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Transformations

A Student Research and Creativity Conference

Children attending CHAMP, a local after-school mentorship program, are encouraged by faculty and students to document daily levels of physical activity and nutrition.

Friday, April 19, 2013

Schedule of Events and Abstracts

SUNY
Cortland

Transformations: A Student Research and Creativity Conference

April 19, 2013
Sperry Center
SUNY Cortland

Schedule of Events

12:30-1:30 p.m.

Keynote Address
Sperry Center, Room 105

*"Childhood Obesity:
The Curse of Modern Societies"*

Robert G. McMurray '67, Ph.D., FACSM
Professor Emeritus
Department of Exercise and Sport Science
University of North Carolina at Chapel Hill

1:45-2:45 p.m.

Poster Session
Sperry Center, 1st Floor Hallway

3-4 p.m.

Concurrent Sessions I

4:15-5:15 p.m.

Concurrent Sessions II

5:30-6:30 p.m.

Concurrent Sessions III

Refreshments will be available 1:30-3 p.m. in Sperry Center, first floor food service area.
PLEASE NOTE: Food and beverages are NOT allowed in classrooms.

Transformations: A Student Research and Creativity Conference is an event designed to highlight and encourage scholarship among SUNY Cortland students. Our scholarly work is crucial to who and what we are as individuals and as an institution. This day is an attempt to help our students and the general public understand and appreciate what we do, to draw students into the intellectual life and the excitement of scholarly work, and to publicize the accomplishments of our students.

Presentations will be made by students and faculty mentors. In addition to attendance by members of the campus community, invitations have been extended to area high school students and their advisors, our elected representatives, and to the Cortland community at large.

Support for *Transformations* has been received from the President's Office, the Provost and Vice President for Academic Affairs Office, and Auxiliary Services Corporation.

Our appreciation to the Transformations Committee:

R. Bruce Mattingly, Arts & Sciences (Chair)

David Berger, Psychology

Philip Buckenmeyer, Kinesiology

Patricia Conklin, Biological Sciences

Daniel M. Harms, Library

David Miller, Geography

Lisa Mostert, Campus Technology Services

Charlotte Pass, Literacy

Kevin Pristash, Campus Activities

Special thanks to the Student Alumni Association
for providing volunteers for *Transformations*.

KEYNOTE ADDRESS

12:30-1:30 p.m.

Sperry Center, Room 105

“Childhood Obesity: The Curse of Modern Societies”

Robert G. McMurray '67, Ph.D., FACSM

Robert McMurray is Professor Emeritus at the University of North Carolina at Chapel Hill, where he served on the faculty for 33 years. Before retiring he held the Smith-Gunter Endowed Professor of Exercise and Sport Science and had appointments in the School of Allied Health and the Department of Nutrition. He has authored over 180 scientific publications and books. He was part of a research team that obtained 30 million dollars in grant funding. He has been recognized by the American College of Sports Medicine, the North Carolina Governor's Council on Health and Fitness, and the Southeast Chapter of the American College of Sports Medicine for his research on childhood obesity. He received his B.S.E. in Physical Education from SUNY Cortland, his M.A. in Physical Education from Ball State University and his Ph.D. in Human Performance from Indiana University. He has participated in post-doctoral research experiences at the Institute of Environmental Stress, Santa Barbara, California, The Metabolic Ward at St. Bartholomew's Hospital, London, England, and the Pediatrics Clinical Research Center at the University of California Irvine Medical Center.

POSTER SESSION

1:45-2:45 p.m.

Sperry Center, 1st Floor Hallway

Differences in BMI Measures among Special Olympic Participants, Ages 18 and Under, among State and National Games

Presenter: Daniel Vogl, Sophomore, Physical Education

Faculty Mentor: John Foley, Physical Education

Bullying in Leisure Settings: Study about Children Bullying Issue in Recreation Areas in Cortland

Presenter: Yu Yu, Graduate Student, Recreation: Management in Leisure Service

Faculty Mentor: Brooke Burk, Recreation, Parks and Leisure Studies

Daily Behavior Changes of a Female *Capra falconeri* During Mating Season

Presenter: Cassandra Elliott, Junior, Biology

Faculty Mentors: Timothy J. Baroni, Biological Sciences

Terrence D. Fitzgerald, Biological Sciences

The Effects of Planting Location on Growth of Small Leaved Linden, *Tilia cordata*, at SUNY Cortland

Presenters: Natalie Gregory, Junior, Biology

Jaimie Hughes, Junior, Biology

Faculty Mentor: Steven B. Broyles, Biological Sciences

The Diversity and Environmental Benefits of SUNY Cortland's Urban Forest

Presenters: Jaimie Hughes, Junior, Biology

Natalie Gregory, Junior, Biology

Faculty Mentor: Steven B. Broyles, Biological Sciences

The Effects of Temperature and Chlorine Disinfectants against *Legionella Pneumophila

Presenter: Kristin Neal, Senior, Biology

Faculty Mentor: Christa Chatfield, Biological Sciences

***In vitro* Wound Healing**

Presenter: Brennan Gerlach, Senior, Biology

Faculty Mentor: Theresa Curtis, Biological Sciences

***Enantioselective Synthesis of 2-acyl-4-acetoxy-cyclohexane-1, 3-diones**

Presenters: Tucker Wright, Junior, Chemistry

Tyler Potter, Junior, Chemistry

Sean Wilson, Senior, Chemistry

Faculty Mentor: Francis M. Rossi, Chemistry

Determination of the Structures of the Major Components of the Mandibular Gland Secretion Produced by *Cactoblastis cactorum* Larvae

Presenters: Shawn Wilson, Senior, Chemistry
Tyler Potter, Junior, Chemistry
Faculty Mentors: Francis M. Rossi, Chemistry
Terrence D. Fitzgerald, Biological Sciences

***Assessing the Impact of 2-2-dibromo-3-nitrilopropionamide, a Microbiocide Used in Hydraulic Fracturing Fluid, on Benthic Microbial Communities**

Presenter: John Chodkowski, Junior, Biochemistry
Faculty Mentor: Jeffrey Werner, Chemistry

Fingerprinting of Water Sources to Otter Creek in Cortland County, New York, Using In Situ Measurements

Presenters: Collin Nowalk, Senior, Geology
Kristina Gutches, Senior, Geology
Amie Whitlock '12, Geology
Jami June, Junior, Geology
Faculty Mentors: David Barclay, Geology
Li Jin, Geology

Understanding Spatial and Temporal Patterns of Water Chemistry in Otter Creek, New York

Presenters: Kristina Gutches, Senior, Geology
Collin Nowalk, Senior, Geology
Amie Whitlock '12, Geology
Jami June, Junior, Geology
Faculty Mentors: Li Jin, Geology
David Barclay, Geology

Using Geographic Information Systems (GIS) to Present Visitor Information from the New York Jets Training Camp

Presenter: Ericka Sterns, Senior, Geographic Information Systems
Faculty Mentor: Wendy Miller, Geography

Using Geographic Information Systems to Explore Hydrofracking in New York State

Presenters: Chris Hedger, Junior, Geographic Information Systems
Faculty Mentor: Wendy Miller, Geography

Alpaca Farms in New York State

Presenter: Sara LoBello, Senior, Geographic Information Systems
Faculty Mentors: Wendy Miller, Geography
Richard Hunter, Geography

***A Traffic in Fingers: A Medieval Relic Map**

Presenter: Chelsea Lachman, Senior, History
Faculty Mentor: Laura Gathagan, History

Self-Metaphors, Identity Processes, and Meaning in Life

Presenter: Asa Cole, Senior, Psychology

Faculty Mentor: Michael D. Berzonsky, Psychology

Secondary Actions Performed by Infants in an Imitation Sequence

Presenter: Cassandra Heiman, Junior, Psychology

Faculty Mentor: Kimberly Kraebel, Psychology

* Denotes students who received 2012 Undergraduate Research Council Summer Research Fellowships.

CONCURRENT SESSIONS I

3-4 p.m.

Sperry Center, Room 104

Moderator: Mark Dodds, Associate Professor, Sport Management

Social Media Marketing & the Empire State Marathon

Presenter: Lauren Jacobs, Senior, Sport Management

Faculty Mentor: Mark Dodds, Sport Management

The Role of Sports in Rehabilitating Inmates in Prison

Presenter: Kodie Martin, Senior, Sport Management and Criminology

Faculty Mentor: Mark Dodds, Sport Management

Kan for a Cause

Presenters: Hannah Wheaton, Junior, Sport Management

Sarah Schongar, Junior, Sport Management

Deanna DuBois, Senior, Sport Management

Faculty Mentor: Mark Dodds, Sport Management

Save Second Base

Presenter: Ashley Doss, Senior, Sport Management and Communication Studies

Faculty Mentor: Mark Dodds, Sport Management

Sperry Center, Room 105

Moderator: Katherine Polasek, Associate Professor, Kinesiology

The Effect of Exercise on Test Performance in College-Aged Students

Presenters: Jackie Bahret, Senior, Exercise Science

Ashley Connors, Senior, Exercise Science

Tom Walkup, Senior, Exercise Science

Matt Clark, Senior, Exercise Science

Faculty Mentor: Philip Buckenmeyer, Kinesiology

The Effects of Caffeine and Creatine on Physical and Mental Performance

Presenter: Joshua O'Neill, Senior, Kinesiology

Faculty Mentor: James Hokanson, Kinesiology

Motivation and Empowerment in Women's Roller Derby

Presenters: Kelsey Peebles, Senior, Exercise Science

Amber Stephens, Senior, Exercise Science

Faculty Mentor: Erik Lind, Kinesiology

The Effects of Exercise on Long-Term Memory

Presenters: Tara Knutsen, Senior, Exercise Science

Travis Leburg, Senior, Exercise Science

William Mallon, Senior, Exercise Science

Faculty Mentor: Katherine Polasek, Kinesiology

Sperry Center, Room 106

Moderator: Henry Steck, Distinguished Service Professor, Political Science

The Nagorno-Karabakh Conflict

Presenter: Daniel Bretscher, Junior, Political Science

Faculty Mentor: Henry Steck, Political Science

Europe's Battle against Sex Trafficking

Presenter: Colleen Honan, Senior, International Studies

Faculty Mentor: Henry Steck, Political Science

Women in European Politics: Are They Just "Binders Full of Women"?

Presenter: Lizaury Rodriguez-Marine, Freshman, Political Science

Faculty Mentor: Henry Steck, Political Science

Sperry Center, Room 204

Moderator: Mary Lynch Kennedy, Distinguished Teaching Professor, English

SUNY Cortland Writing Contest Award Winners Present!

A Deconstructive Contrapuntal Reading of Barbara Kingsolver's *The Poisonwood Bible's*

Presenter: Rachelann L. Copland, Graduate Student, English

Faculty Mentor: Elizabeth Stone, English

Absent Reality

Presenter: Kayla M. Jones, Junior, Biology

Faculty Mentor: Heather Bartlett, English

Uganda's Fight against HIV/AIDS

Presenter: Carol Lee Fritz, Senior, International Studies

Faculty Mentor: Sarah Beshers, Health

r3beL

Presenter: Aaron Proia, Junior, Professional Writing

Faculty Mentor: Mario Hernandez, English

***The Kite Runner*: How the Movie Compares to the Book**

Presenter: Nicole P. Weisblum, Junior, Childhood/Early Childhood Education

Faculty Mentor: Deborah Rogers, English

The Ties That Bind: The Fog of the American Dream

Presenter: Matthew Perritano, Junior, Communication Studies

Faculty Mentor: Timothy Emerson, English

Biking

Presenter: Benjamin A. Bouvet Boisclair, Senior, Professional Writing

Faculty Mentor: Lorraine Berry, NeoVox

Media Blog

Presenter: John T. Amarus, Senior, Political Science

Sperry Center, Room 205

Moderator: Sharon L. Todd, Associate Professor and Chair, Recreation, Parks and Leisure Studies

Assessing Second Language Reading Ability: A Case Study

Presenter: Nicole Tabolt, Junior, English as a Second Language

Faculty Mentor: Codruta Temple, Modern Languages

Anxiety as a Factor in Academics and Quality of Life

Presenter: Andrew Leverton, Sophomore, Psychology

Faculty Mentor: Lesley Teitelbaum, Psychology

Tiny Pieces from Different Puzzles: Identifying Proteins Based on Their Constituent Tryptic Peptides

Presenter: Adam P. Graham, Sophomore, Chemistry

Faculty Mentor: Jeffrey Werner, Chemistry

Capturing a Profile of New York State Recreation and Park Society's Membership, Satisfaction, and Resource Needs

Presenters: Aleksandra Dubin, Graduate Student, Recreation/Environmental & Outdoor Education

Mary Kelly, Graduate Student, Recreation/Therapeutic Recreation

Faculty Mentor: Sharon L. Todd, Recreation, Parks and Leisure Studies

CONCURRENT SESSIONS II

4:15-5:15 p.m.

Sperry Center, Room 105

Moderator: Katherine Polasek, Associate Professor, Kinesiology

The Effects of Physical Activity on Mental Well-Being

*Presenters: Bryan Mistretta, Senior, Exercise Science
Tyler Forger, Senior, Exercise Science
James Antun, Senior, Exercise Science
John Berkley, Senior, Exercise Science
Omar Malcolm, Senior, Exercise Science*

Faculty Mentor: Joy L. Hendrick, Kinesiology

The Role of Media on Male Body Image

*Presenters: Brendan Lowe, Senior, Exercise Science
Andrew Prisco, Senior, Exercise Science
Brian Reusch, Senior, Exercise Science
Jason Wong, Senior, Exercise Science*

Faculty Mentor: Erik Lind, Kinesiology

The Ergogenic Effects of Caffeine Supplementation on Cycling Performance in Caffeine Users vs. Non-Users

*Presenters: Albert Angiolillo, Senior, Exercise Science
Brittany Moores, Senior, Exercise Science
Stacey Wood, Senior, Exercise Science*

Faculty Mentor: James Hokanson, Exercise Physiology

The Effects of QUAD Mill Exercise on Rehabilitating ACL Injuries and Improving Balance in College Female Athletes

*Presenters: Missy Seymour, Senior, Kinesiology
Flavia Ribeiro, Senior, Exercise Science*

*Faculty Mentors: Jeffrey Bauer, Kinesiology
Thomas Koesterer, Kinesiology*

Sperry Center, Room 104

Moderator: Christopher McRoberts, Professor, Geology

***Lichen Biodiversity in the Climax Forest Area of Hoxie Gorge**

Presenter: Nathan Francisco, Senior, Biology

Faculty Mentor: Timothy J. Baroni, Biological Sciences

***Lichen Diversity and Abundance in the Hoxie Gorge Preserve**

Presenter: Ethan Childs, Graduate Student, Biology

Faculty Mentor: Timothy J. Baroni, Biological Sciences

***Gaining Insights into Vitamin C Synthesis in *Arabidopsis thaliana*, part I**

Presenter: Alexander Meyers, Senior, Biochemistry

Faculty Mentor: Patricia Conklin, Biological Sciences

***Gaining Insights into Vitamin C Synthesis in *Arabidopsis thaliana*, part II**

Presenter: Heather Clancy, Senior, Biology

Faculty Mentor: Patricia Conklin, Biological Sciences

<p>* Denotes students who received 2012 Undergraduate Research Council Summer Research Fellowships.</p>

Sperry Center, Room 106

Moderator: Kevin Sheets, Associate Professor and Acting Chair, History

Lincoln: A Historical Construction

Presenter: Joseph Barbella, Sophomore, History

Faculty Mentor: Kevin Sheets, History

Using Digital Tools across Varied Digital Platforms for Student Engaged Assessment

Presenters: Erika Sherman, Graduate Student, Foundations of Social Advocacy

Amanda Burrell, Graduate Student, Foundations of Social Advocacy

Faculty Mentor: Christine Widdall, Childhood/Early Childhood Education

Extra Dimensional Influence on the Cosmological Constant Problem

Presenter: Charles Canestaro, Senior, Adolescence Education: Physics and Mathematics

Faculty Mentor: Moataz H. Emam, Physics

Sperry Center, Room 204

*Moderator: Noelle Chaddock Paley, Director, Multicultural Life and Diversity/
Cultural and Intellectual Climate Committee*

Privilege, Power, Class, and Informed Consent in *The Immortal Life of Henrietta Lacks*

Presenter: Joshua Benton, Senior, Communication Studies

*Faculty Mentors: Lorraine Berry, NeoVox/Cultural and Intellectual Climate Comm.
Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and
Intellectual Climate Committee*

Altruism within the Purview of Henrietta Lacks

Presenter: Benjamin Bouvet Boisclair, Senior, Professional Writing

*Faculty Mentors: Lorraine Berry, NeoVox/Cultural and Intellectual Climate Comm.
Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and
Intellectual Climate Committee*

Power behind the "White" Coat: Gender and Race in the Medical Profession

Presenter: Victoria Grillo, Senior, English

*Faculty Mentors: Lorraine Berry, NeoVox/Cultural and Intellectual Climate Comm.
Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and
Intellectual Climate Committee*

***The Immortal Life of Henrietta Lacks*: The Author – Race, Social Location, and Bias**

Presenter: Lyndsay Kelly, Senior, Speech and Hearing Science

*Faculty Mentors: Lorraine Berry, NeoVox/Cultural and Intellectual Climate Comm.
Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and
Intellectual Climate Committee*

***The Immortal Life of Henrietta Lacks*: Saving Humanity at the Intersections**

Presenter: Seth Powell, Senior, Communication Studies

*Faculty Mentors: Lorraine Berry, NeoVox/Cultural and Intellectual Climate Comm.
Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and
Intellectual Climate Committee*

Sperry Center, Room 205

Moderator: Mary Lynch Kennedy, Distinguished Teaching Professor, English

Are Video Games Good for Learning?

Presenter: Keith Kilmer, Graduate Student, English

Faculty Mentor: Mary Lynch Kennedy, English

Is Facebook a Useful Educational Tool?

Presenter: Stacy J. Wickham, Graduate Student, English

Faculty Mentor: Mary Lynch Kennedy, English

Are Blogs Effective in the Classroom?

Presenter: Timothy C. Morris, Graduate Student, English

Faculty Mentor: Mary Lynch Kennedy, English

CONCURRENT SESSIONS III

5:30-6:30 p.m.

Sperry Center, Room 104

Moderator: Christopher McRoberts, Professor, Geology

***Physiological, Psychological, and Performance Responses during a 5km Cycling Time Trial With and Without a 3D Pacer**

Presenter: Edward Ten Eyck, Senior, Exercise Science

Faculty Mentor: Erik Lind, Kinesiology

***Metagenomic Analysis of Microbial Communities Involved in Caproate Production.**

Presenter: Jeremy Kraus, Senior, Biology/Environmental Science

Faculty Mentor: Jeffrey Werner, Chemistry

***Student Engagement: More than Just Sandbox Politics?**

Presenter: Julie Gorman, Senior, Political Science

Faculty Mentor: Henry Steck, Political Science

***The Quantitative and Qualitative Effect of Using Digital Autobiography and Photo Narration on Verbal and Written Fluency among Immigrant Children**

Presenter: Rebecca Elliott, Senior, Childhood/Early Childhood Education

Faculty Mentor: Cynthia Benton, Childhood/Early Childhood Education

<p>* Denotes students who received 2012 Undergraduate Research Council Summer Research Fellowships.</p>

Sperry Center, Room 105

Moderator: Jeffrey Bauer, Professor, Kinesiology

The Impact of Vertical Jump and Anthropometric Variables on Spike Velocity and Competition Level in Collegiate Club Male Volleyball Players

Presenter: Christopher McCabe, Senior, Exercise Science

Faculty Mentor: Peter McGinnis, Kinesiology

Biomechanical Analysis of Two Types of Competitive Swimming Starts

Presenter: Ben Strickland, Senior, Kinesiology

Faculty Mentor: Peter McGinnis, Kinesiology

Correlation between Increased Life Stresses and Increased Risk of Athletic Injury

Presenter: Shannon O'Brien, Senior, Exercise Science

Faculty Mentor: Erik Lind, Kinesiology

Sperry Center, Room 106

Moderator: Charlotte Pass, Associate Professor, Literacy

Young Adult Literature in the Common Core Standards: Where Does It Fit In?

Presenter: Melissa Da Costa, Graduate Student, Literacy

Faculty Mentor: Charlotte Pass, Literacy

The Challenges of Literacy Instruction in Rural Schools

Presenter: Toby Centerwall, Graduate Student, Literacy

Faculty Mentor: Charlotte Pass, Literacy

Inconsistency & Interruption: Insights into the Challenges of Teaching the Invisible Population

Presenter: Staci Schaffer, Graduate Student, Literacy

Faculty Mentor: Charlotte Pass, Literacy

Teachers' Perceptions of Content Area Literacy and the Common Core Standards

Presenter: Allison Keiser, Graduate Student, Teaching Students with Disabilities

Faculty Mentor: Charlotte Pass, Literacy

Abstracts

KEYNOTE ADDRESS

12:30-1:30 p.m.

“Childhood Obesity: The Curse of Modern Societies”

Robert G. McMurray '67, Ph.D., FACSM

Childhood obesity is major public health concern because obesity tracks from childhood to adulthood and results in billions of dollars in health care costs. The physiology of obesity is complex and has a negative impact on most of the body's systems. The underlying physiology in children appears to be: 1) changes in the endocrine system that result in less fat metabolism and energy conservation, and 2) changes in the immune system that exacerbates diabetes, hypertension, cardiovascular disease, and other maladies. Present treatment regimens consist of behavior modification, dietary modifications, and increased exercise. Of the three parts, exercise has the potential to provide health benefits beyond weight loss. However, exercise habits are the hardest characteristic to change because modern society emphasizes sedentary behaviors and exercise is more physically demanding for the overweight youth. For children, schools have the potential to provide opportunities to develop good exercise habits, but previous attempts at school based programs have met with limited success. The reasons are multifocal. However, the school can provide a central location for other programs. To foster activity in youth we also need to look beyond schools for safe places to play: neighborhood play areas, community programs beyond soccer, baseball, & basketball (*emphasize activity over winning*), and increased walking and bike paths. We must realize that one size does not fit all and special programs targeting the obese are needed. Finally, parental support is EXTREMELY IMPORTANT. My experiences and knowledge gained from my years at Cortland have prepared me for research and program development on this extremely important topic.

POSTER SESSION

1:45-2:45 p.m.

Differences in BMI Measures among Special Olympic Participants, Ages 18 and Under, among State and National Games

Daniel Vogl, Sophomore, Physical Education

John Foley, Physical Education

While there has been an overall increase in obesity rates among the US population and recent data demonstrates an overwhelming prevalence in childhood obesity, little information exists on obesity rates of youth with intellectual disabilities. The data that does exist indicates that children with disabilities have a significantly higher BMI than their same age peers. One organization that may be in a position to deliver effective interventions to reduce obesity is Special Olympics. However, no information exists on what type of Special Olympic venue would reach those in greatest need. Therefore, the purpose of this study was to compare the obesity rates of young Special Olympians who competed in State or National Games. Data from 1458 participants (Male = 858, Female = 600) were extracted from the Special Olympic International database. BMI were used to calculate an obesity measure for each participant. Chi square analysis for both genders revealed that neither Male $\chi^2(1) = 0.19, p=.66$ or Female participants $\chi^2(1) = 0.07, p=.79$ were significantly different in obesity rates at state and national games. This indicates that both venues would be a good place to implement an obesity intervention.

Bullying in Leisure Settings: Study about Children Bullying Issue in Recreation Areas in Cortland

Yu Yu, Graduate Student, Recreation: Management in Leisure Service

Brooke Burk, Recreation, Parks and Leisure Studies

Bullying, as a threat to children's healthy growth and development, has caused widespread public concern in recent years. Previous studies have pointed out that victimized children face problems in socialization and were more likely to experience physical and mental health issues. This study examined bullying in leisure settings to better understand types, reasons, characteristics and behaviors related to bullying. The purpose of this study was to examine bullying that happens in leisure and recreation settings. To explore the bullying issue, we conducted in-depth interviews with four children aged from 8-14 and four parents aged from 30-45. Three themes emerged from the results of this study: a) Conceptualizing bullying. b) Strategies for dealing with bullying and c) Leisure bullying. Results from the study indicated that compared to children, parents lack of ideas for how to deal with bullying problem, and were concerned about the lack of communication regarding to be bullied than children who participate in group activities such as sports. Solitary activities seemed to be a strategy for them to avoid getting bullied. Results of this study will provide helpful information for the design of further recreation programs.

Daily Behavior Changes of a Female *Capra falconeri* During Mating Season

Cassandra Elliott, Junior, Biology

Timothy J. Baroni, Biological Sciences

Terrence D. Fitzgerald, Biological Sciences

Capra falconeri are the largest of the feral goat species. They originate in the middle east and are still found in wild populations mainly in Afghanistan and Pakistan. Due to overhunting for their horns and a loss of habitat now used for domestic livestock, they are currently endangered. Studies of mating and reproductive behavior could play an important role in helping to determine how to repopulate areas with dwindling population numbers. With the help of the Rosamond Gifford Zoo, Syracuse, NY, one of the two female *C. falconeri* will be introduced to a male from another zoo in hopes for successful breeding. This study was designed to observe the female before the male arrives to obtain base line data of normal daily behavior. When the male is introduced the female will be observed watching for the same behaviors as before but with new mating behaviors added. It is hypothesized that once the introduction occurs the female will decrease at least some of the normal daily behaviors such as eating and replace those behaviors with increased mating behavior with the male. It is anticipated that they will engage in courtship and successfully mate.

The Effects of Planting Location on Growth of Small Leaved Linden, *Tilia cordata*, at SUNY Cortland

Natalie Gregory, Junior, Biology

Jaimie Hughes, Junior, Biology

Steven B. Broyles, Biological Sciences

The small-leaved linden is a common urban tree with a compact, pyramidal form, and fragrant summer flowers. At SUNY Cortland, this tree has been planted in the lawn and concrete-bordered planting spaces of the Park Center parking lot. The objective of this study was to investigate the current and past growth patterns of trees in these planting locations. Increment cores of tree rings indicate these trees are between 38 and 42 years of age. Despite the similar ages, trees growing in the lawn have experience more wood growth since the mid-1990s. Furthermore, trees in the lawn are significantly taller and exhibited more twig growth in 2012 than trees in the interior of the parking lot. Our study suggests that the planting location affects the health and vigor of the small-leaved linden at SUNY Cortland. Small planting locations bordered and covered with impervious surfaces may restrict root growth by way of soil compaction, water availability, and microclimate variation.

The Diversity and Environmental Benefits of SUNY Cortland's Urban Forest

Jaimie Hughes, Junior, Biology

Natalie Gregory, Junior, Biology

Steven B. Broyles, Biological Sciences

Urban forests are important natural resources of communities. Urban forests benefit communities by improving air quality, mitigating storm water run-off, providing heating/cooling savings for buildings, and sequestering carbon dioxide. A survey of SUNY Cortland's urban forest was undertaken during 2012. We identified tree species (57 species), measured trunk diameter at breast height, and collected location coordinates of 1,355 trees. No genera composed more than 20% of the forest. Species of maple (*Acer*) and pine (*Pinus*) were most common at 15% each. The urban forest provides the campus with more than \$56,000 in annual environmental benefits with 44% of the benefits occurring through energy savings. The campus forest sequesters more than 27,000 kg of carbon dioxide per year. We believe that planting tree species to maximize diversity and allowing for healthy environmental conditions are challenges the campus will face in maximizing the benefits of SUNY Cortland's urban forest.

***The Effects of Temperature and Chlorine Disinfectants against Legionella Pneumophila**

Kristin Neal, Senior, Biology

Christa Chatfield, Biological Sciences

This study focused on the dangerous bacteria *Legionella pneumophila* that leads to a life-threatening pneumonia known as Legionnaires Disease. When *Legionella* is transferred from natural aquatic habitats to drinking water systems, human infection occurs via inhalation of contaminated aerosols, which can be produced by air conditioning systems, cooling towers, whirlpools, spas, fountains, as well as in intensive care units. In these fresh-water ecosystems *Legionella* develops biofilms, adherent communities that share nutrients, provide protection, and communicate with each other via chemical signals (quorum sensing). These biofilms ultimately increase their resistance to heat flushing, ultraviolet light irradiation, ozonation, metal ionization, and chlorination that would otherwise certainly kill all *Legionella* within a system. By treating *Legionella* samples with chlorine and heat disinfectant derivatives, we compared the resistivity of biofilm vs. standard planktonic cultures and found that biofilm cultures required higher concentrations of chlorine and higher temperatures. Additionally we noticed older biofilms were more resistant to disinfectant measures than younger biofilm cultures. These findings are important and timely in keeping up with the selection and adaptations of *Legionella*, compounded by the challenges that little is known about biofilms.

***In vitro* Wound Healing**

Brennan Gerlach, Senior, Biology

Theresa Curtis, Biological Sciences

Chronic wounds are on the rise, and are estimated to cost the U.S. billions of dollars this year to treat. Recent studies have shown that β -lapachone (compound extracted from the bark of a Lapacho tree found in South America) can increase skin wound closure rates, but poor solubility in water has hindered its development as a therapeutic agent. Our collaborator, Dr. Naal at the University São Paulo, has developed β -lapachone complexes with various inclusion compounds (β -cyclodextrin and 2-hydroxypropyl- β -cyclodextrin) to increase its water solubility. Thus, the primary goal of this study was to determine if increasing the water solubility of β -lapachone using inclusion complexes will allow it to be more accessible for cells in the wound, and thus increase the rate of wound healing. Using the ECIS (Electric Cell-substrate Impedance Sensing) system, an *in vitro* quantitative wound healing assay was developed. Wound healing data with β -lapachone alone and with inclusion complexes will be presented.

***Enantioselective Synthesis of 2-acyl-4-acetoxy-cyclohexane-1, 3-diones**

Tucker Wright, Junior, Chemistry

Tyler Potter, Junior, Chemistry

Sean Wilson, Senior, Chemistry

Francis M. Rossi, Chemistry

The goal of this project is to synthesize and characterize a series of natural products isolated from the salivary glands of the caterpillar *Cactoblastis cactorum* to obtain proof of their structure. *Cactoblastis* caterpillars are an invasive species in the U.S. that prey upon prickly pear cactus, and the compounds we are working with are believed to be involved in the caterpillar's ability to locate each other and cooperate to burrow through the cactus's tough outer skin. The synthesis itself has been divided into two parts, each creating a section of the overall compound, either the relevant fatty acid side chains or the ring structure. Synthesis of the ring structure involves a series of steps using 3-ethoxy-2-cyclohexenone as a starting material. Synthesis of the side chain currently being done uses 1-bromo-12-dodecanol as a starting material for the fatty acid, with the end product containing a characteristic double and triple bond.

Determination of the Structures of the Major Components of the Mandibular Gland Secretion Produced by *Cactoblastis cactorum* Larvae

Shawn Wilson, Senior, Chemistry

Tyler Potter, Junior, Chemistry

Francis M. Rossi, Chemistry

Terrence D. Fitzgerald, Biological Sciences

Cactoblastis cactorum is a species of moth, native to South America. The moth's larvae were introduced in Australia and the Caribbean as a bio-control of the *Opuntia* cactus, but now threaten the cacti of several southern US states and Mexico. Close inspection of the larvae revealed that they follow an oily extract released from their mandibular glands. The structures of the major components of the mandibular extract were determined using NMR analysis; however the location of a double bond was ambiguous. To characterize the double bond location, the components were derivatized with dimethyl disulfide and analyzed with GCMS.

***Assessing the Impact of 2,2-dibromo-3-nitrilopropionamide, a Microbiocide Used in Hydraulic Fracturing Fluid, on Benthic Microbial Communities**

John Chodkowski, Junior, Biochemistry

Jeffrey Werner, Chemistry

Microbial communities have a crucial role in the carbon cycle, breaking down organic matter that settles to the bottom of a water body. These communities, composed of Bacteria and Archaea, play a vital ecological role in nutrient recycling, but even more intriguing is how different species have evolved a specific role within the community itself. A microcosm experiment was set up with benthic anaerobic sediment samples obtained from the Cayuga Lake Inlet in Ithaca, NY to investigate the effect of 2,2-Dibromo-3-nitrilopropionamide (DBNPA), a microbiocide used in hydraulic fracturing. Ten microcosms were tested which were composed of four controls and the remaining six dosed with three possible concentrations of DBNPA: 1mM, 3mM, and 10mM. Gas chromatography, mass spectrometry, and molecular techniques were used to analyze the productivity of the communities and track the degradation of DBNPA. Furthermore, metagenomic sequences were obtained from purified DNA samples to provide insight of how particular species were affected by DBNPA.

Fingerprinting of Water Sources to Otter Creek in Cortland County, New York, Using In Situ Measurements

Collin Nowalk, Senior, Geology

Kristina Gutchess, Senior, Geology

Amie Whitlock '12, Geology

Jami June, Junior, Geology

David Barclay, Geology

Li Jin, Geology

The purpose of this study was to determine the water sources of Otter Creek, a small intermittent stream located adjacent to campus. Using a water quality probe, four parameters were measured in order to characterize potential sources and to distinguish their influence on lower Otter Creek. The four parameters measured were pH, dissolved oxygen (DO), specific conductance (SC), and temperature. Measurements were taken at six surface water locations along Otter Creek and in groundwater from the Cortland Water Works on a weekly basis from March to April, 2012, and before and during a rain event in October. Discharge was measured at four locations through the spring using a flow meter. Data from this period suggest that the water in the channel is a combination of precipitation runoff, water from road drains, groundwater flow, and outflow from the duck pond at the Water Works.

Understanding Spatial and Temporal Patterns of Water Chemistry in Otter Creek, New York

Kristina Gutches, Senior, Geology

Collin Nowalk, Senior, Geology

Amie Whitlock '12, Geology

Jami June, Junior, Geology

Li Jin, Geology

David Barclay, Geology

Establishing a baseline for water chemistry of a body of water is critical to understanding natural conditions and assessing potential human impact. Otter Creek, in Cortland, New York, is a headwater stream within a sole-source aquifer system. We evaluated water chemistry in Otter Creek along a 2,000 meter reach where the creek flows through the Cortland Water Works. We collected surface and ground water samples weekly at six sites between March and April 2012 in addition to two sampling in September and October. Flow measurements were conducted at four locations. Collected water samples were analyzed using Ion Chromatography. Water chemistry varied with low concentrations of dissolved solutes in upstream sites and increased downstream due to groundwater contribution. An additional source of water from road drains was identified. There have been little temporal changes in water chemistry during low flow conditions. However, major dissolved solutes illustrated strong dilutions following rainfall events.

Using Geographic Information Systems (GIS) to Present Visitor Information from the New York Jets Training Camp

Ericka Sterns, Senior, Geographic Information Systems

Wendy Miller, Geography

The New York Jets coming to SUNY Cortland has major benefits, not just the fact that it brings in money to help our small town businesses while school is not in session. This event also brings together people from all corners in the state, and the country, for the common goal of supporting their favorite team. When the team came to Cortland, five interns took surveys of willing visitors every day of the camp. That data was analyzed and presented in map form to show where the visitors came from as well as how much money was spent in our community. These maps show county and state level information to make the data easy to comprehend. It was very interesting to see how broad of an area people came from and the long distances people traveled to take a vacation with the New York Jets.

Using Geographic Information Systems to Explore Hydrofracking in New York State

Chris Hedger, Junior, Geographic Information Systems

Wendy Miller, Geography

New York State is considering whether or not to allow companies to drill into the earth to look for natural gas deposits, a process called Hydraulic Fracturing or hydrofracking. Using Geographic Information System (GIS) technology, I explored various datasets that should be considered when determining if and where hydrofracking could take place in New York State. In conducting my research, I have discovered instances where hydrofracking companies have not properly disposed of the fracturing fluid, which is extremely hazardous to the earth, and it has contaminated fresh water supplies. While my research has led me to believe fracking should not occur in New York State, if it must I have identified some limited areas where I would suggest the fracking could occur.

Alpaca Farms in New York State

Sara LoBello, Senior, Geographic Information Systems

Wendy Miller, Geography

Richard Hunter, Geography

This poster depicts my research about alpaca farms in New York State. I focus on things such as their locations throughout New York, background information about alpacas, and the different products and services the animals are used for at each farm. My research includes a paper of the findings, as well as maps I have created using Geographic Information Systems (GIS).

***A Traffic in Fingers: A Medieval Relic Map**

Chelsea Lachman, Senior, History

Laura Gathagan, History

The relic inventory list of Mathilda of Flanders listed a variety of different relics she possessed at the time of her death. Using this inventory list, I have attempted to trace the movement and final location of these relics up until Mathilda's death.

Self-Metaphors, Identity Processes, and Meaning in Life

Asa Cole, Senior, Psychology

Michael D. Berzonsky, Psychology

Erikson (1968) postulated that a coherent sense of identity enables individuals to perceive their lives as meaningful and authentic. Research by Schlegel, Vess, and Arndt (2012) found that individuals who endorsed a discovery metaphor to describe identity formation perceived their lives as being more meaningful than those who used a constructivist metaphor. However, Schlegel et al. simply asked the participants whether the "true self is something people discover [or create] for themselves." The present study utilized more extensive measures of these metaphors in an attempt to assess the underlying assumptions about identity discovery or construction that the participants held. In addition, the unique contribution that endorsement of these metaphors, differences in identity processing styles—i.e., how people deal with identity-relevant issues—and the extent to which individuals identified with their identity commitments made to variation in perceiving their lives as meaningful was examined.

Secondary Actions Performed by Infants in an Imitation Sequence

Cassandra Heiman, Junior, Psychology

Kimberly Kraebel, Psychology

Imitation is an imperative skill for children to master if they are going to be successful in learning in the future. It has been shown that the presence of certain amodal properties (such as matching or mismatching object shape) during tasks of imitation may influence the learning that occurs in 9-month-olds for the primary action. The current study serves to examine the secondary action performed within imitation sequences. Infants observed a two-action sequence executed with a teddy bear and a toy cylinder, and were subsequently tested for imitative behavior. Type of amodal information varied across three groups. Preliminary analyses suggest that differences in the influence of amodal properties on performance may be more pronounced during the second action. This proposes that the redundancy of sensory information may have more complex underpinnings than what is accepted today.

* Denotes students who received 2012 Undergraduate Research Council Summer Research Fellowships.

CONCURRENT SESSIONS I

3-4 p.m.

Social Media Marketing & the Empire State Marathon

Lauren Jacobs, Senior, Sport Management

Mark Dodds, Sport Management

This presentation will analyze written social media communication for the Empire State Marathon including event details, participant interviews, sponsor features, and other running related information on the website, Facebook, Twitter and newsletter. This analysis will focus on the impact of this social media communication on participants, sponsor activation and public relation interest in the community.

The Role of Sports in Rehabilitating Inmates in Prison

Kodie Martin, Senior, Sport Management and Criminology

Mark Dodds, Sport Management

The purpose of this presentation is to examine the United States justice system, and how it is seemingly failing. The prison population has consistently increased from year to year and recidivism rates are less than ideal. Yet, law enforcement officials continue to lock up criminals without even thinking about rehabilitating them. This is where the sport aspect comes in, as I believe sports can be instrumental in rehabilitating, and changing the lives, of criminals. Sports have a long history, and are imbedded in our society. But, more than that, they provide for a release from stress that one may experience in everyday life and promote healthy living. Because of this, I believe that sports can successfully rehabilitate prisoners, especially if they are effectively utilized.

Kan for a Cause

Hannah Wheaton, Junior, Sport Management

Sarah Schongar, Junior, Sport Management

Deanna DuBois, Senior, Sport Management

Mark Dodds, Sport Management

Based on a Sport Marketing project, we have created a Kan Jam Tournament to raise money for a worthy cause. It will be happening in the beginning of April and all money raised will be donated. We want to bring an opportunity for the students to raise money and have fun doing it.

Save Second Base

Ashley Doss, Senior, Sport Management and Communication Studies

Mark Dodds, Sport Management

Doss is currently working on creating a softball tournament that will be conducted in the Spring of 2013, called Save Second Base. All of the proceeds earned will go to a Breast Cancer foundation of my choice. The tournament will be a fun way to bring together the SUNY Cortland campus for a good cause, as well as increase awareness of the disease. Doss will discuss the process of organizing the softball tournament and all of the steps that went into creating a successful event. The actual softball tournament will be ran a couple weeks after Transformation Day but the tournament details will be perfected by April 19th.

The Effect of Exercise on Test Performance in College-Aged Students

Jackie Bahret, Senior, Exercise Science

Ashley Connors, Senior, Exercise Science

Tom Walkup, Senior, Exercise Science

Matt Clark, Senior, Exercise Science

Philip Buckenmeyer, Kinesiology

The purpose of this study was to determine if a relationship exists between exercise and cognitive performance. 50 college-aged students were the participants. Participants were given a minute math pre-test, a concentration pre-test, and a survey. Upon completion of the tests participants were split into two groups (Group A and B). Participants in Group A rode a stationary bike for twenty minutes at a target heart rate of 70% of their maximum heart rate. Participants were then given a rest period of ten minutes before they were asked to complete the second minute math and concentration tests and survey. Group B served as the control group and did not participate in the exercise before the second set of tests were given. A dependent t-test was used to determine the mean difference between the two groups. Results are forthcoming.

The Effects of Caffeine and Creatine on Physical and Mental Performance

Joshua O'Neill, Senior, Kinesiology

James Hokanson, Kinesiology

The purpose of this study was to examine the effects caffeine and creatine consumed together would have on mental and physical performance. The results will be compared to caffeine separately, creatine separately, and a placebo. Sixteen college aged males underwent two testing trials administered in a randomized and double-blind fashion. During Trial 1, participants completed a protocol of two mental performance tests: Wonderlic Cognitive Ability Test (WCAT) and Grid Concentration Exercise (GCE), and six physical performance tests: 40 Meter Sprint (40MS), Push-Up Test (PT), Vertical Jump Test (VJT), Sit-Up Test (ST), Handgrip Strength Test (HST), and Progressive Aerobic Cardiovascular Endurance Run (PACER). The physical performance tests were followed by repeating the mental performance tests. Trial 1 did not consist of any treatments for participants. Trial 2 followed the same protocol as Trial 1 with treatments being administered. Participants received either a combination of caffeine, creatine, and carbohydrate treatment (COM), caffeine and carbohydrate treatment (CAF), creatine and carbohydrate treatment (CRE), or a carbohydrate treatment (PLA). Descriptive statistics were used to analyze the data. Results are forthcoming.

Motivation and Empowerment in Women's Roller Derby

Kelsey Peebles, Senior, Exercise Science

Amber Stephens, Senior, Exercise Science

Erik Lind, Kinesiology

The purpose of this study was to discover what motivates women to participate in flat track roller derby. More specifically, the researchers hoped to ascertain if involvement in the sport was due to intrinsic or extrinsic factors. 150 female flat track roller derby players from the surrounding areas were the participants. All participants were required to be playing roller derby for a minimum of one year. Participants were asked to fill out a basic demographic questionnaire and three surveys: the Intrinsic Motivation Inventory (IMI), the Extrinsic Motivation Inventory (EMI), and the Bem Sex Role Inventory. All questionnaires were administered via the Internet. An analysis of variance (ANOVA) was used to analyze the data. Results are forthcoming.

The Effects of Exercise on Long-Term Memory

Tara Knutsen, Senior, Exercise Science

Travis Leburg, Senior, Exercise Science

William Mallon, Senior, Exercise Science

Katherine Polasek, Kinesiology

The purpose of this study was to compare the effects of cardiovascular and strength-training exercise on long-term memory. 30 college-aged students were the participants. Participants were asked to perform three trials each one week a part: a control trial, a cardiovascular exercise trial, and a resistance training exercise trial. Each trial began with a variation of the Rey Auditory-Verbal Learning Test. All trials lasted approximately twenty minutes. After each trial the participants were asked to recall as many words they could from the initial list in 75 seconds. Participants were given one point for every correct word recalled and penalized one point for every incorrect word recalled. A one-way ANOVA was used to analyze the data. Results are forthcoming.

The Nagorno-Karabakh Conflict

Daniel Bretscher, Junior, Political Science

Henry Steck, Political Science

The Nagorno-Karabakh is a region within the borders of western Azerbaijan. A relatively small region, it has an area total of about 1,700 square miles and home to several hundred thousand people. The land is home to a large population of ethnic Armenians who are trying to achieve independence from Azerbaijan, whose ethnic population is significantly smaller. Toward the end of the Soviet era in the Caucasus it became evident that a conflict between these two states was inevitable. The conflict began in the early 1990s when the Republics of Armenia and Azerbaijan entered into full scale war. As a result of the conflict hundreds of thousands of people have been killed since the start of the conflict and more than half a million have been displaced. The conflict had completely dictated politics within the republics of Armenia and Azerbaijan and at some points threatened the peace of the entire region. Efforts to end the conflict have failed despite the efforts of the Minsk group of major powers.

Europe's Battle against Sex Trafficking

Colleen Honan, Senior, International Studies

Henry Steck, Political Science

Human trafficking is an incredibly devastating global issue in the realm of human rights. This is especially clear in the trafficking of women and children for sexual means. It is a widespread epidemic and can be found around the world. This paper will concentrate within the European borders where sex trafficking continues to flourish. It is crucial that the global community combats this disgusting violation of human rights. Most countries residing in Europe are active in the United Nations where several resolutions have been passed to answer the cries for change. Governments in Europe protect the fundamental human rights, which are possessed by all European citizens. These rights are overlooked when these women and children enter the trade where they become nameless goods. It is important to take a closer at legislation European countries have passed in order to combat this issue and bring justice to these people.

Women in European Politics: Are They Just “Binders Full of Women”?

Lizaury Rodriguez-Marine, Freshman, Political Science

Henry Steck, Political Science

In this paper, I will be discussing the impact women have made in European politics both as leaders and as citizens. Although in the United States there hasn't been a female president, yet, Europe has seen its fair share of female leaders. There are many European nations that have been commanded by powerful women some are recent like Angela Merkel in Germany and others are in the past like Margaret Thatcher in the United Kingdom. But what these women have in common is that they've ruled in nations that are mostly dominated by men and have hard shoes to fill. For example, a nation like Germany that was once ruled by Adolf Hitler an authoritarian leader who brought chaos to Europe. Also, I will converse about how women have changed European history by using their right to vote. The importance is how they got these rights and how it has benefited themselves and their countries. This paper will provide specific historic background with the use of books and scholarly journals. My conclusion is that if we see that countries in Europe are doing much better with a female leader, should the United States government be looking for the next Margaret Thatcher? Are the voices of women being heard more in Europe than in the United States?

A Deconstructive Contrapuntal Reading of Barbara Kingsolver's *The Poisonwood Bible's*

Rachelann L. Copland, Graduate Student, English

Elizabeth Stone, English

College Writing Contest winner, 2012

Absent Reality

Kayla M. Jones, Junior, Biology

Heather Bartlett, English

College Writing Contest winner, 2012

Uganda's Fight against HIV/AIDS

Carol Lee Fritz, Senior, International Studies

Sarah Beshers, Health

College Writing Contest winner, 2012

r3beL

Aaron Proia, Junior, Professional Writing

Mario Hernandez, English

College Writing Contest winner, 2012

***The Kite Runner*. How the Movie Compares to the Book**

Nicole P. Weisblum, Junior, Childhood/Early Childhood Education

Deborah Rogers, English

College Writing Contest winner, 2012

The Ties That Bind: The Fog of the American Dream

Matthew Perritano, Junior, Communication Studies

Timothy Emerson, English

College Writing Contest winner, 2012

Biking

Benjamin A. Bouvet Boisclair, Senior, Professional Writing

Lorraine Berry, NeoVox

College Writing Contest winner, 2012

Media Blog

John T. Amaruso, Senior, Political Science

College Writing Contest winner, 2012

Assessing Second Language Reading Ability: A Case Study

Nicole Tabolt, Junior, English as a Second Language

Codruta Temple, Modern Languages

The purpose of the case study was to determine the appropriateness of using an informal reading inventory developed for monolingual English speakers to assess an English language learner's word recognition, reading fluency, and reading comprehension of narrative texts. The findings suggest that such an assessment instrument may not yield accurate information regarding second language reading ability because the learner's performance on the reading comprehension tasks may have been significantly affected by the cultural knowledge assumed by texts.

Anxiety as a Factor in Academics and Quality of Life

Andrew Leverton, Sophomore, Psychology

Lesley Teitelbaum, Psychology

The pursuit of wellness can be a challenge for many college students who are under constant pressures to succeed academically as well as socially. Stress is associated with compromised emotional wellbeing and has been reported to limit productivity. 49 Participants from the Psychology 101 subject pool volunteered to fill out a variety of self-report questionnaires including: Perceived Stress Scale, Satisfaction with Life Scale and the Symptom Assessment – 45 in addition to a demographic form. Findings of this study revealed that stress was unrelated to grade point average or quality of life. However, this study did reveal that students with higher levels of anxiety tended to have higher grade point averages ($r = .40$; $p = .005$), and that it was the students who performed better academically that enjoyed higher quality of life ($r = .31$; $p = .03$) compared to those who performed more poorly. Future research should investigate additional factors that may support increased academic achievement on college campuses.

Tiny Pieces from Different Puzzles: Identifying Proteins Based on Their Constituent Tryptic Peptides

Adam P. Graham, Sophomore, Chemistry

Jeffrey Werner, Chemistry

Complex microbial communities contain thousands of species. Each of these species contains hundreds of proteins having a variety of functions which determine what the microbe is capable of (i.e. DNA replication, enzymatic digestion, etc.) In order to understand how a microbial ecosystem is structured, it is necessary to break the proteins down into smaller pieces known as “tryptic peptides”, which can be identified using mass spectrometry. This project aims to answer the question of whether or not it is possible to reliably identify proteins in a given sample from their constituent tryptic peptides following an *in silico* trypsin digest. Our work on this project involved sorting, analyzing, and making sense of the volumes of data contained within the National Center for Biotechnology Information (NCBI) protein database. PERL scripting was employed to map taxonomic specificity as well as identified function to tryptic peptide sequences corresponding to known proteins.

Capturing a Profile of New York State Recreation and Park Society's Membership, Satisfaction, and Resource Needs

Alexsandra Dubin, Graduate Student, Recreation/Environmental & Outdoor Education

Mary Kelly, Graduate Student, Recreation/Therapeutic Recreation

Sharon L. Todd, Recreation, Parks and Leisure Studies

The New York State Recreation and Park Society (NYSRPS) is the principal organization advancing the value of parks, recreation, and leisure services through professional development of its members. As part of its strategic planning process, the society approached SUNY Cortland's Recreation, Parks and Leisure Studies Department for help in capturing a profile of its members. The graduate research methods class gathered data via surveys and focus groups to help NYSRPS better understand who their current members are, satisfaction levels with available professional development opportunities, educational interests and resource needs of members, and effectiveness of communication methods. The results of this study will help NYSRPS maintain and improve its core services of professional development, membership development and services, public policy development, public awareness, and resource development.

CONCURRENT SESSIONS II

4:15-5:15 p.m.

The Effects of Physical Activity on Mental Well-Being

Bryan Mistretta, Senior, Exercise Science

Tyler Forger, Senior, Exercise Science

James Antun, Senior, Exercise Science

John Berkley, Senior, Exercise Science

Omar Malcolm, Senior, Exercise Science

Joy L. Hendrick, Kinesiology

The purpose of this study was to determine the degree to which physical activity can contribute to a reduction and prevention of negative traits contributing to a decrease in a subject's overall mental well-being; with focus on depression, anxiety, stress, and mood. A secondary purpose of this study was to provide insight into the optimal type and frequency of physical activity that will allow a subject to reap the psychological benefits of physical activity. 100 college-aged students were the participants. Participants were asked to fill out the International Physical Activity Questionnaire (IPAQ), the Depression Anxiety and Stress Scale (DASS), and the Brief Mood Introspection Scale (BMIS). Collected data was analyzed using SPSS software. Results are forthcoming.

The Role of Media on Male Body Image

Brendan Lowe, Senior, Exercise Science

Andrew Prisco, Senior, Exercise Science

Brian Reusch, Senior, Exercise Science

Jason Wong, Senior, Exercise Science

Erik Lind, Kinesiology

The purpose of this study was to measure the body image of males with varying levels of muscle dysmorphia via perceptual and affective measures, while said males viewed images of the media's ideal male physique. 50 college-aged males were the participants. The participants were asked to fill out an initial packet of surveys consisting of a demographic form, the Muscle Dysmorphic Disorder Inventory (MDDI), the Positive and Negative Affect Scale (PANAS) and the Bodybuilder Image Grid (BIG). The participants were then shown a slideshow of images that are perceived to be the ideal male body image. After viewing the slideshow participants were then given the BIG and PANAS to fill out once more. An ANOVA and Two Tailed T-test was used to statistically analyze the collected data. Results are forthcoming.

The Ergogenic Effects of Caffeine Supplementation on Cycling Performance in Caffeine Users vs. Non-Users

Albert Angiolillo, Senior, Exercise Science

Brittany Moores, Senior, Exercise Science

Stacey Wood, Senior, Exercise Science

James Hokanson, Exercise Physiology

Caffeine supplementation is believed to delay the onset of fatigue and increase fatty acid mobilization, thereby augmenting endurance performance. However, previous research has not yet collectively studied the various purported ergogenic effects of caffeine on habitual caffeine users vs. non-users. The purpose of this study is threefold; demonstrate the effect of a moderate dose of caffeine on exercise performance, determine the extent of fat utilization in relation to the respiratory exchange ratio, examine the differences in these effects between routine users and non-users. A total of 20 customary and non-customary caffeine users volunteered for this study. Participants performed two separate time-trial cycling exercises following the consumption of a 6mg/kg caffeine supplement or a placebo. Average power, heart rate, oxygen uptake, respiratory exchange ratio, and cycling time were measured during the time-trial. In addition, gross mechanical efficiency was calculated for each participant. Statistical significance was accepted at $p \leq .05$.

The Effects of QUAD Mill Exercise on Rehabilitating ACL Injuries and Improving Balance in College Female Athletes

Missy Seymour, Senior, Kinesiology

Flavia Ribeiro, Senior, Exercise Science

Jeffrey Bauer, Kinesiology

Thomas Koesterer, Kinesiology

Our study was designed to determine the efficacy of using a specialized elliptical treadmill-like machine (QUAD Mill) to strength train for 4 weeks the lower extremities of 20 college aged female athletes that attend SUNY Cortland. Ten females in our training group had suffered a previous ACL injury, while the remaining ten females had no history of injuries or other ailments which affects balance and acted as our control group. The QUAD Mill was used as a means to isolate the strengthening of the quadriceps muscles. Balance tests were performed to determine an individual's balance ability. The balance tests used were the modified Clinical Test for the Sensory Integration of Balance and Tandem and Single Limb Stance. The GAIT Rite Walkway pressure measurement system was used to measure data such as stride length, stride rate, weight distribution, toe in/toe out variation of our participants. Data was collected before and after the QUAD Mill strength training program for each participant. Comparisons of the pre and post training values were evaluated to determine if there were improvements in gait and/or balance values for either the ACL injured athletes and or the healthy control group of athletes. Results are pending.

***Lichen Biodiversity in the Climax Forest Area of Hoxie Gorge**

Nathan Francisco, Senior, Biology

Timothy J. Baroni, Biological Sciences

A study into the identification and diversity of the lichen mycota in the climax forest area of the Hoxie Gorge Nature Preserve; conducted in the summer of 2012 resulted in the creation of a student-friendly identification site for students. Data collected from the site in addition to data collected in an adjacent secondary forest area were compiled and subjected to statistical analysis to determine if any difference between the two sites exists. The resulting information may prove useful in future ecological surveys of the area in determining the future abundance of the lichen mycota.

***Lichen Diversity and Abundance in the Hoxie Gorge Preserve**

Ethan Childs, Graduate Student, Biology

Timothy J. Baroni, Biological Sciences

Research into the lichen biodiversity and abundance in the secondary succession forest area of the Hoxie Gorge Preserve was conducted during the summer of 2012. The resulting data were subjected to statistical analyses and compared to a project being conducted alongside my own in the climax forest area of the Hoxie Gorge Preserve. This research resulted in a better understanding of the composition of lichen mycota in the secondary succession forest. Another result of this research is the lichen identification website which contains photographs taken throughout the research as well as descriptions of morphological and chemical properties of each species. The website was created for educational purposes and will be a useful tool for future students. The data collected from this project would also serve as a valuable source of information in possible future studies involving lichens at the Hoxie Gorge site.

***Gaining Insights into Vitamin C Synthesis in *Arabidopsis thaliana*, part I**

Alexander Meyers, Senior, Biochemistry

Patricia Conklin, Biological Sciences

Vitamin C, or ascorbic acid, is as vital to plant physiology as it is to our own. Working with the plant *Arabidopsis thaliana*, our research is focused on elucidating some regulatory aspects of the Vitamin C synthesis pathway within this organism. The precursor to ascorbic acid is the simple sugar glucose. Glucose undergoes several enzymatic transformations in its conversion to vitamin C. It is the regulation of one of these enzymes in particular, GME, that we have taken interest. We have identified a protein that interacts with GME, and through the use of high-performance liquid chromatography (HPLC), have determined the implications of this interaction, with interesting and exciting results.

***Gaining Insights into Vitamin C Synthesis in *Arabidopsis thaliana*, part II**

Heather Clancy, Senior, Biology

Patricia Conklin, Biological Sciences

Plants with mutations in the VTC3 gene are deficient in ascorbic acid. Through a yeast 2-hybrid screen, we have identified the VTC3 protein as interacting with GDP-D-mannose epimerase (GME), an enzyme involved in ascorbic acid synthesis in plants. We hypothesize that the GME activity in *vtc3* mutant plants will be lower than in wildtype plants with normal VTC3 protein. To test this hypothesis, we traveled to the lab of N. Smirnoff at the University of Exeter in the UK to develop a non-radioactive GME assay that can be performed with HPLC. We will discuss the details of this assay and our preliminary results on analysis of wild-type and mutant plants.

Lincoln: A Historical Construction

Joseph Barbella, Sophomore, History

Kevin Sheets, History

An examination of how certain historians have maintained the highest status for Lincoln, while one lone researcher, who was not even a historian broke through the wall that had been built to conceal the darker moments of Lincoln's life. Lincoln has remained on the highest platform, while his achievements are paraded around, but other topics like his supposed homosexuality and ineffective marriage have been tightly concealed from the public until recently. The presentation will look at historical methods through questioning and research because researchers must always pose questions and challenge the norms that have been established when it comes to the study of history.

Using Digital Tools across Varied Digital Platforms for Student Engaged Assessment

Erika Sherman, Graduate Student, Foundations of Social Advocacy

Amanda Burrell, Graduate Student, Foundations of Social Advocacy

Christine Widdall, Childhood/Early Childhood Education

The 21st century educator needs to know how to engage their students in authentic and active assessment in and out of the classroom. Several safe digital tools are accessible across varied device platforms that can provide assessment data to improve learning outcomes before, after or even during instruction. This session will demonstrate the use of Schoology, Edmodo, and PollEverywhere as digital tools that can improve assessment practice through easily accessible digital methods.

Extra Dimensional Influence on the Cosmological Constant Problem

Charles Canestaro, Senior, Adolescence Education: Physics and Mathematics

Moataz H. Emam, Physics

One of the biggest problems in physics is the cosmological constant problem: the observed value of the universe's dark energy is *much* higher than the theoretical value predicted by quantum field theory, and no one is exactly sure why. In this work we present a possible solution by modeling our universe as an expanding (and accelerating) 3-brane in five dimensions using supersymmetric gravity theory with the scalar fields known as the "universal hypermultiplet". Our result fits the conjecture that our universe is simply one of many parallel universes.

Privilege, Power, Class, and Informed Consent in *The Immortal Life of Henrietta Lacks*

Joshua Benton, Senior, Communication Studies

Lorraine Berry, NeoVox/Cultural and Intellectual Climate Committee

Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and Intellectual Climate Comm.

This presentation will offer a reading of the intersection of class and informed consent in *The Life of Henrietta Lacks*. The presentation examines the ways that consent is acquired and how it differs in patients based on class. Attendees will be invited to think about the way that medical staff and scientists ignore or excuse the role of privilege and power by invoking ideas of informed consent.

Altruism within the Purview of Henrietta Lacks

Benjamin Bouvet Boisclair, Senior, Professional Writing

Lorraine Berry, NeoVox/Cultural and Intellectual Climate Committee

Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and Intellectual Climate Comm.

During an on-campus talk given by professors at SUNY Cortland it was suggested that Henrietta Lacks' experience could be framed as an act of altruism. This presentation will problematize the idea of altruism as a veil for oppression through the examination of Henrietta Lacks.

Power behind the "White" Coat: Gender and Race in the Medical Profession

Victoria Grillo, Senior, English

Lorraine Berry, NeoVox/Cultural and Intellectual Climate Committee

Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and Intellectual Climate Comm.

When it comes to emergency room treatment, some studies suggest that men and women receive a different level of treatment for their medical issues. Similarly findings exist that point to discrepancies between the treatment received by African-Americans and white patients. This presentation questions whether treatment varies based on the gender/racial location of the medical professionals? What roles do gender and race play in the medical field? Would Henrietta have suffered from the same injustice had she been treated by professionals who shared her gender/racial location today?

***The Immortal Life of Henrietta Lacks*: The Author – Race, Social Location, and Bias**

Lyndsay Kelly, Senior, Speech and Hearing Science

Lorraine Berry, NeoVox/Cultural and Intellectual Climate Committee

Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and Intellectual Climate Comm.

The author of this book is Rebecca Skloot is a white middle class woman capturing the life of a black lower class family. I will be addressing the issue of race and social location when white authors tell the story of black experience. I will also problematize whether there is an inherent racial bias in the telling of the story and the financial gain of the author. Finally, I will also talk about the possible hypocrisy of Skloot's profit from the Lack's family when the story itself is about the family being taken advantage of and not compensated.

The Immortal Life of Henrietta Lacks: Saving Humanity at the Intersections

Seth Powell, Senior, Communication Studies

Lorraine Berry, NeoVox/Cultural and Intellectual Climate Committee

Noelle Chaddock Paley, Multicultural Life and Diversity/Cultural and Intellectual Climate Comm.

Historically scientist and physicians have violated individual human rights and pressed forward in medical research to “save humanity”. The unwitting research subjects are dehumanized and viewed as a collection of body parts, and opportunities for data rather than human beings. Often race, class, and gender have made it easier to dehumanize some subjects more than others. In the case of Henrietta lacks, race, gender, and class intersect to render her as a poor African American woman, and thus making it easier to view her as a vessel of valuable cells to be harvested, bought, and sold. I believe that these intersecting categories aren’t only relevant in the story of Henrietta Lacks, but are very obvious in medical care today, such as E.R care for men and women, and African Americans and white people.

Are Video Games Good for Learning?

Keith Kilmer, Graduate Student, English

Mary Lynch Kennedy, English

Kilmer will review research that examines the positive and negative consequences of using of video games in the classroom. He will discuss findings dealing with student engagement, the cognitive value of video games, and obstacles to the implementation of video game pedagogy. Kilmer’s central question is “What is the potential and what are the drawbacks associated with the use of video games in the high school classroom?”

Is Facebook a Useful Educational Tool?

Stacy J. Wickham, Graduate Student, English

Mary Lynch Kennedy, English

Wickham will discuss research that has been conducted on using Facebook as an educational tool in high school and college settings. She will argue that while educators, administrators, and parents may express genuine concerns about the use of social media in the classroom, there is ample merit in using Facebook for educational purposes.

Are Blogs Effective in the Classroom?

Timothy C. Morris, Graduate Student, English

Mary Lynch Kennedy, English

Morris will present the results of various types of research studies on the use of blogs in the classroom. He will also discuss how teacher preparedness and student access affect the implementation of Computer-Mediated Communication.

* Denotes students who received 2012 Undergraduate Research Council Summer Research Fellowships.

CONCURRENT SESSIONS III

5:30-6:30 p.m.

***Physiological, Psychological, and Performance Responses during a 5km Cycling Time Trial With and Without a 3D Pacer**

Edward Ten Eyck, Senior, Exercise Science

Erik Lind, Kinesiology

Time trialing in cycling requires an individual to ride at a physiologically sustainable effort for an extended period of time in order to optimize performance and the presence of another rider may influence this level of effort. This investigation examined the physiological, psychological, and performance responses during a simulated 5 kilometer (km) time trial (TT) with and without a 3D animated pacer. Nine moderately trained endurance participants (age: 40.9ff11.8 years; BMI: 20.81ff13.58 kgm²; VO₂max: 46.08ff17.18 mlkgmin⁻¹) completed an incremental exercise test to volitional exhaustion and a 5km TT with (WP) and without (NP) a pacer. Physiological, psychological, and performance measures were taken every km during each TT. Preliminary results indicate that performance speeds and times were similar, but that the WP trial resulted in overall lower heart rates and perceived exertion, and more positive affect. Findings suggest that time trialing is a complex interaction between physiological and psychological factors.

***Metagenomic Analysis of Microbial Communities Involved in Caproate Production.**

Jeremy Kraus, Senior, Biology/Environmental Science

Jeffrey Werner, Chemistry

Anaerobic digestion is a method used to turn waste products into useable sources of energy through the use of complex microbial communities. With the Argent Lab at Cornell University we've developed a digester that produces caproic acid, a six carbon chain fatty acid. Though the pilot reactor is producing caproic acid, the microbial dynamics underlying the overall performance are not yet well understood. Using metagenomic sequencing, we were able to take over 300 million short (100 bp each) reads and assemble them into large partial genomes. After the completion of assembly I was able to translate and BLAST search the protein-coding regions to research what organisms are performing fatty acid chain elongation. We found 19 partial genomes containing the full pathway needed for caproic acid biosynthesis, and the dynamics of these populations were analyzed as a function of time.

***Student Engagement: More than Just Sandbox Politics?**

Julie Gorman, Senior, Political Science

Henry Steck, Political Science

Has student governance been negatively impacted by fiscal practices forced on college administrations by tight budget circumstances? In a time when state and federal funding for community colleges is constantly being caught up in negotiation over unrelated legislation, students are struggling to keep quality programs and resources available on their campuses through appropriate allocation of their student fees. The focus of this research project is primarily on community colleges within the State University of New York because despite the freedom SUNY community colleges have to govern themselves, the rights of representation given to students to have a say in the things that most affect the quality of their education varies greatly across the system. Do students feel like their Student Government is able to effectively represent them? Does the administration feel as though students are being included? Does the high rate of student turnover at two-year colleges make a difference? The answers to these questions vary from institution to institution, but the more interesting part of this study may have been the difficulty in getting the answers to begin with.

***The Quantitative and Qualitative Effect of Using Digital Autobiography and Photo Narration on Verbal and Written Fluency among Immigrant Children**

Rebecca Elliott, Senior, Childhood/Early Childhood Education

Cynthia Benton, Childhood/Early Childhood Education

Following Strickland, Keat & Marinak's (2012) model in a culturally-relativistic approach to measure children's sense of belonging and empowerment, this research explored the use of photo narrations and technology to increase verbal and written sight word fluency. Students were interviewed about home, school, and social environments using a standard formal questionnaire to establish a verbal fluency baseline. Students took pictures of family, favorite things, friends and interests to create a digital narrative with captions. Post-test results indicate the interactive nature of the project improved not only engagement and efficacy, but also increased both comprehension and retention by identifying concepts in context. The success of the study-- to aid in the cultural connection of home and school and the empowerment of the student as an active participant in their learning-- was documented at a school assembly where digital narratives were showcased.

The Impact of Vertical Jump and Anthropometric Variables on Spike Velocity and Competition Level in Collegiate Club Male Volleyball Players

Christopher McCabe, Senior, Exercise Science

Peter McGinnis, Kinesiology

To compete at high levels, volleyball players must spike the volleyball at a high velocity. Research has shown that elite players display greater jumping abilities and spike velocities than athletes competing in lower divisions. However, technical skills have been shown to be the only factors which distinguish between successful and non-successful novice players. The present study aimed to determine the correlation between vertical jump, height, standing reach height, jump reach height, and body mass, on volleyball spike velocity and competition level in collegiate club volleyball players. Athletes with greater vertical jump abilities and jump reach height were expected to spike the volleyball at higher velocities. Players from SUNY Cortland were expected to possess greater jumping abilities and spike the volleyball at greater velocities than players from the University at Albany. Twelve ($n=12$) males participated in this study, six players from SUNY Cortland and six players from the University at Albany. Results are pending.

Biomechanical Analysis of Two Types of Competitive Swimming Starts

Ben Strickland, Senior, Kinesiology

Peter McGinnis, Kinesiology

Despite the fact that swimming is one of the world's oldest sports and much research has been conducted within the sport, there are still discrepancies about proper techniques. More specifically, two variations of the "track start" are predominantly used in all levels of competitive swimming. Although most athletes will have a favored technique, athletes have found success using either type of start. Examination and comparison of each start will result in improved understanding of which start should be implemented. Research was conducted using the Holsten pool and starting blocks located in Park Center on the SUNY Cortland campus. Male and female members of the SUNY Cortland varsity swim team performed trials of both starts. Performance was recorded using high speed video cameras, as well as reaction pads placed on top of the starting blocks. Recorded data included reaction time, horizontal velocity, and overall time. Results are pending.

Correlation between Increased Life Stresses and Increased Risk of Athletic Injury

Shannon O'Brien, Senior, Exercise Science

Erik Lind, Kinesiology

Stress can be defined as “a state of disharmony, or threatened homeostasis” (Chrousos & Gold, 1992). When individuals experience stress, whether physical or psychosocial, it places an increased risk of athletic injury. It is hypothesized that when there is an increase in previous injury, stressors or daily hassles, there will be an increased risk of injury. Participants for this study included both male and female SUNY Cortland undergraduate students (>150), age 18 to 25. Measures were made using three surveys: A history of previous athletic injury and athletic involvement; Social Readjustment Reading Scale (Holmes and Rahe, 1967); Perceived Stress Scale (Cohen and associates, 1983). Participants completed the surveys in a classroom setting during a single session and returned them to the researcher for analysis. Results are pending.

Young Adult Literature in the Common Core Standards: Where Does It Fit In?

Melissa Da Costa, Graduate Student, Literacy

Charlotte Pass, Literacy

With the shift towards non-fiction in the *Common Core State Standards*, educators are left with the dilemma of why and how to incorporate Young Adult Literature into school curriculum while still adhering to student learning objectives that are expected of them. By examining the ways in which Young Adult Literature—proving to be one of the most meaningful ways to connect with students through text—can be used to develop critical thinking skills, educators will recognize just how simple and essential the implementation of Young Adult Literature into the school curriculum and *Common Core State Standards* truly is. A presentation for all educators seeking a closer look at the complexity of Young Adult Literature and its correlation to the *Common Core State Standards*.

The Challenges of Literacy Instruction in Rural Schools

Toby Centerwall, Graduate Student, Literacy

Charlotte Pass, Literacy

This presentation will give elementary education teachers, literacy specialists, and school administrators insight into the unique challenges that rural communities and schools face that are often not shared with either urban or more affluent schools. Attendees will gain perspective on some of the more effective techniques that literacy instructors have developed that have helped them overcome the daily challenges of the classroom, especially during the age of No Child Left Behind and Annual Professional Performance Reviews. Research will specifically focus on poor, rural school districts in the upstate region of New York State. Data will be collected through personal interviews, focus groups, and surveys with literacy specialists, as well as through recent statistics regarding any trends in literacy achievements or vulnerabilities within the past few years.

Inconsistency & Interruption: Insights into the Challenges of Teaching the Invisible Population

Staci Schaffer, Graduate Student, Literacy

Charlotte Pass, Literacy

For many, school memories take place in one, possibly two districts in a lifetime. There are however, a significant number of students whose educational journey is one filled with several moves across state and school district lines- oftentimes in the course of one academic year. Despite the fact that 1 in 5 students join or leave school at non-standard times, the educational structure of the United States allows little flexibility in assisting these students to combat the inconsistencies, in and out of school, which accompany their frequent transitions. Based on over two years of direct personal observation, interviews and data collection as part of the Cortland Migrant Education Outreach Program, this presentation aims to inform the attendees of this "invisible" population of Central New York State. The presentation introduces this particular population and then investigates the varying academic and social consequences which stem from a life driven by mobility.

Teachers' Perceptions of Content Area Literacy and the Common Core Standards

Allison Keiser, Graduate Student, Teaching Students with Disabilities

Charlotte Pass, Literacy

The contemporary educational terrain during this time of Race to the Top is fraught with multiple challenges. As current educators, administrators, and other stakeholders attempt to overcome varied obstacles and gauge their impact on the secondary classroom, various questions arise, and the presenter has explored some of these. To that end, the presenter has surveyed secondary content area teachers across the United States about their understanding of content area literacy and the Common Core Standards. This presentation will provide an overview and an analysis of the data received from the surveys administered and focus interviews conducted. Additionally, the research includes information about teachers' definitions of content area literacy, beliefs about whether or not the Common Core Standards support content area literacy, and the availability of professional development addressing how to implement the Common Core Standards into their content area classrooms.

* Denotes students who received 2012 Undergraduate Research Council Summer Research Fellowships.

Map of Sperry Center

