is no identifiable cause. Traditional treatment of PD is limited by dosage and may slow neurodegeneration, but not halt or repair damage. With current diagnosis estimated to triple over the next fifty years, it is imperative that we engender research towards treatments, which may not only prevent further neurodegeneration but also repair current damage. The present study compared the clinical efficacy of Cell Replacement Therapy (CRT) and traditional pharmacotherapy as a treatment for PD. It is hypothesized if a person diagnosed with idiopathic PD is treated with neuronal stem cell transplants, then they will show greater symptom improvement than a person with idiopathic PD who is treated with traditional pharmacotherapy. Using current empirical literature to test hypothesis, the present study found strong support for the use of CRT in treating PD. Several studies examining individuals treated with stem cell transplants found that CRT provides greater and longer-lasting symptom improvement than treatment with traditional pharmacotherapy. An application of CRT indicates the need for further research to improve and standardize procedures for future clinical trials.

Poster 35
The Picture Exchange Communication System: Effects on Social-Communication Skills and Functional Language
Presenter(s): Reagan Blason
Advisor(s): Dr. Steven Schandler

The increasing diagnoses of Autism Spectrum Disorder (ASD) each year affect many families worldwide and are a major concern to therapists, healthcare workers, and educators. Many children diagnosed with ASD will never go on to develop functional speech or will have limited communication, as well as impaired social-communication skills. Limited communication makes education and therapy difficult for these children and their caregivers. Language therapy and interventions aim to improve social-communication and speech in these children, so it is crucial to find the most efficient interventions. The Picture Exchange Communication System (PECS) is a common tool used to assist communication in children with ASD and has shown improvements in language. The current study compared PECS to other communication interventions and hypothesized that PECS would be superior in facilitating social-communication skills and improving language in children with ASD. This study reviewed current literature and found considerable support and refutation of the hypothesis. However, most studies consistently showed that PECS improved social-communication skills and language in children to some degree. Future research should seek to compare interventions that target social-communication skills and language so that families, therapists, and educators can begin to implement the most efficient intervention as soon as possible, since early intervention is crucial to the development of a child with ASD.

Poster 36
Come Closer: Cognitive Dissonance Between Strangers
Presenter(s): Melissa Bond
Advisor(s): Dr. Connie Shears

Whether it's reacting to unwanted invasion of our personal space (Khan & Kamal, 2010) or creating interpersonal warmth using physical touch (Williams & Bargh, 2008), our interactions with others affect us every day. But how will you feel toward a stranger that you voluntarily let invade your personal space? Cognitive dissonance states that our behaviors will dictate our attitudes instead of the other way around (Festinger, 1957) and is typically studied within an individual. The current study investigates cognitive dissonance between two people. To test the hypothesis that physical touch would change two strangers' perception of "closeness," we manipulated three different poses (neutral, familial, and romantic) and three gender combinations (male-male, female-female, and male-female) in a photograph, and interpersonal closeness was assessed before and after the photograph to measure pre-post change. Results indicate that both pose and participant gender caused significant change in perception of closeness. Male-male interactions are the least conducive to generating closeness while male-female interactions are the most conducive. Female-female interactions generated significant closeness in the neutral pose. The findings imply that physical touch alters our attitudes, thus creating a reduction of dissonance toward strangers.

Poster 37

What Constitutes Sexual Consent and Assault? The Effects of Verbal, Physical, and Linguistic Cues

Presenter(s): Megi Herring, Crystle-Joie Agbayani
Advisor(s): Dr. David Frederick

In 2014, the California legislature passed a bill to change the definition of sexual consent at colleges across the state. The legislation defines consenting to sex as the presence of a verbal or non-verbal consent rather than simply an absence of a "no." This updated definition of consent builds on a movement among some feminist activists promoting the idea of "enthusiastic consent," which is defined as "mutual verbal, physical, and emotional agreement that happens without manipulation, threats, or head games." The current study examines how the presence or absence of verbal and physical consent, as well as descriptions of a dating scenario in active or passive voice, impact people's perceptions of whether or not consent was given, and if not, the extent of the punishment that the perpetrator should receive. Results were analyzed with a 2 (verbal consent or not) X 2 (physical consent or not) X 2 (active or passive voice) Mixed ANOVA. Results from this study show the extent to which college students have accepted or rejected the notion that both verbal and physical consent are important components of consent.

Poster 38

Personality Types and Attachment Styles Underlying Body Dissatisfaction

Presenter(s): Milad Khosravi
Advisor(s): Dr. Steven Schandler, Dr. David Frederick

Attachment style and personality are powerfully related to a person's patterns of thoughts, interests, and behaviors. Surprisingly, there is little research on the links between these psychological factors and body dissatisfaction. We hypothesized that anxious attachment style and neuroticism would be linked to greater body dissatisfaction in women. Methods: Adult women reported their overall satisfaction with their weight, muscle tone, and appearance using validated, one-item measures. Participants also completed measures of attachment style and personality type. Results: Consistent with the hypotheses, people who were more neurotic and with more insecure-attachment styles reported higher body dissatisfaction. Discussion: This study highlights the potential importance of attachment style and personality in predicting body dissatisfaction. This research suggests the importance of examining whether body image satisfaction among people higher in neuroticism and anxious attachment style is more readily influenced by peer pressures, rejection on the dating market, and negative appearance-related teasing.

Poster 39
To Push or Not to Push: That is the Question
Presenter(s): Timothy Lee
Advisor(s): Dr. Connie Shears

How a person chooses what is right and wrong depends on a person's preferential moral theory. Moral dilemmas allow for the examination of a person's ethical code, or more specifically, whether they ascribe to the ethical ideas of deontology or utilitarianism. This paper explores whether a college students major, age, and gender affects their preferential moral theory. It appears that science majors tend to favor utilitarianism, whereas humanities majors tend to favor deontology. Also, as student's age, they tend to become more utilitarian, but gender made no difference in a person's choice of ethics. A neuroscientific approach is taken to explain the phenomenon, and a model can be produced to both explain and predict, which moral theory a person will prefer.

Poster 40
The Immigrant Paradox: Mental Health Outcomes of Foreign Born Versus Native Born People in the United States
Presenter(s): Lisette Martinez
Advisor(s): Dr. Steven Schandler

Is there a significant difference in the mental health outcomes of the various generations of immigrant populations in the United States? Research has noted a paradox when analyzing this question, finding that U.S.-born people, referring to second and subsequent generations, are more likely to experience serious psychological distress compared to those who are first generation immigrants. The purpose of this study is to explore this "immigrant paradox" in varying minority populations in the U.S. and examine the importance of immigration status in mental health outcomes. It was hypothesized that if a person is the first generation to immigrate to the United States, then their mental health outcomes will be significantly better than the mental health status of a person of second or third generations who are born in the United States. This research study reviewed and evaluated current literature to test the hypothesis. Significant support was found for the hypothesis, finding that in Asian and Latino populations, first generation immigrants showed significantly lower rates of both internalized and externalized mental health symptoms than their second and third-plus generation counterparts. Further research is needed to examine if the "immigrant paradox" applies to other immigrant minority groups in the United States, and whether it is notable in other countries.

Poster 41

State of Mindfulness during Pregnancy and Associations with Positive Mood

Presenter(s): Kylee Moore, Amanda Appel, Mariann Howland
Advisor(s): Dr. Laura Glynn

Fetal exposure to maternal psychological distress has been linked with a variety of adverse fetal and child developmental outcomes. Research on mindfulness outside of pregnancy suggests that mindfulness may play a role in stress-reduction by moderating emotional reactivity to stressors. Little research has examined links between mindfulness and maternal prenatal psychological well-being. The purpose of the current study was to determine whether mindfulness is associated with maternal mood profiles across gestation. The study cohort includes 35 pregnant women participating in an ongoing longitudinal study of prenatal influences on infant development. Maternal mindfulness was assessed in the laboratory at 35 weeks' gestation using the Five Facet Mindfulness Questionnaire (Baer et al. 2006). Maternal depression and positive mood were also assessed at laboratory visits. Additionally, Ecological Momentary Assessment (EMA) methods were used to assess moment-to-moment maternal mood for three-day periods at 15, 25, and 35 weeks' gestation. Women responded to mood questionnaires delivered to their smartphones 8 times a day (randomly delivered) throughout each three-day period. Preliminary data analysis (N=35) revealed that mindfulness was negatively associated with maternal depression measured both in the laboratory and with EMA, rs = -.38 and -.25, respectively. That is, women exhibiting higher levels of mindfulness are less likely to experience depressive symptoms. These findings suggest that mindfulness may reduce fetal exposure to adverse maternal emotional states. Further research should evaluate the effectiveness of mindfulness based stress reduction therapy for pregnant women who exhibit signs of psychological distress.

Poster 42

Do happiness and optimism promote healthy and unhealthy food consumption in daily life?

Presenter(s): Karynna Okabe-Miyamoto, Roxana Nouri, Olivia Silke, Bailey Waln, Jin Wen

Advisor(s): Dr. Julia Boehm

Research demonstrates that being happy and optimistic predicts lower risk for disease and enhanced well-being. This may be because happier people engage in healthier behaviors. However, research to date only provides cross-sectional data and cannot establish the causal direction of the relationship between positive characteristics and health behaviors. This study aims to fill this gap by experimentally investigating the relationship between positive characteristics and food consumption. We hypothesized that being happy and optimistic would lead to healthier eating patterns in daily life. The 65 participants in this study (34 men and 31 women over the age of 40 with no long-standing illnesses) were randomly assigned to one of three conditions: optimism (participants write about future life goals), positive emotion (participants write about a past happy event) and control (participants write about their day's activities without evoking emotion). To determine whether there was a change in participants' health behaviors, participants reported their daily food consumption of vegetables, fruits, and unhealthy foods. Although data collection is still ongoing, there are no significant differences in total vegetable and fruit consumption based on condition. However, unhealthy food consumption was higher among participants in the control condition versus participants in the optimism or positive emotion conditions. The data suggests that happiness and optimism may not play a role in increasing healthy food consumption, but may play a role in decreasing unhealthy food consumption. Further research is needed to fully investigate the hypothesis, as all the limitations of the study have not been addressed.

Poster 43

Why doesn't negative behave? Inferences from emotional language

Presenter(s): Erika Sam, Adriana Ariza, Melissa Bond, Amy Cohen, Jay Kim, Maisy Lam, Mackenzie Smith

Advisor(s): Dr. Connie Shears

Emotional language appears to support the inference process in a hierarchical nature (Shears, et al., 2011). However, Nasrallah, Carmel and Lavie (2009) suggest that the negative valence should be primary in supporting inferences because it is survival based. Further, Gygax, Garnham and Oakhill (2004) claim the importance of context is critical when readers are processing emotional language. Here, we extend previous findings using two sentence pairs, by examining longer, more natural story contexts. Similarly, we hypothesized that if emotional language supports the formation of causal inferences, then positive stories should cause more false alarms to inference-related target words than negative stories. Participants made key press responses to words either in the story (control) or words related to the inferred information (experiment). Both accuracy and reaction time data were used to measure the formation of inferences across valences. Results suggest readers formed inferences equally from positive and neutral stories, but did not form inferences from negative emotional stories. These findings imply a unique quality of negative emotional language that resists typical comprehension processes of knowledge-based inferences.

Poster 44

Mindfulness Meditation Therapy versus Cognitive Behavioral Therapy for the Treatment of Major Depressive Disorder

Presenter(s): Olivia Silke
Advisor(s): Dr. Steven Schandler

Cognitive Behavioral Therapy is the industry standard for the treatment of Major Depressive Disorder. It works by teaching participants to challenge negative thoughts with logic and rationale. Due to demands for more cost effective options, alternative treatment therapies must be explored. One option is Mindfulness Meditation, which teaches participants to acknowledge maladaptive cognitions without reacting to them emotionally. This research explores the effectiveness of Mindfulness Meditation Training for the treatment of mild-severe depressive disorders and contrasts these results with Cognitive Behavioral Therapy. The purpose of this analysis is to test the hypothesis that if an adult diagnosed with major depressive disorder practices Mindfulness Meditation, then they will have a greater reduction in depressive symptoms than an adult diagnosed with major depressive disorder who receives Cognitive Behavioral Therapy.

Findings do not support the thesis hypothesis. Although, Mindfulness Meditation is successful in the treating depression, there is no significant difference in effectiveness when compared to Cognitive Behavioral Therapy. A noticeable difference was found when dichotomizing participants into two groups: less than four depressive episodes and more than four depressive episodes. In this case, Cognitive Behavioral Therapy yields a greater decrease in depressive symptoms when applied to participants who have suffered from more than four depressive episodes. While it is recognized that these two modalities are useful in decreasing depressive symptomology, further investigation is needed to establish the efficacy of Mindfulness Meditation for treatment resistant depression as well as with other psychological disorders.

Poster 45
Treatment of Post-Traumatic Stress Disorder in a Veteran Population: Efficacy of Complementary and Alternative Medicine Therapies
Presenter(s): Brooke Snelgrove
Advisor(s): Dr. Steven Schandler

It is estimated that a half million veterans from recent deployments in the Middle East conflicts and about 479,000 veterans deployed during the Vietnam War are diagnosed with Post Traumatic Stress Disorder (PTSD). Current treatments are limited by a relatively high frequency of patients who do not continue with their therapy. With increased PTSD diagnosis and limited effectiveness of treatments, there is a growing need to research and develop new therapies to better assist affected service members. The present study assessed the clinical validity of Complementary and Alternative Medicine therapies for the treatment of PTSD symptoms in a military population using a meta-analysis design. It was hypothesized that a veteran diagnosed with PTSD who is treated with Complementary and Alternative Medicine (CAM) therapies will experience a greater improvement in their PTSD symptoms than a veteran diagnosed with PTSD who is treated with other, current evidence-based treatments (CEBT). Data were obtained from empirical articles that compared and contrasted CAM therapies against CEBT's across commonly used PTSD symptom assessment scales. Though CAM therapies were not shown to be significantly superior to other therapies, the findings did indicate that select CAM therapies have valid, clinical implications for the reduction of PTSD symptoms in a veteran population. More research is needed to assess, isolate, and standardize CAM therapies for the treatment of PTSD in different veteran populations.

Poster 46
Gluten Free Casein Free Diet Impact on Children's Autism Behavior
Presenter(s): Allison Stein
Advisor(s): Dr. Steven Schandler

Can the behavior of children diagnosed with autism be mitigated by a change in their diet? The implementation and success of a gluten free and casein free (GFCF) diet for children diagnosed with autism is highly controversial. Many theories are discussed when considering the effect of the GFCF diet such as Opioid-Excess Theory of Autism and gastrointestinal complications. This thesis utilizes peer reviewed and empirical articles to examine the current research on the GFCF diet. Articles with supporting, refuting, and mixed findings are presented in order to evaluate the efficacy of a GFCF diet on the behavior of children diagnosed with autism. In most of the articles, the children's social skills, communication skills, repetitive and disruptive behaviors were lessened. In addition, disruptive behavior due to gastrointestinal pain was also reduced. Through an analysis of the articles found, GFCF diets have a positive impact on the behavior of children diagnosed with autism. Although the articles presented show an overall support for the GFCF diet, more research is required to definitively make dietary recommendations.

Poster 47
The Effect of the Parent on Child Anxiety Treatment
Presenter(s): Taylor N. Stephens
Advisor(s): Dr. Steven Schandler

According to the Anxiety and Depression Association of America, child anxiety affects about one in eight children in the US. An anxious child experiences intense dysphoria (unpleasant feelings), fear, and/or physical symptoms (eg. ticks or stomach aches). While a child's anxiety may possess a genetic link, the parents and family play an integral role in the expression and management of the anxiety. As such, the question is raised as to whether parents and/or family should be included in the treatment of a child with anxiety? More specifically, are there difference in outcomes between child anxiety treatments that involve the parent(s) or family and those treatments that focus solely on the child? This thesis researched and compared differing treatments for child anxiety, both with and without parental/familial involvement. It was hypothesized that child anxiety treatments option involving the parent(s) or family would produce greater reductions in anxiety symptoms of the child, compared to child-focused treatments. Using meta-analysis, this study reviewed and analyzed the current research and literature on child anxiety and treatments. Overall, the hypothesis was supported. However, it did appear that the therapies were also affected by the gender and age of the child and the type of anxiety they were experiencing. Current clinicians could utilize this research to consider the integration of the parent(s)/family with current or future clients. Further research is needed to identify the ideal integration of the parent(s)/family within the child's treatment.

Poster 48
Gender Stereotypes and Memory
Presenter(s): Alexis Taylor
Advisor(s): Dr. Connie Shears

Previous research suggests women may be overcoming memory for stereotypical behavior (DeLemus et al, 2013). The current study focused on the possible relationship between gender stereotypes and memory. It was hypothesized that female participants would remember most when presented with an inconsistent stereotype (male behaving feminine, female behaving masculine) and male participants would remember most when presented with a consistent stereotype (male behaving masculine, female behaving feminine), while there would be no difference in memory for the neutral condition. Participants watched a video containing three skits: a "masculine" math equation, a "feminine" craft, and a "gender neutral" running demonstration. Each skit was performed by either a male or female actor, with one actor appearing twice. A surprise memory test based on the details of each skit showed the hypothesis was partially supported. Female participants had better memory for the male actor performing the craft but surprisingly male participants also had better memory for the male actor performing the craft. This may indicate as a younger, well-educated generation, we are overcoming the limits of stereotypical influences.

Poster 49

Comparing the Effectiveness of Cognitive-Behavioral Therapy with Other Forms of Treatment for Posttraumatic Stress Disorder in Adults

Presenter(s): Bonnie Truong
Advisor(s): Dr. Steven Schandler

Recent wars, terrorist attacks, school shootings, natural disasters, and everyday interpersonal conflicts have drawn more attention to the pervasive effects of trauma. Among the most prevailing and debilitating consequences of exposure to traumatic events is posttraumatic stress disorder (PTSD). While there are several evidence-based PTSD treatments designed to improve quality of life and lower the disorder's cost to society, the comparative effectiveness of these treatments has yet to be determined. The objective of this thesis research was to compare different approaches for treating PTSD. Based on the dynamics of the disorder and its treatment, it was hypothesized that cognitive-behavioral therapy would be more effective than other forms of treatment in reducing PTSD symptoms in adults with the disorder. Using meta-analytical techniques, recent empirical studies from research databases were reviewed and assessed. All studies included in this analysis tested the effectiveness of various PTSD treatments on adults by comparing changes in disorder symptoms prior to and at the conclusion of different treatments. Overall, the findings supported the hypothesis, but the support was not unequivocal. Many current PTSD treatments are effective in improving disorder symptoms in adults, but cognitive-behavioral therapy is currently the most effective treatment. Studies on less popular PTSD treatments such as eye movement desensitization reprocessing (EMDR) and acupuncture show promising results, but further research is necessary to confirm the effectiveness of alternative treatments. Future research on PTSD treatments is needed to empirically examine a wider array of effective treatment options for adults with the disorder.

Poster 50
Prevalence of Depressive Symptoms in Women Who Have Induced Abortions
Presenter(s): Kathryn Wann
Advisor(s): Dr. Steven Schandler

For decades, abortion has been a contested issue in politics, religion, and the women's rights movement. Despite the continued attention, there is a lack of reliable and unbiased information available to women with unwanted pregnancies regarding the psychological consequences of having an induced abortion. This research examined the impact an induced abortion has on a woman's level of depression. The intent was to provide psychological information that has not been influenced by outside motives, including those that are political or religious. It was hypothesized that a woman who undergoes an induced abortion will have increased depressive symptoms compared to a woman who carriers her pregnancy to term and has a live birth. A meta-analysis was applied to the current literature in relationship to the hypothesis. While a fairly equal number of studies supported and refuted the research hypothesis, the supporting evidence was weaker. Overall, the evidence shows either no difference between groups, or higher levels of depression among women who had live births. Further research is needed in order to control for critical confounding variables, such as a history of mental illness or abuse. Further distinctions should be made between induced and spontaneous abortions, as these two situations tend to arise from different circumstances and carry different stigmas.

Poster 51
Understanding Biopsychosocial Resilience Across the Menopausal Transition
Presenter(s): Kathryn Wann
Advisor(s): Dr. David Pincus

Menopause is defined by the World Health Organization (WHO) as the cessation of ovarian function associated with the end of reproductive capability. Biological, psychological and social functioning is often impacted by the menopausal transition, making it a central topic in Women's health, and potentially a fruitful process toward the goal of understanding human resilience. In this report of ongoing research, we will be examining the role of flexibility and connection within and among: biological, psychological and social processes as predictors of resilience in a cohort of 55 women over a 20 year longitudinal study (approximately age 45 to 65). Data are comprised of monthly diary ratings of fatigue (a physiological symptom), anxiety (a key psychological symptom), and role functioning (a marker of social functioning) will be examined for shifts in dynamical complexity, as well as coupling and de-coupling from one another, across the transition. It is predicted that an optimal level of complexity and coupling exists that will predict resilience. This study will hopefully lead to a deeper understanding of human resilience, beyond simple cause-and-effect predictors of disease and on to the structural processes that serve to keep us from 'unraveling' across life's key transitions.

Poster 52
The Effects of Excessive use of Social Network
Presenter(s): Jin Wen
Advisor(s): Dr. Steven Schandler

Do certain functions of the Internet contribute to the expression of mental disorders? Over the past decade, Internet use has been steadily increasing; most notably amongst the adolescent and young adult populations. A popular function amid this age group is the use of social networking sties (SNS). The primary intention of these sites is to allow people to communicate with others with similar interests and share their opinions; these sites as of recent have become integral to the daily functions of the younger generation. This research seeks to identify the potential link between excessive use of the Internet and expression of mental disorders. It was hypothesized that students who excessively use SNS were more likely to develop symptoms of a mood disorder, and experience lower life-satisfaction, than a student who use it moderately. Current literature was reviewed and evaluated to test the hypothesis. Direct support and refute findings were limited. In the review of the mixed findings, it was found that excessive SNS use did contribute to symptoms of a mood disorder only when individuals' communicated with people outside their own interpersonal network. Additionally only symptoms of depression were shown to be significantly related to excessive SNS use. Potential applications indicate detriments to people who use social network to communicate with others outside of their interpersonal network. Further research is needed to clearly identify the relationship between excessive social network use and depression.

Poster 53
Effects of Digitally Enhanced Learning Tasks on Cognitive Functioning
Presenter(s): Reyn Yoshiura
Advisor(s): Dr. Steven Schandler

Are brain-training applications effective? In recent years the popularity of brain training programs, such as Lumosity, Brain Age, Big Brain Academy and Elevate has increased significantly. These programs assert that the consistent use of their program can potentially result in increases in cognitive function. The current body of cognitive research shows that these programs train working memory; due to its integral part in general cognition. This research compared the effectiveness of digitally enhanced working memory tasks, versus active control groups for improvements on measures of cognitive functioning. It was hypothesized that the digitally enhanced working memory tasks would have greater improvements in cognitive functioning, to test this hypothesis this study used meta-analysis to examine and assess the current literature. Support of the hypothesis is found in specific areas of functioning such as visual-spatial working memory, fluid intelligence and processing speed. However, more research needs to be conducted with larger samples and more specific dependent measures of cognitive functioning. Practical application of these digitally enhanced working memory tasks are geared towards slowing cognitive decline in elderly populations.

Schmid College – Biochemistry & Molecular Biology

Poster 54
Characterizing a Novel Immune-Deficient Transgenic Alzheimer's Model
Presenter(s): Lauren Camargo, Samuel Marsh
Advisor(s): Dr. Elaine Schwartz

Alzheimer's disease (AD) is a common neurodegenerative disorder that is extensively researched, since the cause for its development is still unknown. Current research has demonstrated the crucial role of inflammation in disease pathogenesis. However, the focus of this research has been on the innate immune system but there is a lack of research on the adaptive immune system.

Creating and characterizing the first immune-deficient AD model, Rag-5xfAD, was executed by various methods including cognitive testing, biochemical and histological analyses. Analysis of Rag-5xfAD mice revealed a significant increase of soluble, as well as insoluble, amyloid-beta (Aβ) and in several inflammatory pathways compared to immune-competent mice. These results confirmed the adaptive immune system plays an important role in AD pathogenesis. Lastly, further study is needed in order to determine mechanisms by which the adaptive immune system exerts its influence on disease pathogenesis.

Poster 55
Applying a Chemilumenescent Assay to Measure the Effect of Selective Antagonists on Adenylate Cyclase Activity in CHOM2M3 Cells
Presenter(s): Andrew Cox
Advisor(s): Dr. Michael Griffin

Enzyme activity levels are usually measured by determining the concentration of the reactant or product of the reaction catalyzed by the enzyme. Various assays designed to do this, such as the tritiated cyclic-AMP assay developed by Saloman et al., take a substantial amount of time and produce hazardous radioactive waste. The tritium-labeling assay is carried out to measure the activity of adenylate cyclase (AC), an enzyme that is integral to the second messenger system that triggers physiological changes in a cell by changing cAMP levels, a second messenger involved in intracellular signal transduction. Thus, measuring the cyclic-AMP levels in a colony of cells can determine the relative activity of AC. An alternative method of measuring intracellular cyclic-AMP levels is being tested in this project. This method aims to couple an ATP dependent light-producing reaction with ATP dependent protein kinase A (PKA) activity. PKA is an enzyme involved in the second messenger system that is activated by cyclic-AMP and uses ATP to phosphorylate its substrate. When AC is active, cAMP activates PKA to phosphorylate its substrate, using up the available ATP pool in the cell. Thus, the more active AC is, the less ATP is available for the light-producing reaction, and lower levels of luminescence are observed. Chinese Hamster ovary cells transfected with Muscarinic 2 (M2) and Muscarinic 3 (M3) G-protein coupled receptors are grown and studied to determine the effects of M2 and M3 selective antagonists on AC activity. M2 selective AFDX and M3 selective 4-DAMP were chosen to study the stimulatory and inhibitory effects that the M2 and M3 receptors have on AC activity.

Poster 56

Multi-Walled Carbon Nanotube-Peptide Conjugates as Drug Delivery System

Presenter(s): Matthew Etesham, Naglaa Salem, Dr. Amir Shirazi
Advisor(s): Dr. Keykavous Parang, Dr. Rakesh Tiwari

Multi-Walled Carbon Nanotubes (MWCNTs) have an unknown level of toxicity. Anticancer drug Doxorubicin (Dox) alone does not have a long retention because of the reflux mechanism in some cancer cells. Multi-Walled Carbon Nanotubes (MWCNT) were conjugated with water soluble cyclic cell penetrating peptides (CPPs), [W5R4K]-β-Ala, and were physically loaded with Dox. We hypothesized that the toxicity of MWCNTs can be reduced and the drug retention can be enhanced by the encapsulation of Dox into the MWCNT functionalized with [W5R4K]. The non-polar composition of MWCNT allows for direct diffusion into cells via an energy-independent process that involves the flipping of membrane lipid molecules. The surface of MWCNTs were oxidized with HCl and H2SO4, followed by chemical conjugation with CPPs containing tryptophan and arginine through a β-alanine linker. The oxidized MWCNTs were activated by sonication and the Dox was loaded after activation. The MWCNTs were characterized utilizing FT-IR, Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM), and the CPPs were characterized utilizing SEM and Mass Spectrometry. The SEM and TEM images demonstrated the functionalized MWCNT conjugation of the CPPs with the loading of Dox. Dox loaded conjugates will be examined for their potency in inhibition of cancer cells growth.

Poster 57

Consequences of Global Warming: Physiology-Behavior Correlations in an Intertidal Model Species

Presenter(s): Jeremy Feck

Advisor(s): Dr. William Wright, Dr. Marco Bisoffi

One of the ecosystems that is currently the most affected by global warming is the intertidal zone. This is because during daytime low tides the organisms that live there are brutally heated, so even slight increases to the intertidal water temperature by global warming have significant effects on the organisms. One such effect is the inhibition of feeding by Pagurus samuelis more commonly known as the blue-banded hermit crab. The discovery that moderate non-lethal heating inhibits feeding in the blue-banded hermit crab, Pagurus samuelis, raises an interesting question of whether this effect on behavior may be connected to a physiological response to equivalent heating. I specifically examined the expression of heat-shock protein 70 (HSP70), which is expressed by a multitude of organisms in response to elevated temperatures. The hypothesis of this paper is that the physiological response embodied by HSP70 will be coordinated in some way with behavioral responses, and may even be mechanistically connected. To test this hypothesis crabs were either left at ambient temperature, 16° C, or placed at 29° C and their feeding on food pellets made of ground up squid was recorded. In 29° C water, crab feeding was significantly inhibited to 0% of their consumption in 16° C. Then muscle tissue samples were isolated from all crabs and both proteins and RNA were isolated. Western blotting was used to detect and semi-quantify the amount HSP70 present within the protein isolation and RT-PCR was used to more precisely quantify the expression of HSP70 within each crab.

Poster 58

Exploring EGR-1 as a Master Regulator of Prostate Field Cancerization

Presenter(s): Kristin Gabriel, Emily Frisch

Advisor(s): Dr. Marco Bisoffi

Field cancerization denotes the presence of molecular aberrations (genetic, epigenetic, biochemical) in structurally intact cells residing in histologically normal tissues adjacent to tumors. Markers of field cancerization in prostate tissues have the potential to improve the clinical management of this malignancy through their potential to act as indicators of early disease and to serve as molecular targets for early intervention. However, for this, a detailed understanding of the functional pathways underlying field cancerization is necessary. We have recently identified four protein markers of prostate field cancerization, i.e. the key transcription factor early growth response 1 (EGR-1), the lipogenic enzyme fatty acid synthase (FASN), and the secreted growth factors platelet derived growth factor A (PDGF-A) and macrophage inhibitory cytokine 1 (MIC-1). In this study, we provide for the first time a comprehensive association analysis between these factors, especially a potentially regulatory role of EGR-1 for the other factors, using cell models of prostate cancer and expression data in human prostate tissues. Our results indicate a potential discrepancy between research in vitro and observations in situ. More importantly, our detailed tissue expression analyses reveal novel functional pathways of prostate cancerization with a central regulatory role for EGR-1.

Poster 59

Exploring the Effect of the Curcumin Analog ca27 on the Androgen Receptor in Human Prostate Cancer Cells

Presenter(s): Homa Hayatyfar

Advisor(s): Dr. Marco Bisoffi

The androgen receptor (AR) plays an essential role in promoting the development and progression of metastatic prostate cancer and represents an important molecular target for therapeutic intervention. We have recently shown that ca27, a synthetic analog of the natural product curcumin (diferuloylmethane) from the plant Curcuma longa, inhibits the function of the AR in prostate cancer cells at low micromolar concentrations, leading to cancer cell death. However, the mechanisms of action of ca27 remain unknown. The main objective of the present study is to test the hypothesis that ca27 interferes with AR function by affecting its dimerization, a necessary step for proper AR function. We address this possibility using prostate cancer cell models that express endogenous AR (LNCaP). So far, we have been able to observe elevated AR expression upon treatment with the synthetic androgen R1881 using native polyacrylamide gel electrophoresis followed by chemiluminescence immunoblotting. Our results so far have also confirmed the down-regulatory power of ca27 for AR expression. Knowing the mechanism of action of exploratory therapeutics is essential for the further development of lead structures as potential drugs. Elucidating in detail the effects of ca27 on AR function contributes to this effort in prostate cancer.

Poster 60

The Effects of Fine-grained, Arsenic-bearing Particulate Matter on Alveolar Macrophage Gene Expression

Presenter(s): Jack Jacobs

Advisor(s): Dr. Marco Bisoffi, Dr. Christopher Kim

Airborne particulate matter in the fine size range (<10 μm) generated from mining activities is often enriched in trace metal(loid)s. Particles in this size range can be readily inhaled and can penetrate deep into the lung. The objective of this study was to analyze the toxicological effects of fine-grained, arsenic-bearing particulate matter collected from the Marigold Mine in the Mojave Desert on alveolar macrophages from rats. Collected particulate matter was chemically and physically characterized to determine arsenic levels, bioaccessibility, and surface area. Alveolar macrophages from rats were incubated with varying concentrations of particulate matter to determine dose dependent effects on cytotoxicity and metabolic activity. It was found that increasing particulate concentration increased cytotoxicity and reduced metabolic activity. The effect of particulate matter on the gene expression of alveolar macrophages with respect to inflammation pathways was tested and data suggests that particulate matter causes a complex response in alveolar macrophages which results in up-regulation and down-regulation of various proinflammatory markers.

Poster 61

Assessment of the Effects of Pomegranate Juice Extract and Caffeine on the Mcl-1, p-Akt, and PIM-3 Anti- Apoptotic Proteins in the COLO-357 Pancreatic Ductal Adenocarcinoma Cells

Presenter(s): Sarah Lanoie, Ben Geleris, Lena Haddad
Advisor(s): Dr. Melissa Rowland-Goldsmith

According to the American Cancer Society, pancreatic cancer is the fourth leading cause of cancer related deaths in the United States. In addition to being an exceptionally aggressive form of cancer, it is particularly difficult to treat because it is usually diagnosed in late stages after the onset of metastasis. Recently, focus has been put on using dietary alternatives, such as fruit and spices, which are known to possess chemopreventive properties. Previous studies have illustrated that pomegranate extract (PE) and caffeine have individually been very successful in inhibiting a variety of cancers including skin, colon, lung, and breast cancer cell growth. Recently, our own research has illustrated that the combination of both PE and caffeine successfully inhibited cancer cell growth to a significant degree in the COLO-357 pancreatic cancer cells, even compared to the individual treatments. While these compounds are now known to decrease cell proliferation, there has never been a study done investigating how and why this occurs. This research project focused on comparing the produced effects of pomegranate juice and caffeine extract individually and combined on the levels of the MCL-1, PIM-3, p-Akt, and Akt proteins expressed in pancreatic cancer cells, utilizing the Western Blot analysis method.

Poster 62

Synthesis and Evaluation of Fatty Acyl Derivatives of (HR)4 Peptides as Cell Penetrating Peptides

Presenter(s): Taryn Miyake, Naglaa Salem El-Sayeda, Amir Shirazi
Advisor(s): Dr. Rakesh Tiwari, Dr. Keykavous Parang

Cell Penetrating Peptides (CPPs) are short peptides of 3-30 amino acid residues that contain mostly positively charged and hydrophobic amino acids and are used in the delivery of several drugs, cargoes, and diagnostic agents. We designed a novel form of CPPs containing arginine and histidine amino acids based on the fact that histidine offers pH dependent responses that might differentiate between normal and cancerous cells for targeted drug delivery, whereas arginine assists in the delivery of drugs into the cells. Addition of fatty acyl chains can also help with permeation of CPPs through the cell membrane, therefore we synthesized seven fatty acyl derivatives of the linear histidine and arginine peptide (HR)4. The peptides were synthesized using Fmoc/tBu solid phase peptide chemistry, purified using reverse phase high-pressure liquid chromatography (RP-HPLC), and characterized using matrix-assisted laser desorption/ionization (MALDI) spectrometry. The cytotoxicity of the peptides was analyzed in human ovarian and leukemia cancer cells (SK-OV-3 and CCRF-CEM cells, respectively) and found to not be cytotoxic for all peptides except for C20-(HR)4 with 45% and 31% toxicity in CCRF-CEM and SK-OV-3 cells at concentration of 10 μM after 72 hours of incubation.

The phosphopeptide F´-GpYEEI was incubated with the peptides in SK-OV-3 for 2 hours and measured using fluorescence-activated cell sorting (FACS) system. We found C20-(HR)4 has the highest potency as a CPP by increasing the cellular uptake of F´-GpYEEI up to 5 folds higher than that of the phosphopeptide alone. Future work includes understanding the structure activity relationship (SAR) of the C20-(HR)4 peptide.

Poster 63

A Comparison of Growth Factor and Platelet Concentrations Using Different Methods of Platelet Rich Plasma Separation

Presenter(s): Amir Olfat, Hossein Vaziripour, Bryn J. Henderson
Advisor(s): Dr. Elaine Schwartz

Musculoskeletal disorders are very common problems presented to general physicians. According to the U.S. Department of Labor and the National Center of Health Statistics (NCHS), musculoskeletal injuries accounted for 33 percent of all cases in 2013. The data from a 2012 NCHS showed that at least half of adults (126.6 million) are affected by some type of musculoskeletal disorder, which is twice the rate of any chronic heart or lung condition. The treatments for musculoskeletal injuries include weight loss, physiotherapy, simple analgesics, alternative therapies, steroid injections and surgeries. At Regenerative Medical Group, musculoskeletal disorders are most often treated through platelet-rich plasma therapy, which uses autologous blood products. Platelet rich plasma (PRP) is a promising treatment that contains a high concentration of platelets, growth factors and bioactive proteins at supra-physiological levels in order to stimulate the healing of tendons, ligaments, muscles, and bones. PRP has gained increasing popularity in the field of orthopedic and sports medicine as it has shown to clinically expedite the healing process of soft and hard tissues. Despite its prevalent use, the effectiveness of varying techniques of PRP preparation have yet to be evaluated. The main goal of PRP preparation is to maximize the concentration of platelets and growth factors three to five times over the baseline count. The aim of this study is to compare different PRP preparation techniques in order to accurately determine the best method that will maximize the concentration of platelets, growth factors and bioactive molecules.

Poster 64

Fecal source identification and quantitative microbial risk assessment at Ventura County beaches

Presenter(s): Allison Orr
Advisor(s): Dr. Elaine Schwartz, Dr. Michael Griffin

Quantitative microbial risk assessment (QMRA) is a newer technique used in determining the public safety as a result of microbial contamination at populated beaches in southern California. Various forms of fecal contamination contain pathogens which can increase various health risks. QMRA is used as a model to estimate acceptable levels of contaminants in beach water. This study focused mainly on human fecal pollution, daily samples were collected for HumM2 and HF183 human fecal indicator assays. A general assay searching for enterococcus was also performed on the daily samples. Enterococcus, E. coli, and total coliforms measured fecal indicator bacteria present in the samples. Data was compiled and analyzed to characterize the risk of illness to swimmers at a marine beach in Ventura County. A frequent detection of HF183 indicated human contamination persistent in beach water.

Poster 65
Gi-Protein Suppresses Behavioral Sensitization in Aplysia californica
Presenter(s): Jonathan Redrico, Alex Himstead
Advisor(s): Dr. William Wright

The sea hare (Aplysia californica) is a widely studied model species for elucidating the neural basis of sensitization – a simple form of learning in which withdrawal reflexes to innocuous, tactile stimuli are heightened after delivery of noxious stimuli (e.g. electric shock). Research on sensitization has focused on facilitatory processes initiated by noxious stimuli. One important process involves serotonergic receptors coupled to stimulatory Gs-protein, which activates adenylyl cyclase that upregulates second messenger cAMP, strengthening sensorimotor connections and thereby sensitizing withdrawal reflexes. What is less studied in A. californica, however, are the processes that suppress sensitization – hypothesized to involve a serotonergic receptor coupled instead to inhibitory Gi-protein to inactivate adenylyl cyclase, diminishing the sensitization response.

To determine the influence of Gi-protein on sensitization in the present study, sea hares were injected with pertussis toxin (PTX). This selectively inhibits the regulatory Gi-protein, which should result in greater sensitization than in controls injected with artificial seawater (ASW). After subjects were incubated overnight in PTX or ASW, tail withdrawal durations were measured in response to tactile stimuli before and after electric shock. Although both groups exhibited sensitization, PTX-injected aplysia were significantly more sensitized (1.9 x pre-shock reflex) than were those injected with ASW (1.3 x pre-shock reflex; $p = 0.038$). These findings support a regulatory role of Gi-protein in the cAMP-dependent pathway contributing to sensitization in Aplysia. Neurophysiological studies are underway to measure whether Gi-protein also enhances the neural processes underlying sensitization.

Poster 66

Effect of exposure time on Cu(II) adsorption and retention to iron oxyhydroxide nanoparticles

Presenter(s): Anthony Torossian, Jack Jacobs
Advisor(s): Dr. Christopher S. Kim

Iron oxyhydroxides form naturally, often as nanoscale particles, in surface aquatic systems. They represent both a powerful natural attenuation process and a potential remediation strategy for the retention and sequestration of dissolved metals in solution. This is of particular importance in mining environments due to elevated metal concentrations, acid mine drainage, and the health issues that may arise with exposure to potentially toxic metals. Such trace elements are readily transported in water supplies, increasing the geographical extent of their contamination. While metal adsorption processes to mineral surfaces have been extensively studied, desorption processes inform the long-term stability of sorbed metals but are considerably less well studied.

The adsorption, and subsequent desorption, of Cu(II) to/from unaggregated iron oxyhydroxide nanoparticles is measured in real time through the use of a copper ion selective electrode (ISE) at time intervals varying from 1 hour to 5 weeks. Adsorption of Cu(II) was immediate and typically complete within one hour, with kinetic adsorption rates generally consistent at 1539.23 ± 163.53 %/min. However, the kinetic desorption rate varied inversely with adsorption time, ranging from 343.41 to 1473.41 %/min. Therefore, the adsorption rate of trials are generally similar whereas the desorption rate decreases as a function of time. Additionally, the percent of Cu(II) retained by the iron oxyhydroxide nanoparticles increases as the adsorption time increases due to longer exposure. Extended X-ray adsorption fine structure (EXAFS) spectroscopy suggests the formation of more stable Cu(II) sorption complexes as the adsorption time increases. As a result, desorption rates of longer trials are noticeably slower than shorter trials because more strongly bound surface complexes are formed, and thus more difficult to desorb. This has implications for the fate and transport of Cu(II) and similar dissolved metals in aquatic systems.

Poster 67

Analyzation of Metabolic Reprogramming in Drug-Resistant MCF-7 Cells

Presenter(s): Andrew Vo, Derick Han, Peter Leung
Advisor(s): Dr. Melissa Rowland-Goldsmith

The Warburg effect states that cancer cells mainly receive their energy from anaerobic glycolysis. Thus, mitochondria play a different role in the metabolism of cancer cells as opposed to normal, healthy cells. In chemotherapy, there is always a chance of the cancer regressing. Making drug-resistant cancer cells to analyze their metabolism may change how cancer is treated. This study aimed to create drug-resistant MCF-7 cell lines with doxorubicin in order to determine the metabolic changes that have occurred in the process of becoming resistant to drug treatments.

Schmid College – Biological Sciences

Poster 68
Structural basis of drug discovery targeting SK channels for Amyotrophic lateral sclerosis
Presenter(s): Tia Alexander
Advisor(s): Dr. Miao Zhang

Amyotrophic lateral sclerosis, (ALS) is a devastating progressive neuromuscular disease. Neurodegeneration of motor neurons in the motor cortex and the brainstem/spinal cord causes the patient with ALS to slowly lose motor function and eventually completely paralyzed. It is known that hyperexcitability has an inverse correlation with the survival of ALS patients. Positive modulation of potassium channels reduces hyperexcitability and improves survival of motor neurons. Therefore it can be assumed that by reducing hyperexcitability, progression of ALS in patients can be delayed. Riluzole is the only FDA approved drug used to treat ALS. Small conductance calcium activated potassium (SK) channels are among the drug targets of riluzole. We determined the crystal structure of riluzole and its binding pocket in SK2 chanel. By analyzing the specifics of the interaction of riluzole with SK channels, increase in efficacy and better treatment in ALS patients can be acquired.

Poster 69
Do genetic variations in the oxytocin receptor and social support interact to protect women against postpartum depression?
Presenter(s): Shiva Amanat, Taylor Delaney
Advisor(s): Dr. Jennifer Hahn-Holbrook

The neuropeptide oxytocin has been shown to enhance awareness of social support from others, therefore strengthening one's ability to accept and embrace that surrounding support. Variations in the oxytocin receptor gene (OXTR) have been shown to moderate the ability of women to use social support as a buffer against stress. We wanted to test whether social support and variations in the OXTR gene interact to modify women risk for postpartum depression (PPD). PPD is a serious mental health problem characterized by a prolonged period of emotional disturbance occurring after the birth of a newborn infant affecting up to 1 in 7 of postpartum. We hypothesize that women with more social support will have less risk of PPD and that this effect will be stronger in women with the more sensitive homozygous OXTR allele. Data collection is still ongoing, but 78 mothers with infants between 2 weeks and 12 months old were recruited to participate and indicate the support they received from their family, mother, and the infant's biological father. Depression was measured using the Edinburgh Postnatal Depression Scale. Genetic data is currently under investigation, but preliminary analysis showed that social support from both family and one's mother were significantly related to lower PPD risk. Support from the infant's biological father, however, was not significantly related to PPD risk, indicating partial support for the support-buffering model.

Poster 70
Effects of Sleep and Stress on Bone Mineral Density
Presenter(s): Jennifer Becker
Advisor(s): Dr. Frank Frisch, Dr. Jason Keller

Osteoporosis, a disease in which porous holes develop in bone mineral causing decreased bone mineral density (BMD), presents a large risk to post-menopausal women, a population which according to the 2013 U.S. census maintains the highest demographic of females currently living in the U.S.. The increased prevalence of women in high powered careers in the recent decade calls to question the potential risks of sleep deprivation and stress to the health of women in such careers. To determine the effects of sleep deprivation (SD) and the effectiveness of Zoledrononate (Zol), a bisphosphonate drug which slows osteoclastic bone degradation, on BMD and TNF-a regulation, a cytokine previously linked to osteoclastic maturation, thirty-two sprague-dawley rats were chronically sleep deprived via a modified multiple platform method (MMPM) for a period of 6 weeks. SD*Zol were found to have a significant effect on TNF-a activity ($p=0.003$.) No effect of SD, Zol nor SD*Zol on BMD nor mineral gradient was observed. This observation was contrary to previous literature linking SD to decreased BMD. The inconstant findings likely exist as a result of two possible factors: minimal Zol uptake from pre-experimental Zol injection, and or, varied amount of physical activity and weight loading during SD and non-SD periods. We conclude that SD methods which allow for minimal physical activity will allow for clear examination of stress and sleep deprivation on BMD.

Poster 71

The Synthesis and Evaluation of Cyclic and Linear (HR)4 and (HR)5 as Cell Penetrating Peptides

Presenter(s): Stephani Buchholz, Jimmy Clark ,Naglaa Aboud, Dr. Amir Shirazi,
Advisor(s): Dr. Rakesh Tiwari, Dr. Keykavous Parang

Cell-Penetrating Peptides (CPPs) are a major focus of drug delivery research and intervention because they improve drug efficacy by providing delivery of therapeutic agents. CPPs consisting of short, cationic, and amphipathic sequences of approximately 3-30 amino acids have been highlighted due to their relatively low cytotoxicity in mammalian cells. Their abilities to carry and deliver various drug cargos intracellularly and even intranuclearly has been recorded for chemotherapeutic drugs, antibodies, and drug-loaded nanoparticles. Herein, we designed and synthesized a new class of CPPs containing histidine and arginine as alternating amino acid residues for cyclic and linear (HR)4 and (HR)5 peptides. Peptides were synthesized through fmoc solid-phase peptide chemistry. The peptides were purified with reverse-phase high pressure liquid chromatography (RP-HPLC) and characterized using matrix-assisted laser desorption/ionization (MALDI) mass spectrometry. A cytotoxicity assay was performed with human leukemia CCRF-CEM and human ovarian cancer SK-OV-3 cell lines. Data suggests that cyclic and linear (HR)4 and (HR)5 are non-toxic up to 50 µM with cell viability values over 90% for all peptides. A 5µM linear fluorescent phosphopeptide, F'GpYEEI was mixed with the 50µM peptides (linear and cyclic (HR)4 and (HR)5) in SK-OV-3 cell lines, and cellular uptake was evaluated by fluorescence-activated cell sorting (FACS) analysis. The HR series peptides in this study appear to act as poor CPPs for F'GpYEEI cargo, except cyclic (HR)4 peptide which showed approximately two-fold uptake. Future studies should be carried out to evaluate other drugs for molecular transporter properties of (HR) series peptides.

Poster 72

Effects of ecologically realistic heating profiles on feeding in the intertidal hermit crab, Pagurus sameulis

Presenter(s): Paige Davis
Advisor(s): Dr. William Wright

The intertidal zone is an ideal habitat to investigate effects of global warming because species living in it are very close to their physiological limits. Initial studies of invertebrate physiological responses to heat stress have employed relatively abrupt increases in temperature. My research investigates effects of ecologically more realistic temperature profiles on feeding in the intertidal hermit crab, Pagurus sameulis. Recent work in the Wright lab showed that feeding in this species is inhibited by an abrupt increase in temperature. Because temperature change in the natural environment of Pagurus is much more gradual, I hypothesize that such a gradual temperature profile might be more readily tolerated. I heated hermit crabs with a fast (10 min), medium (30 min) and slow (100 min) rate of change to 29°C. As hypothesized, consumption of food pellets upon reaching 29°C was undetectable after 10-minute heating. Pellet consumption after medium or slow heating to 29°C was significantly greater than after the rapid 10-min heating profile. Thus, these results proved my hypothesis correct: consumption of a squid pellet suggests that behavioral and physiological responses to high temperature are sensitive to the rate at which the high temperature is reached.

Poster 73
Genetic Predictors of Postpartum Wellness
Presenter(s): Taylor Delaney, Shiva Amanat
Advisor(s): Dr. Jennifer Hahn-Holbrook

Genetic variances between individuals may confer a risk differential for women in developing postpartum depression (PPD). The purpose of the study was to investigate whether or not genetic variations between individuals predispose postpartum women to becoming more or less sensitive to hormones to predict mental wellness and mood disturbances. Specifically, the study examined single nucleotide polymorphisms (SNPs) of the hormone receptor genes for oxytocin, serotonin, and glucocorticoids which may predict PPD risk. Additionally, other psychological factors (perceived stress, perceived familial support, etc.) were assessed to determine an effect on PPD symptomatology. 79 new mothers with 1 week to 1 year old infants were recruited to participate. Mothers who exhibited PPD symptomatology were compared to mothers who did not exhibit PPD symptomatology to determine both genetic and/or psychological differences between groups. Initial findings from the survey data of the study indicate that there is a significant positive Pearson correlation of 0.75 between perceived stress and postpartum depression ($p < 0.01$). Genetic variance data is currently under investigation.

Poster 74
The Effects of a Caloric Restrictive diet on Bone Mineral Density and Bone Strength in Male and Female Rats
Presenter(s): Haley Folta`
Advisor(s): Dr. Kenneth Sumida

The purpose of this study was to determine the existence of sex differences following a 40% caloric restrictive diet and its impact on tibial bone mineral density (BMD) and bone strength between male and female rats. Thirty-two, six-week old Sprague Dawley rats (16 males and 16 females) were randomly divided into an ad libitum fed control group (MC, n=8 and FC, n=8) and a pair fed diet group placed on the 40% caloric restriction (MD, n=8 and FD, n=8) for a 6 week period. The caloric restrictive diet was equivalent to the normal fed diet in vitamin and mineral content where the only difference was 40% less calories. After 6 weeks, there were no significant interaction effects, therefore main effects (i.e., sex and diet) were examined. While the tibial BMD was equivalent between males (0.206 ± 0.003 g/cm2) and females (0.207 ± 0.004 g/cm2), bone strength (amount of force required to break the tibia expressed in Newtons, N) was significantly greater for males (112.0 ± 2.4 N) compared to females (74.8 ± 3.1 N). The BMD was significantly lower for caloric restrictive fed groups (0.200 ± 0.003 g/cm2) compared to normal fed animals (0.213 ± 0.003 g/cm2). In like manner, bone strength significantly lower for diet fed animals (86.5 ± 5.6 N) compared to control fed animals (100.3 ± 5.1N). The results indicate that caloric restriction lowers BMD and bone strength irrespective of sex. However, bone strength was greater for males compared to females.

Poster 75

Exploring the Anti-Migratory and Anti-Invasive Effects of Curcumin Analogs in Prostate Cancer Cell Models

Presenter(s): Ashley Forman

Advisor(s): Dr. Marco Bisoffi

Curcumin (diferuloylmethane) is the main ingredient of turmeric, a widely used natural spice of yellow color. curcumin has had much clinical importance due to its regulation of cell pathways. It has been under much scrutiny as being a "promising cancer chemopreventive compound". However, curcumin's low bioavailablitly and solubility due to poor absorption have hindered its experimental advancements. Therefore, this natural compound has been used to synthesize various analogs with enhanced bioavailability in order to alter prostate cancer growth by means of their signal transduction pathways. Here we demonstrate that curcumin and three analogs display inhibition of migration and invasion in prostate cancer cell progression models at low micro-molar concentrations. Our data indicates the potential of these analogs to serve as chemical scaffolds for the development of therapeutics for advanced prostate cancer.

Poster 76

Identification of Functional Pathways of Prostate Field Cancerization: Regulatory Role of EGR-1

Presenter(s): Emily Frisch

Advisor(s): Dr. Marco Bisoffi

Detection of prostate cancer, while still confined to the prostate, has a good chance for successful treatment. High levels of prostate specific antigen and/or abnormal digital rectal antigen cause physicians to recommend a biopsy, which often misses the location of the adenocarcinoma and results in false negatives. Field cancerization denotes the occurrence of molecular alterations in structurally intact cells in histologically normal tissues surrounding tumors. Our research features complementary approaches towards revealing the importance of potential mediators of prostate field cancerization, such as early growth response 1 (EGR-1), fatty acid synthase (FAS), macrophage inhibitory cytokine 1 (MIC-1), and platelet derived growth factor A (PDGF-A). We explored the potential regulatory function of the transcription factor EGR-1 for FAS, MIC-1, and PDGF-A towards the identification of functional pathways of prostate field cancerization. This hypothesis was tested by over-expressing and down-regulating EGR-1 using recombinant DNA technology and determining the effect on FAS, MIC-1, and PDGF-A protein expression in human prostate cell models. A better understanding of such pathways will ultimately lead to an enhanced indication of cancer presence regardless of whether the biopsy cores contain cancerous tissue.

Poster 77

Evaluation of the Innate Immune Responses to Alginate Microcapsules and Xenogeneic Porcine Islets

Presenter(s): Tina Gettas, Michael Alexander, Gianni Fiore, Rahul Krishnan, Christina Grace Kummerfeld, Jonathan Lakey, Miranda Stiewig

Advisor(s): Dr. Milton Greenberg

Islet transplantation provides a long-lasting method to treat type 1 diabetes, but is hampered by immune rejection. The first line of defense in immune rejection is macrophage recognition, which can either be pro- (M1) or anti-inflammatory (M2). Alginate encapsulation offers a method to evade graft rejection by macrophage adhesion. This study aims to evaluate the efficacy of alginate encapsulation in preventing macrophage-islet interaction.

Macrophages isolated from C57Bl/6 mouse were cultured for seven days in MCSF and serum-supplemented RPMI 1640. On day 7, flow cytometry was performed to evaluate macrophage phenotype (M1 & M2). Islets were isolated from 18-22 day old Yorkshire pigs and encapsulated in 2.5% UPLVM (Ultra-pure Low Viscosity Mannuronate) alginate using an electrostatic encapsulator. Macrophages were added to 100 encapsulated islets at concentration of 500,000 cells/mL, and controls (unencapsulated islets and blank capsules) were evaluated concurrently. Macrophage adhesion was monitored over a 7-day period. Supernatant samples were evaluated for cytokine release and at the end of the study, the macrophage phenotype was evaluated using flow cytometry.

After 7 days of in vitro culture, the cell population was 97% viable and 92% macrophages. Macrophages were observed to adhere to both unencapsulated and encapsulated islets, while the adhesion observed in blank capsules was significantly lower ($p<0.01$, ANOVA, Tukey HSD). The phenotype of the adherent macrophages is being determined.

Activated mouse macrophages adhere to porcine islets despite encapsulation within alginate microcapsules. The significance of this phenomenon will depend on whether the macrophages are M1 or M2, which is being determined.

Poster 78

Assessment of the Effects of Pomegranate Juice Extract and Caffeine on the Mcl-1, p-Akt, and PIM-3 Anti- Apoptotic Proteins in the COLO-357 Pancreatic Ductal Adenocarcinoma Cells

Presenter(s): Lena Haddad, Ben Geleris, Sarah Lanoie

Advisor(s): Dr. Melissa Rowland-Goldsmith

According to the American Cancer Society, pancreatic cancer is the fourth leading cause of cancer related deaths in the United States. In addition to being an exceptionally aggressive form of cancer, it is particularly difficult to treat because it is usually diagnosed in late stages after the onset of metastasis. Recently, focus has been put on using dietary alternatives, such as fruit and spices, which are known to possess chemopreventive properties. Previous studies have illustrated that pomegranate extract (PE) and caffeine have individually been very successful in inhibiting a variety of cancers including skin, colon, lung, and breast cancer cell growth. Recently, our own research has illustrated that the combination of both PE and caffeine successfully inhibited cancer cell growth to a significant degree in the COLO-357 pancreatic cancer cells, even compared to the individual treatments. While these compounds are now known to decrease cell proliferation, there has never been a study done investigating how and why this occurs. This research project focused on comparing the produced effects of pomegranate juice and caffeine extract individually and combined on the levels of the MCL-1, PIM-3, p-Akt, and Akt proteins expressed in pancreatic cancer cells, utilizing the Western Blot analysis method.

Poster 79

Acidic ocean conditions compromising predator perception in marine invertebrates.

Presenter(s): Alex Hall

Advisor(s): Dr. William Wright

Anthropogenic carbon dioxide (CO2) emissions have rapidly increased since the industrial revolution and are beginning to acidify the ocean. This reduced pH may hinder marine species' chemosensory abilities and thus compromise the ability of marine invertebrates to detect chemical signals from their predators. The blue-banded hermit crab (Pagurus samuelis) was used to test this hypothesis. Under ambient conditions (pH 8.2), hermit crabs exhibited a significantly shorter startle response time (elicited by tapping the shell) when tested in predator-scented water, compared to the same animals tested in predator-free water (ASW). In severely acidic conditions (pH 6.6; possible in a pH 6.9 ocean predicted for the year 2200), no difference in startle response was detected. Odor-mediated choice behavior in a Y-maze was even more sensitive to low pH than startle response. Hermit crabs in ambient conditions strongly chose the ASW branch over the branch with predator-scented water (16 ASW, 4 Predator-scented; binomial test, P = 0.006). This predator avoidance was significantly reversed (8 ASW, 12 Predator-scented; 2 X 2 contingency table, P =0.02) in pH 6.6. These two assays indicate that pH alters chemoreception in hermit crabs and may compromise their ability to detect a predator, significantly altering their biology even in the absence of lethal levels of acidification. Thus, the ability of marine prey to adaptively respond to the odor of predators is compromised in an increasingly acidic ocean, likely with significant consequences for the food webs that interact with these species.

Poster 80
Molecular Analysis of Prostate Field Cancerization Markers: Focus on p53 Mutations
Presenter(s): Nicole Hollenbeck
Advisor(s): Dr. Marco Bisoffi

Field cancerization denotes the occurrence of molecular alterations in structurally intact cells in histologically normal tissues surrounding tumors. We hypothesize that field cancerization represents a state of pre-malignancy and supports oncogenesis. Our previous research has shown that prostate field cancerization includes the up-regulation of various protein factors, including the key transcription factor early growth response 1 (EGR-1), a known factor to promote prostate oncogenesis. However, it remains unclear which mechanisms lead to the induction of elevated EGR-1 function in field cancerized prostate tissues. The literature suggests that specific mutations in the p53 tumor suppressor protein, including the R273H mutation, may induce EGR-1 function. The main objective of the present study is to establish a polymerase chain reaction (PCR)-based assay to detect the presence and extent of p53 R273H mutations in genomic DNA isolated from human prostate cell models and tissues. Our results so far show the real-time fluorescence quantitation and qualitative gel electrophoretic analysis of the presence of p53 R273H, compared to wild type p53, in human gDNA isolated from human cell models. Its detection in field cancerized human prostate tissues will contribute to a better understanding of the functional pathways underlying field cancerization, which is necessary for the development of more targeted intervention strategies to prevent prostate cancer.

Poster 81
Ecology of Displacement: Consequences of Catastrophic Dislodgement on Owl Limpet Ecology
Presenter(s): Ryan Kabala
Advisor(s): Dr. William Wright

Although the study of territorial behavior has given us a rich understanding of the costs and benefits of defending a resource from competitors, one of the most difficult costs to measure is that of a catastrophic loss of territory. The territorial owl limpet, Lottia gigantea, is at risk of a catastrophic loss of territory, because it can be completely dislodged from the substratum by other aggressive conspecifics. However, its fate after such dislodgement is unknown. For my capstone, I forcefully dislodged limpets engaged in a territorial response from the substratum and examined the consequences of this dislodgement on their mortality and growth. I hypothesized that fewer than half of the dislodged limpets would survive and would have slower growth than their undisturbed counterparts. I found that survival of dislodged limpets was surprisingly high (25-56 %). During the 2-3.75 month period following dislodgement, limpet growth ranged from -8.3 to 6.7 mm and most individuals grew between -2 and 2 mm. Furthermore, the growth of dislodged limpets was not significantly different than that of their undisturbed counterparts . My findings suggest that, overall, dislodgement has little or no effects on limpet growth. In addition, the risk of limpet mortality following dislodgement is not as great as previously thought. I conclude that, far from being a terminal event, dislodgement is on average a relatively small perturbation in the life history of this territorial species.

Poster 82

The impact of a 20% vs. a 40% caloric restrictive (CR) diet on BMD during the growth period in male rats

Presenter(s): Kassandra Lee
Advisor(s): Dr. Kenneth Sumida

Purpose: The purpose of this study was to determine the impact of a 20% and a 40% caloric restrictive diet on bone mineral density (BMD) and bone strength in male rats during the growth period. Methods: 32 male rats were randomly divided into: control groups (C20, n=8 and C40, n=8), a group fed the 20% caloric restrictive diet (D20, n=8), and a group fed the 40% caloric restrictive diet (D40, n=8). An animal in the caloric restrictive diet group was matched and pair fed with an animal in the control group for 6 weeks. Each caloric restrictive diet contained additional vitamins and minerals so that the only variable was a restriction on the amount of calories consumed (i.e. 20% or 40% reduction in caloric intake). Results: There was a 17.5% reduction in body weight for D20 compared to C20. In like manner, there was a 27.5% reduction in body weight for D40 compared to C40. The left tibia BMD for D40 (0.2001± 0.0015 g/cm2) was significantly lower compared to C40 (0.2111 ± 0.0048 g/cm2). Further, the Fmax (the amount of force required to break the tibia expressed in Newtons, N) for D40 (105.73 ± 2.39 N) was significantly lower than C40 (118.73 ± 2.67 N). In contrast, there was no significant difference in tibial BMD or Fmax between D20 and C20. Conclusion: The results suggest that although both caloric restricted groups had a reduction in body weight, only the 40% diet group had a significant decrease in BMD and bone strength.

Poster 83

Late onset Alzheimer's disease risk variants and duration of cognitive impairment show association with end-stage plaque load in the hippocampus.

Presenter(s): Timothy Lee, Malcolm B. Dick, Aimee L. Pierce, Wayne Poon, Alexander J. Rajic, Michael T. Wojnowicz

Advisor(s): Dr. Elaine Schwartz

Unlike Familial Alzheimer Disease (FAD), which is caused by single dominantly inherited mutations, late onset Alzheimer Disease (LOAD) is influenced by multiple genetic loci and environmental risk factors. LOAD is also characterized by greater variation in quantitative endophenotypes compared to FAD, including age of onset, rate of cognitive decline and end-stage pathology. Recent studies have attempted to elucidate the effect of single nucleotide polymorphisms (SNPs) identified by GWAS on various quantitative endophenotypes in LOAD populations. In particular, pathway analyses have been employed to identify combinatorial effects of physiologically related risk loci on these endophenotypes. Here, we tested the hypothesis that risk SNPs located within genes encoding proteins involved in APP endocytosis(PICALM, CD2AP, BIN1) and subsequent Aβ metabolism(APOE) within the CNS affect the rate of plaque deposition in AD patients. We developed a genetic risk score based on the number of risk alleles within the endocytic pathway. Our preliminary results demonstrate that the genetic risk score combined with duration of cognitive decline correlate with end-stage hippocampal plaque burden. These results suggest that the endocytic pathway interacts with APOE to increase the rate of plaque formation in LOAD.

Poster 84

Clinical Applications of a Combination Chemotherapy Using 8-Chloro cAMP and 8-Chloro Adenosine

Presenter(s): Erik Munoz, Andrew Cox, Andrea Saich
Advisor(s): Dr. Peter Chang

Dr. Cho-Chung from the NIH first thought to use halogenated cAMP derivatives as competitive inhibitors of cAMP to slow down cancer cell mitosis. While the iodine and bromine substituted versions showed very little therapeutic actions, 8-Chloro cAMP has been shown to have strong anti-cancer effects. This has been shown in the phase II clinical trials this drug has undergone. However, these trials have had issues with solubility and toxicity. The drug is similar to vitamin C and is excreted quickly. Scientists tried to overcome this by using a peristaltic pump to give patients a continuous dosage, but this proved too toxic for patients, leading to the denial of phase III trials.

However, this may be overcome by taking advantage of another drug. 8-Cl Adenosine, a drug currently in phase I clinical trials, is metabolized in the body to 8-Cl ATP which is further metabolized to 8-Cl cAMP. This is important as 8-Cl Adenosine is thus not only a prodrug for 8-Cl cAMP but it is also less soluble meaning its concentrations remain high in the body for longer periods of time. Therefore, lowering the dosage of 8-Cl-cAMP and adding an IV dosage of 8-Cl Adenosine would not only provide patients with the enhanced anti-cancer effects but also give the body a less toxic source of 8-Cl cAMP in the form of 8-Cl Adenosine. We believe that combination therapy using both 8-Cl cAMP and 8-Cl Adenosine can operate synergistically, provide better anti-cancer effects, and are thus prime targets for clinical trials.

Poster 85

Evolutionary responses of California grassland species to variation in precipitation and soil nitrogen

Presenter(s): Amy Ortega, Monica A. Nguyen, Kurt L. Nguyen
Advisor(s): Dr. Jennifer Funk

Global climate models suggest many ecosystems will experience reduced annual precipitation over the next century with unknown consequences for invasive species performance. Invasive plant species may be able to respond to environmental variation with rapid genetic changes and/or phenotypic plasticity. To test for these differential responses, we established a two-year project to investigate how drought and nitrogen deposition influenced selection over five years in a southern California grassland system. Seeds from two annual grass species Avena barbata and Bromus madritensis were exposed to three precipitation treatments (ambient, water addition, or water reduction) and two N treatments (ambient or N addition) over a five year period. Because adaptation cannot be assumed on the traits displayed in one generation, common garden experiments must occur over at least two generations in order to differentiate between selection and maternal effects (i.e. traits based on the environment experienced by its mother). To control for maternal effects, seeds collected from the field and their offspring were grown in a common environment. We measured a number of physiological, morphological, phenological and reproductive across two generations. Both species displayed trait values characteristic of drought escape (e.g., earlier flowering, lower water-use efficiency). A. barbata had higher reproductive output and higher photosynthetic performance following reduced precipitation. Few maternal effects were found in either species, suggesting that treatment differences represent selection over a short time period. Overall, our results suggest these two dominant invasive grass species will thrive under reduced precipitation scenario.

Poster 86

Glutamine Synthetase and Nitrogen Resorption in coastal sage scrub species

Presenter(s): Luke Sanborn, Niki Ruso
Advisor(s): Dr. Jennifer Funk

Plant growth and reproduction are greatly affected by nitrogen (N) resorption efficiency (Reff), which has been shown to significantly vary between species. The determining mechanism of this unexplained variability may be the production of glutamine, the predominant amino acid transported from senescing leaves during N resorption, by the enzyme glutamine synthetase (GS). Although increasing GS activity has been demonstrated to increase the Reff and nutritional quality of multiple transgenic crops, its role in natural environments is not well understood. We report a moderate regression (R2=0.46585) between GS activity and Reff for 10 wild perennial species, which supports the theory that GS activity contributes to species variation in Reff. The removal of an outlier species almost doubles the strength of this regression (R2=0.85646), further supporting our finding. This discovery enhances our understanding of species diversity, susceptibility, and competition within natural environments and can potentially be used to develop more effective sustainability and restoration techniques.

Poster 87
Prostate Field Cancerization – Thinking Outside the Tumor
Presenter(s): Dor Shoshan
Advisor(s): Dr. Marco Bisoffi

Analysis of tumor adjacent tissue is assumed to reveal a temporal record of molecular pathways that define oncogenesis. The present study determines expression of the key transcription factor and potential marker of field cancerization early growth response 1 (EGR-1) in human prostate tissues derived from prostatectomies and biopsies. Expression was detected using immunofluorescence and quantified using ImageJ software. Accordingly, EGR-1 expression was similar in cancerous and in histologically normal adjacent tissues from prostatectomy and biopsy specimens. EGR-1 could be exploited as pre-surgical disease indicator in false negative biopsies, identify areas of repeat biopsy, and add molecular information to surgical margins.

Poster 88
Growing Aware: Ontogenetic Change in Olfactory Response to Predators
Presenter(s): Max Sunoo
Advisor(s): Dr. William Wright

Marine invertebrate prey are increasingly understood to respond to the odor of their predators and adjust their behavior adaptively. Largely missing from this growing scientific literature is knowledge about how such responses change across the ontogeny of the prey. Adaptive, anti-predatory behavior of Pagurus samuelis has been observed in the presence of chemical cues from the predacious red-rock crab, Cancer productus. In the present study I investigated two classes of predator response in juvenile and adult hermit crabs. The first assay investigated the "hiding time" in response to a tactile stimulus of P. samuelis in predator-tainted artificial seawater (ASW) vs. ASW alone. The hiding time of juvenile P. samuelis trended longer ($p=0.06$) in predator ASW (vs. control ASW). This trend was significantly reversed ($P = 0.004$) in older P samuelis, whose hiding time was significantly shorter ($p=0.03$) in predator ASW than in control ASW. The second assay presented a choice between predator water and ASW via a Y-tube apparatus. Although no predator avoidance was observed in juvenile P. samuelis, significant predator avoidance was observed by adult P. samuelis (4 predator, 16 predator free, binomial test, $p=0.006$; significantly different from juveniles, Fisher's Exact Test, $P = 0.048$). These results reveal an ontogenetic change in the anti-predator responses by P. samuelis towards predator stimuli. This may reflect a combination of developmental constraints on the nervous system and/or size related changes in vulnerability to rock-crab predators.

Poster 89

Hermit crab consumption of chemically protected prey is correlated with extensive "mouth handling"

Presenter(s): Hayley Thomas

Advisor(s): Dr. William Wright

Predator-prey interactions, specifically those involving chemically defended prey, have been a fruitful area of research on coevolution. In the present study, I examine the predatory behaviors of the blue-banded hermit crab, Pagurus samuelis, interacting with the chemically defended sea hare prey, Aplysia californica. Pagurus is a common intertidal scavenger, and only recently has been described as an aggressive predator. Previous experiments in the Wright lab demonstrated that hermit crabs only attack relatively small sea hares. In the present study, I examined attack behavior of hermit crabs on sea hares of different sizes. Cursory examination of attacks suggested that hermit crabs are able to hold and process small sea hares in their mouth, where sea hare chemical defenses seem to have less of an effect. I hypothesized that hermit crabs will consume smaller Aplysia juveniles using mostly this "mouthpart manipulation," and yet use a different strategy, i.e., cheliped manipulation, when the Aplysia prey are larger. Hermit crabs spent more time manipulating smaller Aplysia in their mouthparts, specifically in the maxillae region. Consistent with the importance of this mouthpart manipulation, small Aplysia were particularly vulnerable to hermit-crab attack: 3 of 6 Aplysia smaller than 20% of the hermit crab's size were eaten, while none of 12 Aplysia larger than 20% were fully consumed. These observations provide a mechanism; manipulation of small chemically protected prey inside the chamber formed by the mouthparts (maxillae); which may explain why hermit crabs can consume small, but not large chemically protected sea hares.

Poster 90

Elucidating the Pathophysiology of White Matter Damage in Repeat Mild Traumatic Brain Injury

Presenter(s): Casey Tiefenthaler, Brian Cummings, Eric Gold

Advisor(s): Dr. Melissa Rowland-Goldsmith

While 1.7 million Americans are hospitalized from Traumatic Brain Injury (TBI) each year, an even greater amount of Americans suffer from mild TBI (mTBI). There is mounting evidence that individuals experiencing repeated mTBI (rmTBI) can develop a unique pathological and clinical manifestation of disease, including depression, anxiety, memory loss, and aggression. To model rmTBI in the laboratory, we have developed a novel mouse model that mimics behavioral and pathological changes observed in the clinical setting. Specifically, our model shows chronic changes in activity, anxiety, learning and memory performance, as well as major white matter atrophy.

Poster 91

Effect of Curcumin Analog Ca27 on Androgen Receptor Translocation in Prostate Cancer Cells

Presenter(s): Lijah Vann Gardner

Advisor(s): Dr. Marco Bisoffi

The androgen receptor (AR) plays an essential role in promoting the development and progression of metastatic prostate cancer and represents an important molecular target for therapeutic intervention. We have recently described a series of synthetic analogs of the natural product diferuloylmethane (curcumin), some of which induce the down-regulation of AR expression in prostate cancer cells by an as yet largely unknown mechanism of action. While such analogs may in the long term be lead structures for the development of therapeutic drugs, we hypothesize here that they represent ideal molecular probes to identify the mechanism(s) of action for AR down-regulation. We have previously identified the synthetic analog Ca27 as an inhibitor of the AR, yet its mechanisms of action remain unclear. Towards this goal, we have established AR specific immunofluorescence in human prostate cancer cells and its quantitative analysis by densitometry of digitized images. These methods will allow us to test our main hypothesis whether Ca27 inhibits AR function by interfering the translocation of the AR from the cytoplasm to the nucleus, which is part of its activation. This finding would contribute to a better understanding of AR interference, which may be exploited as a therapeutic strategy for prostate cancer.

Poster 92

The Effects of Human Activity on the Tameness of Common Loons (Gavia immer) in Northern Wisconsin

Presenter(s): Seth Yund

Advisor(s): Dr. Walter Piper

The Common Loon (Gavia immer) is an aquatic diving bird that lives in freshwater habitats in Canada and the northern U.S.. Human activity on a loon's resident lake may affect its fitness and behavior, yet few studies identify or quantify these effects. We modified existing techniques that measure escape distances in other species to measure tameness as the distance at which individual loons dove in response to human approach by canoe. Tameness was similar between pair members, suggesting that common lake conditions or the behavior of a mate might influence the behavior. Sex, size within sex, and human activity did not influence tameness. However, our data for human activity characterized a lake for an entire breeding season rather than measure the amount of human activity present at the time tameness data was collected. Further studies using our technique for measuring tameness are needed to determine whether tameness is a result of the momentary influence of lake activity, a learned response, or if loons are unable to adjust their behavior in response to human activity. If loons do not have the ability to adjust their behavior to human activity, greater or more rigid set-back distances could be implemented to protect them from potential harm.

Schmid College - Chemistry

Poster 93
Removing Lead and Hydrogen Sulfide From The Test Procedure For Stabilizer in Meta-Phosphoric Acid In The Pursuit of Green Chemistry
Presenter(s): Christopher Atlas, Ron Lacock
Advisor(s): Dr. Dan Wellman

In the pursuit of green chemistry, adequate substitutes for lead acetate and hydrogen sulfide were investigated for use in the ACS test procedure for stabilizer in meta-phosphoric acid. In the current ACS procedure lead acetate is used to form insoluble lead phosphate. In order to remove lead from the solution lanthanum chloride was investigated with positive results. Hydrogen Sulfide is currently used to precipitate lead by forming insoluble lead sulfide. Several substitutes including oxalic acid and sulfuric acid were investigated. Preliminary testing showed that lanthanum chloride and oxalic acid are sufficient in precipitating phosphate and lead out of the sample solution

Poster 94
Characterization of dissolved organic matter in coastal marine and salt marsh pore waters using excitation-emission matrix (EEM) fluorescence spectroscopy and parallel factor (PARAFAC) analysis
Presenter(s): Jennifer Bowen
Advisor(s): Dr. Warren De Bruyn

Understanding the chemical properties of dissolved organic matter (DOM) in coastal ecosystems is important in assessing carbon transport, reactivity, and subsequent biogeochemical processes. In this study, DOM optical properties were analyzed in Southern California coastal marine and salt marsh pore waters. Absorbance and fluorescence spectroscopy were used to characterize the surface and pore water DOM. Excitation-emission matrix (EEM) fluorescence spectra was analyzed further using parallel factor (PARAFAC) analysis. A total of three common components were identified from both the coastal marine and salt marsh pore water PARAFAC models. The relative abundance of these components in the surface and pore waters suggest a significant role of DOM chemical properties in its transformation and ecosystem processes. In addition, spectral slope and fluorescence indices were calculated to assess the source of DOM as well as the degree of humification, aromaticity, and molecular weight of DOM. Overall, the optical distribution of DOM in coastal marine and salt marsh pore waters suggest specific dependences of organic matter quality, microbial activity, and tidal contributions on ecosystem processes in coastal Southern California.

Poster 95

Biological degredation of acetaldehyde in Southern California wetlands

Presenter(s): Anthony Castagnola, Sovandara Hok, Brandon Lamb, Mary Senstad
Advisor(s): Dr. Warren de Bruyn, Dr. Catherine Clark

Oxygenated hydrocarbons are ubiquitous in the atmosphere with levels ranging from low ppt (acetaldehyde) to low ppb(methanol). As an OH sink and an atmospheric HOx source, oxygenated hydrocarbons have a direct impact on the oxidative capacity of the atmosphere. A better understanding of the processes that produce and destroy these species in natural water would improve our understanding of the role that these systems play in cycling these species into or out of the atmosphere. These species can be lost to chemical, photochemical, and partical mediated (abiotic and biotic) processes in natural waters. Chemical loss and photochemical loss are believed to be negligible. Chemical and particle mediated degradation rates of acetaldehyde were measured in a southern california coastal wetland over a 6 month period. Corrolation between partical mediated rates and bacteria levels suggest that loss is primarily due to bacterial consumption. All samples were collected in the coastal waters of Newport Back bay, the inland delta in Newport Beach, California. Degradation rates were determined by measuring concentrations of D-4 labeled acetaldehyde in seawater samples spiked to nM levels in 100-mL glass syringes over time. Isotope dilution purge and trap gas chromatography mass spectrometry using C-13 labeled acetaldehyde as an internal standard was used to determine concentrations. Degradation rates were not measurable for 0.2-µm filtered seawater samples.

Poster 96
Biological degredation of acetaldehyde in Southern California wetlands
Presenter(s): Brandon Lamb, Anthony Castagnola, Sovanndara Hok, Mary Senstad
Advisor(s): Dr. Warren de Bruyn, Dr. Catherine Clark

Oxygenated hydrocarbons are ubiquitous in the atmosphere with levels ranging from low ppt (acetaldehyde) to low ppb(methanol). As an OH sink and an atmospheric HOx source, oxygenated hydrocarbons have a direct impact on the oxidative capacity of the atmosphere. A better understanding of the processes that produce and destroy these species in natural water would improve our understanding of the role that these systems play in cycling these species into or out of the atmosphere. These species can be lost to chemical, photochemical, and partical mediated (abiotic and biotic) processes in natural waters. Chemical loss and photochemical loss are believed to be negligible. Chemical and particle mediated degradation rates of acetaldehyde were measured in a southern california coastal wetland over a 6 month period. Corrolation between partical mediated rates and bacteria levels suggest that loss is primarily due to bacterial consumption. All samples were collected in the coastal waters of Newport Back bay, the inland delta in Newport Beach, California. Degradation rates were determined by measuring concentrations of D-4 labeled acetaldehyde in seawater samples spiked to nM levels in 100-mL glass syringes over time. Isotope dilution purge and trap gas chromatography mass spectrometry using C-13 labeled acetaldehyde as an internal standard was used to determine concentrations. Degradation rates were not measurable for 0.2-µm filtered seawater samples.

Poster 97
Electrical Conductivity in Two Types of Secondary Water Treatment
Presenter(s): Jennifer Magana
Advisor(s): Dr. Elaine Schwartz

Electrical conductivity (EC) is a measure of the ease by which electrons flow through a substance. At the Irvine Ranch Water District, a difference in the EC values between two types of secondary treatment has been recorded in recent years. After testing the two effluents using an electrical conductivity probe and ion chromatography, it was discovered that there is no significant difference between the two, though secondary treatment raises the nitrate levels in general.

Poster 98

Biological degradation of acetaldehyde in marine waters.

Presenter(s): Mary Senstad, Ori Barashy, Sovanndara Hok
Advisor(s): Dr. Warren de Bruyn, Dr. Catherine Clark

Oxygenated hydrocarbons are ubiquitous in the atmosphere with levels ranging from low ppt (acetaldehyde) to low ppb (methanol). As an OH sink and an atmospheric HOx and ozone source, oxygenated hydrocarbons have a direct impact on the oxidative capacity of the atmosphere. The oceans are one of the largest sources of uncertainty in current atmospheric budget estimates of these species. A better understanding of the processes that produce and destroy these species in seawater would improve our understanding of the role of the oceans in cycling these species into or out of the atmosphere. We have measured the degradation rate of acetaldehyde in unfiltered and filtered southern California coastal waters. Rates were determined by following the concentrations of D-4 labelled acetaldehyde in spiked (nM levels) seawater in 100ml glass syringes as a function of time. Concentrations were determined by isotope dilution purge and trap gas chromatography mass spectrometry using C-13 labelled acetaldehyde as the internal standard. Degradation rates in 0.2um filtered seawater were not measurable. Degradation rates in unfiltered seawater were first order and ranged from 0.046 to 0.32 hr-1. Bacteria levels were also measured in all samples. Acetaldehyde degradation rates scale with bacteria levels. Variability as a function of time, rainfall and other water quality parameters will be discussed.

Poster 99

Tumor-Targeting Peptide Drug Delivery System

Presenter(s): Andrew Shiroishi, Naglaa Salem El- Sayed, Amir N. Shirazi
Advisor(s): Dr. Rakesh Tiwari, Dr. Keykavous Parang

During the process of tumor tissue angiogenesis, the surface of the epithelial cancer cells overexpress αvβ3 integrin receptors that bind to a variety of ligands which offer targeting opportunity to deliver drugs and diagnostic agents to tumor tissue. Erkki's group discovered the iRGD peptide, which is a cyclic version of RGD peptides that offers binding with both the αvβ3 integrin and neuropilin-1 receptors and mediate tumor penetration for improved imaging, sensitivity, and therapeutics inside tumor tissue. Dr. Parang's group reported a cell penetrating peptide (CPP) named (WR)5, which offers nuclear targeting of various cargo such as phosphopeptides or doxorubicin through a passive transport mechanism. Here, we hypothesized that the conjugation of iRGD peptide and CPP [K(WR)4W] could generate a tumor targeting drug delivery system which can offer delivery of potent impermeable drugs to the cancer and tumor tissue without, or with negligible, toxic side effects on normal cells. Peptides were synthesized through fmoc solid-phase peptide chemistry, were purified with reverse phase high pressure liquid chromatography (RP-HPLC), and characterized by using matrix-assisted laser desorption/ionization (MALDI) mass spectrometry. The iRGD peptide was conjugated with [K(WR)4W] using the bifunctional linker named succinimidyl 4-(N-maleimidomethyl)cyclohexane-1-carboxylate) (SMCC) as there was a problem during conjugating the iRGD peptide with [K(WR)4W] without a linker. In conclusion, we synthesized iRGD/c[RGDfK] conjugated [K(WR)4W] peptides. In future work, we will investigate in vivo and in vitro testing of our synthesized peptide to determine the targeting and delivery of potent drugs using our peptide conjugates.

Schmid College – Computer Science

Poster 100
Performance Optimization: Understanding Developers' Techniques to Improve Program Efficiency
Presenter(s): Rao Hamza Ali
Advisor(s): Dr. Adrian Nistor

Software performance is critical for how end-users perceive the quality of software products and consequently for the overall success of a software project. While there has been substantial work on performance optimizations, a crucial aspect of software performance is understudied: what are the performance improvements developers already include in their code as part of the typical software development process? Designing effective techniques to address performance problems requires a deep understanding of the improvements developers already make.
In this project we study the performance optimizations developers already include in their code. In contrast to performance bugs that already affect performance, our studied optimizations are considered good coding practices by developers. To achieve our goal we investigate code comments related to performance improvements. Based on these comments and the surrounding code we identify how developers improved performance, what prompted them to do so, and what was the originally suboptimal code. To find such comments, we first download popular open source programs, e.g., Google Core Libraries, Apache Collections. In the source code for these applications we identify candidate comments by searching performance-related keywords, e.g., slow, fast, performance, etc. We then manually inspect each candidate comment and we decide if indeed the comment is related to performance, and how the comment is related to the surrounding code. Based on our comment investigation, we find that sometimes developers override methods in sub-classes to improve performance. The comments make it clear that the purpose of the overriding is performance. This overriding strategy can potentially be used in other collections or more generic classes.

Poster 101
Full Adder power consumption comparison.
Presenter(s): Earl Huskey
Advisor(s): Dr. Peiyi Zhao

This research compares the power usage difference between a compact full adder and an expanded full adder. We will be looking at the overall, high, low, and average, we will take results from 1 bit 2 bit 4 bit 8 bit and 16 bit full adders.

Schmid College – Environmental Science and Policy

Poster 102
Lithium-ion Battery Recycling: Analyzing Methods of Resource Reclamation
Presenter(s): Devon Bloss
Advisor(s): Dr. Christopher S. Kim

The electric vehicle, power storage and mobile electronics industries are expected to grow exponentially within the next decade and are all technologically driven by lithium ion batteries (LIB). However, very few methods of recycling LIB hazardous waste have been implemented. Two commercial and two scholarly methods of LIB recycling were investigated for the purpose of valuable metal reclamation, grave-to-cradle life-cycle analysis and reduction of environmental impacts. First, a qualitative comparison of the four methods investigated three auditable categories: Energy Consumption, Cost of Operations, and Environmental Impact/Resource Loss. The physical and chemical procedures of each method were examined and then ranked according to set parameters by category. Two published methods of LIB recycling in the lab were then reproduced in the lab using similar protocol techniques. One method involved the chemical precipitation of the desired metal salt, $LiCoO_2$ by leaching the metals with 3M HCl and 3M NaOH with 3.5% vol. H_2O_2 as a reducing agent, using a 1:20 mg/ml ratio, temperature of 80° C and a time of 60 minutes. The second method used an ultrasonic sifter to aid in the leaching of $LiCoO_2$ with 0.5M citric acid, 0.55M H_2O_2, a 25g/L ratio, a temperature of 60° C and a leaching time of 5 hours. Both methods were compared using percent yield, purity and XRD. The objective of this compounded study was to gather information and expose potential gaps in LIB recycling industry knowledge as well as inform future researchers/entrepreneurs in regards to which recycling processes are most environmentally and economically sustainable.

Poster 103

Saharan Dust Storms and Hurricane Katrina's Cyclogenesis: Examining Correlative Patterns by using Remote Sensing Imagery

Presenter(s): Devon Bloss
Advisor(s): Dr. Hesham El-Askary

Satellite remote sensing tools were used to observe the Saharan aerosol dust event from August 13, 2005 – August 31, 2005 and its prospective effects on atmospheric cloud convective currents, precipitation and tropical cyclone formation. Aerosol Optical Depth 550 nm, Small Mode Fraction 550 nm, Angstrom Coefficient and Precipitation remote data products were examined and compared for correlative results. Observations were determined by using daily satellite images and time-averaged data series images from NASA's GIOVANNI platform and were further analyzed for overlap with basic spatial object modeling. It was observed that by using object-based orientation models and spatial overlapping methods, a clear a correlation between the location of atmospherically suspended fine/coarse dust particles and the location of increased atmospheric precipitation and tropical cyclone formation was found in this case study of Hurricane Katrina. It was proven that this research gives serious validation to continue similar climate research studies in terms of examining radiative forcing impacts, microphysics and thermodynamic processes of the aerosol-cloud interaction, particularly with dust as Giant Cloud Condensation Nuclei and Ice Forming Nuclei, and the resultant meteorological phenomena.

Poster 104
Energy Efficiency at Chapman University
Presenter(s): Jenny Bowen
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original 2012 audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The 2013 audit was focused on water and landscaping and many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into the overall efficiency of campus energy consumption. This was done by assessing the optimization of high performing academic buildings on the main campus: Argyros Forum, Beckman Hall, Leatherby Library, Marion Knott Studios, and Kennedy Hall. The chapter looks into the overall strategic reduction of base and seasonal loads in each of these buildings in order to reduce the university's electricity usage and cost. From these analyses various recommendations can be made, including the installation of battery storage units to reduce the campus on-peak demand charges and fuel cells to shift from electricity to natural gas consumption in certain building functions. In addition, many recommendations will be incorporated into university policy suggestions, such as the implementation of a university-wide ambient indoor temperature. Frequent evaluation of our campus energy performance, such as the annual Environmental Audits, is necessary for the long-term planning of campus building construction and energy consumption.

Poster 105
Resident Hall Lighting Retrofits
Presenter(s): Luis Genis
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit was focused on water and landscaping and many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into Chapman's energy inefficiencies and consumption in all residential halls. From this analysis various recommendations can be made, including retrofitting light fixtures that are outdated and inefficient and installation of dimmers, occupancy sensors and light sensors in the hallways and dorm rooms. For example, Sandhu resident hall lounge area light fixtures are on continuously, providing light to an area that is unoccupied most of the time and make better use of natural sunlight. For this reason occupancy sensors, along with retrofitting the light fixtures, should be installed to only provide light at night when it's necessary. Simple retrofits can save money, energy and the amount of carbon dioxide produced, therefore future construction planning should have these lighting fixtures implemented during the blueprint stages.

Poster 106
Environmental Science and Policy Senior Capstone Audit: Behavior Change on Main Campus
Presenter(s): Darcy Hardwick
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit focused on water and landscaping and many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into behavior change on main campus. From this analysis various recommendations can be made, including the effects potential behavior change programs could have in order to raise awareness about sustainability and energy usage. The Green Department Certification Program is a current sustainability related program on campus that attempts to foster behavior change and will be looked into as apart of this chapter. This chapter will also target faculty and staff in a campus wide survey and identify weak points in terms of energy use practices. Finally, the chapter will estimate the costs and benefits of certain energy use habits and the implementation of more sustainability programs on campus.

Poster 107
Main Campus Lighting Retrofits
Presenter(s): Nicolas Lapointe
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit was focused on water and landscaping and many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into lighting consumption in four buildings on Chapman's Campus. Marion Knott's Studio, Roosevelt Hall, Smith Hall and Demille Hall are the buildings that this chapter has focused on and identified as potential candidates for the suggested lighting retrofits. In addition to studying current data pertaining to overall energy consumption in these three buildings, this chapter also analyzes the energy consumption of all the different fixtures that are in each building. From this analysis various recommendations can be made, including possible lighting retrofits that are more energy efficient than current lighting fixtures. Since the chapter will identify various new lighting options, it will also include a draft of lighting retrofit standards to be used and applied to future buildings. Even if the suggested retrofits are not applied to buildings immediately, having this information and a draft of standards will allow for an easy transition to more efficient lights when old lights burn out or buildings undergo retrofitting.

Poster 108
Chapman Environmental Audit 2015: Policies and Recommendations
Presenter(s): Amanda Le
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on campus. The original audit looked at ten different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit was focused on water and landscaping and many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into Chapman's sustainability policy and standards. From this analysis various recommendations can be made, including a building construction policy, class scheduling policy, and participation in national energy conservation initiatives. For example, the chapter makes standard recommendations for building usage and summer scheduling. This chapter also observes case studies from educational institutions similar to Chapman. Finally, the chapter looks into the future areas of research for addressing and overcoming policy challenges.

Poster 109

Assessing an Energy Behavior Change Program within Chapman University's Residence Halls

Presenter(s): Jacob Lopez

Advisor(s): Mackenzie Crigger, Dr. Christopher Kim

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit was focused on water and landscaping. Many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into Chapman's role in the upcoming industry of Behavior Change in Energy Efficiency. Past attempts at curtailing energy use have used the traditional method known as physical-economic-model. This chapter will participate in new methods of using psychology, social marketing, and big data. Various recommendations can be made, including, assessing a baseline kWh/student for future ROI, analysis of student demographics to establish a target demographic, and recommendations on implementing a behavior program at Chapman. This chapter will also analyze last year's Eco-Olympics energy savings as an opportunity for reinvestment. Finally, the chapter looks into the creation of a sustainable community within Chapman's residence residence halls as a step toward installing renewable energy.

Poster 110
2015 Environmental Audit: Retro-commissioning in the residential halls
Presenter(s): Mia Montanile
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit was focused on water and landscaping and many of the resulting recommendations are now being implimented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into Chapman's retrocomissioning projects in the residential halls. From this analysis various recommendations can be made, including unversializing Telkonet throughout all residential halls. By doing this, Chapman can manage the individual heating and air conditioning units present in each residential room as well as set back or turn off a unit when the room is unoccupied. This chapter also looks into evaluating energy, water, and gas usage across the dorms to pinpoint which dorms are using the most energy, and hopefully encourage a more advance submetering system to identify what this energy is being used for (HVAC units, water heating, lighting etc). Finally, the chapter looks into the remodeling of South Morlan and what particular mechanical systems and energy saving fixtures can be installed to evaluate energy savings in the form of a case study, which could then be transferred to the rest of the residential halls.

Poster 111
Building Retrocommissioning for Chapman Main Campus
Presenter(s): Christopher Thatcher
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy major's Capstone Course has focused on conducted a campus-wide Environmental Audit and evaluating the sustainability progress and opportunity for improvement on campus. The original audit looked at 10 different subject areas, and subsequent audits have expanded upon those subject areas. The previous audit focused on water and landscaping, with many of the resulting recommendations currently being implemented on campus. The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into retrocommissioning buildings on the main campus. From this analysis various recommendations can be made, including more efficient management of lighting and HVAC systems. For example, conducting occupant surveys to determine what and where lighting is adequate versus excessive or lacking. This chapter also looks at implementation of Telkonet HVAC management so that inefficient use may be adjusted remotely. Finally, the chapter looks into the relative cost and benefit of such projects.

Poster 112
Chapman University 2015 Campus Environmental Audit: Argyros Forum LEED EBOM
Presenter(s): Patsornkarn Vorapharuek
Advisor(s): Mackenzie Crigger

For the last two years the Environmental Science and Policy Program Capstone Course has focused on performing a campus Environmental Audit and evaluating the sustainability progress and opportunity for improvement on Campus. The original audit looked at 10 different subject areas, and subsequent audits have drilled deeper into those subject areas. The previous audit was focused on water and landscaping and many of the resulting recommendations are now being implemented on campus.

The current iteration of this course focuses on energy and building construction. This particular chapter in Chapman's 2015 Energy and Building Audit looks deeper into Chapman's iconic Argyros Forum and its' potential to become a LEED certified building. LEED is a green building certification program that focuses on saving money, conserving resources, promoting renewable and clean energy and supporting a positive impact on the health of occupants. From the analysis of current conditions in Argyros Forum, various recommendations can be made, including lighting retrofits, hardscape management plans and a development of a sustainable purchasing policy. For example, Argyros Forum has many classrooms that are not constantly in use. A recommendation for installation of light motion sensors would allow for these classrooms to conserve energy when not in use. Overall, Chapman University can make many simple and cost-effective changes to Argyros Forum that would allow for a decrease in energy consumption and an increase in sustainability features.

Poster 113
Air pollution: a case study of Bangkok, Thailand using remote sensing technology
Presenter(s): Patsornkarn Vorapharuek
Advisor(s): Dr. Hesham El-Askary

Over the last few decades, population in Bangkok, Thailand has increased at an alarming rate. Along with the growth of the city, the amounts of motor vehicles are also increasing exponentially. In this study, major air pollutants that are caused by motor vehicles are going to be examined. Concentrations in the air of the Bangkok Metroplitan Region will be analyzed using remote sensing tools. From the existing data, it can be seen that there are trends of decrease of certain pollutants. However, carbon dioxide amounts are still increasing.

Poster 114
E-Cigarette Retailer Distribution and Youth Targeted Marketing
Presenter(s): Patsornkarn Vorapharuek, Brett Galland, Clayton Heard
Advisor(s): Dr. Georgiana Bostean

In 2013, over 250,000 youth in the United States who had never previously smoked tobacco cigarettes experimented with electronic cigarettes (e-cigarettes) (CDC 2013). E-cigarette use, also called vaping, is a new trend, and is increasing despite limited scientific understanding of the health effects. Studies have shown that youth conventional cigarette smoking is influenced by the proximity of tobacco retailers to schools (McCarthy 2009), and retailer practices known to target youth. However, there is little research on whether this applies to youth use of e-cigarettes. This study addresses how density of e-cigarette retailers around schools and retailer practices be associated with e-cigarette use among youth in Orange County (OC).

Research questions: (1) What is the density of e-cigarette retailers that are in proximity to schools? (2) Does school-level density of e-cigarette retailers predict individual-level e-cigarette use among middle and high school students? (3) Among e-cigarette retailers, what is the prevalence of advertising and marketing techniques that may attract youth?

Methods: Locations of vape stores were collected from online databases and geocoded in ArcMap 10.1. School addresses were collected from the CA Department of Education and geocoded. The proximity of vape stores to private and public schools in OC was examined within quarter-mile and half-mile buffer zones (West 2010). Lastly, site visits of a stratified random sample (by city) of 52 vape stores (~30%) were conducted to observe retailer practices, such as advertising, promotions, availability of liquid flavors and other factors known to attract youth.

Poster 115
An Exploration of Beekeeping: A Dynamic Equilibrium Between Art and Science
Presenter(s): Elizabeth Flowers
Advisor(s): Dr. Jason Keller

Part I: Productivity of 91 hives located in Orange County was determined using 4 years of data. Monthly data was used to determine the productivity of each site, and the average productivity of each hive for each site. Mapping the values acquired from: total frames/hive/month, showed that some sites clearly were more productive than others. Relocation of multiple hives was recommended for optimizing honey production and hive health.

Part II: A hive collapse was analyzed for pesticides, herbicides, and viruses by Columbia Food Corporation and the USDA and the current process and results will be discussed.
Part III: A short synopsis of beekeeping and why handling and observation are essential for hive health.

Poster 116
Remote Sensing of Antarctic Peninsula Krill Populations using Adelie Penguins as an Indicator Species
Presenter(s): Elizabeth Flowers
Advisor(s): Dr. Hesham El-Askary

Remote sensing of Antarctic Krill populations has been researched, but not unaccomplished. This study discusses and demonstrates the practicality of using remote sensing and spectral behavior of krill and guano to utilize Adelie Penguin fecal stains as an indicator for annual krill population fluctuation. For demonstration purposes, an Adelie penguin colony on Torgenson Island, near Anvers Island, Antarctic Peninsula was used. This location was chosen for its close proximity to Palmer Research Station. This study is divided into two parts. Part I demonstrates how to classify and analyze a Landsat TM image for identifying penguin guano. Part II uses spectrophotometry to determine the spectral behavior of krill, and discusses further applications. In conclusion, it was found that both portions of the study should be explored further due to the high likelihood that the infrared bands shown in Part I's Class 6 were Adelie penguin fecal stains. Part II was determined to have further applications for creating an algorithm to determine guano pixel counts, as well as krill concentration using remote sensing hyperion data.

Poster 117
Green Department Certification Program
Presenter(s): Darcy Hardwick, Brett Galland
Advisor(s): Mackenzie Crigger

The Green Department Certification Program (GDCP) is a relatively new sustainability initiative on campus. Originally started by Civic Engagement two years ago, the program now resides in the Facilities Management department. The main objective of the GDCP is to investigate and educate Chapman's staff and faculty on sustainability practices in order to foster a more environmentally friendly campus.

The process starts by auditing the staff and faculty offices and shared spaces in one department on campus. The audit examines the number and kind of electronics used, the ratio of trash to recycling bins, appliances, sustainability related décor (plants, posters, etc.) and more. Alongside the audit, a survey is sent out to all of the participants to learn more about their lifestyle including energy use habits and form of transportation to and from work. A waste audit is then done to determine the percentage of products being recycled and the amount of recyclable products improperly thrown in the trash. All of the data collected is then analyzed and presented back to the department, along with recommendations on how to improve their workspace. The participants are then given a few weeks to make changes and a second audit is done. After this, the department is given a score and a certificate for completing the program, valid for 2 years.

Poster 118
The Effect Arsenic Exposure has on Feeding Habits of Hermit Crabs
Presenter(s): Makenna Hopwood
Advisor(s): Dr. Christopher S. Kim, Dr. William G. Wright

Mining and the burning of fossil fuels are responsible for the origins of many contaminants in marine ecosystems. This study explores the effect dissolved arsenic(As) exposure has on the feeding patterns of hermit crabs and assesses the extent of the impact of these contaminants. The relationship between exposure time and concentration of arsenic in the tissue of the crabs defines the bioavaibility of the metal. It is hypothesized that due to arsenic's effect on hermit crab feeding patterns, the longer exposure time to As containing water, the less they will eat and the greater the concentration of As will be in their tissues. A linear relationship is the expected trend between the amount of concentration in their tissue and the amount of pellets consumed. Twenty crabs are selected and retrieved from the same tide pool, selection criteria is the completion of 15 continuous minutes of feeding. After the completion of the first feeding test, crabs are placed in either control or As groups. They are then observed and left undisturbed for one to two weeks, depending on the trial. After this, there is a final 30-minute feeding test. Their bodies are digested in nitric acid then sent for ICPMS analysis. Previous experimentation has shown a statistically significant difference in consumption between the exposed crabs and control crabs. The experiment is still being optimized in order to find concrete evidence proving that there is a statistical difference between mass of pellet consumed and concentration of As in the crab.

Poster 119
How much of our pollution is OUR pollution?: The transport of anthropogenic aerosols across the Pacific Ocean from China to the United States
Presenter(s): Ariane Jong
Advisor(s): Dr. Hesham El-Askary

In 2014, China and the United States were the world's largest emitters of energy-related carbon dioxide (statista.com, 2015), but while China continues to industrialize rapidly, the U.S. is actively trying to reduce its impact on air pollution. Previous studies have shown the transport of anthropogenic aerosols originating from China across the Pacific Ocean, creating challenges for the emissions reductions policies of national governments such as the U.S. These studies used models to estimate the impact of Chinese aerosols on the air quality of the U.S., and few have used ground measurements of pollutant concentrations in the U.S. to validate these estimates. To confirm the transportation of aerosols from Chinese coal-fired power plants across the Pacific Ocean to the U.S. during the spring of 2012, I use both satellite imagery and data of aerosol optical depth from NASA's MODIS Terra satellite and ground measurements of sulfur dioxide concentrations from EPA's Air Quality System database. A maximum daily sulfur dioxide contribution of 18.3-50.2% from China to the U.S. is found for March-May 2012. Although this figure likely overestimates China's impact due to confounding factors such as emissions from U.S. coal-fired power plants and biogenic marine sources of sulfur dioxide, a correlation between emissions from China and U.S. air quality is established.

Poster 120
Evaluation of Temperature Anomalies and Ocean Productivity during the 2004 Sumatra-Andaman Earthquake
Presenter(s): Brenna McNabb, Cora Byers
Advisor(s): Dr. Hesham El-Askary

The oceanic productivity of the Indian Ocean and temperature anomalies prior to the Sumatra-Andaman earthquake (MW =9.3) and tsunami (December 26th 2004) were studied. Data was obtained via NASA's Giovanni program to determine the effect on phytoplankton (primary producers) and temperature changes over the region of the earthquake. Seasonal trends were visible in the concentrations of chlorophyll a, coccolithophores, cyanobacteria, chlorophytes, diatoms and absorption coefficient, in addition to storm trends.

Poster 121
Precursor Events to Earthquakes and the Resulting Effects on Organic Material in the Surrounding Water Bodies
Presenter(s): Kiyoko Nakatsui
Advisor(s): Dr. Hesham El-Askary

Being located on the "Ring of Fire" Japan experiences many seismic events. Adding to this, it is located at the convergence of four fault lines where seismic activity will be even more frequent and severe. Although small tremors occurring in an area are indicators of an earthquake to come it only gives minutes of warning. Scientists are now trying to see if latent heat and gas release from fault lines can indicate an earthquake to come with hours or even days of warning. MODIS aqua and terra data will be analyzed in order to see if such precursors can be found using satellite data. Once an earthquake has occurred it can affect other aspects of the environment, like surrounding water bodies. The second half of this study will analyze the chlorophyll a and color dissolved organic matter content in order to gage the health of the ocean as a result of the earthquakes. However, in the atmospheric data major changes or indications could not be linked to the earthquake it self but rather to seasonal fluctuations in anthropogenic pollutants. Hydrologic data did show some correlation between changes in chlorophyll a and color dissolved organic matter content, but this only occurred when the earthquake and its succeeding events lead to infrastructure collapse. This does show that better earthquake precursor events are need to indicate when an event will occur so there can be better preparation to protect our infrastructure.

Poster 122

Puffs and Tufts: A Comparison of Trichodesmium Colony Formations and Nutrient Availability Across the North Atlantic Ocean Using Remote Sensing Methods

Presenter(s): Marc Rosenfield

Advisor(s): Dr. Hesham El-Askary

Trichodesmium, a genus of diazotrophic bacteria, has the capability and the population to produce a large percentage of the total oceanic N2-fixation. Though their population is known to be heavily dependent on two of the ocean's largest limiting factors, phosphorus and iron concentrations, it is unknown what affect these factors have on the population. In this study two of the largest colony formations of Trichodesmium in the North Atlantic, tufts and puffs, are compared nutrient quality with respect to time and geographical location. Though very little nutrient in situ data was collected from the cruise, remote sensing data collected from the MODIS satellite was used to bolster information dealing with nutrient quality. High tuft concentration was observed within the center of the North Atlantic Gyre, where puff concentrations were not collected until below the 26^{o} N latitude line (in the South Sargasso Sea).

In turn, puff concentrations were recorded to spike when iron concentrations along the cruise track were higher. Tuft concentrations were observed at low and high iron concentrations. By comparing Trichodesmium colony orientation and concentration to general remote sensing of nutrient quality, correlations and suggestions could be reached.

Poster 123

Air Pollution Differences Between Nations with Different Economic Profiles

Presenter(s): Lauren Sato

Advisor(s): Dr. Hesham El-Askary

The economics of a country plays an important role in determining what that country considers as its priorities. A developed country, such as the U.S., is powerful economically. As a result, it has the resources and tools to focus on other aspects of the nation. One of these features is the environment. Countries undergoing urbanization and industrial development processes, such as China, are emitting large amounts of pollutants into the atmosphere. Although it has adverse health and ecological effects, China has shown very little reduction of its emissions from 2000-2014. It relies heavily on coal burning as a source of energy to power its production and export activities. In this study, data collected from remote sensing technologies (MODIS-Terra and TES) allowed for a comparison between the U.S. and China. It illustrates the discrepancy in air quality of an already industrialized country with a country still undergoing industrialization. The economic benefits and environmental hazards associated with manufacturing impose a complicated situation in the international political arena. This study evaluates methane, carbon monoxide, tropospheric ozone, and water vapor (humidity) levels, as well as temperature, in order to gain a better understanding about the chemistry of the atmosphere in China. It was shown that China suffers from substantial amounts of methane, carbon monoxide and aerosols in its atmosphere. Understanding the sources of these pollutants is important for the formulation of environmental standards. These policies can better target the origin of emissions and devise a more efficient and pragmatic solution to improve air quality.

Poster 124
Effects of El Niño on Ecological Growth Along Californian and Peruvian Coasts
Presenter(s): Alexandra Sidun
Advisor(s): Dr. Hesham El-Askary

This study examines the mechanisms of El Niño to further understand the ecological effects it may have along the Californian and Peruvian coasts. El Niño is the warm phase of the El Niño Southern Oscillation (ENSO). While it is a global phenomenon, these two locations were investigated for their nearly equal and opposite conditions during storm months. California, which is in an extreme state of drought, often receives heavy rainfall during El Niño and understanding its potential effects is crucial. El Niño causes upwellings along the CA coast and warm water from the region displaces the normally cool waters along the coast of Peru. Upwellings are cold, nutrient dense currents of water. The flux of nutrients in the two regions of study was examined, along with the sea surface temperature and Chlorophyll a Concentration to see any correlation with El Niño events and indications of increased marine life. Using Remote Sensing, both regions were looked at for a span of several years while focusing on the El Niño event during the 2009-2010 storm season. Findings were inconclusive and could not be used to support or disprove the hypothesized result in that there would be evidence that El Niño's upwellings can have a significant effect on marine life through bottom-up effects on the ecosystem.

Poster 125
Assessing water quality in the Gulf Of Mexico using remote sensing data.
Presenter(s): Alliyah Thomas
Advisor(s): Dr. Hesham El-Askary

Hypoxia, or oxygen depletion, is a process that occurs in conjunction with eutrophication. In hypoxic conditions the dissolved oxygen levels in the water column sink to unlivable conditions for the marine organisms causing them to flee or die. Despite efforts of improvement, the annual summer Gulf of Mexico dead zone continues to be a serious threat to aquatic ecosystems. The 2012 smaller than usual dead zone was a false indicator of future improvement. The 2012 dead zone decrease was connected to the drought and inability of large amounts of runoff to flow into the gulf. Water quality analysis was done with MODIS-Aqua Chlorophyll a, MODIS-Aqua CDOM, and dissolved oxygen measurements using NOAA hypoxia watch CTD stations to better understand the seasonal trends in the last five years.

Schmid College – Physics and Computational Science

Poster 126
Mechanics of Golf
Presenter(s): Jake Gross
Advisor(s): Dr. Ali Nayeri

I will cover a variety of subtopics of the physics/mechanics of golf. Some of which include the swing as it relates to a double pendulum, the flight of the golf ball, linear vs. quadratic air drag, the coriolis effect, and different technologies used in the sport.