

**YOUNGSTOWN STATE UNIVERSITY
AND
THE SCHOOL OF GRADUATE STUDIES
AND RESEARCH
PRESENTS**

**QUEST 2010:
A FORUM FOR STUDENT
SCHOLARSHIP**

CONTENTS

ACKNOWLEDGEMENTS

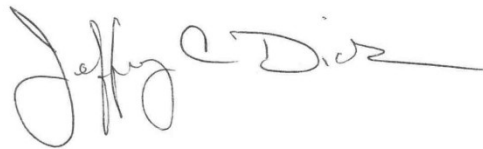
PROGRAM SCHEDULE

PRESENTATION ABSTRACTS AND SESSION INFORMATION
Listed alphabetically by student name

FORWARD

QUEST 2010: A Forum for Student Scholarship marks the 21st year of this special event when Youngstown State University celebrates the outstanding scholarly achievements of its students by providing a forum to present their research, works, and creations to the University community.

The focus of QUEST is student scholarship. The QUEST committee and University administrators acknowledge the guidance and commitment of Youngstown State University's dedicated and outstanding faculty in motivating their students and making the achievements presented here possible. This year's program presents 196 separate presentations representing the individual and group effort of 315 students. Many of these presentations represent scholarly endeavors made possible through individual faculty grants and the School of Graduate Studies and Research Undergraduate Student Research Grants and the University Research Council programs.

A handwritten signature in black ink, appearing to read "Jeffrey C. Dick". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

**Dr. Jeffrey C. Dick
Director of Undergraduate Research**

ACKNOWLEDGEMENTS

**WITHOUT THE HELP AND FINANCIAL SUPPORT OF INDIVIDUALS,
ORAGNIZATIONS, AND PROGRAMS, QUEST 2010 WOULD NOT BE
POSSIBLE SPECIAL ACKNOWLEDGEMENTS GO OUT TO:**

**YSU FACULTY
IKRAM KHAWAJA: PROVOST
PETER KASVINSKY, SCHOOL OF GRADUATE STUDIES AND RESEARCH
YOUNGSTOWN STATE UNIVERSITY FOUNDATION
UNDERGRADUATE STUDENT RESEARCH GRANT PROGRAM
2010 QUEST COMMITTEE
COLLEGE OF LIBERAL ARTS AND SOCIAL SCIENCES
BEEGHLY COLLEGE OF EDUCATION
BITONTE COLLEGE OF HEALTH AND HUMAN SERVICES
COLLEGE OF FINE AND PERFORMING ARTS
COLLEGE OF SCIENCE, TECHNOLOGY, ENGINEERING AND
MATHEMATICS
WILLIAMSON COLLEGE OF BUSINESS ADMINISTRATION
KILCAWLEY CENTER STAFF**

QUEST 2010 COMMITTEE

DIRECTOR: Dr. Jeffrey C. Dick

UNIVERSITY REPRESENTATIVES

**BEEGHLY COLLEGE OF EDUCATION – Dr. Regina Rees
BITONTE COLLEGE OF HEALTH AND HUMAN SERVICES –
Dr. John M. Hazy and Ms. Terry Volsko
COLLEGE OF SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS –
Dr. Jeffrey C. Dick and Dr. Hazel Marie
COLLEGE OF FINE AND PERFORMING ARTS – Dr. Cary Horvath
COLLEGE OF LIBERAL ARTS AND SOCIAL SCIENCES – Dr. Ronald Shaklee
WILLIAMSON COLLEGE OF BUSINESS ADMINISTRATION – Dr. Peter Reday
TECHNOLOGY EXPERT – Dr. Salvatore Sanders**

QUEST 2010: A FORUM FOR STUDENT SCHOLARSHIP

PROGRAM SCHEDULE

MORNING SESSION I: 8:30 – 10:00

COFFELT ROOM	HEALTH PROFESSIONS
HUMPHREY ROOM	MULTIDISCIPLINARY SESSION
JAMES GALLERY	HISTORY
JONES ROOM	PSYCHOLOGY
OHIO ROOM	MULTIDISCIPLINARY POSTER SESSION
ROOM 2068	HEALTH PROFESSIONS II

MORNING SESSION II: 10:30 – 12:00

BRESNAHAN	ARCHAEOLOGY, GEOGRAPHY and FOREIGN LANG.
COFFELT ROOM	PHYSICS AND ASTRONOMY
HUMPHREY ROOM	EDUCATION
JAMES GALLERY	MECHANICAL ENGINEERING
JONES ROOM	CIVIL AND ENVIRONMENTAL ENGINEERING
OHIO ROOM	BIOLOGY and CHEMISTRY POSTER SESSION
PUGSLEY ROOM	COMMUNICATION
ROOM 2068	SCIENCE OF TEACHING AND LEARNING

CHESTNUT ROOM	QUEST STUDENT – FACULTY LUNCHEON 12:00 – 1:15
KEY NOTE SPEAKER:	Dr. Cynthia Anderson, V.P. for Student Affairs and future Youngstown State University President “Living Life to its Fullest”

AFTERNOON SESSION I: 1:30 – 3:00

COFFELT ROOM	ELECTRICAL AND COMPUTER ENGINEERING
HUMPHREY ROOM	LINGUISTICS
JAMES GALLERY	MECHANICAL ENGINEERING and TECHNOLOGY
JONES ROOM	GEOLOGY, ENVIRONMENTAL SCIENCE and ECOLOGY
OHIO ROOM	MULTISCIPLINARY POSTER SESSION
PUGSLEY ROOM	ECONOMICS AND POLITICAL SCIENCE
ROOM 2068	INTERNATIONAL STUDIES

AFTERNOON SESSION II: 3:30 – 5:00

BRESNAHAN	RESEARCH EXPERIENCES FOR UNDERGRADUATES
COFFELT ROOM	BIOLOGY AND MATHEMATICS
HUMPHREY ROOM	ENGLISH
JONES ROOM	MUSIC
OHIO ROOM	BIOLOGY and CHEMISTRY POSTER SESSION
JAMES GALLERY	MECHANICAL ENGINEERING and TECHNOLOGY

Morning Session I 8:30 – 10:00 AM

COFFELT ROOM – HEALTH PROFESSIONS

Session Moderator: Dr. Sal Sanders

- 08:30 - 08:15 Weight-loss Outcomes after Laparoscopic Bariatric Surgery are Affected by Emotional Eating
Dana Strollo
Faculty Advisor: Dr. Rachael J. Pohle-Krauza
- 08:30 - 08:45 Burden Of Families Taking Care Of Patients Suffering From Amytropic Lateral Sclerosis
Zohra Ansari
Faculty Advisor: Ms. Ana-Maria Wetzl
- 08:45 - 09:00 Ease of Use with 3 Different Metered Dose Inhaler Spacers
Helena Eusanio
Faculty Advisor: Ms. Teresa A. Volsko
- 09:00 - 09:15 Hospital Identification Badges Act as Bacterial Reservoirs
Tarah Bellino
Faculty Advisor: Ms. Mary L. Yacovone
- 09:15 - 09:30 The Effects of Antioxidant Deficiency on Functional Lung Capacity in Chronic Lung Disease are Moderated by the Sex of the Patient.
Lauren Furnkase
Faculty Advisor: Dr. Rachael J. Pohle-Krauza
- 09:30 - 09:45 The Effectiveness of an Educational Brochure designed to Promote an Emphasis for an Accredited Dietetic Program
Lora Werkmeister
Faculty Advisor: Dr. Rachael J. Pohle-Krauza

HUMPHREY ROOM – MULTIDISCIPLINARY SESSION

- 08:45 - 09:00 Individualized Asynchronous Distance Learning for Less Commonly Taught Foreign Languages
James O'Rell
Faculty Advisor: Dr. Melissa T. Smith
- 09:00 - 09:15 Information Architecture & Music: A Comparative Study
Wanda Sobieska
Faculty Advisor: Mr. Stephen P. Klein
- 09:15 - 09:30 Xbox LIVE: Could You be at Risk While Playing Online?
Jeremy Cummins, William Hill, and John Rivera
Faculty Advisor: Dr. Graciela C. Perera
- 09:30 - 09:45 A Tale of Two Worlds: A Second Life for Higher Education?
Daniel DeMaiolo
Faculty Advisor: Ms. Donna M. Walsh

JAMES GALLERY – HISTORY

Session Moderator: Dr. Fred Viehe

- 08:30 - 08:45 Comparisons of Ethnic Centers in the U.S.
 Aaron Swickard
 Faculty Advisor: Dr. Fred W. Viehe
- 08:45 - 09:00 Idora Park: A Typical Beginning, an Unusual End
 Ryan Antonucci
 Faculty Advisor: Dr. Fred W. Viehe
- 09:00 - 09:15 Posse Comitatus in the 21st Century
 Jason Tingler
 Faculty Advisor: Dr. Fred W. Viehe
- 09:15 - 09:30 Schools for the Women: A Comparative Study of the Education of Northern
Women and Southern Women from 1800-1860.
 Pamella Tarajcak
 Faculty Advisor: Dr. Diane Barnes
- 09:30 - 09:45 The Historical Impact of the Large Hadron Collider
 Jennifer Hanuschak
 Faculty Advisor: Dr. Brian Bonhomme
- 09:45 - 10:00 The Bubonic Plague in the United States: The Importance of the Third
Pandemic in San Francisco, 1900-1908
 Belinda Vavlas
 Faculty Advisor: Dr. Brian Bonhomme

JONES ROOM – PSYCHOLOGY

Session Moderators: Dr. Frank Ragozzine and Dr. Jeffrey Coldren

- 08:45 - 09:00 Age, Similarity, and Perspective Taking: Factors that Affect Empathy for
Animals
 Leanna Mattila
 Faculty Advisor: Dr. Frank R. Ragozzine
- 09:00 - 09:15 Impact of Social Partner Type on Coping Method in Anger-Inducing
Scenarios
 Kathleen Stanko
 Faculty Advisor: Dr. Julie B. Boron
- 09:15 - 09:30 Interference of Perceptual Simulation by Suggested Location of Word and
Image Cues
 Carrie Melia
 Faculty Advisor: Dr. Frank R. Ragozzine
- 09:30 - 09:45 Race, Gender and Exposure Time Effects on Eyewitness Memory
 Tanya Leyman
 Faculty Advisor: Dr. Jeffrey T. Coldren
- 09:45 - 10:00 Strength In Numbers: Salience of Framing, and Effects of Expanded or
Contracted Dimensions
 Michael Gismondi
 Faculty Advisor: Dr. Frank R. Ragozzine

OHIO ROOM - MULTIDISCIPLINARY SESSION

Session Moderators: Dr. Martin Cala and and Dr. Jalal Jalali

- 08:30 - 10:00 Analysis of Structures Using Symbolic Mathematics
Amar Shukla
Faculty Advisor: Dr. Javed Alam
- 08:30 - 10:00 Evaluation of Google Wave as Student Group Study Tool
Michelle Stipetich
Faculty Advisor: Dr. Javed Alam
- 08:30 - 10:00 Natural Occurring Arsenic in Groundwater
Jon Jamison
Faculty Advisor: Dr. Isam E. Amin
- 08:30 - 10:00 Polarized Light and Its Applications in Three-Dimensional Imaging and Entertainment
Jennifer Dziak, William Hill, and Ryan Lopez
Faculty Advisor: Dr. James H. Andrews
- 08:30 - 10:00 A Time Study At Brainerd Rivet Company
Sammy Barth
Faculty Advisor: Dr. Martin Cala
- 08:30 - 10:00 Work Design and Time Study Analysis of Material Handling at Altronic Inc.
Keith Karas and Andrew Kolbus
Faculty Advisor: Dr. Martin Cala
- 08:30 - 10:00 Development of Production Standards in the Food Processing Industry
Adam O'Brien and Andrew Patrick
Faculty Advisor: Dr. Martin Cala
- 08:30 - 10:00 Machining and Packaging Process Improvements Verification using Work Measurement Analysis Techniques
Edward Sefton
Faculty Advisor: Dr. Martin Cala
- 08:30 - 10:00 Work Measurement Techniques Applied to the Improvement of a Material Handling Process in the Fastener Manufacturing Industry
Kathryn Wolf
Faculty Advisor: Dr. Martin Cala
- 08:30 - 10:00 Calibration of OIII Spectrophotometric Standard Stars
Daniel Nemergut
Faculty Advisor: Dr. John J. Feldmeier
- 08:30 - 10:00 Robot Arm for Medical Applications
Naser Alwanni, Dan Frankland, Adam Gerstnecker, and Anthony Nuzzi
Faculty Advisor: Dr. Jalal Jalali
- 08:30 - 10:00 Triaxial Method Resonant Chamber for Low Frequency Electromagnetic Testing
Edward Burden, Stephen Moy, Kristopher Rose, and Michael Zahran
Faculty Advisor: Dr. Jalal Jalali
- 08:30 - 10:00 IEEE MicroMouse
Craig Butrick and Jarrett Scacchetti
Faculty Advisor: Dr. Jalal Jalali
- 08:30 - 10:00 Parking Deck Monitoring System
Jonathan Capp, Brock Christie, Aaron Cyphert, and Greg Kosec
Faculty Advisor: Dr. Jalal Jalali
- 08:30 - 10:00 The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex
Joshua Mike and Robert Parise
Faculty Advisors: Dr. Jozsi Z. Jalics and Dr. Mark Womble

OHIO ROOM - MULTIDISCIPLINARY SESSION - Continued

- 08:30 - 10:00 Time-domain Utilizing Differential & Integral Calculus, Differential Equations, Laplace Transform and Computer Simulations.
Nathan Jones, Aaron McKinney, and Robert Ragan
Faculty Advisor: Mr. Kin P. Moy
- 08:30 - 10:00 Privacy Scrubber: A Program To Secure Private Data On Windows Computers
Michael Walker
Faculty Advisor: Dr. Graciela C. Perera
- 08:30 - 10:00 A Mathematical Analysis of Peg Solitaire
Joshua Hodges, Katie Kosela, Brett Vaillancourt, and Tyler Vitullo
Faculty Advisor: Dr. Padraic W. Taylor
- 08:30 - 10:00 The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex
Robert Parise and Joshua Mike
Faculty Advisor: Dr. Mark D. Womble and Dr. Jozsi Jalics

ROOM 2068 - HEALTH PROFESSIONS II

Session Moderators: Valerie O'Dell and Kathylynn Feld

- 09:00 - 09:15 Using a Diagnostic Algorithm to Direct Treatment in Two Patients With Shoulder Impingement Symptoms: a Case Report
Jason Shadle
Faculty Advisor: Dr. Nancy Landgraff
- 09:15 - 09:30 Medication Errors and Distraction: The Link and How to Prevent it
Alysha Brown
Faculty Advisor: Dr. Jennie M. Wood

Morning Session II 10:30 – 12:00 AM

BRESNAHAN I AND II – ARCHAEOLOGY, GEOGRAPHY and FOREIGN LANGUAGES

Session Moderators: Dr. Ron Shaklee and Dr. Richard Burden

- 10:30 - 10:45 A Preliminary Study of Human Skeletal Remains on the Island of San Salvador
Molly Toth
Faculty Advisor: Mr. Thomas R. Delvaux
- 10:45 - 11:00 Archaeological Excavation and Research of Storr's Lake San Salvador
Ronald Madeline
Faculty Advisor: Mr. Thomas R. Delvaux
- 11:00 - 11:15 Muang Thai: The Growth of the People that have Inhabited the Area in South Aast Asia Known as Thailand and How They Became the Beautiful Country they are Today
Joseph Zordich
Faculty Advisor: Dr. Dawna L. Cerney
- 11:15 - 11:30 Understanding Abandonment: A Descriptive Analysis of Vacant Properties in the Wick Park Neighborhood
Jack Daugherty
Faculty Advisor: Dr. Ronald V. Shaklee
- 11:30 - 11:45 Gli eroi del Risorgimento
Melanie Diorio
Faculty Advisor: Dr. Iole C. Checcone
- 11:45 - 12:00 The Pura Vida: Costa Rica from an American Student's Punto de Vista
Sarah Lewis
Faculty Advisor: Dr. Diana Q. Burkhart
- 12:00 - 12:15 Architectural Terra Cotta and Downtown Youngstown
Robyn DePaul
Faculty Advisor: Dr. Stephanie L. Smith

COFFELT ROOM - PHYSICS AND ASTRONOMY

Session Moderators: Dr. Tom Oder and Dr. James Andrews

- 10:30 - 10:45 Fabrication of Multi-Layered Films by Spin-Coating
James Aldridge
Faculty Advisor: Dr. James H. Andrews
- 10:45 - 11:00 High Temperature Performance of W2B/SiC Schottky Barrier Diodes
James Aldridge
Faculty Advisor: Dr. Tom N. Oder
- 11:00 - 11:15 Characterizing WB/ SiC Schottky Barrier Diodes Using I-V-T Method
Andrew Smith
Faculty Advisor: Dr. Tom N. Oder
- 11:15 - 11:30 Investigation of Ohmic Contacts on p-type Semiconductors
Michael Nycz
Faculty Advisor: Dr. Tom N. Oder
- 11:30 - 11:45 RR Lyrae as Structural Tracers for the LMC
Katharine Accetta
Faculty Advisor: Dr. Patrick R. Durrell
- 11:45 - 12:00 Magneto Optics, Multilayer Polymers, and Photonic Band Edge Enhancement
Bijayandra Shakya
Faculty Advisor: Dr. James H. Andrews
- 12:00 - 12:15 Experiment at YSU: Photonic Band Edge Enhancement of Faraday Rotation
Kyle Comeau
Faculty Advisor: Dr. James H. Andrews
- 12:15 - 12:30 Deign and Application of Multilayer Films as Custom Spectral Filters
Matthew Skaggs
Faculty Advisor: Dr. James H. Andrews

HUMPHREY ROOM - EDUCATION

Session Moderator: Dr. Jeffrey C. Dick

- 10:30 - 10:45 Field Investigations in Geology: A New Approach to Geoscience Education
Sara Dager and Charles Spurr
Faculty Advisor: Dr. Jeffrey C. Dick
- 10:45 - 11:00 Teaching Reading Skills: Keep Things Simple, but Not Simpler
Dianne DeEulio
Faculty Advisor: Dr. Regina M. Rees
- 11:00 - 11:15 Understanding the Culture of High School Students with Behavior Problems
as Viewed by School Counselors
Frank Bellamy
Faculty Advisor: Ms. Michelle M. Bellamy

JAMES GALLERY - MECHANICAL ENGINEERING

Session Moderator: Dr. Yogendra Panta

- 10:30 - 10:45 Analysis of Shaft and Gear Transmission for a Small Winch-Crane Unit
Brooke Johnson, Michael Kennedy, Kevin Miller, and
James Neiheisel
Faculty Advisor: Dr. Yogendra M. Panta
- 10:45 - 11:00 Design and Construction of A Human Powered Moonbuggy
Mark Blose, Mark Brown, Genevieve Jerome, and Mark Macali
Faculty Advisor: Dr. Yogendra Panta
- 11:00 - 11:15 Design of a Conveyor Machine
Adam Palumbo, Timothy Ridzon, John Terzak, and Chris Truitt
Faculty Advisor: Dr. Yogendra M. Panta
- 11:15 - 11:30 Design of the Pressurized Shell for a Thick-Walled Hydraulic Actuator
Andrew Bender, Mark Harvey, Charles Hunter, and
Brendan Mahoney
Faculty Advisor: Dr. Yogendra M. Panta
- 11:30 - 11:45 Development of a Microfluidic Impedance Sensor
Kelsey Hulea, Benjamin Mabbott, and Nicholas Matune
Faculty Advisor: Dr. Yogendra M. Panta
- 11:45 - 12:00 Supercharger Pulley: Stress Distribution and Analysis
James Davner, Natasha Reid, Adam Seelman, and Arthur Worst
Faculty Advisor: Dr. Yogendra M. Panta

JONES ROOM - CIVIL AND ENVIRONMENTAL ENGINEERING

Session Moderator: Dr. Scott Martin

- 10:45 - 11:00 Effectiveness of the Stream Restoration Projects
Rajesh Poudel
Faculty Advisor: Dr. Scott C. Martin
- 11:00 - 11:15 Geomorphic Characterization of Restored Streams
Santosh Pant
Faculty Advisor: Dr. Scott C. Martin
- 11:15 - 11:30 Modeling the Impact of Development on the Value of Environmental
Services in Allegheny County, Pennsylvania
Trixie Rife
Faculty Advisor: Dr. Scott C. Martin
- 11:30 - 11:45 Reinforcement of a Concrete Canoe
Michael Lyda
Faculty Advisor: Dr. Scott C. Martin

OHIO ROOM – BIOLOGY and CHEMISTRY

Session Moderators: Dr. Nina Stourman and Dr. Gary Walker

- 10:30 - 12:00 Preliminary Characterization of HIV-1 protein Vpr
Jailakshmi Manasa Majeti and Anubhav Vinayak
Faculty Advisor: Dr. Ganesaratnam K. Balendiran
- 10:30 - 12:00 Novel Synthesis of Copper Chloride Quantum Dots in a Sodium Chloride
Matrix
Elizabeth Zell
Faculty Advisor: Dr. Larry S. Curtin
- 10:30 - 12:00 Production of Monoclonal Antibodies against Staphylococcus aureus Type 5
Amitha Dhingra
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 The Effect of TC-1-045 on Capsule Formation in Staphylococcus Aureus, Type 5
Kara Kowalczyk and Ryan Schwartz
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 Targeting Staphylococcus aureus, Type 8 Capsule, by Using a Carbohydrate Mimetic: TC-I-045
Michelle Lammon and Sara Sara
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 Glycomimetics as an Inhibitor of Staphylococcus aureus Capsule Formation
Michael Makara
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 Production of Monoclonal Antibodies against Staphylococcus aureus Type 5
Leeann Pavlek
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 Purification and Characterization of Staphylococcus aureus Type 5 Capsular Polysaccharide
Thomas Rudnicki
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 Analysis of Isolated and Purified Staphylococcus aureus Type 5 Capsular Polysaccharide via Monoclonal Antibodies and Nuclear Magnetic Resonance Spectroscopy.
Joelle Wells
Faculty Advisor: Dr. Diana L. Fagan
- 10:30 - 12:00 Lung Function on a Daily Basis
Pamela Galimoto, Dawn Helderbran, Alvin Lu, Dylan Thomas, and Sarah Waldinger
Faculty Advisor: Dr. Richard G. Goldthwait
- 10:30 - 12:00 Synthesis of bis(2,2,2-trifluoroethyl) (Z)-vinyl Phosphonates from bis(2,2,2-trifluoroethyl) 1-alkynylphosphonates using Lindlar's Catalyst
Ashley DePizzo and Lee Ann Rizzo
Faculty Advisor: Dr. John A. Jackson
- 10:30 - 12:00 Using Mathematics to Examine the Operation of an Electrochemical Cell
Scott Brand, Jennifer Moy, Chris Scheckelhoff, Caleb Tatebe and Solita Wilson
Faculty Advisor: Dr. Sherri R. Lovelace-Cameron
- 10:30 - 12:00 Novel Synthesis of Copper Chloride Quantum Dots in a Sodium Chloride
Matrix
William Reed
Faculty Advisor: Dr. Howard D. Mettee
- 10:30 - 12:00 The Impact of CNTs on Actin Organization
Sarah Brothers
Faculty Advisor: Dr. Douglas M. Price

OHIO ROOM – BIOLOGY and CHEMISTRY - Continued

- 10:30 - 12:00 Cloning of Beta-Glucosidase from Escherichia coli
Devin Kelly and Carol Pitcairn
Faculty Advisor: Dr. Nina V. Stourman
- 10:30 - 12:00 Elucidation of the Function of the Glutathionylspermidine in E. coli
Lorna Ngo and Brittany Sujka
Faculty Advisor: Dr. Nina V. Stourman
- 10:30 - 12:00 The Effects of Housing Treatment on Anxiety-like Behaviors
Jade Clayton and Madeline D'Orio
Faculty Advisor: Dr. Jill M. Tall
- 10:30 - 12:00 The Effects of Acclimation Sessions on Behavioral Measurements
Lindsay Drotar and Kyle Hartman
Faculty Advisor: Dr. Jill M. Tall
- 10:30 - 12:00 Construction and Characterization of a Green Fluorescent Protein (gfp)/Titin ARMD Immunogenic Domain Fusion Protein
Lisa Ferrando, Nimrit Lotey, Stephanie McCann, and Angela Sherokee
Faculty Advisor: Dr. Gary R. Walker
- 10:30 - 12:00 Gels to Resolve the Large Molecular Protein Titin.
David Nguyen
Faculty Advisor: Dr. Gary R. Walker
- 10:30 - 12:00 Analysis of Specific Cell Division Genes Using Bioinformatics Tools in Penicillium marneffeii
Sumedha Sethi
Faculty Advisor: Dr. Gary R. Walker

PUGSLEY ROOM – COMMUNICATION

Session Moderators: Dr. Rebecca Curnalia and Dr. Adam Earnhardt

- 10:30 - 10:45 An Examination of the Influences of Genderlect Styles, Nonverbal Communication Behaviors, Social Learning, and Listening on the Communication Barriers between Men and Women
Amy Kim
Faculty Advisor: Dr. Adam C. Earnhardt
- 10:45 - 11:00 An Exploration of Parent-Child Relationship Communication: Motives, Climate, Openness and Age
Andreen Wilson
Faculty Advisor: Dr. Adam C. Earnhardt
- 11:00 - 11:15 Exploring Marital Communication: Identifying Keys To Effective Communication and Marriage Satisfaction
Kevin Jubach
Faculty Advisor: Dr. Adam C. Earnhardt
- 11:15 - 11:30 Paying Sources for the Facts: An Ethical Analysis and Case Study
Joseph Mamounis
Faculty Advisor: Dr. Rebecca M. Curnalia
- 11:30 - 11:45 The Effects of Exposure to Advertising While Watching Sports: A Cultivation Perspective
Steve Petrinjak
Faculty Advisor: Dr. Adam C. Earnhardt

ROOM 2068 – SCIENCE OF TEACHING AND LEARNING : A PANEL DISCUSSION

Session Moderators: Dr. Sherry Linkon and Dr. Jodie Krontiris-Litowitz

- 10:30 - 12:00 Does Practice with Higher Order Thinking Improve Learning?
Johanna Krontiris-Litowitz
Faculty Advisor: Dr. Johanna Krontiris-Litowitz
- 10:30 - 12:00 E-Portfolio: A Platform for Archiving Students Academic and Co-Curricular Experiences
Melissa Bach
Faculty Advisor: Dr. Suzanne M. Leson
- 10:30 - 12:00 The Electronic Portfolio: A Change in Culture
Julie Beck and Timothy Dewberry
Faculty Advisor: Dr. Suzanne M. Leson
- 10:30 - 12:00 Literature and Politics
Christopher Lettera, Jason Newman and Lindsey Ramdin
Faculty Advisor: Dr. Sherry L. Linkon

Afternoon Session I 1:30 – 3:00 PM

COFFELT ROOM – ELECTRICAL AND COMPUTER ENGINEERING

Session Moderators: Dr. Salvatore Pansino and Dr. Jalal Jalali

- 13:30 - 13:45 Design and Programming of an LED Cube
Chris Barcey, John Fitch, Matthew Guidosh, Adam Hinerman, Justin Hosseininejad, Wael Ilayan, and Patrick O'Rourke
Faculty Advisor: Dr. Salvatore R. Pansino
- 13:45 - 14:00 Encrypted Wireless Network for Vibration Data Acquisition
Ryan Bates, Tim Detwiler, Jesse Nezdoba, and Brittany Stillwagon
Faculty Advisor: Dr. Frank X. Li
- 14:00 - 14:15 IEEE MicroMouse
Craig Butrick and Jarrett Scacchetti
Faculty Advisor: Dr. Jalal Jalali
- 14:00 - 14:15 MicroMouse
Yousef Ilayan
Faculty Advisor: Dr. Jalal Jalali
- 14:15 - 14:30 A Prototype Wireless Thermostat
Don Leshner
Faculty Advisor: Dr. Salvatore R. Pansino

HUMPHREY ROOM – LINGUISTICS

Session Moderators: Dr. Corey Andrews and Dr. Steven Brown

- 13:30 - 13:45 Going up?: A Sociolinguistic Study of Verbal Interaction in Elevators
Rebekah Hoy, Chu Shiu Lee, Christopher Lettera and
Laura Mistovich
Faculty Advisor: Dr. Barbara Nykiel-Herbert
- 13:45 - 14:00 Honey is for Bees: A Look at the Use of Endearments in the Service
Industry
Mary A Anderson, Stephen Flask and Adam Seefeldt
Faculty Advisor: Dr. Barbara Nykiel-Herbert
- 14:00 - 14:15 Language Learning Motivation in International Students
Way Jeng and Rebecca Sumner
Faculty Advisor: Dr. Barbara Nykiel-Herbert
- 14:15 - 14:30 'You Said That In Class!': A Study of the Use of Curse Words In College
Classrooms
Heather Lowry and Rebecca Sumner
Faculty Advisor: Dr. Barbara Nykiel-Herbert
- 14:30 - 14:45 Taking the Hint: A Cross Sectional Survey of Perception Regarding
Requests and Directness
Lindsay Berger, Joseph Robertshaw and Robert Suter Jr.
Faculty Advisor: Dr. Barbara Nykiel-Herbert

JAMES GALLERY – MECHANICAL ENGINEERING and TECHNOLOGY

Session Moderators: Dr. Daniel Suchore and Dr. Elvin Shields

- 13:30 - 13:45 Constructing and Modelling a Small Horizontal Axis Wind Turbine
Greg Klouse, Jeremy Minor and Mohammad Rameezuddin
Faculty Advisor: Mr. Michael D. Costarell
- 13:45 - 14:00 Flow Visualization Wind Tunnel
Richard Arthur, Kristopher Pierson and Devin Wilmouth
Faculty Advisor: Dr. Elvin B. Shields
- 14:00 - 14:15 Natural Gas Engine Conversion
Jared Bilas and David Lepley
Faculty Advisor: Mr. Michael D. Costarell
- 14:15 - 14:30 Permanent Magnet Motor: Generating Electricity from Water Waves
Eli Good, Matt Kuhns, Matt Norge and Andrew Pirigy
Faculty Advisor: Mr. Stephen Kundel
- 14:30 - 14:45 Supermileage Vehicle
Matt Drewnowski, Chris Hallett, Dustin Lindsay and Nate Tacsik
Faculty Advisor: Dr. Elvin B. Shields

JONES ROOM – GEOLOGY, ENVIRONMENTAL SCIENCE and ECOLOGY

Session Moderators: Dr. Isam Amin and Ms. Colleen McLean

- 13:30 - 13:45 Carbon Dioxide Capture Using The Micro-algae Chlorella Vulgaris.
Kenneth Zame
Faculty Advisor: Dr. Douglas M. Price
- 13:45 - 14:00 Heavy metals in Urban Garden located in Youngstown, Ohio
Gina DeCarlo
Faculty Advisor: Dr. Felicia P. Armstrong
- 14:00 - 14:15 Metal Contamination on the Floodplains of the Mahoning River
Shannon Doherty
Faculty Advisor: Dr. Felicia P. Armstrong
- 14:15 - 14:30 Changes in Shoreline Sedimentation at Sandy Point, San Salvador
Diana Alexander, Jessica Giblin, Jason Langer and Laura Yamsek
Faculty Advisor: Dr. Jeffrey C. Dick
- 14:30 - 14:45 Spatiotemporal-dependent Shifts in Grassland Invasibility
Erin Pfeil and Jacob Saborse
Faculty Advisor: Dr. Ian J. Renne
- 14:45 - 15:00 Cultural Breakdown of Avian Mobbing Responses to Interspecific Alarm Calls: Implications to Management and Conservation
Jacob Saborse
Faculty Advisor: Dr. Ian J. Renne

OHIO ROOM – MULTISCIPLINARY SESSION

Session Moderators: Dr. Gordon Frissora and Dr. Janice Elias

- 13:30 - 15:00 Study Abroad in Winchester, England
Tara Esker and Scott Wilms
Faculty Advisor: Dr. Jeffrey T. Coldren
- 13:30 - 15:00 Environmental Enrichment of Captive Gibbons
Zachary Lewis
Faculty Advisor: Dr. Rosemary D'Apollito
- 13:30 - 15:00 The Therapeutic Relationship between Deaf Clients and their Hearing Counselors
Rose Stacy
Faculty Advisor: Dr. Marianne Dove
- 13:30 - 15:00 How do Budgets Affect the Murder Rate?
John Beshara
Faculty Advisor: Dr. John M. Hazy
- 13:30 - 15:00 Managing Disruptive Behavior: Health Care Workers Perceptions and Suggestions
Marsha Kenyhercz
Faculty Advisor: Dr. John M. Hazy
- 13:30 - 15:00 The Impact of Shift Work on Hospital Employees
Deborah Moyer
Faculty Advisor: Dr. John M. Hazy
- 13:30 - 15:00 Raise a Hand Raise a Voice Raise a Killer...What are Some External Factors Related to Serial Killers?
Kristy Protain
Faculty Advisor: Dr. John M. Hazy
- 13:30 - 15:00 Dental Hygiene: Associate or Baccalaureate Degree
Melissa Sarisky
Faculty Advisor: Dr. John M. Hazy
- 13:30 - 15:00 Officers Armed with Degrees: Does Higher Education in Law Enforcement Reduce Police Officer Liability?
Edward Villone
Faculty Advisor: Dr. John M. Hazy

OHIO ROOM – MULTISCIPLINARY SESSION - Continued

- 13:30 - 15:00 Effects of Ethidium Bromide on Mitochondrial DNA in the yeast Saccharomyces Cerevisiae.
Cassidy Meyer
Faculty Advisor: Dr. Heather E. Lorimer
- 13:30 - 15:00 The Effects of Depression on Functional Capacity in Chronic Obstructive Pulmonary Disease (COPD) Patients
Heather Dugan
Faculty Advisor: Dr. Michele L. McCarroll
- 13:30 - 15:00 Assesment of Workers Compensation Claims Among North Carolina Firefighters
Anthony Russo
Faculty Advisor: Dr. Michele L. McCarroll
- 13:30 - 15:00 Studying Abroad at the University of Winchester
Leah Sakacs and Samantha Schneider
Faculty Advisor: Dr. Barbara Nykiel-Herbert
- 13:30 - 15:00 Counselor's Tips for Teachers: Easy Classroom Interventions for Students with Autism
Emily Herman and Dru Perren
Faculty Advisor: Dr. Jake J. Protivnak
- 13:30 - 15:00 Perceptions of the Functions of Exercise in Weight Management among YSU Students.
Ashley Addressi and Renee Loren
Faculty Advisor: Dr. Zara C. Rowlands
- 13:30 - 15:00 Perceptions of Causes and Consequences of Childhood Obesity Among YSU Students
Michelle Haddle, Lia Proctor, Nicole Sabo and Kayla Witmer
Faculty Advisor: Dr. Zara C. Rowlands
- 13:30 - 15:00 Perceptions of Food Labels
Bailey Hinkle, Kristin Hutzen, Callie Oyler and Jennifer Scacchetti
Faculty Advisor: Dr. Zara C. Rowlands
- 13:30 - 15:00 Attitudes Toward Sexuality in Older Adults
Julie Iudiciani
Faculty Advisor: Dr. Daniel J. Van Dussen

PUGSLEY ROOM – ECONOMICS AND POLITICAL SCIENCE

Session Moderators: Dr. A.J. Sumell and Dr. Tomi Ovaska

- 13:30 - 13:45 A Political Science Student Witnessing a Mounting and Approaching Political Apex and Possible Revolution in Thailand.
Brian Haughey
Faculty Advisor: Dr. David S. Porter
- 13:45 - 14:00 Assessing the Assessors: Institutional Research on Bureaucracy and Youngstown State University
Abbie Twyford
Faculty Advisor: Dr. Keith J. Lepak
- 14:00 - 14:15 Casinos and Economic Growth
Nicole Barnett
Faculty Advisor: Ms. Jolien A. Helsel
- 14:15 - 14:30 School Facilities and Performance: Evidence from Ohio
Jeffrey Layton
Faculty Advisor: Ms. Jolien A. Helsel

ROOM 2068 – INTERNATIONAL STUDIES

Session Moderators: Dr. Stephanie Smith and Dr. Peter Reday

- 13:30 - 13:45 A Comparison of the Cost of Living Differences Between Youngstown and San Salvador Island, The Bahamas
Amanda Campbell and Kaley Kastner
Faculty Advisor: Dr. Ronald V. Shaklee
- 13:45 - 14:00 Study Abroad in Buenos Aires, Argentina
Jessica Thompson and Rikki Vesey
Faculty Advisor: Ms. Laura Goist
- 14:00 - 14:15 Economic Impact of the Gerace Research Centre On the Economy of San Salvador
Jason Heyman and Lynn Williams
Faculty Advisor: Dr. Ronald V. Shaklee
- 14:15 - 14:30 Internship Abroad in Prague, Czech Republic 2009
Juliana Cala
Faculty Advisor: Ms. Joy D. Christiansen
- 14:30 - 14:45 The Penguin Odyssey at Youngstown State University: Exploring the Effects of Faculty-Led Study Abroad Tours
Daniel DeMaiolo, Derek DeMaiolo and Nikki Makridis
Faculty Advisor: Mr. Larry A. Zielke
- 14:45 - 15:00 Pricing
Nicole Baker and Brittany Carlon
Faculty Advisor: Dr. Peter A. Reday

Afternoon Session II 3:30 – 5:00 PM

BRESNAHAN I and II – RESEARCH EXPERIENCES FOR UNDERGRADUATES

Session Moderator: Dr. Douglas Price

- 15:30 – 17:00 Undergraduate STEM students Bethany Vlaiku, Benjamin Christiansen, Adam Magana, and Michael Walker will discuss their experiences as participants in the National Science Foundation “Research Experiences for Undergraduate Students” program

COFFELT ROOM – BIOLOGY AND MATHEMATICS

Session Moderators: Dr. George Yates and Dr. Thomas Wakefield

- 15:30 - 15:45 Determining Muscle Fiber Types in the Tails of Two Disparate Species
Opposum
Pano Hazimihalis
Faculty Advisor: Dr. Michael T. Butcher
- 15:45 - 16:00 Sex and Regional Differences in L-Type Calcium Current Levels in Rabbit
Heart Arrhythmogenesis
Zane Kalik
Faculty Advisor: Dr. Carl Sims
- 16:00 - 16:15 Proposed Resistance Mechanisms of Enterobacter sp. to Toxic Selenite
Hillary Howard and Lisa Curll
Faculty Advisor: Dr. George T. Yates
- 16:15 - 16:30 The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal
Neurons of the Prefrontal Cortex
Joshua Mike and Robert Parise
Faculty Advisor: Dr. Mark D. Womble
- 16:30 - 16:45 Techniques for Solving Nonlinear Diophantine Equations
Matt Alexander
Faculty Advisor: Mr. Jacek Fabrykowski

HUMPHREY ROOM – ENGLISH

Session Moderators: Dr. Corey Andrews and Dr. Steve Brown

- 15:30 - 15:45 Evolution of the International Phonetic Alphabet
Tracilyn Tsarnas
Faculty Advisor: Ms. Cynthia L. Vigliotti
- 15:45 - 16:00 Mystical Sunshine Lover
Christopher Lettera
Faculty Advisor: Mr. Christopher M. Barzak
- 16:00 - 16:15 The News Outlet
Doug Livingston
Faculty Advisor: Ms. Alyssa J. Lenhoff
- 16:15 - 16:30 Little Red Cap and Hansel and Gretel: Conspiracies in Children's Literature
Jessica Troy
Faculty Advisor: Ms. Cynthia L. Vigliotti

JONES ROOM – MUSIC

Session Moderators: Ms. Terry Volsko and Ms. Mary Yacovone

- 15:30 - 15:45 La Monte Young's The Well-Tuned Piano and the Truth in Tuning
Joseph Finkel
Faculty Advisor: Dr. Ewelina Boczkowska
- 15:45 - 16:00 Laughter and Tears in Mozart's Opera Buffa
Stephanie Ruozzo
Faculty Advisor: Dr. Ewelina Boczkowska
- 16:00 - 16:15 Mozart's Die Zauberflöte as an Opera of the Enlightenment
Sara Gulgus
Faculty Advisor: Dr. Ewelina Boczkowska
- 16:15 - 16:30 The Evolution of the Third Movement in Symphonies of Haydn, Mozart, and
Beethoven
Deidra Nuss
Faculty Advisor: Dr. Ewelina Boczkowska
- 16:30 - 16:45 Well-Traveled Tunes: The Circulation of Song in Renaissance Europe
Margaret Jones
Faculty Advisor: Mr. Randall E. Goldberg
- 16:45 - 17:00 Digitizing the Scholar Experience
Rachel Lundberg, Justin McIntyre and Cory Okular

Faculty Advisor: Dr. Suzanne M. Leson

OHIO ROOM – BIOLOGY and CHEMISTRY

Session Moderators: Dr. Jill Tall and Dr. Peter Norris

- 15:30 - 17:00 Protein Profiling of Wild-type Neurospora crassa Grown on Various Carbon Sources
Katie Allen
Faculty Advisor: Dr. David K. Asch
- 15:30 - 17:00 Expression Kinetics of the Quinic Acid (qa) Gene Cluster in Neurospora crassa
Melissa Fleeger
Faculty Advisor: Dr. David K. Asch
- 15:30 - 17:00 Quantitation of mRNA levels in \hat{I}^S strain of Neurospora crassa
Rathna Veeramachaneni
Faculty Advisor: Dr. David K. Asch
- 15:30 - 17:00 Patterns of Strain in the Femur of the Opossum (Didelphis virginiana) During Terrestrial Locomotion
Bartholomew White
Faculty Advisor: Dr. Michael T. Butcher
- 15:30 - 17:00 Characterization of Eight Metal Resistant Enterobacter Species from a Metal Contaminated Site
Carlisle Heinselman
Faculty Advisor: Dr. Jonathan J. Caguiat
- 15:30 - 17:00 Chitin Synthase Expression in the Dimorphic Fungus Penicillium marneffeii
Melinda Daisher
Faculty Advisor: Dr. Chester R. Cooper
- 15:30 - 17:00 Analysis of Cell Wall Mutants in the Dimorphic Fungus Penicillium marneffeii Generated by Agrobacterium-Mediated Transformation
Andrew Holmes
Faculty Advisor: Dr. Chester R. Cooper
- 15:30 - 17:00 Characterization of Mutants of Wangiella dermatitis Generated by Agrobacterium tumefaciens Mediated Transformation
Eric Price
Faculty Advisor: Dr. Chester R. Cooper
- 15:30 - 17:00 Two-Dimensional Polyacrylamide Gel Electrophoresis characterization of Decorin Bound Collagen I, Comparison to Male and Female Spontaneously Hypertensive Rats
Andrew Brown
Faculty Advisor: Dr. Johanna Krontiris-Litowitz
- 15:30 - 17:00 2D Gel Profile of Cyanogen Bromide Digested Bovine Serum Albumin
Sierra Carbone
Faculty Advisor: Dr. Johanna Krontiris-Litowitz
- 15:30 - 17:00 Morphometric Quantification of Myocyte Dimensions in SHR Rat Hearts
Douglas Hudoba
Faculty Advisor: Dr. Johanna Krontiris-Litowitz
- 15:30 - 17:00 Quantitation of Ventricular Collagen in Male and Female Spontaneously Hypertensive Rats using Hydroxyproline Analysis
Lisa Tofil
Faculty Advisor: Dr. Johanna Krontiris-Litowitz
- 15:30 - 17:00 Constructing MHR1 Containing Plasmids as a Tool for Understanding Mitochondrial DNA Replication
Brandon Grant
Faculty Advisor: Dr. Heather E. Lorimer

OHIO ROOM – BIOLOGY and CHEMISTRY - Continued

- 15:30 - 17:00 Analysis of Genetic Variations of cpDNA in Elm species
Jenna Kupec and Alaina Zeljak
Faculty Advisor: Dr. Heather E. Lorimer
- 15:30 - 17:00 Determining the Role of MGT1 in the Biased Inheritance of Mutant mtDNA in the Yeast *Saccharomyces cerevisiae*
Heather Williams
Faculty Advisor: Dr. Heather E. Lorimer
- 15:30 - 17:00 FunSecKB: A Knowledge Base of Fungal Secretomes
Gengkon Lum
Faculty Advisor: Dr. Xiangjia Min
- 15:30 - 17:00 Phylogenomic Analysis of the Chitin Synthetic Pathway in Fungi
David Sedlacko
Faculty Advisor: Dr. Xiangjia Min
- 15:30 - 17:00 Safe Alkyl and Acyl azide Synthesis Using Arylsulfonyl Azides
Krista Cunningham, Antony Okumu, Brooke Katzman and Tracy Vadjinia
Faculty Advisor: Dr. Peter Norris
- 15:30 - 17:00 Reduced Competition from White-Tailed Deer Grazing Facilitates Non-Native Plant Invasion
Samantha Adams
Faculty Advisor: Dr. Ian J. Renne
- 15:30 - 17:00 Gender and Regional Differences in ICa-L Distribution in Adult Rabbit Right Ventricle Influence AP Duration and the Propensity for EADs in a Model of Long QT Syndrome Type 2
Cassandra Doinoff
Faculty Advisor: Dr. Carl Sims

JAMES GALLERY – MECHANICAL and ENGINEERING TECHNOLOGY

Session Moderators: Dr. Martin Cala and Dr. Yogendra Panta

- 15:30 - 15:45 Development of Magnetohydrodynamics (MHD) Channel
Wei Lin
Faculty Advisor: Dr. Yogendra M. Panta
- 15:45 - 16:00 A Heat Transfer Model for Industrial Food Processes
Joseph Pietromonaco
Faculty Advisor: Dr. Darrell R. Wallace
- 16:00 - 16:15 Alternative Fuels Examined: Are Electric Cars the Future?
Nicholas Mancuso
Faculty Advisor: Ms. Sharon L. Cline
- 16:15 - 16:30 Smoke Visualization Wind Tunnel
Gregory Hall
Faculty Advisor: Dr. Elvin B. Shields
- 16:30 - 16:45 Research in Engine Efficiency: The 100mpg Diesel Motorcycle
Matthew Proch
Faculty Advisor: Dr. Brian D. Vuksanovich
- 16:45 - 17:00 Water Conservation
Alexandria Globeck and Nicholas Mikula
Faculty Advisor: Mr. Greg K. Moring
- 17:00 - 17:15 Gaia
Michelle Curl
Faculty Advisor: Dr. Brian D. Vuksanovich

QUEST 2010 ABSTRACTS

- Accetta, Katharine** Astronomy / Physics Coffelt Room 11:30 - 11:45
RR Lyrae as Structural Tracers for the LMC
RR Lyrae variable stars are key distance indicators because they have a predictable period-luminosity relation. Previous surveys by the OGLE and MACHO collaborations have identified RR Lyrae stars within the Large Magellanic Cloud (LMC), but as the prime directive of these surveys was to search for gravitational lensing effects, precision photometry was not a primary concern. We have obtained accurate V and R photometry of a sub-sample of OGLE RR Lyrae located around the central bar. The results presented here encompass two of the twenty-six surveyed fields, one field on the far east side of the central bar and the other on the far west. Distances and reddening along the line of sight of 50 RR Lyrae can be used to map out the structure of the old stellar populations within the LMC. A comparison on the properties of the RR Lyrae in these two fields allow constraints to be made on the orientation of the LMC, and to place limits on the warping of the LMC disk.
- Adams, Samantha** Biological Sciences Ohio Room 15:30 - 17:00
Reduced Competition from White-Tailed Deer Grazing Facilitates Non-Native Plant Invasion
Non-native plant invasions have changed the composition and diversity of plant communities in many North American forests. Successful invasions are often facilitated by factors that alter competitive hierarchies, one of which being the high abundance of white-tailed deer due to their propensity toward differential grazing. This project examines the interactive effects of white-tailed deer grazing and removal of garlic mustard, *Alliaria petiolata*, a non-native, invasive, biennial plant, on the structure and invasibility of forest understorey communities. The experimental design is a two-way, split-plot factorial, with two whole-plot levels of grazing (i.e., control and fence exclusion) and *A. petiolata* removal (control and weeded). Additionally, seeds from native, herbaceous plants will be sown in subplots to examine the effect of seed augmentation in each treatment combination. Response variables include changes in native species diversity, abundance, and relative cover, establishment and growth rates of sown individuals, and the abundance and relative cover of *A. petiolata*. Key questions include whether white-tailed deer grazing facilitates *A. petiolata* invasion and if the separate and combined effects of grazing and *A. petiolata* competition limit native species recruitment and growth. From our conclusions, management recommendations will be offered to reduce the prevalence of *A. petiolata* and restore depleted native forest understorey plant diversity.
- Addressi, Ashley** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of the Functions of Exercise in Weight Management among YSU Students.
Americans have an obsession with weight management. Among those who exercise to manage their weight, perceptions of the functions of exercise may vary according to individual self-assessment of appearance, weight and health status (Weiss et al, 2006). This study will assess the perceptions of YSU students who use the Andrews Wellness and Recreation Center, regarding the role and efficacy of exercise in weight management. Participants (n=100) who provide signed informed consent will self-administer a 29-item survey that asks about their beliefs, attitudes and knowledge about the role of exercise in weight management. The pooled data will be analyzed using SPSS, 15.0. It is anticipated that significantly ($p < 0.05$) more female participants will choose cardiovascular activity/exercise for weight loss than males; more males than females will combine supplement use, diet and exercise for weight management; and significantly more males will employ weight training than females in their weight management regimens.
- Aldridge, James** Chemical Engineering Coffelt Room 10:45 - 11:00
High Temperature Performance of W2B/SiC Schottky Barrier Diodes
The importance of silicon carbide (SiC) semiconductor for high temperature and high power microelectronic device applications has long been established. SiC Schottky barrier diodes using tungsten boride (W2B) deposited at 200°C and 600°C as the Schottky contacts are currently being characterized. Using the current-voltage-temperature method, samples are mounted on a heated stage and temperature then varied from about 25 °C to 400 °C at intervals of 25 °C. From the variation of the ideality factor and the temperature, we determined that the characteristics of these diodes are not altered by exposure to 400 °C. The high temperature stability was traced to the exceptionally high Schottky barrier heights of 1.7 eV, which was determined by the I-V-T measurements. The characteristic energy of 0.02 eV to 0.04 eV across the range of measurement temperatures indicates that thermionic emission is the dominant process of the electron transport across the barrier. The implications of these results to current device developments will be discussed.
- Aldridge, James** Chemical Engineering Coffelt Room 10:30 - 10:45
Fabrication of Multi-Layered Films by Spin-Coating
Polymeric multi-layered films with a periodic structure can exhibit a photonic band-gap in the form of enhanced reflectivity and inhibited transmission due to multilayer optical interference. Polymers are particularly attractive as one-dimensional photonic band gap materials because the polymer properties can be tailored for use as magneto-optic materials, lasers, and other applications. In this talk, I will describe our techniques for fabricating multilayer structures and thin films using spin coating and Langmuir film floating. These techniques are useful for multi-layering of polymers that are not amenable to co-extrusion and melt-processing techniques, but considerable care is required for stacking individual polymer layers. The optimum reflection band peak is zero % transmittance. Our most recent multi-layering efforts have reached approximately 11 % transmittance. We assume a deviation in layer thickness to be present.

- Alexander, Diana** Geological & Environmental Science Jones Room 14:15 - 14:30
Changes in Shoreline Sedimentation at Sandy Point, San Salvador
 Sandy Point is a prominent landform located at the southwestern corner of San Salvador, Bahamas. It is a massive peninsula-shaped sand deposit created by the combination of long-shore drift along the southern and western shores of the island and intensive wave refraction at the point. GPS surveys of the shoreline conducted in March for the years 2005 – 2009 demonstrate regular and non-predictable change of the shoreline position from year to year. Visual observations and crude line-level transects for the same years indicate equally dramatic change in the overall morphology of the deposit. In an effort to better understand the processes responsible for the observed changes and document the magnitude of change, a detailed study of Sandy Point was initiated in June 2009. The data included shoreline GPS surveys, shoreline to back-beach transects (GPS and total station), and sand textural analyses. A second set of measurements and analyses was completed in March 2010. Preliminary results demonstrate a dramatic change in shoreline position from June 2009 to March 2010. In accordance with shoreline change, the beach transects show dramatic change in the overall morphology of the sand deposit. Over all, the sediment can be characterized as poorly sorted coarse sand composed of primarily carbonate shell fragments. The resulting data of shoreline and transect surveys were plotted on the topographic map of the island (1971) using ArcGIS.
- Alexander, Matt** Mathematics & Statistics Coffelt Room 16:30 - 16:45
Techniques for Solving Nonlinear Diophantine Equations
 Nonlinear Diophantine equations are frequently found in various levels of mathematical competitions. In this presentation, we will examine common techniques used to solve such problems. Often it is much simpler to show that no solution exists for a particular equation than to attempt to find the form that all possible solutions may take on. Therefore, our methods will either show that there are no solutions or that there are infinitely many solutions.
- Allen, Katie** Biological Sciences Ohio Room 15:30 - 17:00
Protein Profiling of Wild-type Neurospora crassa Grown on Various Carbon Sources
 Neurospora crassa possesses characteristics that make an ideal model organism for eukaryotes. N. crassa utilizes a variety of different carbon sources. Preferred carbon sources such as dextrose can be metabolized, but it has the ability to metabolize less preferred carbon sources such as glycerol or quinic acid. The quinic acid (qa)-gene cluster in N. crassa controls the ability of quinic acid to be utilized as a carbon source. When grown on quinic acid the expression of the qa α genes are enhanced, but reduced when grown on a preferred carbon source such as dextrose. Other changes in gene expression should be seen as well when the carbon sources are switched. In this study, we look at the protein profiles of wild-type N. crassa grown on the carbon sources, dextrose and glycerol and quinic acid. To perform the study, wild-type N. crassa was grown on Vogel's minimal media and shifted to various carbon sources. Protein was extracted from the tissue and ran on two-dimensional gel electrophoresis (2-DGE). The two dimensional (2-D) gels were imaged and analyzed using PDQuest. The results from the study reveal that more protein is expressed on the preferred carbon source, dextrose, compared to the less preferred carbon sources, quinic acid and glycerol. Unique protein expression patterns have also been observed for the different carbon sources.
- Alwanni, Naser** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Robot Arm for Medical Applications
 The robotic arm was designed for real-time applications to which it would operate over a network. The design purpose was to construct a network host-server connection through which an operator that may be able to perform tasks from a remote location. This would give the user freedom to operate on objects or complete projects at their leisure without the need to travel to the given location. The design was made from aluminum in order to give it strength and durability. The control interfaces, which were implemented to provide user control and to facilitate the movement of the arm, were written in C# language and allow real-time user control through USB connectivity. The host-server connection was achieved via pre-existing VNC freeware. The result of the design gives the user freedom to rotate freely around a two feet radius, and the robotic arm can lift multiple objects of size and weight.
- Anderson, Mary A** English Humphrey Room 13:45 - 14:00
Honey is for Bees: A Look at the Use of Endearments in the Service Industry
 The three student investigators will study the use of endearments in service encounters. We believe our research and field data will reveal a trend that is related to age and gender. We also hope to measure attitudes concerning the use of endearments in the service industry. The data we collect will allow us to measure not only what specific endearments are used by strangers in these settings, but the attitudes and connotative meanings behind these terms. We will gather our data with the use of short surveys (12 fictional scenarios) to be completed by volunteer students at Youngstown State University, with the approval of each instructor in the classroom. The survey is completely anonymous and the information used is to be kept confidential, to be viewed by Mary Anne, Adam and Steve. There will no names used, nor will it be necessary for respondents to reveal campus location. (See attached for sample survey) The anonymous nature of the surveys will be clearly noted at the beginning of the survey. Potential respondents are not obligated to begin nor continue a survey. They may opt out at any time. We believe our data will reflect our hypothesis that older men use endearments more often toward younger females in service related jobs. We believe the attitude is more permissive when age is a factor. We believe our data will reveal trends in acceptance and attitude of these common terms used among strangers.

- Andrews, James** Astronomy / Physics Room 2068 10:30 - 12:00
Is the Third Time the Charm? Teaching Introductory Physics in Three Cycles
 Four years ago I began to reorganize a section of our introductory physics course to introduce major concepts in a simple context in the first third of the course, and then to revisit them in two more increasingly sophisticated and interconnected cycles, each followed by hour exams. This approach allows an early overview of the whole course, addresses midterm exam difficulties and improves retention through revisiting, eliminates the long gap between early material and the final exam, provides time for students to assimilate harder concepts previously introduced only at the end of the course, and provides increased opportunities for using multi-concept problems. Challenges include pace, level, and the role of the textbook. I describe experiences and feedback over 20 semesters with seven different lecturers at two universities and the development by a colleague at Case Western Reserve University of a mechanics text for three-cycle use.
- Ansari, Zohra** Health Professions Coffelt Room 08:30 - 08:45
Burden Of Families Taking Care Of Patients Suffering From Amytropic Lateral Sclerosis
 Amyotrophic Lateral sclerosis (ALS), a motor neuron disease, is also commonly known as Lou Gehrig disease. The disease slowly paralyzes the upper part of the body including respiratory system. When it starts affecting the respiratory system, often patients are kept on Mechanical Ventilation (MV). Although ALS progresses slowly, entire upper part of the body is affected and consequently patients die due to the respiratory failure. In ALS, not only patients but also their caregivers go through tremendous psychological trauma. To get rid of their sufferings and pain, often patients desire to commit suicide. ALS patients are required to be on mechanical ventilator to survive, which imposes considerable financial burden on patientsTM as well as their family members. The US government has proposed a policy that would make health care within the reach of a common person. Such an initiative will provide significant relief to ALS patients and also provide comfort to the families who are involved in taking care of patients without any monetary reward. This paper reviews various studies and their finding related to ALS and discusses the symptoms, diagnosis, management, and treatment option available to cure this disease. The paper also describes personal experience with a family member, my father-in-law, who suffered with ALS and died due to the respiratory failure.
- Antonucci, Ryan** History James Gallery 08:45 - 09:00
Idora Park: A Typical Beginning, an Unusual End
 Idora Park was the product of a nationwide movement that began over one-hundred year ago: the establishment of "trolley parks" at the end of streetcar lines. To increase use of the street railway system during the evening and on weekends, trolley companies created green park areas to attract riders. Most of these simple parks were later improved to include bandstands and other forms of amusements. Although Idora Park had a typical beginning that paralleled the development of most other American trolley parks, Idora, unlike most of its contemporaries, survived the demise of the street car. The park ultimately collapsed due to the local economy and a series of unfortunate events, rather than disinterest.
- Arthur, Richard** Mechanical & Industrial Engineering James Gallery 13:45 - 14:00
Flow Visualization Wind Tunnel
 A small flow visualization wind tunnel was designed and built to study the pattern of flow around bluff and streamlined models. The visualization is created by injecting thin filaments of white smoke at the inlet of a small low-turbulence wind-tunnel. The wind-tunnel is a draw-through type and the flow is initiated by a small radial blower fan mounted near the exit of the tunnel. Air is drawn in through the inlet and exhausted at the tunnel exit. Part of the air exhausted can be forced into a smoke generating reservoir. The smoke, generated by vaporizing propylene glycol, is forced through the supply pipe into small nozzles and then emerges out of the nozzles as fine filaments. Models were placed in the test section for the study of flow patterns. The heater element and the blower fan are instrumented and controlled using computer software as well as manual controls. The machine has controls for starting the fan and the heating element along with a safety feature to turn off the heater and the fan if the temperature inside the smoke reservoir exceeds a certain threshold temperature. The flow patterns observed corroborated the concepts learned in fluid dynamics. In addition, flow visualization is used in many industries concerned with aerodynamics.
- Bach, Melissa** Psychology Room 2068 10:30 - 12:00
E-Portfolio: A Platform for Archiving Students Academic and Co-Curricular Experiences
 This is a Scholarship of Teaching and Learning (SOTL) presentation. One way to foster and develop the reflective thinking process is to provide the student with a tool that allows longitudinal reflection of work. There is an increased focus (from all stakeholders) on accountability for student learning outcomes. The electronic portfolio (e-portfolio) has been adopted on many campuses as a means to integrate teaching, reflective learning, and assessment. Unlike the paper that is written, graded, and stored in a folder, the e-portfolio provides the student with a dynamic and systematic process of reflecting upon their educational and co-curricular experiences over time. As part of a pilot project, at Youngstown State University, Youngstown, Ohio, select academic programs and courses were enlisted to participate in the development of student electronic portfolios and the subsequent process of archiving student work samples to an electronic platform for assessment purposes. This presentation will document and highlight a Psychology/Sociology studentTMs experiences with developing an e-portfolio. The poster presentation will benefit students, faculty, and administration by helping to engage students in reflective thinking, moving them to take responsibility for their own education, and become better learners.
- Baker, Nicole** Accounting & Finance Room 2068 14:45 - 15:00
Pricing
 United Kingdom Pound vs. United States Dollar I will be giving a power point presentation on the comparison of currency exchange rates between the Pound and the Dollar. I was inspired to do this project from a recent trip that I took to the United Kingdom, where I toured London and used the pound as my way of purchasing. The presentation will also cover exchange rate influences, purchasing power parity and the law of one price. The big mac index is also given as an example in this presentation to clearly display the exchange rate comparison.

- Barcey, Chris** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
 As part of a research project for Electrical and Computer Engineering 3712, our group designed and constructed a four-by-four-by-four LED cube to display various three-dimensional patterns. An Altera Cyclone II FPGA programmed with VHDL code written in Quartus II software was used to control the cube. This presentation will detail our design and findings from simple LED functionality to complex microprocessor control.
- Barnett, Nicole** Economics Pugsley Room 14:00 - 14:15
Casinos and Economic Growth
 During the fourth quarter of 2009, Ohio voters finally said yes to a proposed constitutional amendment that allowed the creation of casinos in four cities: Cleveland, Columbus, Toledo, and Cincinnati. This made Ohio the 39th state to legalize casino gambling. Passage of this amendment was preceded by considerable debate on the effects of casino gambling on various components of the Ohio economy, including the effects on labor markets and state revenues. In the economic literature, too, most articles that discuss the advantages and disadvantages of casino gambling concentrate on specific social or economic outcomes, such as crime and employment rates. Few studies examine the effects of casino gambling on overall economic well-being or economic growth. The purpose of my study is to analyze the effect that casinos have had on states' economic growth. My econometric model uses economic growth rates for the 48 contiguous states created from panel data from 1997 to 2008. The results suggest that there is no statistically significant relationship between casino gambling and state economic growth except in the extreme case of Nevada.
- Barth, Sammy** Mechanical & Industrial Engineering Ohio Room 08:30 - 10:00
A Time Study At Brainerd Rivet Company
 A Time Study Performed At Brainerd Rivet Company By Sam Barth Industrial systems Engineering Department Methods Engineering ISEN 3736 Youngstown State University Abstract: Background: Time studies are a useful tool in industry for establishing a time standard for accomplishing a task and subsequently for assessing possible improvements in the process. A time study was performed at the Brainerd Rivet Company in Girard, Ohio. The task chosen for study was the rivet packing operation. The individual tasks that were studied were the making of the boxes, closing and taping the package, and palletizing the boxes. The subject was videotaped and the process was timed using computer software. The process is then statistically analyzed and a time standard is set for the job. Results: The time standard will allow the facility to use the time standard in its scheduling activities as well as assess individual performance. It will also allow for review to see if the process may possibly be improved.
- Bates, Ryan** Electrical & Computer Engineering Coffelt Room 13:45 - 14:00
Encrypted Wireless Network for Vibration Data Acquisition
 The integrity of U.S. bridges is to be monitored via wireless sensor networks to determine and monitor the structural health of a highway bridge. An algorithm will determine bridge health based on vibration data collected from a wireless network of SunSPOTS. This health index will further the efforts to save human lives, avoid costly repairs, prevent unnecessary reconstructions, and provide timely restorations. The basis for the hardware design is the Sun Small Programmable Object Technology, or SunSPOT. These devices contain a Squawk based Java VM and an IEEE 802.15.4 radio (Zigbee). The SunSPOT has digital I/Os on board to which a daughter card can be added. An attached daughter PCB houses an adjustable gain op amp and a single axis vibration sensor. The vibration sensor measures continuous and impulsive vibrations produced from automobile traffic. A network consisting of three SunSPOTS and their individual vibration sensors complete the mesh network. The network of sensors is integrated with a host computer to collect and organize the vibration data.
- Beck, Julie** Human Ecology Room 2068 10:30 - 12:00
The Electronic Portfolio: A Change in Culture
 One way to foster and develop the reflective thinking process is to provide the student with a tool that allows longitudinal reflection of work. There is an increased focus (from all stakeholders) on accountability for student learning outcomes. The electronic portfolio (e-portfolio) has been adopted on many campuses as a means to integrate teaching, reflective learning, and assessment. Unlike the paper that is written, graded, and stored in a folder, the e-portfolio provides the student with a dynamic and systematic process of reflecting upon their educational and co-curricular experiences over time. As part of a pilot project, at Youngstown State University, Youngstown, Ohio, select academic programs and courses were enlisted to participate in the development of student electronic portfolios and the subsequent process of archiving student work samples to an electronic platform for assessment purposes. This presentation will document and highlight a Dietetics student's experiences with developing an e-portfolio. The poster presentation will benefit students, faculty, and administration by helping to engage students in reflective thinking, moving them to take responsibility for their own education, and become better learners.
- Bellamy, Frank** Humphrey Room 11:15 - 11:30
Understanding the Culture of High School Students with Behavior Problems as Viewed by School Counselors
 This research proposal will engage a mixed method research approach (both qualitatively and quantitatively) in order to help uncover more expanded research questions and hypotheses to be tested in future research projects. The Qualitative Portion of this research will seek to understand the culture of high school students with behavior problems as viewed by high school Counselors. The intent qualitatively here is to uncover quantifiable questions for use in survey research and program applications. Quantifiable similarities derived from the qualitative research inquiry, to understand the culture of high school students with behavior problems could produce some valuable research facts. These research facts could be compared independently to the effect of which distance learning and computer aided high school course learning techniques have produced graduations in a normative student population. The quantitative portion of this research is to simply compare the high school graduation success rates of students who are involved in distance learning and computer aided education against the success of students enrolled in traditional high schools using the classroom course model. In addition, this research proposes the use of an anonymous Likert Attitudinal Scale Questionnaire to high school counselors and recent high school graduates for a broader quantifiable inquiry.

- Bellino, Tarah** Health Professions Coffelt Room 09:00 - 09:15
Hospital Identification Badges Act as Bacterial Reservoirs
 Nosocomial or hospital-acquired infections remain a significant burden in healthcare facilities. Such infections can be acquired by direct contact or indirect means. The purpose of this study was to determine if a hospital identification badge (ID) can be a potential contaminant. We hypothesize that healthcare workers with direct patient contact are more likely to have contaminated IDs than those without direct patient contact. METHODS: IDs from twenty randomly selected health care professionals, ten of which did not have patient contact, were swabbed and cultured for bacterial growth. All participants completed a short questionnaire pertaining to ID use. RESULTS: Participants from the direct care group included physicians, nurses, respiratory therapists, dietary aids, and radiologic technologists. The non-direct care group was comprised of medical record clerks. Eighty percent of the IDs worn by all participants contained bacteria. No differences in bacterial growth were noted between groups. Of the four badges with no growth, two were physicians from the direct care group and two were from medical record clerks, the non direct care group. CONCLUSIONS: Bacterial growth may occur on healthcare workers IDs without regard to the nature of their work. A sub-analysis of the pathogen type is useful in determining the threat for nosocomial infections.
- Bender, Andrew** Mechanical & Industrial Engineering James Gallery 11:15 - 11:30
Design of the Pressurized Shell for a Thick-Walled Hydraulic Actuator
 Machine Design Group Design Project Abstract The goal of this project is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. Hydraulic actuators are used in large variety applications in heavy machinery. In this project the thickness of the 1020 steel cylinder must be determined for a design factor of safety of 2.5 in order to be able to lift a static load of 14,000lbs via a pressure supply of 2000psi. To simplify the problem, the stress concentration factors and deflections were ignored. The approach is to calculate the stresses within the wall of the pressure vessel as influenced by the wall thickness. In addition, parametric studies of various wall thicknesses were performed in order to optimize the cylinder design. Results were verified with a computer simulation using COMSOL, a commercially available FEA software and also compared with published literature.
- Berger, Lindsay** English Humphrey Room 14:30 - 14:45
Taking the Hint: A Cross Sectional Survey of Perception Regarding Requests and Directness
 The title of this project is Taking the Hint: A cross sectional survey of perception regarding requests and directness. The main question we are addressing in our research is: Who do respondents believe will use higher levels of directness when making requests and who do respondents expect to be more indirect in request making? We initially suspected that we would find that respondents expect older women to offer more indirect requests but do not expect younger people or older men to be as likely to follow that practice. Our data gathering methods returned a sample of about 75-100 (analysis continues and some may be discounted) of scenario questionnaires. These questionnaires are multiple choice scenarios that have 4 possible responses. The responses have been secretly coded according to speech direction and according to directness. Our survey was completely voluntary and anonymous. Further levels of analysis will identify patterns of opinion with regard to gender and age groups within the scenarios and among the respondents. We have identified our subjects of data collection as YSU students taking Beginning and Intermediate Spanish classes and National College students. At this time, final results and conclusions are forthcoming. Possible applications for our research: Why do people have these socially-constructed expectations? Are these stereotypes? If so, what qualifies them as stereotypes? Have our findings indicated any change from the body of literature and research that the group consulted?
- Beshara, John** Criminal Justice Ohio Room 13:30 - 15:00
How do Budgets Affect the Murder Rate?
 Crime has always been part of our society; and for the foreseeable future will remain so. Unless you're a recluse and out of touch with the world, everyday you read a newspaper or turn on a television you see or hear about crime that's been perpetrated on some segment of society. Complex systems, aka the criminal justice system, have evolved to address our crime problem. These complex systems don't exist without a cost. Most communities dedicate a large portion of their budgets to the C.J. system. Dependent on these budgets is how communities decide to go about fighting their war on crime. Some of the variables budgets affect is how many police officers are working, what equipment is bought and how much training is given. Decisions of how much money needs to be budgeted to the criminal justice system are always a subject of much debate so understanding how money spent affects crime is essential. The crime of homicide is a major problem that costs our society immensely in ethical, moral and monetary ways. Our society believes that homicide is the worst possible crime that can be perpetrated on society so how do we contend with it? We should start with what variables affect the murder rate. I propose to research, how does a budget affect the murder rate? I postulate that budgets are directly linked to murder rates. Higher budgets may have a positive effect in contending with the homicide rate? And, lower budgets may have a negative impact?
- Bilas, Jared** Technology James Gallery 14:00 - 14:15
Natural Gas Engine Conversion
 The presentation discusses a two-semester, multidisciplinary Engineering Technology project where a 2.2L Cavalier engine is converted from gasoline fuel to natural gas fuel. Modifications include completely redesigned ignition, control, and fuel systems. Key engine parameters are variable, and then monitored, displayed, and recorded. This project will remain a permanent improvement to the Mechanical Engineering Dynamometer Lab, allowing other students and faculty to use the system in research or teaching scenarios.

- Blose, Mark** Mechanical & Industrial Engineering James Gallery 10:45 - 11:00
Design and Construction of A Human Powered Moonbuggy
The moonbuggy project is part of a student competition known as the NASA Great Moonbuggy Race. This competition is held every year during the spring at the U.S. Space & Rocket Center in Huntsville, Alabama. Approximately fifty universities from all around the world compete for the best time. The event involves a vehicle erection time, course run time, and penalty time. The vehicle erection time is the amount of time it takes to erect the vehicle from a storage condition to an operable, drivable state. The course run time is the amount of time it takes a team to complete the course. The penalty time involves different penalties that are garnered during the vehicle erection and race. Penalties are attributed for a plethora of reasons from getting out of the moonbuggy to not completing an obstacle. The course is composed of harsh terrain conditions and several obstacles that emulate the surface of the moon. A collapsible human-powered vehicle was designed and fabricated that had design specifications provided by NASA to fit in a maximum volume of 4â€™™x4â€™™x4â€™™ in a collapsed fully assembled state. The vehicle was powered and controlled by one woman and one man. The design was improved by making a lighter frame out of aluminum; in addition, other things were improved: a new gearing system, more absorbent shocks, and all terrain tires. The challenge in constructing the moonbuggy was to keep it strong and durable while decreasing the weight of the vehicle.
- Brand, Scott** Chemical Engineering Ohio Room 10:30 - 12:00
Using Mathematics to Examine the Operation of an Electrochemical Cell
The basics of an electrochemical cell were explored. In order to evaluate and understand the current distribution across an electrochemical cell, mathematical equations were investigated. These equations are expressed through upper-level calculus and differential equations. An objective of the project was to gain a better understanding of these equations.
- Brothers, Sarah** Chemical Engineering Ohio Room 10:30 - 12:00
The Impact of CNTs on Actin Organization
The mechanism of carbon nanotube (CNT) induced cytoskeleton disruption was investigated, specifically regarding the protein actin. In the presence of CNTs cell proliferation was impeded and alterations in actin organization were observed in a dose-dependent manner. The actin was disrupted in such a way that the actin density migrated away from the cell membrane and basal plane, and clumps of actin were visible instead of long filaments. It was discovered that actin organization could adapt and repair if cells were given time to recover after CNT removal. Despite the significant confluency increase during the recovery duration, it was unclear if proliferation was fully recovered because the ã€œ scars ã€ of CNT treatment, such as fused cytoskeletons and multinucleated cells, were still apparent. Actin disruption was found to begin occurring immediately after CNT addition. It was also concluded that CNTs did not physically interact with actin filaments in a way that would prevent them from depolymerizing. From these results it can be hypothesized that the CNT-actin interaction is as dynamic as the actin equilibrium and CNTs are continuously ingested by cells during exposure.
- Brown, Mark** Mechanical & Industrial Engineering James Gallery 10:45 - 11:00
Design and Construction of A Human Powered Moonbuggy
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- Brown, Alysha** Nursing Room 2068 09:15 - 09:30
Medication Errors and Distraction: The Link and How to Prevent it
The objective of this work is to discover what the current literature shows in regards to medication errors during preparation and administration that are attributable to nurse distraction and effective ways to reduce these errors. A review of literature was conducted using CINAHL, AHRQ and Cochrane databases. Inclusion criteria were acute-care settings, adult populations and published dates between the years of 1995 and 2009. Nurses and researchers commonly rank distraction as one of the top sources of medication administration and preparation error. One intervention aimed at reducing distractions included having nurses wear a specific article of clothing while administering medications to remind staff, families and patients to limit non-emergent interruptions. Also, relocating medications from a central cart to an individual cupboard in the patient's room was studied as a way to limit distractions during administration. Finally, educating nurses and other personnel on the importance of working together as a team to limit distractions was effective in reducing interruptions. It is well documented in the literature that distractions and interruptions are a leading cause of medication errors; however, little research focuses on effective interventions to prevent the distractions. More studies are needed to replicate the interventions previously studied, as well as, other interventions to reduce nurse interruptions during medication rounds.

- Brown, Andrew** Biological Sciences Ohio Room 15:30 - 17:00
Two-Dimensional Polyacrylamide Gel Electrophoresis characterization of Decorin Bound Collagen I, Comparison to Male and Female Spontaneously Hypertensive Rats
 Hypertension is a chronic illness characterized by a significant increase in blood pressure. This increase in blood pressure causes many physiological changes to the circulatory system, among them is left ventricular hypertrophy (LVH). LVH is characterized as an increase in the size of cardiac myocytes and an increased heart mass to body mass ratio, this has been shown to cause drastic restructuring to its extracellular matrix (ECM), allowing for the heart to remain in this state. Evidence suggests alterations in the ECM, particularly the increased collagen deposition, may be regulated by small leucine rich proteoglycans (SLRPs). SLRPs are present in the cardiac ECM and have a high affinity for collagen. While bound to collagen, SLRPs have been shown to inhibit the ability of the collagen digesting matrix-metalloproteases (MMPs). Numerous different SLRPs have been discovered to date, they show differences in efficacy of MMP inhibition. Decorin (Dec), is a SLRP that has been shown to have a high degree of MMP inhibitory activity. SLRP synthesis is thought to be regulated by sex hormones such as estrogen, due to the higher incidence of LVH in post-menopausal females. This project will determine if female SHR have a higher content of decorin than male SHR (when adjusted for cardiac mass). This study will analyze two-dimensional gel electrophoresis (2D-PAGE) profiles of male and female SHR and compare them to decorin bound collagen 2D-PAGE profiles. Sample peptide fragments that show similarity (pI and molecular weight) with decorin bound collagen fragments will be analyzed for quantity of decorin present.
- Burden, Edward** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Triaxial Method Resonant Chamber for Low Frequency Electromagnetic Testing
 Design and Construction of a Low Cost Tube-in-Tube Triaxial Device The tube-in-tube test method is utilized for measuring the transfer impedance and the shielding and screening attenuation of the coupling of electromagnetic interference. It is a triaxial method for testing Electromagnetic Compatibility (EMC) of data communication transmission line structures (cable assembly and connection system). It provides an efficient and accurate way to test electromagnetic leakage at low frequencies. The network analyzer is used to measure the attenuation characteristics at the output of the tube-in-tube with test samples. Frequency sweep by the network analyzer will generate information on attenuation provided by the sample (cable assembly and/or connectors) at various test frequencies. The tube-in-tube test apparatus acts as a coaxial cable, allowing the measurement of voltage drop at the outside of the tube. This device is designed to allow for a cost improvement over a commercially available apparatus with similar functions. The device is also constructed to allow for better test flexibility to decrease test time and test cost. This is accomplished by incorporating a custom built lid and base assembly create a sealed chamber that is easy to open and close, making it more user-friendly. An adjustable end connector allows one to test different lengths of wire samples. Test results comparable to the commercially available device are verified.
- Butrick, Craig** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
IEEE MicroMouse
 The field of robotics has expanded greatly in the second half of last century. Robots now work in manufacturing, patrol next to our soldiers, and park our cars. The MicroMouse competition is a hallmark in the field of robotics. A robot has been constructed at Youngstown State University to compete in this event. Various areas of electrical and computer engineering have been explored; micro-electronics to computer simulation and hardware interface to low-level artificial intelligence. The advantages of hardware types to software algorithms are discussed and a demonstration of the robot is shown.
- Butrick, Craig** Electrical & Computer Engineering Coffelt Room 14:00 - 14:15
IEEE MicroMouse
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- Cala, Juliana** Art Room 2068 14:15 - 14:30
Internship Abroad in Prague, Czech Republic 2009
 The presentation will focus on my summer semester interning abroad as a photographer for The Prague Post in Prague, Czech Republic. It will include a variety of experiences working with the locals and photographing Czech life as well as personal experiences, history of popular sites and areas, cultural differences, and my overall observations on daily life in Prague.

- Campbell, Amanda** Teacher Education Room 2068 13:30 - 13:45
A Comparison of the Cost of Living Differences Between Youngstown and San Salvador Island, The Bahamas
 Unlike the United States, the government of the Bahamas funds itself through licensing fees and duties levied on imported goods rather than through sales and income taxes. Residents of the Bahamas must also face the added costs on products resulting from transportation costs associated with an island setting. Products generally arrive at New Providence Island and are redistributed through the island chain by mail boat or by air transport. Our research project involved examining the relative costs of commodities in the Bahamas and comparing them to the costs of similar products in the Youngstown Area. We surveyed the prices for goods at three retail establishments on San Salvador Island in The Bahamas. We also surveyed the cost for comparable products in the Youngstown area at a convenience store and at a chain supermarket. We presumed the market area for the convenience store would reflect a consumer population comparable to the consumer population for a retail establishment on San Salvador. The evaluation of prices at a chain supermarket was intended to determine the overall differences in the cost of living for Bahamians and for Americans who have a greater range of retail choices. We compare the results of these product and price evaluations for San Salvador and for Youngstown to derive a comparative analysis of the cost of living for the two areas. We also examine issues related to differential pricing for specific products and/or families of goods.
- Capp, Jonathan** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Parking Deck Monitoring System
 Parking space availability has become an issue due to the increase in student population and an inefficient parking environment. An LCD Parking Deck Monitoring System will alleviate congestion and the struggles of parking. The system will be comprised of spot specific ultrasonic sensors to monitor the status of the given spot. A centralized control system comprised of an LCD screen and a master control unit, will communicate with the spot sensors via CAN. This leaves us room to expand the system based upon the needs of the parking deck. Implementing the system will encourage an efficient and safe parking environment.
- Carbone, Sierra** Biological Sciences Ohio Room 15:30 - 17:00
2D Gel Profile of Cyanogen Bromide Digested Bovine Serum Albumin
 Serum Albumin, one of the most important blood plasma proteins, regulates blood volume in mammals, carries molecules of low water solubility and also transports essential fatty acids from adipose tissue. Bovine Serum Albumin (BSA), with a molecular weight of 66382 Da, is composed of 607 amino acids and has five methionine residues. The objective of this study is to characterize the 2D gel profile of Cyanogen Bromide (CnBr) digested BSA. CnBr selectively cleaves peptide bonds at the carboxyl side of methionine residues and should digest the BSA protein into four peptide fragments. Our analysis of BSA (Sigma-Aldrich 2153) reveals at least eleven peptides which show concentration dependent increase in spot density. Future studies will investigate the identity of the additional peptides in this profile.
- Carlson, Brittany** Marketing Room 2068 14:45 - 15:00
Pricing
 United Kingdom Pound vs. United States Dollar I will be giving a power point presentation on the comparison of currency exchange rates between the Pound and the Dollar. I was inspired to do this project from a recent trip that I took to the United Kingdom, where I toured London and used the pound as my way of purchasing. The presentation will also cover exchange rate influences, purchasing power parity and the law of one price. The big mac index is also given as an example in this presentation to clearly display the exchange rate comparison.
- Christie, Brock** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Parking Deck Monitoring System
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- Clayton, Jade** Biological Sciences Ohio Room 10:30 - 12:00
The Effects of Housing Treatment on Anxiety-like Behaviors
 The Effects of Housing Treatment on Anxiety-like Behaviors Numerous studies have shown that external factors, such as housing conditions, affect data collected from preclinical studies. However, the magnitude of these effects has not been thoroughly researched. Anxiety levels in test subjects will affect data through a variety of mechanisms. To better understand the relationship between environment and anxiety, this study explored the effect of housing conditions on anxiety-like behavior. Two variables typically associated with housing were studied: socialization and enrichment. Twelve, male subjects were randomly assigned to four housing treatment groups: (1) three per cage, enriched environment, (2) three per cage, non-enriched environment, (3) one per cage, enriched environment, (4) one per cage, non-enriched environment. All housing environments provided food, water, and bedding, however the enriched environment included a variety of toys and objects. Before subjects were assigned to their treatment groups, baseline behavioral measures were taken. Two different tests were used to examine behaviors associated with anxiety; the open field test and the elevated plus maze. After being placed in their treatment groups, these behavioral parameters were investigated over the course of eight weeks, one time per week. Data were manually collected and entered into SPSS Statistical Software. The data indicate that housing environment significantly affects anxiety-like behaviors.

- Comeau, Kyle** Chemical Engineering Coffelt Room 12:00 - 12:15
Experiment at YSU: Photonic Band Edge Enhancement of Faraday Rotation
 Faraday rotation is commonly used in optical isolators to prevent unwanted back reflections and can also be used to understand the susceptibility of materials and measure small transient magnetic fields. A theory was proposed by members of the YSU staff that since light is internally reflected many times on the band edges of a multilayer interference stop band, a property, such as Faraday rotation, that does not depend on the direction of light propagation would be greatly enhanced. This theory has been tested at YSU and shows just that. This talk will cover how the experiment was conducted from data acquisition to analysis.
- Cummins, Jeremy** Computer Science & Information Systems Humphrey Room 09:15 - 09:30
Xbox LIVE: Could You be at Risk While Playing Online?
 Are you compromising your personal security while playing your favorite games online? We investigate the possible ways in which Xbox LIVE – one of the most popular online gaming services – can pose a threat to user security. Xbox LIVE is a complicated network of matchmaking servers and other Xboxes. When you play a game, a matchmaking server connects you to a game lobby and chooses an Xbox to serve as the host. However, directly connecting to another user’s Xbox causes security concerns. The host is directly connected to each player in the game, and by using a simple packet sniffer, can get the IP address of all players in the game. Since many of the network protocols used are proprietary, the information being sent over the network is unknown. Nevertheless, just knowing another player’s IP address creates security concerns. A Distributed Denial of Service (DDOS) attack can be performed using a botnet, causing a player’s connection to the game to drop. Due to the Xbox LIVE game rules, when you leave a game in progress, no matter what the reason, you automatically lose the game. While DDOS attacks are illegal, tracing the attack is almost impossible because the attack comes from infected computers around the world. DDOS attacks are one of the most common forms of cheating on Xbox LIVE, as a player can DDOS all other players, causing the attacker to win. More importantly, knowing a user’s IP address allows hackers to perform attacks on a user’s network and compromise security. Our presentation suggests solutions that may help promote security on Xbox LIVE.
- Cunningham, Krista** Chemistry Ohio Room 15:30 - 17:00
Safe Alkyl and Acyl azide Synthesis Using Arylsulfonyl Azides
 Alkyl and acyl azides are important intermediates in the synthesis of various organic functional groups and heterocycles, however their use is often hampered by inherent instability and the use of metallic azides for their preparation. We have now found that readily handled arylsulfonyl azides are convenient reagents for azidation reactions of alkyl and acyl halides, as well as alcohols. Microwave heating speeds up conversions and the formation of azide products is easily monitored by IR analysis of reaction mixtures.
- Curl, Michelle** Technology James Gallery 17:00 - 17:15
Gaia
 The objective of this project is for an art student to work with an engineering student and create a sculpture and make it mass produceable. The sculpture is to be drawn by the art student and then the engineering student will then draw it in a 3D program and print the piece in a 3d wax printer. After the sculpture is printed it will then be cast in bronze. This process should cut the artist time in half, had he tried creating the sculpture by hand. The pieces will also be identical and created with little or no flaws.
- Curll, Lisa** Mathematics & Statistics Coffelt Room 16:00 - 16:15
Proposed Resistance Mechanisms of Enterobacter sp. to Toxic Selenite
 The effects of toxic selenite on bacterial growth are explored for a wild-type selenite resistant strain of Enterobacter and a selenite sensitive mutant. A system of differential equations models the coupled interaction of cell growth and selenite uptake. The proposed method of resistance, an efflux pump, is suggested in both the genetic sequence and the mathematical model.
- Cyphert, Aaron** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Parking Deck Monitoring System
 Parking space availability has become an issue due to the increase in student population and an inefficient parking environment. An LCD Parking Deck Monitoring System will alleviate congestion and the struggles of parking. The system will be comprised of spot specific ultrasonic sensors to monitor the status of the given spot. A centralized control system comprised of an LCD screen and a master control unit, will communicate with the spot sensors via CAN. This leaves us room to expand the system based upon the needs of the parking deck. Implementing the system will encourage an efficient and safe parking environment.
- Dager, Sara** Teacher Education Humphrey Room 10:30 - 10:45
Field Investigations in Geology: A New Approach to Geoscience Education
 Field Investigations in Geology is an upper division geology course designed to develop basic field mapping skills and to provide a framework for understanding geologic history and the natural processes responsible for geologic change. The course involves a one-week field experience on the tiny remote island of San Salvador, Bahamas. Students are introduced to orienteering, GPS navigation, aerial photo and topographic map interpretation techniques, as well as concepts related to global sea level change, coastal change, and interpretation of ancient marine and shoreline environments. The course participants consisted of twenty students from a wide variety of academic disciplines; Biology (1), Chemistry (2), Education (9), Geology (3), Information Technology (1), Psychology (3), Undecided (1). The teaching methods were assessed using five separate evaluation instruments: a pre-field experience and post-field experience fifty question general topic survey, a pre and post orienteering ten question survey, a pre-field experience and post-field experience orienteering exercise, eight field book exercises dealing with individual and related topics, and one comprehensive field exercise conducted at the end of the field experience. The preliminary findings of the research are presented.

- Daisher, Melinda** Biological Sciences Ohio Room 15:30 - 17:00
Chitin Synthase Expression in the Dimorphic Fungus Penicillium marneffei
 Penicillium marneffei is a pathogenic fungus endemic to South-east Asia. It is the only Penicillium species that displays thermally dependent dimorphism. At 25°C, the fungus grows as a filamentous mold, but grows as a fission yeast at 37°C. The pathogenicity of P. marneffei is associated with this dimorphism. Presumably, dimorphism directly reflects changes in the cell wall structure. A major cell wall component is chitin. Seven chitin synthase genes have been identified in P. marneffei and each is presumed to serve different functions during cell wall development, hyphal growth, conidiophore development and septum formation. Discovering which genes are expressed at specific times and in which regions would provide a better understanding into the growth and morphogenesis of P. marneffei. A timeline of chitin synthase expression was generated using RNA extraction of mold and yeast at different growth times along with RT-PCR for all seven chitin synthase genes. Our results indicate that many of these genes in P. marneffei are differentially expressed and specific to particular modes of growth.
- Daugherty, Jack** Geography Bresnahan I and II 11:15 - 11:30
Understanding Abandonment: A Descriptive Analysis of Vacant Properties in the Wick Park Neighborhood
 Vacant and abandoned properties in once-vibrant urban neighborhoods have become a serious epidemic. The primary source of research has been conducted via policy proposals and community plans that attempt to suggest redevelopment strategies. However, some community plans merely scratch the surface of the vacancy trends and patterns in a given community. The unique spatial patterns and property statistics for each neighborhood must be understood in order to propose specific and viable solutions. This paper produces a descriptive study of vacant property for the Wick Park Neighborhood in Youngstown, Ohio, an area targeted by local stakeholders for redevelopment. This study will focus on site and situation characteristics for vacant parcels in the neighborhood by looking at basic attributes such as property ownership, land use, and foreclosures in a spatial and statistical context to provide a detailed understanding of the current state of these properties and to verify trends proposed by community plans and vacant property reports.
- Davner, James** Mechanical & Industrial Engineering James Gallery 11:45 - 12:00
Supercharger Pulley: Stress Distribution and Analysis
 An automobile supercharger ultimately increases the power output of the engine and is driven by a belt pulley system. As rotational speed increases on a pulley, the driving force or applied torque will decrease because they are inversely proportional. When the driving belt force decreases it in turn causes the inertial load to increase making the internal stress in the pulley higher. A continuation of last year's supercharger pulley research, this project is a computational approach to determining the stress distributions in the pulley for various input RPMs. Two pulleys are to be examined; one with a carbide coating and one without a carbide coating. Assuming that power at the rotating shaft remains constant; the acting forces on the pulley are calculated and then simulated on the pulley using Finite Element Analysis (F.E.A.) software. The location of the maximum Von Mises equivalent stress will be determined by the F.E.A. software. Also a plot of the Von Mises stress for the various rotational speed inputs will be created for different positions on the pulley. By knowing the power input, angle of contact of the belt on the pulley, and the pulley disk dimensions we conducted a complete stress analysis of the two pulleys.
- DeCarlo, Gina** Geological & Environmental Science Jones Room 13:45 - 14:00
Heavy metals in Urban Garden located in Youngstown, Ohio
 The Youngstown, Ohio area has suffered population decline over the past 40 years since the steel mills shutdown. This has resulted in many areas with dilapidated homes. One solution has been to remove the structures to prevent harm to people and their lowering property values. Various groups in the community have acquired these now vacant lots in attempts to beautify the neighborhood. One such group, Grow Youngstown, has made it their mission to promote local food growth by raising urban agricultural skills and available resources. There is concern that there is a potential of heavy metal contamination on the site from the structures, previous land uses and atmospheric deposition originating from the steel industries. A few home sources of heavy metals include lead based paints; batteries with lead, nickel and cadmium; mercury and arsenic from insecticides, fungicides and adhesives. The area obtained by Grow Youngstown was about 8 city lots on the corner of Fairgreen Avenue and Ohio Avenue. This site was sampled in a grid pattern with 15 foot (or meter) squares. Composite samples were taken using a 5 spot pattern from each grid square and separated into two soil layers: from the surface to 6 inches deep (15.2cm) and 6-12 inches (15.2-30.4cm) deep. The soil was analyzed for total metal using EPA Method 3050B. The soil samples were tested for the following metals: Arsenic, Cadmium, Cobalt, Copper, Chromium III, Chromium VI, Nickel, Lead and Zinc. Zinc had the highest overall average concentration (136.4mg/L) followed by lead (98.1mg/L) then copper (60.2mg/L). Arsenic levels ranged from 13.7-18.6mg/L. There were no detected areas of specific concentration in the garden for any metal and the results do not indicate any potential hazard. The levels that were found are below the Ohio State Guidance levels for each metal respectively.
- DeEnlio, Dianne** Humphrey Room 11:00 - 11:15
Teaching Reading Skills: Keep Things Simple, but Not Simpler
 Teaching reading skills with phonics rules has not worked for all students. Teaching reading skills using the whole language approach has proven ineffective for the majority of students in the United States and other English speaking countries. A reached based method helping all kinds of learners to become more proficient readers will be presented. This method will show educators that there is a complex logic to our language and how to present that logic to the emergent reader as well as the struggling reader. Einstein figured out that a difficult concept could be explained in a very brief way. $E = MC^2$. He said, "Make things as simple as possible but not simpler." The theory to be presented follows his advice.

- DeMaiolo, Daniel** Marketing Humphrey Room 09:30 - 09:45
A Tale of Two Worlds: A Second Life for Higher Education?
 With the advent of rapidly changing technology in the 21st century, new recreational activities and subsequent business models have inevitably unfolded; moreover, entire industries have emerged and challenged the way people and businesses function and interact. Specifically, the proliferation of online video games and virtual worlds such as Second Life have fundamentally altered consumers lifestyles and instilled change in the way corporations must think and conduct business in order to reach their target markets. Although not all demographic segments are considered throughout the study, this exploratory research illuminates the virtual world industry, the explanations for growth of the industry among its target market, and the emerging trends for entrepreneurial ventures and integrated marketing communications inside the medium. The research explores the effectiveness of operating and promoting higher education in Second Life. The results illustrate consumers 17-24 years old still rely on more consistent, traditional media for information content related to higher education. The development of a business model and marketing mix in such vehicles as Second Life that often feature uncensored content may not serve as an appropriate method of connecting with the target demographic. Benefits of utilizing the innovative medium for commerce, education, and promotion include rapid growth of the industry, sophisticated segmentation, and increased brand awareness and reach related to the added reality that such content contributes. Further research and recommendations are suggested in making Second Life a viable option for providing and promoting higher education.
- DeMaiolo, Daniel** Marketing Room 2068 14:30 - 14:45
The Penguin Odyssey at Youngstown State University: Exploring the Effects of Faculty-Led Study Abroad Tours
 As globalization continues to sweep across the world changing the way societies must think and act, the demand for an international education has become imperative. To meet the demands of the global marketplace, Youngstown State University has provided students from a variety of disciplines with opportunities to interact with their international peers, develop appreciation and understanding of foreign cultures, and engage in field work relevant to their areas of study. Through application of our collective qualitative research and cross-cultural studies in San Salvador, Hong Kong, Shanghai, Beijing, London, and Dublin, we conclude that faculty-led study tours allow students to transcend the traditional classroom setting and gain invaluable exposure to global travel in diverse cultures and their various stages of development.
- DeMaiolo, Derek** Individualized Curriculum Program Room 2068 14:30 - 14:45
The Penguin Odyssey at Youngstown State University: Exploring the Effects of Faculty-Led Study Abroad Tours
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- DePaul, Robyn** Art Bresnahan I and II 12:00 - 12:15
Architectural Terra Cotta and Downtown Youngstown
 The wide use of architectural terra cotta was an important transitional development on the road to modern architecture that is often overlooked or unknown. The design of the first modern day sky scrapers were made possible by using terra cotta because it is light weight, fire proof, inexpensive and easy to mass produce. However, new building materials such as plastic, glass, and new metals soon replaced terra cotta for similar reasons. Due to some problematic attributes of the material, and the nature of our culture, terra cotta was soon forgotten. The use of terra cotta in architecture today is rare, and the buildings that remain represent a period of anomaly in American architecture that will never reoccur. Architectural terra cotta plays a unique role in the history of American architecture from the late 19th century to the early 20th century. Many large American cities continued to expand and urban development destroyed many terra cotta buildings. However, due to a massive halt in industry during the mid 20th century, Youngstown, Ohio stood frozen in time. Since the economic system in Youngstown has yet to recover, Youngstown, Ohio has preserved a condensed wealth of diverse terra cotta facades.
- DePizzo, Ashley** Chemistry Ohio Room 10:30 - 12:00
Synthesis of bis(2,2,2-trifluoroethyl) (Z)-vinyl Phosphonates from bis(2,2,2-trifluoroethyl) 1-alkynylphosphonates using Lindlar's Catalyst
 A new method for the synthesis of bis(2,2,2-trifluoroethyl)-beta-ketophosphonates from 1-alkynylphosphonates is described. 1-Alkynylphosphonates can be treated with primary and secondary amines to prepare enamine vinyl phosphonates. Bis(2,2,2-trifluoroethyl)-beta-ketophosphonates are obtained after hydrolysis of the enamine vinyl phosphonate.
- Detwiler, Tim** Electrical & Computer Engineering Coffelt Room 13:45 - 14:00
Encrypted Wireless Network for Vibration Data Acquisition
 The structural integrity of U.S. bridges is to be monitored via wireless sensor networks to determine and monitor the structural health of a highway bridge. An algorithm will determine bridge health based on vibration data collected from a wireless network of SunSPOTs. This health "index" will further the efforts to save human lives, avoid costly repairs, prevent unnecessary reconstructions, and provide timely restorations. The basis for the hardware design is the Sun Small Programmable Object Technology, or SunSPOT. These devices contain a Squawk based Java VM and an IEEE 802.15.4 radio (Zigbee). The SunSPOT has digital IOs on board to which a daughter card can be attached. An attached daughter PCB houses an adjustable gain op amp and a single axis vibration sensor. The vibration sensor measure continuous and impulsive vibrations produced from automobile traffic. A network consisting of three SunSPOTs and their individual vibration sensors complete the mesh network. The network of sensors is integrated with a host computer to collect and organize the vibration data.

- Dewberry, Timothy** Human Ecology Room 2068 10:30 - 12:00
The Electronic Portfolio: A Change in Culture
 One way to foster and develop the reflective thinking process is to provide the student with a tool that allows longitudinal reflection of work. There is an increased focus (from all stakeholders) on accountability for student learning outcomes. The electronic portfolio (e-portfolio) has been adopted on many campuses as a means to integrate teaching, reflective learning, and assessment. Unlike the paper that is written, graded, and stored in a folder, the e-portfolio provides the student with a dynamic and systematic process of reflecting upon their educational and co-curricular experiences over time. As part of a pilot project, at Youngstown State University, Youngstown, Ohio, select academic programs and courses were enlisted to participate in the development of student electronic portfolios and the subsequent process of archiving student work samples to an electronic platform for assessment purposes. This presentation will document and highlight a Dietetics student's experiences with developing an e-portfolio. The poster presentation will benefit students, faculty, and administration by helping to engage students in reflective thinking, moving them to take responsibility for their own education, and become better learners.
- Dhingra, Amitha** Health Professions Ohio Room 10:30 - 12:00
Production of Monoclonal Antibodies against Staphylococcus aureus Type 5
 Staphylococcus aureus is the strain that most commonly infects humans, causing illnesses ranging from minor skin infections to life-threatening diseases. Each year, about 500,000 patients in American hospitals contract a staphylococcus infection. Our goal is to develop hybridomas that produce monoclonal antibodies against Staphylococcus aureus Type 5. A hybridoma is a fusion of a myeloma cell and a cell that is producing a specific antibody; hybridomas are capable of secreting the specific antibody over a long period of time. These monoclonal antibodies will specifically bind to only Staphylococcus aureus Type 5 and can help quickly detect the bacteria for clinical use. The hybridomas are produced using MRC-5 feeder cells and P3X myeloma cells. Subcloning is done by diluting the solution until only one cell is present in each well of a plate. An indirect enzyme-linked immunosorbent assay (ELISA) test will be done on the supernatant of each well to test if the monoclonal antibodies bind to the Staphylococcus aureus Type 5 bacteria.
- Diorio, Melanie** Foreign Languages & Literature Bresnahan I and II 11:30 - 11:45
Gli eroi del Risorgimento
 For this research project, I treated the heroes of the Italian Risorgimento, which translates into resurgence, of the mid-1800s. This movement marks the unification of the country of Italy. Many historical figures played important roles during this key political movement, like Giuseppe Garibaldi, Giuseppe Mazzini, and Camillo Cavour. I completed research on these three men who contributed significantly to the Risorgimento. First, I read and took notes on primary texts, which included film strips and accompanying print materials written in Italian. Then, I constructed initial and final drafts of narrative slides of a comprehensive PowerPoint presentation, which will be the forum for my QUEST segment. I found that although these three men were completely different from one another and played contrasting roles during this movement, their goal was ultimately the same: to unify their country of Italy. I shortened the length of my original presentation and now have bilingual slides (half-English, half-Italian) for the purposes of the QUEST program.
- Doherty, Shannon** Geological & Environmental Science Jones Room 14:00 - 14:15
Metal Contamination on the Floodplains of the Mahoning River
 Metal Contamination on the Floodplains of the Mahoning River The Mahoning River is located in Mahoning County in northeast Ohio. The area used to be dominated by the steel industries in which the Mahoning River was used for cooling and as site for waste deposition from manufacturing runoff. Environmental regulations were not applied at this time, so when the steel mills closed in the 1960s to 1970s the contaminants remained. It is hypothesized that metals deposited from the steel industry may have moved from their deposition point as a result of flooding. The objective of this research was to determine if the floodplains downstream resulted in elevated metal concentrations as compared to Ohio background levels. Soil samples were taken at five different sites including Mill Creek Park, Ohio State Route 289, Girard shoreline, Girard shoreline forest, and Hillsville Road, PA. All five sites were located downstream and away from the old steel mills and were not developed or regularly used by visitors. The metals investigated were Cd, Cu, Mg, Ni, Pb, and Zn. Several of these metals are phytotoxic including Cu, Ni, and Zn, while Cd and Pb pose a risk through food chain transfer. All five sites had similar trends with concentrations higher in the top 6 inches, with the exception of Mill Creek Park in which the concentrations were higher in the lower 6 inches. In general, the further away from the shoreline, the lower the metals concentrations. Total metal levels were found at higher levels than most of the background levels for Ohio. Further investigations could determine the source of the metals and if they pose an ecological hazard.
- Doinoff, Cassandra** Biological Sciences Ohio Room 15:30 - 17:00
Gender and Regional Differences in I_{Ca-L} Distribution in Adult Rabbit Right Ventricle Influence AP Duration and the Propensity for EADs in a Model of Long QT Syndrome Type 2
 Sex and apex-base differences in cardiac L-type calcium current (I_{Ca-L}) levels have been found to modulate vulnerability to arrhythmogenic early afterdepolarizations (EADs) in a drug-induced model of Long QT Syndrome Type 2 (LQTS2) in adult rabbit heart left ventricular epicardial myocytes. However, it is unknown whether similar gender and regional differences in I_{Ca-L} exist in the right ventricle. To further investigate the role of I_{Ca-L} as a determinant of EAD genesis, the apex-base distribution and biophysical properties of the calcium current in adult male and female right ventricles were assessed by the patch clamp technique and a modified Luo Rudy dynamic model of the cardiac action potential (AP). We found that I_{Ca-L} density measured at 0 mV was 92.1% higher in female (7.3±1.2 pA/pF, n=6) compared to male base myocytes (3.8±0.5, n=9, p<0.008). Analysis of regional differences in I_{Ca-L} in female right ventricle revealed 62.2% higher current density at the base (7.3±1.2 pA/pF, n=6) compared to female apex myocytes (4.5±0.5 pA/pF, n=8, p<0.04). There were no significant sex differences in I_{Ca-L} density in apex myocytes. Incorporation of I_{Ca-L} differences into the model showed that suppression of the rapid delayed rectifier potassium current to mimic LQTS2 resulted in increased AP duration and enhanced propensity for EADs in simulated female base myocytes. Taken together, these data demonstrate that sex and apex-base differences in right ventricle I_{Ca-L} correlate with the LQTS2-arrhythmia phenotype found in adult rabbit left ventricular epicardium and support the hypothesis that higher I_{Ca-L} underlies the propensity for EAD genesis.

- D'Orio, Madeline** Biological Sciences Ohio Room 10:30 - 12:00
The Effects of Housing Treatment on Anxiety-like Behaviors
 Numerous studies have shown that external factors, such as housing conditions, affect data collected from preclinical studies. However, the magnitude of these effects has not been thoroughly researched. Anxiety levels in test subjects will affect data through a variety of mechanisms. To better understand the relationship between environment and anxiety, this study explored the effect of housing conditions on anxiety-like behavior. Two variables typically associated with housing were studied: socialization and enrichment. Twelve, male subjects were randomly assigned to four housing treatment groups: (1) three per cage, enriched environment, (2) three per cage, non-enriched environment, (3) one per cage, enriched environment, (4) one per cage, non-enriched environment. All housing environments provided food, water, and bedding, however the enriched environment included a variety of toys and objects. Before subjects were assigned to their treatment groups, baseline behavioral measures were taken. Two different tests were used to examine behaviors associated with anxiety; the open field test and the elevated plus maze. After being placed in their treatment groups, these behavioral parameters were investigated over the course of eight weeks, one time per week. Data were manually collected and entered into SPSS Statistical Software. The data indicate that housing environment significantly affects anxiety-like behaviors.
- Drewnowski, Matt** Mechanical & Industrial Engineering James Gallery 14:30 - 14:45
Supermileage Vehicle
 With the current economy recovering from a recession, high fuel economy is used more often than it has in the past. One of the areas includes the use of gasoline. Fuel economy is used often in today's car industry as the basis of marketing. The ability of a lightweight vehicle to obtain the most fuel economy possible was tested. The vehicle was built to specifications provided by the Supermileage Vehicle Competition rulebook, which is sponsored by the Society of Automotive Engineers (SAE). A lightweight frame, aerodynamics, and a modified engine were the basis for achieving maximum fuel economy. The overall goal was to achieve a high miles-per-gallon rating, while following the standards of the competition. The overall design met the specifications mentioned in the SAE rulebook. Some of these included weight, brakes, and safety issues. All were taken into consideration in the design, while also maintaining an operative, fuel efficient vehicle.
- Drotar, Lindsay** Biological Sciences Ohio Room 10:30 - 12:00
The Effects of Acclimation Sessions on Behavioral Measurements
 A standard protocol in preclinical research includes acclimation of the test subjects. This procedure acts to reduce stress and anxiety in the subjects; however, the number of acclimation sessions is highly variable among studies. To better understand how the number of acclimation sessions alters behavioral measurements, this study examined the effects of acclimation and the investigator on behavioral measurements. Sixteen male subjects were used in this study, and two researchers, blinded to the treatment groups, collected all data. Subjects were randomly assigned to four treatment groups: (0) four subjects per cage, no acclimation sessions, (1) four subjects per cage, one acclimation session, (2) four subjects per cage, two acclimation sessions, and (3) four subjects per cage, three acclimation sessions. All treatment groups were provided with standard housing conditions, including food, water, and bedding. Acclimation sessions, including acquainting each subject to both investigators for five minutes per session, were performed on treatment groups 1, 2, and 3 within a week. In the following week, behavioral measurements, including withdrawal latency to a heat stimulus and withdrawal threshold to a mechanical stimulus, were taken. Behavioral data were analyzed by each investigator via a two-way ANOVA using the GraphPad and SPSS Software. These data indicate that the number of acclimation sessions affects the behavioral measurements.
- Dugan, Heather** Human Performance & Exercise Science Ohio Room 13:30 - 15:00
The Effects of Depression on Functional Capacity in Chronic Obstructive Pulmonary Disease (COPD) Patients
 Depression is a widespread psychological disorder, and previous research has demonstrated that it is associated with adverse health outcomes in persons with Chronic Obstructive Pulmonary Disease (COPD). The objective of this study was to assess depression in a sample of 27 patients with COPD (through use of the Beck Depression Inventory, BDI), and to examine its relationship with lung function (as defined by Forced Expiratory Volume, FEV1) and functional capacity (classified by six-minute walk distance, 6MWD). Data were analyzed using SAS 9.1. Descriptive statistics were used to show the mean and range for BDI, FEV and 6MWD. T-tests were used to determine the differences in FEV1 and 6MWD between patients who did or did not present with clinical depression (i.e. scores ≥ 10 or < 10 , respectively). Approximately seven patients (26%) were depressed. Differences were noted between depressed and non-depressed individuals for FEV1 (0.87 ± 0.24 L/s versus 1.37 ± 0.66 L/s, $p = 0.0088$), but not for 6MWD. In contrast to previous studies, we found that depression is related to lung function and not functional capacity, in patients with chronic lung disease, however our findings may have been limited by the small size of the sample. Furthermore, the directionality of the relationship between depression and lung function is unclear, and requires further elucidation.
- Dziak, Jennifer** Astronomy / Physics Ohio Room 08:30 - 10:00
Polarized Light and Its Applications in Three-Dimensional Imaging and Entertainment
 Utilized in such films as Pixar's UP and James Cameron's Avatar, circularly polarized light holds the key to making two-dimensional images 'pop' into three-dimensionals pace. However, while producing an interesting effect; few people understand what effort goes into optimizing the image for public entertainment. Using various polarizers and lasers of different wavelengths, we conduct experiments to determine which wavelengths produce the most stable, optimal image quality. Likewise, we rotate the circular polarizers and compare the resulting intensities to known laws, such as Malus's Law. From this research, we identify patterns in three-dimensional films, and identify what makes three-dimensional effects successful.
- Esker, Tara** Psychology Ohio Room 13:30 - 15:00
Study Abroad in Winchester, England
 This poster presentation will focus on a forty page book we wrote detailing our experiences while studying abroad in Winchester, England. Our goal with this book/project is to provide advice to students at Youngstown State who would like to study abroad. This project describes in detail our personal, cultural and academic experiences in the United Kingdom. This book primarily explains the detailed preparation process. Overall, this project provides information from a student's perspective to future study abroad students.

- Eusanio, Helena** Health Professions Coffelt Room 08:45 - 09:00
Ease of Use with 3 Different Metered Dose Inhaler Spacers
 Spacers augment medication administration for metered dose inhalers (MDI). The LeverHaler is a spacer designed to assist patients with hand strength problems to actuate an MDI. This study sought to determine if spacer design affected spacer preference. We hypothesize that hand strength will not affect the patient's choice. METHODS: Adult patients enrolled in a pulmonary rehabilitation program with the diagnosis of asthma or chronic obstructive pulmonary disease and MDI experience were enrolled. Proper use of an MDI with the LeverHaler, AeroChamber, and MediSpacer was reviewed with each patient. Participants provided return demonstrations to verify an understanding of device use. Procedural errors noted during return demonstrations were corrected prior to the data collection. Time to administer a sham MDI dose with each spacer was recorded. Subjects completed a questionnaire evaluating the characteristics, spacer ease of use, type of hand strength problems, length of MDI use and prior experience with a spacer. Descriptive statistics were used to report study population demographics. Preferences for spacer use were analyzed with Chi-Square. Statistical significance was established at $p < 0.05$. RESULTS: Twenty patients between the ages of 30 and 80 years participated. Mean length of MDI use was 8.6 years (+ SD 12.4). Hand strength problems were reported in 38.6%. The LeverHaler took more than twice the time to use when compared with those of traditional design. All patients preferred traditional designs, $p < 0.002$. CONCLUSIONS: Design did not influence patient preference. Traditional designs were acceptable to patients with strength problems.
- Ferrando, Lisa** Biological Sciences Ohio Room 10:30 - 12:00
Construction and Characterization of a Green Fluorescent Protein (gfp)/Titin ARMD Immunogenic Domain Fusion Protein
 The aim of this study is to understand the role of specific titin domains in muscle development and function. This lab has been studying a specific titin domain RMMG6. Ultimately we want to transfect mouse muscle stem cells with an Autoimmune Rippling Muscle Disease (ARMD) immunogenic titan domain, RMMG6, and determine its effects of over expression of the RMMG6 on the cell's activity and development. The work presented here describes the construction of a fluorescent green protein/ ARMD immunogenic titin domain fusion protein (gfp/RMMG6). The plasmid chosen as the fusion vector is pAcGFP-C1, providing for a fluorescent marker protein. RMMG6 is derived from a plasmid originally constructed in this lab containing the rmmg6 gene (Gen Bank accession # EU428784). DNA sequence and restriction enzyme analysis of the resulting plasmids, indicate that we achieved construction of the correct plasmid. The expressed fusion gene should be a composite protein consisting of the fluorescent tag *gfp* and RMMG6. This will allow use to trace the RMMG6 within the muscle cells and thus define what part of the cell RMMG6 localizes to and what potential role it may play in structure/ function of the developing myocytes.
- Finkel, Joseph** Dana School of Music Jones Room 15:30 - 15:45
La Monte Young's The Well-Tuned Piano and the Truth in Tuning
 The 1960s and 1970s were a time of radical experimentation in art, and especially in the realm of jazz and contemporary music. An example of this experimentation was an emerging movement of minimalism, pioneered by composer and saxophonist La Monte Young. Young found in minimalism an outlet for experimentation with static sounds that fascinated him but shocked his contemporaries. Listening for static sounds and their overtones -- pitches produced by the interference of other sound waves -- led the composer to experiment with tuning systems, specifically equal temperament and just intonation. Young's interest in tuning systems coincided with his formation of Theater of Eternal Music in 1961 which influenced his major work, The Well Tuned Piano, and helped shape his philosophy of music. The purpose of this presentation is to explore the development of La Monte Young's philosophy on static sound and tuning in his composition of The Well Tuned Piano.
- Fitch, John** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
 As part of a research project for Electrical and Computer Engineering 3712, our group designed and constructed a four-by-four-by-four LED cube to display various three-dimensional patterns. An Altera Cyclone II FPGA programmed with VHDL code written in Quartus II software was used to control the cube. This presentation will detail our design and findings from simple LED functionality to complex microprocessor control.
- Flask, Stephen** English Humphrey Room 13:45 - 14:00
Honey is for Bees: A Look at the Use of Endearments in the Service Industry
 The three student investigators will study the use of endearments in service encounters. We believe our research and field data will reveal a trend that is related to age and gender. We also hope to measure attitudes concerning the use of endearments in the service industry. The data we collect will allow us to measure not only what specific endearments are used by strangers in these settings, but the attitudes and connotative meanings behind these terms. We will gather our data with the use of short surveys (five fictional scenarios) to be completed by volunteer students at Youngstown State University, with the approval of each instructor in the classroom. The survey is completely anonymous and the information used is to be kept confidential, to be viewed by Mary Anne, Adam and Steve. There will no names used, nor will it be necessary for respondents to reveal campus location. (See attached for sample survey) The anonymous nature of the surveys will be clearly noted at the beginning of the survey. Potential respondents are not obligated to begin nor continue a survey. They may opt out at any time. We believe our data will reflect our hypothesis that older men use endearments more often toward younger females in service related jobs. We believe the attitude is more permissive when age is a factor. We believe our data will reveal trends in acceptance and attitude of these common terms used among strangers.

- Fleeger, Melissa** Biological Sciences Ohio Room 15:30 - 17:00
Expression Kinetics of the Quinic Acid (qa) Gene Cluster in Neurospora crassa
 Eukaryotic genes are tightly regulated through a highly complex system with a number of checks and balances. When environmental conditions change, organisms need to adapt. Part of this reaction may be a shift in gene expression based on the regulation of that particular gene or gene cluster. The quinic acid (qa) gene cluster of *Neurospora crassa* is such a system. *N. crassa* is a fungus that is widely used to study molecular genetics. The regulation of the qa gene cluster in the wild type strain of *N. crassa*, 74A, is being studied. Expression of the qa cluster is triggered by the carbon source quinic acid. When the fungus is grown on quinic acid as a sole carbon source, the qa genes are expressed at high levels. However, when a preferred carbon source, such as dextrose, is used, the qa genes are repressed. The focus of this study is the kinetics of induction of the various quinic acid genes as the environment changes. RNA was isolated from *N. crassa* grown under various conditions. Transcript levels of the various genes are detected by SYBR Green using quantitative reverse transcriptase polymerase chain reaction (qRT-PCR). Results are normalized to the internal control gene, 18s rRNA and analyzed with Bio-Rad iQ5 software. These results reveal that the up-regulation in expression of the qa genes is detectable within 15 minutes of incubation with quinic acid and reaches a peak levels within 3 hours.
- Frankland, Dan** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Robot Arm for Medical Applications
 The robotic arm was designed for real-time applications to which it would operate over a network. The design purpose was to construct a network host-server connection through which an operator that may be able to perform tasks from a remote location. This would give the user freedom to operate on objects or complete projects at their leisure without the need to travel to the given location. The design was made from aluminum in order to give it strength and durability. The control interfaces, which were implemented to provide user control and to facilitate the movement of the arm, were written in C# language and allow real-time user control through USB connectivity. The host-server connection was achieved via pre-existing VNC freeware. The result of the design gives the user freedom to rotate freely around a two feet radius, and the robotic arm can lift multiple objects of size and weight.
- Furnkase, Lauren** Health Professions Coffelt Room 09:15 - 09:30
The Effects of Antioxidant Deficiency on Functional Lung Capacity in Chronic Lung Disease are Moderated by the Sex of the Patient.
 Previous data have shown that a poor dietary intake of nutrients, and malnutrition are predominant in persons with chronic lung disease (i.e. COPD), and it may be that poor antioxidant intake exacerbates the pro-inflammatory progression that occurs in this disease. The objective of this study was to assess habitual dietary intake of antioxidants in a sample of patients with COPD and to examine the relationship between these dietary variables and functional lung capacity. Twenty participants completed food-frequency questionnaires in order to assess habitual dietary intake of Vitamins A, C, D, E and selenium. Participants also underwent concomitant assessment of lung function in order to measure forced vital capacity (FVC). General linear models were used to test for effects of nutrient deficiency status (i.e. over or under the DRI value for each nutrient) as a categorical covariate (Deficient, DE or Not Deficient, NDE), sex, and all interactions of these variables, with a primary endpoint of FVC. Two-way interactions of deficiency status and sex were found for Vitamins A, C, and D, where FVC was lower in the DE compared to NDE groups in male, but not female, participants. In conclusion, the contribution of antioxidant deficiency to decreased lung function in COPD patients appears to be more pronounced in men compared to women, and strategies for dietary modification and/or supplementation regimens should be implemented accordingly.
- Galioto, Pamela** Biological Sciences Ohio Room 10:30 - 12:00
Lung Function on a Daily Basis
 Our experiment is designed to compare and contrast the human lung capacity and breath period in differing physical situations of the body. The members of our group, five subjects total, will be studied while performing four differing breathing situations; standing, sitting, laying down, and after exercise. Breathing data will be collected using a spirometer and the accompanying equipment. Data will then be analyzed by hand using varying degrees of mathematics and using the SPSS 12.0.1 system, doing two-way ANOVA and SNK values. We hypothesize that when your lungs are more open and have more room to expand, you will then inhale and exhale a much larger lung volume. We suspect the breathing forms investigated, from greatest lung capacity to least, will be in the following order; standing, sitting, lying, and post exercise.
- Gerstnecker, Adam** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Robot Arm for Medical Applications
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- Giblin, Jessica** Sociology & Anthropology Jones Room 14:15 - 14:30
Changes in Shoreline Sedimentation at Sandy Point, San Salvador
 Sandy Point is a prominent landform located at the southwestern corner of San Salvador, Bahamas. It is a massive peninsula-shaped sand deposit created by the combination of long-shore drift along the southern and western shores of the island and intensive wave refraction at the point. GPS surveys of the shoreline conducted in March for the years 2005 – 2009 demonstrate regular and non-predictable change of the shoreline position from year to year. Visual observations and crude line-level transects for the same years indicate equally dramatic change in the overall morphology of the deposit. In an effort to better understand the processes responsible for the observed changes and document the magnitude of change, a detailed study of Sandy Point was initiated in June 2009. The data included shoreline GPS surveys, shoreline to back-beach transects (GPS and total station), and sand textural analyses. A second set of measurements and analyses was completed in March 2010. Preliminary results demonstrate a dramatic change in shoreline position from June 2009 to March 2010. In accordance with shoreline change, the beach transects show dramatic change in the overall morphology of the sand deposit. Over all, the sediment can be characterized as poorly sorted coarse sand composed of primarily carbonate shell fragments. The resulting data of shoreline and transect surveys were plotted on the topographic map of the island (1971) using ArcGIS.
- Gismondi, Michael** Psychology Jones Room 09:45 - 10:00
Strength In Numbers: Salience of Framing, and Effects of Expanded or Contracted Dimensions
 Decisions are influenced not only by the data available, but by the presentation of the data. A sample of students at Youngstown State University (N = 82) individually assessed two hypothetical medical treatment options and rated how strongly one was preferred over the other. While all participants were shown identical data regarding the effectiveness of the two treatments, the data were framed differently. Some sets of data were presented in expanded form (e.g., 90 out of 100) while others were contracted (e.g., 9 out of 10). Additionally, half of the data forms presented the effectiveness of the treatments in terms of how many would live if either treatment worked, while half highlighted how many would die (e.g., 9 out of 10 vs. 1 out of 10). Results show that manipulation of the “how many would live/how many would die” framing variable influenced the strength of preference for one treatment relative to the other.
- Globeck, Alexandria** Art James Gallery 16:45 - 17:00
Water Conservation
 This project unites the mechanical skills of an engineer and the inventive concepts of an artist. We constructed a pro-active piece that allures the viewer with an unrecognizable construct. When water becomes polluted with anthropogenic contaminants it becomes dangerous for human activities and can no longer sustain life for aquatic communities. In the Mahoning Valley inorganic water pollutants are the leading contributor to our water conservation concerns. As a community we must become aware of our essential environment and work together to preserve it for the future of our natural world. By increasing public curiosity, we as students are presented with the opportunity to expand this awareness through a combination of sculpture and engineering.
- Good, Eli** Mechanical & Industrial Engineering James Gallery 14:15 - 14:30
Permanent Magnet Motor: Generating Electricity from Water Waves
 The continuous expansion of industrialization and new technologies dependence upon electricity has caused an increasing burden on the available resources. This shortage of available energy sources has caused a dramatic increase in research in the field of alternative energy sources. Several new concepts have been developed due to the push for new alternative energy methods. One alternative energy method is the generation of electricity by utilizing the power of ocean waves; in particular, the use of a permanent magnet motor to harness the energy from water waves. The permanent magnet motor is a device that converts reciprocating motion into rotational motion without direct contact. The sinusoidal like form of a wave creates the reciprocating motion of the motor, which in turn is transferred into rotational motion that can be used to run a generator. For every wave, there is one rotation, and each rotation can be geared to produce several rotations of a rotor to effectively generate electricity. The main challenge of this concept was developing a design to capture as much power from each wave as possible. Considerations included properly mounting magnets to achieve the optimal generation of force, high quality machining and easy assembly to reduce unnecessary energy losses. The utilization of SolidWorks was key to fabricating an effective design. The software allowed for several designs to be developed without the expense of materials.
- Grant, Brandon** Biological Sciences Ohio Room 15:30 - 17:00
Constructing MHR1 Containing Plasmids as a Tool for Understanding Mitochondrial DNA replication
 The objective of this project is to investigate the *Saccharomyces cerevisiae* MHR1 gene and its ability to form and/or resolve replication intermediates by homologous recombination. Mitochondrial DNA (mtDNA) is necessary for aerobic respiration. *S. cerevisiae* is an excellent model because it can undergo fermentation if its mitochondrial genome is defective. The MHR1 (Mitochondrial homologous recombination) gene product initiates homologous recombination by single strand invasion. Cruciform cutting endonuclease, CCE1, resolves these recombination structures. It has been shown (Ling and Shibata), that these two nuclear-encoded genes, MHR1 and CCE1, are synthetically lethal to mtDNA. We are investigating their role in mtDNA replication. The main goals of this project are to isolate and clone the MHR1 gene through PCR and inserting it in pRS316. This is then used to construct knockout vectors, and shutoff vectors which will be used to observe mitochondrial loss in a Δ mt1 background. In addition, a tagged expression vector is being assembled to isolate the MHR1 protein, MHR1p, which will be raised to monoclonal antibodies and analyzed by Western Blot. Lastly, pull-down experiments can then be done with the MHR1 protein to see what other proteins it interacts with. The MHR1p can shed light on how mutant genomes are maintained, as well as issues of age and diseases related to changes in mammalian mtDNA.
- Guidosh, Matthew** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
 As part of a research project for Electrical and Computer Engineering 3712, our group designed and constructed a four-by-four-by-four LED cube to display various three-dimensional patterns. An Altera Cyclone II FPGA programmed with VHDL code written in Quartus II software was used to control the cube. This presentation will detail our design and findings from simple LED functionality to complex microprocessor control.

- Gulgas, Sara** Dana School of Music Jones Room 16:00 - 16:15
Mozart's Die Zauberflöte as an Opera of the Enlightenment
 Wolfgang Amadeus Mozart's opera, Die Zauberflöte (The Magic Flute) from 1791 is a representative work of the eighteenth-century Enlightenment. Both its plot and music center around the Enlightenment's emphasis on reason, and especially the individual's capacity to think critically. In my paper, I will argue that the opera is structured along a thesis/anti-thesis axis. The thesis begins when the Queen of the Night gives the prince, Tamino, a magic flute in exchange for saving her daughter, Pamina, from Sarastro and his followers. The Act I Finale acts as an anti-thesis to everything that leads up to it, and changes the characters' preconceived notions about who they should trust and recognize as their opposing forces. Tamino's recitative with the priest of the temple, for example, demonstrates his recognition of his current situation. Left to his own discretion, Tamino views Sarastro as a being of wisdom and the Queen as a being with no inner light. Papageno's Schnelle Fusse, rascher Mut explains his class struggle and understanding of moral obligations when he uses his glockenspiel to hypnotize his enemies. Finally, the chorus' "Wenn Tugend und Gerechtigkeit" instructs the characters about the idea of revolutionary social reform through ideas of truth, justice, and integrity. I will conclude that Enlightenment ideals are demonstrated through Tamino's ability to reason as an individual, Papageno's class struggle and understanding of the morality of music, and the chorus's appeal for the revolutionary reform of society. Die Zauberflöte teaches one to have the courage to find oneself through reason in order to see the beauty of harmony in social reform.
- Haddle, Michelle** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Causes and Consequences of Childhood Obesity Among YSU Students
 The problem of childhood obesity in the United States has grown considerably in recent years with approximately 15 percent of children between the ages of 2-19 years being classified as obese (CDC, 2007). Obesity is among the easiest medical conditions to recognize, but one of the most difficult to treat. This study will examine the perceptions of the causes and consequences of childhood obesity among college students at Youngstown State University. Students 18 years or older will be recruited from the YSU campus common student areas. The study protocols will be explained to eligible participants and upon signed informed consent, participants will self-administer one of two surveys (one for students who have children and another for those without). Data will be analyzed using SPSS 15.0 to determine if overweight or obese children will be reported in significantly ($p < 0.05$) more Single-parented households than in Two-parented households; participants who are overweight/obese are significantly ($p < 0.05$) less likely to perceive overweight or obesity in their own children than non-overweight/obese parents; and parents of obese children will report a significantly ($p < 0.05$) lower daily intake of fruit and vegetables than those of non-obese children.
- Hall, Gregory** Mechanical & Industrial Engineering James Gallery 16:15 - 16:30
Smoke Visualization Wind Tunnel
 A small flow visualization wind tunnel was designed and built to study the pattern of flow around bluff and streamlined models. The visualization is created by injecting thin filaments of white smoke at the inlet of a small low-turbulence wind-tunnel. The wind-tunnel is a draw-through type and the flow is initiated by a small radial blower fan mounted near the exit of the tunnel. Air is drawn in through the inlet and exhausted at the tunnel exit. Part of the air exhausted can be forced into a smoke generating reservoir. The smoke, generated by vaporizing propylene glycol, is forced through the supply pipe into small nozzles and then emerges out of the nozzles as fine filaments. Models were placed in the test section for the study of flow patterns. The heater element and the blower fan are instrumented and controlled using computer software as well as manual controls. The machine has controls for starting the fan and the heating element along with a safety feature to turn off the heater and the fan if the temperature inside the smoke reservoir exceeds a certain threshold temperature. The flow patterns observed corroborated the concepts learned in fluid dynamics. In addition, flow visualization is used in many industries concerned with aerodynamics.
- Hallett, Chris** Mechanical & Industrial Engineering James Gallery 14:30 - 14:45
Supermileage Vehicle
 With the current economy recovering from a recession, high fuel economy is used more often than it has in the past. One of the areas includes the use of gasoline. Fuel economy is used often in today's car industry as the basis of marketing. The ability of a lightweight vehicle to obtain the most fuel economy possible was tested. The vehicle was built to specifications provided by the Supermileage Vehicle Competition rulebook, which is sponsored by the Society of Automotive Engineers (SAE). A lightweight frame, aerodynamics, and a modified engine were the basis for achieving maximum fuel economy. The overall goal was to achieve a high miles-per-gallon rating, while following the standards of the competition. The overall design met the specifications mentioned in the SAE rulebook. Some of these included weight, brakes, and safety issues. All were taken into consideration in the design, while also maintaining an operative, fuel efficient vehicle.
- Hanuschak, Jennifer** History James Gallery 09:30 - 09:45
The Historical Impact of the Large Hadron Collider
 The Large Hadron Collider, or the LHC, is the largest particle accelerator in the world. The LHC not only represents the potential that current physics can do, but it represents the progress we have made in scientific exploration since the early twentieth century. From the time we split the atom 1917, we have started a process to discover the building blocks of the universe...what we are made of. By stringing together the continuum of modern scientific discoveries, we can see the real need for the Large Hadron Collider. We do not yet know the whole story of the universe's creation, and we might never, but this huge particle accelerator is giving us the opportunity to find another, and perhaps the most important, piece to this puzzle.

- Hartman, Kyle** Health Professions Ohio Room 10:30 - 12:00
The Effects of Acclimation Sessions on Behavioral Measurements
 A standard protocol in preclinical research includes acclimation of the test subjects. This procedure acts to reduce stress and anxiety in the subjects; however, the number of acclimation sessions is highly variable among studies. To better understand how the number of acclimation sessions alters behavioral measurements, this study examined the effects of acclimation and the investigator on behavioral measurements. Sixteen male subjects were used in this study, and two researchers, blinded to the treatment groups, collected all data. Subjects were randomly assigned to four treatment groups: (0) four subjects per cage, no acclimation sessions, (1) four subjects per cage, one acclimation session, (2) four subjects per cage, two acclimation sessions, and (3) four subjects per cage, three acclimation sessions. All treatment groups were provided with standard housing conditions, including food, water, and bedding. Acclimation sessions, including acquainting each subject to both investigators for five minutes per session, were performed on treatment groups 1, 2, and 3 within a week. In the following week, behavioral measurements, including withdrawal latency to a heat stimulus and withdrawal threshold to a mechanical stimulus, were taken. Behavioral data were analyzed by each investigator via a two-way ANOVA using the GraphPad and SPSS Software. These data indicate that the number of acclimation sessions affects the behavioral measurements.
- Harvey, Mark** Mechanical & Industrial Engineering James Gallery 11:15 - 11:30
Design of the Pressurized Shell for a Thick-Walled Hydraulic Actuator
 The goal of this project is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. Hydraulic actuators are used in large variety applications in heavy machinery. In this project the thickness of the 1020 steel cylinder must be determined for a design factor of safety of 2.5 in order to be able to lift a static load of 14,000lbs via a pressure supply of 2000psi. To simplify the problem, the stress concentration factors and deflections were ignored. The approach is to calculate the stresses within the wall of the pressure vessel as influenced by the wall thickness. In addition, parametric studies of various wall thicknesses were performed in order to optimize the cylinder design. Results were verified with a computer simulation using COMSOL, a commercially available FEA software and also compared with published literature.
- Haughey, Brian** Political Science Pugsley Room 13:30 - 13:45
A Political Science Student Witnessing a Mounting and Approaching Political Apex and Possible Revolution in Thailand.
 Thailand has been the most stable country in Southeast Asia since the days of European imperialism. During this time, many foreigners (like Y.S.U. study abroad students) have enjoyed Thailand's pristine white sand beaches, colorful countryside and captivating culture. However, political unrest and constant constitutional and government change has made the once safe and solid country a teetering shell of its former self. This unrest, compounded with the imminent death of long-tenured King, King Bhumibol, can change not only the dynamics of Thai politics, but the entire region as well. This presentation will examine why Thailand was stable for so long, how King Bhumibol altered Thai politics, the recent civilian protests, the character of the heir-apparent Prince Vajiralongkorn, and how Thailand can remain a stable democracy through this important Thai transitional period.
- Hazimihalis, Pano** Biological Sciences Coffelt Room 15:30 - 15:45
Determining Muscle Fiber Types in the Tails of Two Disparate Species Opossum
 The arrangement and orientation of muscle fibers (i.e. muscle architecture) and the composition of slow and fast muscle fibers (i.e. fiber type) reflect functional specializations of muscle. Muscles show remarkable diversity in their architecture as well as distributions of slow and fast muscle fibers and their make-up of myosin heavy chain (MHC) isoforms. Architecture and fiber type are well studied properties in limb muscles, however, much less is understood about these properties in other extremity muscles such as tail musculature. The opossum is an interesting marsupial lineage in this context, as all species of opossum have characteristic long and prehensile tails, but occupy different habitats (e.g. arboreal versus terrestrial). Differences in habit, and consequent use of the tail in locomotion, suggest that muscle architecture and fiber type composition in the tail may also be different between species. To test this possibility, this study investigates muscle fiber type (and architecture) in the tails of one terrestrial species of opossum (*Didelphis virginiana*) and one arboreal species of opossum (*Didelphis aurita*). Muscle fiber type was determined by both histochemical methods and immunohistochemical techniques that use primary antibodies to react with a specific MHC isoform. Preliminary results indicate the prehensile (distal) region of the tail is composed of 54% slow-twitch fibers and 46% fast-twitch fibers. Future analyses will quantify MHC isoform distributions in the tails of both species to specify adaptations of opossum tail muscle that correlate with hanging and climbing behavior.
- Heinselman, Carlisle** Biological Sciences Ohio Room 15:30 - 17:00
Characterization of Eight Metal Resistant Enterobacter Species from a Metal Contaminated Site
 The Y-12 plant in Oak Ridge, TN processed uranium and lithium to manufacture nuclear bombs during WWII and the Cold War. Waste products from these operations contaminated East Fork Poplar Creek and the surrounding area with mercury and other heavy metals. *Stenotrophomonas maltophilia* Oak Ridge strain O2 (*S. maltophilia* O2), which was found at the site displayed high metal resistance characteristics. While using 16s rRNA sequencing to identify other bacteria from East Fork Poplar Creek, we found that our working strain of *S. maltophilia* O2 was actually a strain of *Enterobacter*, which we called *Enterobacter* sp. YSU. This strain was metal resistant at intermediate levels compared to *S. maltophilia* O2. Analysis of the 16s rRNA from 8 other multimetal resistant strains suggested that they were related to species of *Enterobacter*. To see if they were related to *Enterobacter* sp. YSU, we analyzed their biochemical properties using an API identification kit and their plasmid content by gel electrophoresis. Their biochemical properties and plasmid profiles were almost identical to those of *Enterobacter* sp. YSU. Preliminary 1.5 kb, 16s rRNA sequences of the isolates differed by only one to five base pairs. Through these experiments, it appears that *Enterobacter* sp. YSU probably originated from East Fork Poplar Creek. Analysis of these bacteria may provide strategies that could be used to clean up metal contaminated sites and may provide information on gene transfer within the environment.

- Helterbran, Dawn** Biological Sciences Ohio Room 10:30 - 12:00
Lung Function on a Daily Basis
 Our experiment is designed to compare and contrast the human lung capacity and breath period in differing physical situations of the body. The members of our group, five subjects total, will be studied while performing four differing breathing situations; standing, sitting, laying down, and after exercise. Breathing data will be collected using a spirometer and the accompanying equipment. Data will then be analyzed by hand using varying degrees of mathematics and using the SPSS 12.0.1 system, doing two-way ANOVA and SNK values. We hypothesize that when your lungs are more open and have more room to expand, you will then inhale and exhale a much larger lung volume. We suspect the breathing forms investigated, from greatest lung capacity to least, will be in the following order; standing, sitting, lying, and post exercise.
- Herman, Emily** Ohio Room 13:30 - 15:00
Counselor's Tips for Teachers: Easy classroom interventions for Students with Autism
 According to the Center for Disease Control (CDC), data shows that 1 in every 150 children can be classified as having Autism Spectrum Disorder (ASD). Those affected with ASD experience communication and social delays, and stereotyped behaviors that are usually recognized within a child's first three years of life. Currently, there is no cure and no cause of ASD. Thus, it is difficult to diagnose, treat, and most specifically educate those affected. Without early diagnosis it will be difficult for students diagnosed to participate appropriately in the classroom. Interventions need to be in place for those who interact with these students in order to ensure the highest quality of education. To aid the educational experience of these students, school and clinical mental health counselors can provide teachers with helpful interventions that can be used in a classroom setting. These strategies will benefit all of the students in the classroom as well as the educators. Different types of clinical interventions and evidence based treatments can be used in classrooms such as Antecedent Manipulations, Differential Reinforcement, Change in Instructional Context and self management. This poster explores each of those in more depth. These interventions can help reduce or eliminate problem behaviors students with autism often exhibit in the classroom.
- Heyman, Jason** Accounting & Finance Room 2068 14:00 - 14:15
Economic Impact of the Gerace Research Centre On the Economy of San Salvador Island
 The Gerace Research Centre is located on San Salvador Island in the Bahamas and operates as a research and educational facility in collaboration with The College of The Bahamas. In the 2008-2009 season, over 1,300 students and faculty visited the Gerace Research Centre constituting over 13,000 nights in residence at the centre. These excess of 13,000 nights generated over \$650,000 for room-and-board fees. In addition to this, students and faculty spend money on other various items around the island leading to even greater expenses impacting the economy of San Salvador. My research analyzed expenditures of a group of 25 Youngstown State University students and faculty; this group consisted of two different classes that traveled to the Gerace Research Centre in December 2009. The faculty and students were all given a log to track their daily expenditures on, and this log consisted of five different areas: food/drink and social club/restaurant, souvenirs (manufactured), souvenirs (local handicrafts), incidentals, and other. One purpose of this research was to provide the Gerace Research Centre with an estimate of the overall monetary expenditures that the visiting students, faculty, and researchers bring to the island of San Salvador. The other purpose of this research was to provide Youngstown State University faculty with an estimate of the student and faculty spending patterns so they can make recommendations to oncoming students about estimated spending money that may be brought on the trip.
- Hill, William** Astronomy / Physics Ohio Room 08:30 - 10:00
Polarized Light and Its Applications in Three-Dimensional Imaging and Entertainment
 Utilized in such films as Pixar's UP and James Cameron's Avatar, circularly polarized light holds the key to making two-dimensional images 'pop' into three-dimensional space. However, while producing an interesting effect; few people understand what effort goes into optimizing the image for public entertainment. Using various polarizers and lasers of different wavelengths, we conduct experiments to determine which wavelengths produce the most stable, optimal image quality. Likewise, we rotate the circular polarizers and compare the resulting intensities to known laws, such as Malus's Law. From this research, we identify patterns in three-dimensional films, and identify what makes three-dimensional effects successful.
- Hill, William** Astronomy / Physics Humphrey Room 09:15 - 09:30
Xbox LIVE: Could You be at Risk While Playing Online?
 Are you compromising your personal security while playing your favorite games online? We investigate the possible ways in which Xbox LIVE one of the most popular online gaming services can pose a threat to user security. Xbox LIVE is a complicated network of matchmaking servers and other Xboxes. When you play a game, a matchmaking server connects you to a game lobby and chooses an Xbox to serve as the host. However, directly connecting to another user's Xbox causes security concerns. The host is directly connected to each player in the game, and by using a simple packet sniffer, can get the IP address of all players in the game. Since many of the network protocols used are proprietary, the information being sent over the network is unknown. Nevertheless, just knowing another player's IP address creates security concerns. A Distributed Denial of Service (DDOS) attack can be performed using a botnet, causing a player's connection to the game to drop. Due to the Xbox LIVE game rules, when you leave a game in progress, no matter what the reason, you automatically lose the game. While DDOS attacks are illegal, tracing the attack is almost impossible because the attack comes from infected computers around the world. DDOS attacks are one of the most common forms of cheating on Xbox LIVE, as a player can DDOS all other players, causing the attacker to win. More importantly, knowing a user's IP address allows hackers to perform attacks on a user's network and compromise security. Our presentation suggests solutions that may help promote security on Xbox LIVE.
- Hinerman, Adam** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
 As part of a research project for Electrical and Computer Engineering 3712, our group designed and constructed a four-by-four-by-four LED cube to display various three-dimensional patterns. An Altera Cyclone II FPGA programmed with VHDL code written in Quartus II software was used to control the cube. This presentation will detail our design and findings from simple LED functionality to complex microprocessor control.

- Hinkle, Bailey** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Food Labels
 A standard food label on most packaged foods in the US, in accordance with the Nutrition Labeling and Education Act of 1990, highlights caloric and nutrient content per serving including, carbohydrates, fiber, protein, total fat, saturated fat, cholesterol, and sodium (USDA, 2009). There is evidence that reading food labels can help individuals to change their eating patterns; however, the food label can be intimidating to those not familiar with the terminology or interpretation of the dietary information listed. The objective of this study is to define the scope of knowledge regarding food labels and their use among the undergrad student population at Youngstown State University. Students (n= 200), male and female, will be recruited from the YSU campus common areas and once the protocols are explained, will be asked to sign the Informed Consent form if they wish to participate. Participants will self-administer the 27-item survey. It is anticipated that significantly more female participants ($p < 0.05$) will read food labels than males and that there will be gender differences in the nutritional content values used by participants. It is also expected that participants who have taken a nutrition or health education course will use food labels for selecting foods significantly more frequently than those who have not.
- Hodges, Joshua** Mathematics & Statistics Ohio Room 08:30 - 10:00
A Mathematical Analysis of Peg Solitaire
 In this project we use the structure of the Klein 4 Group and tessellation to analyze the solvability of various peg solitaire games, including Central Solitaire, French Solitaire, and Triangular Solitaire. We have concluded based on our research that any board that can be successfully tessellated and can maintain a constant signature throughout game play is potentially solvable based on if the player moves the pegs correctly.
- Holmes, Andrew** Biological Sciences Ohio Room 15:30 - 17:00
*Analysis of Cell Wall Mutants in the Dimorphic Fungus *Penicillium marneffeii* Generated by *Agrobacterium*-Mediated Transformation*
Penicillium marneffeii is a dimorphic fungus that causes fatal disseminated infection in immunocompromised individuals. At 25Å°C, the fungus develops mycelia and conidia typical of other *Penicillium* species. At 37Å°C, the fungus undergoes phase transition to form fission yeast cells. These changes obviously involve distinct alterations in cell wall structure and synthesis. To date, however, analyses of this pathogen have yet to identify the molecular mechanism(s) responsible for the dimorphic nature of *P. marneffeii*. To better understand the molecular mechanisms that underlie dimorphism in this fungus, we employed an *Agrobacterium*-mediated transformation strategy to generate random-insertion mutants via T-DNA integration. Transformants are screened for cell-wall defects using the cell-wall inhibitors Calcofluor White (CFW) and Congo Red (CR). These two agents bind to cell wall components, thereby destabilizing its formation. The morphology of hypersensitive mutants, selected by failure to grow at sub-lethal levels of CFW and CR, were analyzed by growth various media at both 25Å°C and 37Å°C. Furthermore, the specific mutations were identified by sequencing the flanking regions at the sites of T-DNA insertion.
- Hosseinejad, Justin** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
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- Howard, Hillary** Biological Sciences Coffelt Room 16:00 - 16:15
*Proposed Resistance Mechanisms of *Enterobacter sp.* to Toxic Selenite*
 The effects of toxic selenite on bacterial growth are explored for a wild-type selenite resistant strain of *Enterobacter* and a selenite sensitive mutant. A system of differential equations models the coupled interaction of cell growth and selenite uptake. The proposed method of resistance, an efflux pump, is suggested in both the genetic sequence and the mathematical model.
- Hoy, Rebekah** English Humphrey Room 13:30 - 13:45
Going up?: A Sociolinguistic Study of Verbal Interaction in Elevators
 This study will examine, from a sociolinguistic perspective, the nature and occurrence of verbal interactions between passengers involved in elevator encounters. The examination will attempt to define and predict which factors, if any, precipitate, predict, and limit acts of greeting and leave-taking between strangers who find themselves in unavoidably close proximity with other strangers in an elevator setting. In addition to incorporating live recorded data samples collected during actual elevator rides, the study will collect and analyze questionnaires regarding elevator behavior, distributed among members of the YSU student body. The results of these questionnaires will be compared to the results of the live data for the purposes of distinguishing between perceived and actual speech behavior. Our predictions are threefold: that greetings will reliably predict leave-taking; that the presence of fewer passengers will engender a greater likelihood of interaction, and the inverse; and that the occurrence of interaction is the exception rather than the norm.
- Hudoba, Douglas** Ohio Room 15:30 - 17:00
Morphometric Quantification of Myocyte Dimensions in SHR Rat Hearts
 Clinical studies have shown that while hypertension can affect anyone, the prevalence of the disease in premenopausal women is lower compared with men of the same age and that after menopause, the incidence of hypertension in women elevates and becomes similar to that of men. These observations suggest that the presence of the female gonadal steroids, such as estrogen, may protect premenopausal women against the development of hypertension and its subsequent complications such as cardiac hypertrophy. The goal of this study is to examine left ventricular myocyte dimensions of males (M), females (F), female ovariectomized (OVX) and female ovariectomized with supplemental estrogen administration (OVX+E) to quantify the development of hypertrophy. Three subsequent staining procedures, Mayers haematoxylin, azocarmine solution and then aniline blue-orange will be used to stain 5 um thin sections of LV tissue from each of the animal models. Myocyte width, area, length and volume will be measured under a light microscope to assess the development of hypertrophy. Though no data has yet been collected, I hypothesize that male samples will show greater development of hypertrophy than females and that OVX samples should produce a hypertrophy pattern similar to males. I would also expect to show a lesser degree of hypertrophy in OVX+E as compared to their female OVX counterparts.

- Hulea, Kelsey** Mechanical & Industrial Engineering James Gallery 11:30 - 11:45
Development of a Microfluidic Impedance Sensor
 Microelectromechanical systems (MEMS) are a rapidly expanding research and development area. Nationwide research is being done to develop MEMS based sensing systems for the rapid detection of pathogenic bacteria and contaminants, which pose a threat to the public health. The technology is currently needed in the automotive, food, and medical industries. There are many methods for sensing pathogenic bacteria and contaminants in a sample available, but this study was done solely on impedance sensors. Two methods of production were used in this study. The first method was traditional micromachining. The second method was photolithography. Both methods were challenging for different reasons and their pros and cons were explored and analyzed. In addition, a computer model based on continuity equations was constructed for comparison with the actual sensors. The computer model consisted of a long microchannel with two electrodes placed on opposite sides of the channel. It was challenging to produce results consistent with the physical world from the computer program due to the model containing many variables. However the results were consistent with past research that had been performed in this field. Tests of the actual sensors detected contaminants. These results were compared with the computer model for verification.
- Hunter, Charles** Mechanical & Industrial Engineering James Gallery 11:15 - 11:30
Design of the Pressurized Shell for a Thick-Walled Hydraulic Actuator
 The goal of this project is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. Hydraulic actuators are used in large variety applications in heavy machinery. In this project the thickness of the 1020 steel cylinder must be determined for a design factor of safety of 2.5 in order to be able to lift a static load of 14,000lbs via a pressure supply of 2000psi. To simplify the problem, the stress concentration factors and deflections were ignored. The approach is to calculate the stresses within the wall of the pressure vessel as influenced by the wall thickness. In addition, parametric studies of various wall thicknesses were performed in order to optimize the cylinder design. Results were verified with a computer simulation using COMSOL, a commercially available FEA software and also compared with published literature.
- Hutzen, Kristin** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Food Labels
 A standard food label on most packaged foods in the US, in accordance with the Nutrition Labeling and Education Act of 1990, highlights caloric and nutrient content per serving including, carbohydrates, fiber, protein, total fat, saturated fat, cholesterol, and sodium (USDA, 2009). There is evidence that reading food labels can help individuals to change their eating patterns; however, the food label can be intimidating to those not familiar with the terminology or interpretation of the dietary information listed. The objective of this study is to define the scope of knowledge regarding food labels and their use among the undergrad student population at Youngstown State University. Students (n= 200), male and female, will be recruited from the YSU campus common areas and once the protocols are explained, will be asked to sign the Informed Consent form if they wish to participate. Participants will self-administer the 27-item survey. It is anticipated that significantly more female participants ($p < 0.05$) will read food labels than males and that there will be gender differences in the nutritional content values used by participants. It is also expected that participants who have taken a nutrition or health education course will use food labels for selecting foods significantly more frequently than those who have not.
- Hayan, Wael** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
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- Hayan, Yousef** Electrical & Computer Engineering Coffelt Room 14:00 - 14:15
MicroMouse
 To effectively complete a design project, an engineer must continuously analyze the design from beyond the perspective of science. Successful engineering design requires significant attention to the economic, environmental, sustainability, manufacturability, ethical, health and safety, social, and political issues constraining the design methods and final products. This IEEE MicroMouse design team applies this philosophy in order to achieve the overall best possible outcome.
- Iudiciani, Julie** Sociology & Anthropology Ohio Room 13:30 - 15:00
Attitudes Toward Sexuality in Older Adults
 In the present study we will be conducting a survey on the attitudes towards sexuality in older adults. An e-mailed survey using survey monkey and the campus wide e-mail system was used to contact a sample of the undergraduate population of students to send the surveys in order to obtain a range of ages, ethnicities, and places of residency. For the campus wide e-mail, survey monkey will be used to generate the survey and distribute it. Julie Iudiciani, a senior Gerontology major, will be creating the survey and sending the campus wide e-mail to the sampled undergraduate students. Names of the participants will not be linked to completed surveys and data will be processed in SPSS software by Julie Iudiciani. The survey Data will be used to determine the attitude of sexuality toward older adults across all age groups. Informed consent was assumed upon return of the e-mailed surveys.
- Jamison, Jon** Geological & Environmental Science Ohio Room 08:30 - 10:00
Natural Occurring Arsenic in Groundwater
 Arsenic is a common health problem in many ground water resources throughout the world, including parts in the state of Ohio. Arsenic can cause a variety of health issues ranging from Nausea, feelings of 'pins and needles' on the hands and feet, and long term effects of the inorganic variety can lead to darkening of the skin and growth of small warts on the various regions of the body. The current maximum contaminant level (MCL) for public water sources set by the EPA for Arsenic is 10 parts per billion (ppb), reduced from the prior MCL of 50 ppb. This reduction of the MCL of Arsenic raises a greater concern for the presence of this element in groundwater. In Mahoning county groundwater was examined for potential correlation between Arsenic levels compared to different aquifers (sandstone and glacial till), depths of private wells, pH, and dissolved oxygen. It is the intent of this research to show a positive or negative relationship between presence of arsenic and the tested parameters.

- Jeng, Way** English Humphrey Room 14:00 - 14:15
Language Learning Motivation in International Students
 The purpose of this study was to deduce whether international students are more or less motivated to learn additional languages, and what their motivations are for learning additional languages. Information was collected via questionnaire. The questionnaire was based on a survey first developed by Bishop and Cannon (2009) and included multiple choice questions, a Leichardt scale, and constructed response questions. The responses were collected in person, at the Center for International Studies coffee hour, at the English Language Institute, and in the English for non-native speakers class. We also collected surveys online with the help of the Center for International Studies and Programs. We projected that international students would be more likely to learn a foreign language than American students and for different, more productive reasons. We found that 56% of international students surveyed are learning English simply because it would be useful in their future profession, and 41% are studying English because it was required in school. When asked what additional language they would learn, 33% responded French; however 62% had no preference as to which language they would prefer their (future) children to learn.
- Jerome, Genevieve** Mechanical & Industrial Engineering James Gallery 10:45 - 11:00
Design and Construction of A Human Powered Moonbuggy
 The moonbuggy project is part of a student competition known as the NASA Great Moonbuggy Race. This competition is held every year during the spring at the U.S. Space & Rocket Center in Huntsville, Alabama. Approximately fifty universities from all around the world compete for the best time. The event involves a vehicle erection time, course run time, and penalty time. The vehicle erection time is the amount of time it takes to erect the vehicle from a storage condition to an operable, drivable state. The course run time is the amount of time it takes a team to complete the course. The penalty time involves different penalties that are garnered during the vehicle erection and race. Penalties are attributed for a plethora of reasons from getting out of the moonbuggy to not completing an obstacle. The course is composed of harsh terrain conditions and several obstacles that emulate the surface of the moon. A collapsible human-powered vehicle was designed and fabricated that had design specifications provided by NASA to fit in a maximum volume of 4â€™x4â€™x4â€™ in a collapsed fully assembled state. The vehicle was powered and controlled by one woman and one man. The design was improved by making a lighter frame out of aluminum; in addition, other things were improved: a new gearing system, more absorbent shocks, and all terrain tires. The challenge in constructing the moonbuggy was to keep it strong and durable while decreasing the weight of the vehicle.
- Johnson, Brooke** Mechanical & Industrial Engineering James Gallery 10:30 - 10:45
Analysis of Shaft and Gear Transmission for a Small Winch-Crane Unit
 A transmission assembly constructed of steel spur gears has been analyzed for use in a small winch-crane unit operating at 95% efficiency. A winch-crane unit is a device utilized for lifting moderately heavy loads and transporting these around a shop or laboratory environment. Geometrical parameters of the transmission have been provided which contains 6 gears of given geometry, supported with flanged bearings. Analysis includes output speed and torque of the transmission, stress analysis performed on each gear and supporting shaft as well as stress analysis for the transmission housing itself. The analysis of the transmission have been done theoretically and validated through Finite Element Analysis (FEA) software simulation. Completion of this project has provided the company with insight into the reliability and efficiency of the winch-crane transmission.
- Jones, Nathan** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Time- domain transient equations for charging voltage and current of a RC circuit utilizing Differential & Integral Calculus, Differential Equations, Laplace Transform and Computer Simulations.
 Derivations of time domain transients of charging voltage and current of series RC (Resistor & Capacitor) circuit can be obtained utilizing various mathematical and simulation techniques. In this research project, the time- domain differential equations will be derived by using integration techniques and differential equation solutions. The differential equation will also be solved by applying Laplace Transform (transformation into complex frequency domain). The solutions (amplitude vs. time) will be shown in a graphic form using Microsoft Excel. This graph will be compared to the results obtained from RC circuit simulations utilizing Electronic Work Bench (EWB) Circuit Design Suite Multisim 10.1.
- Jones, Margaret** Dana School of Music Jones Room 16:30 - 16:45
Well-Traveled Tunes: The Circulation of Song in Renaissance Europe
 Orlande de Lassus's *Susanne un Jour* was one of the most widely known chanson spirituel in late-Renaissance Europe. Published in 1567, by the end of the century the chanson had been translated, transcribed, reprinted, and dispersed to nearly every corner of the continent. In spite of Lassus's great renown, however, the authorship and title of this work became nearly entirely obfuscated in the process of its dissemination. This presentation will focus on one particular source of this chanson, the "Wickhambrook" Lute Manuscript (US NH, Ma.21.W.632), with the goal of gaining a better understanding of the musical cultural climate of Europe in the sixteenth century. The Wickhambrook MS, for which the provenance remains unclear, contains Lassus's chanson, without attribution, as well as many works by other prolific composers who are accredited by name. Successful chronological placement of this manuscript has great potential for determining how music was accumulated and used by amateur musicians in household settings. Furthermore, evidence in this manuscript, cross-referenced with evidence in other manuscripts and publications, demonstrates what import documents like the Wickhambrook MS have for determining how music was appreciated in Europe in the sixteenth century, as well as recognizing the extent to which composers, publishers, and audiences of the era considered musical works as defined, intellectual property.

- Jubach, Kevin** Communication & Theater Pugsley Room 11:00 - 11:15
Exploring Marital Communication: Identifying Keys To Effective Communication and Marriage Satisfaction
The key to a successful marriage is effective communication. Those who possess certain communication skills tend to enjoy a more satisfying marriage. This paper identifies those key skills and their importance within the marital dyad. The main variables explored in this study include marital satisfaction, styles of communication, and styles of conflict resolution. Many investigations have been conducted to explore these are other variables in marital communication. This paper examines those studies. For example, several studies have looked at the role of communication in marital satisfaction. Specifically, four main variables were identified including: communication effectiveness, perceptual accuracy, predictive accuracy and interpersonal cognitive complexity. Communication effectiveness involved producing messages with an intended effect and is one of the most basic skills of message production. Perceptual accuracy referred to comprehending correctly the intentions in another person's message. This is considered a core skill of message reception. Predictive accuracy involved correctly anticipating how one's message will affect another. This is vital to engaging in coordinated interaction with marital partners. Interpersonal cognitive complexity was defined as a structural assessment of the capacity to process social information. This is a fundamental aspect of social perception and social skills.
- Kalik, Zane** Biological Sciences Coffelt Room 15:45 - 16:00
Sex and Regional Differences in L-Type Calcium Current Levels in Rabbit Heart Arrhythmogenesis
Adult females are more vulnerable than adult males to long QT syndrome type 2 (LQTS2) induced arrhythmias. Factors underlying sex differences in the arrhythmia phenotype in the left ventricle of the heart include gender and apex-base differences in cardiac L-type calcium current (ICa-L) levels. Whether similar factors regulate arrhythmia formation in right ventricular heart cells has not been fully investigated. Therefore, using the patch clamp technique and a modification of the Luo-Rudy cardiac action potential (AP) model, we investigated the role of ICaL levels in right ventricular myocytes and their role in the genesis of altered cardiac dynamics. We found that ICa-L density measured at 0 mV was 92.1% higher in female (7.3 ± 1.2 pA/pF, n=6) compared to male base myocytes (3.8 ± 0.5 , n=9, $p < 0.008$). Analysis of regional differences in ICa-L in female right ventricle revealed 62.2% higher current density at the base (7.3 ± 1.2 pA/pF, n=6) compared to female apex myocytes (4.5 ± 0.5 pA/pF, n=8, $p < 0.04$). There were no significant sex differences in ICa-L density in apex myocytes and no significant gender or regional differences in ICa-L activation and inactivation. Incorporation of ICa-L differences into the model showed that suppression of the rapid delayed rectifier potassium current to mimic LQTS2 resulted in increased AP duration and enhanced propensity for EADs in simulated female base myocytes. These data suggest that sex differences in ICaL correlate with the LQTS2-arrhythmia phenotype and support the hypothesis that higher ICaL underlies the propensity for pathological cardiac rhythm disturbances.
- Karas, Keith** Mechanical & Industrial Engineering Ohio Room 08:30 - 10:00
Work Design and Time Study Analysis of Material Handling at Altronic Inc.
A team of methods engineering students enrolled in Youngstown State's Industrial and Systems Engineering program conducted a time study and system analysis of material handling at Altronic Inc. in Girard, OH. The time study analysis was conducted using video recording software then evaluated using methods including MTM-1, MTM-2, MOST and work sampling. The data generated from the time study was then used to determine standard times and allowances for the material handling process. The primary goal in the project was to identify process time and use the information gathered as a basis for potential improvement in the material handling study.
- Kastner, Kaley** Nursing Room 2068 13:30 - 13:45
A Comparison of the Cost of Living Differences Between Youngstown and San Salvador Island, The Bahamas
Unlike the United States, the government of the Bahamas funds itself through licensing fees and duties levied on imported goods rather than through sales and income taxes. Residents of the Bahamas must also face the added costs on products resulting from transportation costs associated with an island setting. Products generally arrive at New Providence Island and are redistributed through the island chain by mail boat or by air transport. Our research project involved examining the relative costs of commodities in the Bahamas and comparing them to the costs of similar products in the Youngstown Area. We surveyed the prices for goods at three retail establishments on San Salvador Island in The Bahamas. We also surveyed the cost for comparable products in the Youngstown area at a convenience store and at a chain supermarket. We presumed the market area for the convenience store would reflect a consumer population comparable to the consumer population for a retail establishment on San Salvador. The evaluation of prices at a chain supermarket was intended to determine the overall differences in the cost of living for Bahamians and for Americans who have a greater range of retail choices. We compare the results of these product and price evaluations for San Salvador and for Youngstown to derive a comparative analysis of the cost of living for the two areas. We also examine issues related to differential pricing for specific products and/or families of goods.
- Katzman, Brooke** Chemistry Ohio Room 15:30 - 17:00
Safe Alkyl and Acyl azide Synthesis Using Arylsulfonyl Azides
Alkyl and acyl azides are important intermediates in the synthesis of various organic functional groups and heterocycles, however their use is often hampered by inherent instability and the use of metallic azides for their preparation. We have now found that readily handled arylsulfonyl azides are convenient reagents for azidation reactions of alkyl and acyl halides, as well as alcohols. Microwave heating speeds up conversions and the formation of azide products is easily monitored by IR analysis of reaction mixtures.

- Kelly, Devin** Chemistry Ohio Room 10:30 - 12:00
Cloning of Beta-Glucosidase from Escherichia coli
 Î²-glucosidase is an enzyme that catalyzes the hydrolysis of glucose polymers containing 1-4 bonds, such as cellulose. Microorganisms such as Escherichia coli utilize the action of this enzyme to degrade polysaccharides containing these bonds as a fuel source. Humans, and more generally eukaryotes, do not make Î²-glucosidase. Due to the lack of this enzyme in humans and the necessity of this enzyme in E. coli, the enzyme can be a target for drug therapy. Inhibition of the enzyme will cease the vital breakdown of cellulose for energy in the bacteria, leading to its death. The patient would remain unaffected since humans do not use Î²-glucosidase. The gene encoding for Î²-glucosidase is amplified by polymerase chain reaction (PCR) using E. coli genomic DNA. The gene will be then incorporated into an expression vector and used to produce large amounts of the enzyme Î²-glucosidase. Inhibitors of the enzyme will then be tested for potential use against bacterial infections. The enzyme may also be studied and characterized to model the active site of the enzyme where the catalytic properties are contained or to locate allosteric effector sites. This information can be used to eliminate the catalytic properties of the enzyme by inducing mutations in the active site.
- Kennedy, Michael** Mechanical & Industrial Engineering James Gallery 10:30 - 10:45
Analysis of Shaft and Gear Transmission for a Small Winch-Crane Unit
 A transmission assembly constructed of steel spur gears has been analyzed for use in a small winch-crane unit operating at 95% efficiency. A winch-crane unit is a device utilized for lifting moderately heavy loads and transporting these around a shop or laboratory environment. Geometrical parameters of the transmission have been provided which contains 6 gears of given geometry, supported with flanged bearings. Analysis includes output speed and torque of the transmission, stress analysis performed on each gear and supporting shaft as well as stress analysis for the transmission housing itself. The analysis of the transmission have been done theoretically and validated through Finite Element Analysis (FEA) software simulation. Completion of this project has provided the company with insight into the reliability and efficiency of the winch-crane transmission.
- Kenyhercz, Marsha** Ohio Room 13:30 - 15:00
Managing Disruptive Behavior: Health Care Workers Perceptions and Suggestions
 The purpose of this study is to examine disruptive behavior in health care nurses, physicians, and administrators at a local community hospital. The study evaluated the health care workers' awareness of disruptive behavior and how it related to their negative work attitude and their perception of a higher stress level. A non-experimental research design was utilized in this investigation. The study used a survey tool in the form of a questionnaire. It was distributed using a non-random convenience sampling of procedural nursing staff, physicians, and administrators at a community hospital. Surveys were given to seventy-five workers and forty were completed and returned yielding a 53% response rate. Data were analyzed utilizing SPSS version 17.0 for Windows and consisted of descriptive, comparison, and connective statistics. The findings showed that all participants acknowledged that disruptive behavior exists in the workplace. No differences were shown by occupation or gender. The results also confirmed that an increased stress level was noted as a result of disruptive behavior. This determination was based upon the number of disruptive behavior occurrences and unanimous concerns for patient safety. Furthermore, a resounding number of respondents agreed that a negative work attitude is pervasive among the organization surveyed. It is acknowledged that disruptive behavior exists and promotes a negative work environment which may be detrimental to patient safety. The understanding of codes of conduct and methods of learning will be fundamental in influencing future development of strategies designed to limit this behavior.
- Kim, Amy** Communication & Theater Pugsley Room 10:30 - 10:45
An Examination of the Influences of Genderlect Styles, Nonverbal Communication Behaviors, Social Learning, and Listening on the Communication Barriers between Men and Women
 This paper identifies genderlect styles, nonverbal communication behaviors, social learning, and listening as important variables to consider when exploring the differences in the communication styles of men and women. In this paper, I explore all these variables and their contribution to the problems men and women face when communicating. The rationale and relevance of each variable is offered. For example, genderlect style differences suggest men are more aggressive in their communication styles and women are more submissive communicators. With nonverbal communication, women more than men are better able to understand nonverbal behavior and women more than men tend to use more nonverbal communication during social interactions. Men and women are socialized at a young age to their specific gender roles (i.e., men learn to be masculine and women learn to be feminine). Finally, this paper explores the overall communication "gap" by identifying problems men and women face and how to overcome some of these communication obstacles.
- Klouse, Greg** Mechanical & Industrial Engineering James Gallery 13:30 - 13:45
Constructing and Modelling a Small Horizontal Axis Wind Turbine
 With the increasing interest in green technologies, privately owned small scale wind turbines are becoming more and more popular. According to the American Wind Energy Association, the domestic market saw a 78% increase in sales from 2008 to 2009. This presentation documents the construction, modeling, and testing of a small horizontal axis wind turbine based on the following design variables: headwind speed, tip speed ratio, blade angle, rotor diameter, and airfoil shape of the blades. The main focus in construction was the design and fabrication of the blades and hub connections. The fabricated blades used a double airfoil design to maximize start-up in low winds and regulate rotation speeds in high winds. They were manufactured using polyurethane foam injection molding and reinforced with fiberglass. A second set of commercially available blades which used a single airfoil design and had known performance specifications were tested for comparison to the fabricated blades. Models of the various components of the wind turbine were created in a computer aided design package (Solidworks). Mechanical and fluid behavior of the system was predicted using computer analyses (Algor and Fluent) to ensure structural stability and fluid flow. Computer predictions of the wind turbine system using both sets of blades were compared with real world test data from the constructed wind turbine system.

- Kolbus, Andrew** Mechanical & Industrial Engineering Ohio Room 08:30 - 10:00
Work Design and Time Study Analysis of Material Handling at Altronic Inc.
 A team of methods engineering students enrolled in Youngstown State's Industrial and Systems Engineering program conducted a time study and system analysis of material handling at Altronic Inc. in Girard, OH. The time study analysis was conducted using video recording software then evaluated using methods including MTM-1, MTM-2, MOST and work sampling. The data generated from the time study was then used to determine standard times and allowances for the material handling process. The primary goal in the project was to identify process time and use the information gathered as a basis for potential improvement in the material handling study.
- Kosec, Greg** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Parking Deck Monitoring System
 Parking space availability has become an issue due to the increase in student population and an inefficient parking environment. An LCD Parking Deck Monitoring System will alleviate congestion and the struggles of parking. The system will be comprised of spot specific ultrasonic sensors to monitor the status of the given spot. A centralized control system comprised of an LCD screen and a master control unit, will communicate with the spot sensors via CAN. This leaves us room to expand the system based upon the needs of the parking deck. Implementing the system will encourage an efficient and safe parking environment.
- Kosela, Katie** Computer Science & Information Systems Ohio Room 08:30 - 10:00
A Mathematical Analysis of Peg Solitaire
 In this project we use the structure of the Klein 4 Group and tessellation to analyze the solvability of various peg solitaire games, including Central Solitaire, French Solitaire, and Triangular Solitaire. We have concluded based on our research that any board that can be successfully tessellated and can maintain a constant signature throughout game play is potentially solvable based on if the player moves the pegs correctly.
- Kovach, Michael** Mechanical & Industrial Engineering James Gallery 11:15 - 11:30
Design of the Pressurized Shell for a Thick-Walled Hydraulic Actuator
 The goal of this project is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. Hydraulic actuators are used in large variety applications in heavy machinery. In this project the thickness of the 1020 steel cylinder must be determined for a design factor of safety of 2.5 in order to be able to lift a static load of 14,000lbs via a pressure supply of 2000psi. To simplify the problem, the stress concentration factors and deflections were ignored. The approach is to calculate the stresses within the wall of the pressure vessel as influenced by the wall thickness. In addition, parametric studies of various wall thicknesses were performed in order to optimize the cylinder design. Results were verified with a computer simulation using COMSOL, a commercially available FEA software and also compared with published literature.
- Kowalczyk, Kara** Biological Sciences Ohio Room 10:30 - 12:00
The Effect of TC-1-045 on Capsule Formation in Staphylococcus Aureus, Type 5
 Despite many medical advancements, Staphylococcus aureus is still a prevalent pathogen due to its resistance to antibiotics. The bacteria's unique polysaccharide capsule is composed of acidic polymers of uronic acid, which contributes to the virulence of this bacterium. Type 5 and type 8 S. aureus are the virulent strains of the bacteria; therefore, investigation of a chemical to disrupt capsule formation was performed in attempt to find a more effective treatment for S. aureus type 5 infections. To accomplish this, S. aureus samples were mixed with the chemical TC-1-045. In order to measure the effectiveness of the chemical, hybridoma cell antibodies were prepared and an ELISA was performed to determine the amount of bacterial type 5 capsule produced. A positive result (inhibition of capsule synthesis) would show decreased binding of the antibody to the bacterial capsule as the concentration of TC-1-045 increased. This trend was not present in the results, indicating the chemical may be ineffective. However, experimental errors may have also contributed to these results and further experiments should be performed.
- Krontiris-Litowitz, Johanna** Biological Sciences Room 2068 10:30 - 12:00
Does Practice with Higher Order Thinking Improve Learning?
 Many students, particularly first year students, come to the biology classroom with the preconceived notion that learning can be accomplished by memorizing facts, reactions, molecules and processes. Because of class size, some courses are conducted as lecture classes without homework assignment or interactive class activities. Thus for some first year students, the exam is the first and primary encounter with critical thinking or higher order thinking at the college level. This can be problematic since higher order thinking and critical thinking, like many cognitive processes, require guidance and practice to become effective habits. This study tests the hypothesis that "practice with higher order thinking and critical thinking questions can improve learning". In this protocol students were given 2 opportunities to practice higher order and critical thinking, 1) homework assignments where students practiced writing higher order and critical thinking questions and 2) classroom quizzes where students answered higher order thinking and critical thinking questions. Student learning was measured by exam performance and student attitude was evaluated by a self-report survey.
- Kuhns, Matt** Mechanical & Industrial Engineering James Gallery 14:15 - 14:30
Permanent Magnet Motor: Generating Electricity from Water Waves
 The continuous expansion of industrialization and new technologies dependence upon electricity has caused an increasing burden on the available resources. This shortage of available energy sources has caused a dramatic increase in research in the field of alternative energy sources. Several new concepts have been developed due to the push for new alternative energy methods. One alternative energy method is the generation of electricity by utilizing the power of ocean waves; in particular, the use of a permanent magnet motor to harness the energy from water waves. The permanent magnet motor is a device that converts reciprocating motion into rotational motion without direct contact. The sinusoidal like form of a wave creates the reciprocating motion of the motor, which in turn is transferred into rotational motion that can be used to run a generator. For every wave, there is one rotation, and each rotation can be geared to produce several rotations of a rotor to effectively generate electricity. The main challenge of this concept was developing a design to capture as much power from each wave as possible. Considerations included properly mounting magnets to achieve the optimal generation of force, high quality machining and easy assembly to reduce unnecessary energy losses. The utilization of SolidWorks was key to fabricating an effective design. The software allowed for several designs to be developed without the expense of materials.

- Kupec, Jenna** Criminal Justice Ohio Room 15:30 - 17:00
Analysis of Genetic Variations of cpDNA in Elm species
 Chloroplasts are the membranous organelles found in plant and algae cells that produce energy through the process of photosynthesis. Chloroplasts have their own separate genome which is often and maternally inherited, known as chloroplast DNA (cpDNA). Chloroplast DNA can be used in research to examine genetic diversity within plant genus™ and species, as well as evolutionary relationships. The American elm, *Ulmus Americana*, is a deciduous tree found primarily in bottomlands and floodplains, but also naturally thrives near streams along and throughout the Appalachian Mountains. The resilience of the American elm allowed for the species to be cultivated and widely planted outside of its natural hardiness zone. Unfortunately much of the cultivated American elm tree population was destroyed by Dutch elm disease, caused by the fungus ascomycete microfungi. The vector by which the disease is transferred is the Elm Bark Beetle. This research is investigating the cpDNA genetic diversity between two particular Elm species, *Ulmus americana* and *Ulmus rubra*. DNA was isolated from healthy tissues in the old growth forest in Zoar Valley, New York, and from cultivated trees in the vicinity of YSU. CpDNA has been amplified through polymerase chain reaction conserved primers that flank more variable regions. These products are cloned, isolated and then quantitated before being sequenced for analysis. The goal of this research is to analyze the genetic differences within the cpDNA to see if there is a difference between Healthy wild trees and cultivated susceptible Elms.
- Lammon, Michelle** Biological Sciences Ohio Room 10:30 - 12:00
Targeting Staphylococcus aureus, Type 8 Capsule, by Using a Carbohydrate Mimetic: TC-I-045
 Staphylococcus aureus is a serious hospital acquired infection due to increased antibiotic resistance. Type 5 and type 8 S. aureus cause 70 percent of S. aureus infections in hospitals. Capsular polysaccharides of Staphylococcus aureus (S. aureus) are virulence factors especially in type 5 and type 8 of S. aureus. In this study, a carbohydrate mimetic competes with the enzymes that produce the capsules, thus inhibiting the production of the capsule structure. If the mimetic decreases capsule production, it would elicit an immune response to fight the bacteria. Samples of T8 (49525) S. aureus were incubated with different amounts of the chemical TC-I-045 or ethanol, where ethanol acted as the control. The presence of capsular carbohydrate was tested for via an indirect enzyme-linked immunoabsorbent assay (ELISA). Results indicate that TC-I-045 does not prevent the synthesis of the bacterial capsule independent of the concentration of the chemical in the samples.
- Langer, Jason** Geological & Environmental Science Jones Room 14:15 - 14:30
Changes in Shoreline Sedimentation at Sandy Point, San Salvador
 Changes in Shoreline Sedimentation at Sandy Point, San Salvador Sandy Point is a prominent landform located at the southwestern corner of San Salvador, Bahamas. It is a massive peninsula-shaped sand deposit created by the combination of long-shore drift along the southern and western shores of the island and intensive wave refraction at the point. GPS surveys of the shoreline conducted in March for the years 2005 – 2009 demonstrate regular and non-predictable change of the shoreline position from year to year. Visual observations and crude line-level transects for the same years indicate equally dramatic change in the overall morphology of the deposit. In an effort to better understand the processes responsible for the observed changes and document the magnitude of change, a detailed study of Sandy Point was initiated in June 2009. The data included shoreline GPS surveys, shoreline to back-beach transects (GPS and total station), and sand textural analyses. A second set of measurements and analyses was completed in March 2010. Preliminary results demonstrate a dramatic change in shoreline position from June 2009 to March 2010. In accordance with shoreline change, the beach transects show dramatic change in the overall morphology of the sand deposit. Over all, the sediment can be characterized as poorly sorted coarse sand composed of primarily carbonate shell fragments. The resulting data of shoreline and transect surveys were plotted on the topographic map of the island (1971) using ArcGIS.
- Layton, Jeffrey** Economics Pugsley Room 14:15 - 14:30
School Facilities and Performance: Evidence from Ohio
 The 1997 establishment of the Ohio School Facilities Commission sought to equalize both buildings and opportunities for students across the state. Since its inception, billions have been spent by the commission to implement its goals. This study looks at the effectiveness of this spending by examining the Ohio Graduation Test results in renovated school districts both before and after the construction spending.
- Lee, Chu Shiu** English Humphrey Room 13:30 - 13:45
Going up?: A Sociolinguistic Study of Verbal Interaction in Elevators
 This study will examine, from a sociolinguistic perspective, the nature and occurrence of verbal interactions between passengers involved in elevator encounters. The examination will attempt to define and predict which factors, if any, precipitate, predict, and limit acts of greeting and leave-taking between strangers who find themselves in unavoidably close proximity with each other in a elevator setting. In addition to incorporating live recorded data samples collected during actual elevator rides, the study will collect and analyze questionnaires regarding elevator behavior, distributed among members of the YSU student body. The results of these questionnaires will be compared to the results of the live data for the purposes of distinguishing between perceived and "actual" speech behavior. Our predictions are three fold: that greetings will reliably predict leave-taking; that the presence of fewer passengers will engender likelihood of interaction, and the inverse; and that the occurrence of interaction is the exception rather than the norm.
- Lepley, David** Technology James Gallery 14:00 - 14:15
Natural Gas Engine Conversion
 The presentation discusses a two-semester, multidisciplinary Engineering Technology project where a 2.2L Cavalier engine is converted from gasoline fuel to natural gas fuel. Modifications include completely redesigned ignition, control, and fuel systems. Key engine parameters are variable, and then monitored, displayed, and recorded. This project will remain a permanent improvement to the Mechanical Engineering Dynamometer Lab, allowing other students and faculty to use the system in research or teaching scenarios.

- Leshner, Don** Electrical & Computer Engineering Coffelt Room 14:15 - 14:30
A Prototype Wireless Thermostat
 A general purpose wireless transmitter represents a tool to engineer drop-in solutions to problems with preexisting equipment. The wireless module that was used is called the XBee module by Digi. It was chosen because of its numerous features. One possible application is the addition of a thermostat to equipment with no such device originally. A simple heater could benefit from this. Since drop-in devices are price sensitive, the design must be as simple as possible. Cadence Orcad and Pspice were used to test the feasibility of circuit designs. This system has wide applicability, and the simple thermostat design is one of many uses.
- Lettera, Christopher** English Humphrey Room 13:30 - 13:45
Going up?: A Sociolinguistic Study of Verbal Interaction in Elevators
 This study will examine, from a sociolinguistic perspective, the nature and occurrence of verbal interactions between passengers involved in elevator encounters. The examination will attempt to define and predict which factors, if any, precipitate, predict, and limit acts of greeting and leave-taking between strangers who find themselves in unavoidably close proximity with other strangers in an elevator setting. In addition to incorporating live recorded data samples collected during actual elevator rides, the study will collect and analyze questionnaires regarding elevator behavior, distributed among members of the YSU student body. The results of these questionnaires will be compared to the results of the live data for the purposes of distinguishing between perceived and actual speech behavior. Our predictions are threefold: that greetings will reliably predict leave-taking; that the presence of fewer passengers will engender a greater likelihood of interaction, and the inverse; and that the occurrence of interaction is the exception rather than the norm.
- Lettera, Christopher** English Room 2068 10:30 - 12:00
Literature and Politics
 For this presentation, I will be working under the guidance of my Senior Seminar instructor Dr. Sherry Linkon and alongside my Senior Seminar classmates Jay Newman and Lindsey Ramdin to present research that I completed for my final project during Fall semester of 2009. My studies focused on the reemerging sociopolitical relevance of the Western genre in literature and film. I analyzed Cormac McCarthy's 2005 novel, *No Country for Old Men*, as well as Tommy Lee Jones' 2005 feature film, *The Three Burials of Melquiades Estrada*, and I dissected the sociopolitical elements in each work, focusing particularly on how the traditional narrative structure of the Western was reworked in both cases to reflect sociopolitical concerns of the creators. During my oral presentation at Quest, I will read brief portions of the paper I produced on this topic and I will make use of an accompanying PowerPoint presentation to discuss the process as well as the product of my work, analyzing my experience with political literature as a Senior Seminar student as well as the critical steps I took in researching and creating my final paper.
- Lettera, Christopher** English Humphrey Room 15:45 - 16:00
Mystical Sunshine Lover
 For Quest 2010, I will be producing a chapbook comprised of four short stories set at the Burning Man Festival in the Black Rock Desert of Nevada. The chapbook itself as well as my accompanying oral presentation will be titled *Mystical Sunshine Lover*. Burning Man is an experimental yearly festival that celebrates community, the arts, and radical forms of self-expression. Under the guidance of YSU English instructor Christopher Barzak, my aim is to employ the medium of the short story to explore the various meanings that Burning Man holds to its attendees as well as its larger place in American culture. Each of my stories will explore the perspective of an American or groups of Americans from various cultural and socioeconomic backgrounds. I will draw from a variety of scholarly articles on Burning Man as well as popular media coverage and video footage of the event to shape the narratives I create. My end goal is to produce a thirty page mosaic of historical fiction that challenges audiences by incorporating elements of Western, ecological horror, and drug literature genres. During my oral presentation at Quest, I will blend discussion of my research with readings from my chapbook. Attendees will be presented with printed excerpts of my work.
- Lewis, Zachary** Sociology & Anthropology Ohio Room 13:30 - 15:00
Environmental Enrichment of Captive Gibbons
 From December 24th 2009 to January 3rd, 2010, I observed three gibbons at the Gibbon Conservation Center (GCC) in Santa Clarita, California. The study was conducted under the supervision of Alan Mootnick, Director of the GCC. The intent of this study was to record the behavior of the subject animals prior to and following the addition of numerous large branches to both cages. Observations were made using the JWatcher 2.0 program developed by the Animal Behavior Laboratory at Macquarie University in Sydney, Australia. This program allows for empirical observations of behaviors by allowing the researchers to record them with a single push of a keyboard button, and by providing exact times and durations of behaviors. The specific aim of this study is to provide a low-cost, basic solution which will provide environmental enrichment in the form of large branches added to the enclosures in order to allow additional avenues for brachiation. Branches will be added with a focus on providing a more natural medium from which to brachiate along commonly used paths through the enclosures as identified by the director of the Gibbon Conservation Center and myself. The addition of these branches fulfills the four aims of environmental enrichment as identified by Novak and Drewson (1989): (1) promoting health by encouraging activity; (2) providing comfortable and stress-free environments by making them more natural; (3) encouraging species-specific behaviors associated with brachiating locomotion; and (4) providing social and environmental enrichment by naturalizing the enclosure. Changes to behavior and activity budgets were assessed using the JWatcher 2.0 program's analysis capabilities.
- Lewis, Sarah** Foreign Languages & Literature Bresnahan I and II 11:45 - 12:00
The Pura Vida: Costa Rica from an American Student's Punto de Vista
 Costa Rica has become a haven for American tourists and expatriates alike. Its natural beauty, affordable cost of living, friendly population, and democratic stability have made tourism the leading industry in the Costa Rican economy. Of particular interest in Costa Rican development are the effects of abolishing the military in 1948 and the resulting political environment. Drawn from research and personal experience as a student studying in Costa Rica, this presentation will explore the factors that attract Americans to Costa Rica and what they discover while there.

- Leyman, Tanya** Psychology Jones Room 09:30 - 09:45
Race, Gender and Exposure Time Effects on Eyewitness Memory
 The accuracy of eyewitness memory was tested in this study, which is an extension of a study by Smith, Stinson, and Prosser (2004). One hundred and seven (39 male and 68 female) participants were tested. Participants each viewed a crime scene photograph and were then asked to respond to a brief survey answering questions about the photograph. Between the groups, there were a total of four photographs shown, but each group only saw one photograph. Each of the four photographs contained a different perpetrator, but the crime scenes remained the same, and no victim was present. There were 12 conditions, which differed in the arrangement of the independent variables (race of the perpetrator, gender of the perpetrator, and exposure time). The results revealed no significance for gender and exposure time. However, as predicted, race has shown to play a vital role in eyewitness memory.
- Lin, Wei** Mechanical & Industrial Engineering James Gallery 15:30 - 15:45
Development of Magneto-hydrodynamics (MHD) Channel
 Magneto-hydrodynamics(MHD) offers an elegant way to control fluid flow in micro devices without a need for any mechanical components. In the presence of an external magnetic field, the interaction between the electric currents and magnetic fields results Lorentz forces in a microchannel filled with ionic sample solutions and patterned with electrodes on the opposing walls. The Lorentz forces can be used to propel, stir, mix and/or manipulate fluid in the channel. So far, many works are reported about the MHD micro channels for various applications. There is still a need for better understanding of flow behavior in these microdevices. Also, there are insufficient studies of flow phenomenon under MHD in microtubules. In this work, microtubules are designed and modeled to run 2D and 3D fluid flow simulation for MHD investigation. Tubular microchannels were created, preprocessed, simulated and postprocessed in COMSOL, which is used here to model the fluid flow through Navier-Stokes and chemical ion transport through Nernst-Planck principles. In presence and absence of external magnetic fields, an extensive parametric study was performed in order to find out the cross dependencies within the various experimental parameters. Both 2D and 3D results were compared and found in a good agreement with published data in order to validate the computational study aforementioned. This research study is still a work in progress (WIP) leading towards my thesis.
- Lindsay, Dustin** Mechanical & Industrial Engineering James Gallery 14:30 - 14:45
Supermileage Vehicle
 With the current economy recovering from a recession, high fuel economy is used more often than it has in the past. One of the areas includes the use of gasoline. Fuel economy is used often in today's car industry as the basis of marketing. The ability of a lightweight vehicle to obtain the most fuel economy possible was tested. The vehicle was built to specifications provided by the Supermileage Vehicle Competition rulebook, which is sponsored by the Society of Automotive Engineers (SAE). A lightweight frame, aerodynamics, and a modified engine were the basis for achieving maximum fuel economy. The overall goal was to achieve a high miles-per-gallon rating, while following the standards of the competition. The overall design met the specifications mentioned in the SAE rulebook. Some of these included weight, brakes, and safety issues. All were taken into consideration in the design, while also maintaining an operative, fuel efficient vehicle.
- Livingston, Doug** English Humphrey Room 16:00 - 16:15
The News Outlet
 In a joint venture with the Vindicator and WYSU, the News Outlet is providing YSU journalism students the opportunity to work along side established reporters and editors. Since its inception, the News Outlet has produced numerous multi-media stories, including videos posted on Vindy.com, radio pieces airing on WYSU and print stories and packages appearing in the Vindicator. This presentation, using video/audio aids, will highlight those stories published in the Vindicator and WYSU by myself and other members of the News Outlet, as well as some of our upcoming projects. Thank You, Doug Livingston
- Lopez, Ryan** Civil / Environmental & Chemical Engineering Ohio Room 08:30 - 10:00
Polarized Light and Its Applications in Three-Dimensional Imaging and Entertainment
 Utilized in such films as Pixar's UP and James Cameron's Avatar, circularly polarized light holds the key to making two-dimensional images 'pop' into three-dimensional space. However, while producing an interesting effect; few people understand what effort goes into optimizing the image for public entertainment. Using various polarizers and lasers of different wavelengths, we conduct experiments to determine which wavelengths produce the most stable, optimal image quality. Likewise, we rotate the circular polarizers and compare the resulting intensities to known laws, such as Malus's Law. From this research, we identify patterns in three-dimensional films, and identify what makes three-dimensional effects successful.
- Loren, Renee** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of the Functions of Exercise in Weight Management among YSU Students.
 Americans have an obsession with weight management. Among those who exercise to manage their weight, perceptions of the functions of exercise may vary according to individual self-assessment of appearance, weight and health status (Weiss et al, 2006). This study will assess the perceptions of YSU students who use the Andrews Wellness and Recreation Center, regarding the role and efficacy of exercise in weight management. Participants (n=100) who provide signed informed consent will self-administer a 29-item survey that asks about their beliefs, attitudes and knowledge about the role of exercise in weight management. The pooled data will be analyzed using SPSS, 15.0. It is anticipated that significantly (p<0.05) more female participants will choose cardiovascular activity/exercise for weight loss than males; more males than females will combine supplement use, diet and exercise for weight management; and significantly more males will employ weight training than females in their weight management regimens.

- Lotey, Nimrit** Biological Sciences Ohio Room 10:30 - 12:00
Construction and Characterization of a Green Fluorescent Protein (gfp)/Titin ARMD Immunogenic Domain Fusion Protein.
 The aim of this study is to understand the role of specific titin domains in muscle development and function. This lab has been studying a specific titin domain RMMG6. Ultimately we want to transfect mouse muscle stem cells with an Autoimmune Rippling Muscle Disease (ARMD) immunogenic titan domain, RMMG6, and determine its effects of over expression of the RMMG6 on the cell's activity and development. The work presented here describes the construction of a fluorescent green protein/ ARMD immunogenic titin domain fusion protein (gfp/RMMG6). The plasmid chosen as the fusion vector is pAcGFP-C1, providing for a fluorescent marker protein. RMMG6 is derived from a plasmid originally constructed in this lab containing the rmmg6 gene (Gen Bank accession # EU428784). DNA sequence and restriction enzyme analysis of the resulting plasmids, indicate that we achieved construction of the correct plasmid. The expressed fusion gene should be a composite protein consisting of the fluorescent tag gfp and RMMG6. This will allow use to trace the RMMG6 within the muscle cells and thus define what part of the cell RMMG6 localizes to and what potential role it may play in structure/ function of the developing myocytes.
- Lowry, Heather** English Humphrey Room 14:15 - 14:30
'You Said That In Class!': A Study of the Use of Curse Words In College Classrooms
 Since using curse words in college courses seems to happen more frequently, we are distributing a survey to English 1550 courses to find out which curse words are being used, who is saying these words, the context in which curse words are used and/or accepted, and whether or not certain curse words are acceptable when used. We would like to do a presentation where we share our results with our colleagues. We hypothesize that there will be differences among survey participants in regards to age, gender, and what area of study the students are pursuing. Results are still being collected, at this point, and will be fully completed and tabulated by April 6, 2010.
- Lu, Alvin** Biological Sciences Ohio Room 10:30 - 12:00
Lung Function on a Daily Basis
 Our experiment is designed to compare and contrast the human lung capacity and breath period in differing physical situations of the body. The members of our group, five subjects total, will be studied while performing four differing breathing situations; standing, sitting, laying down, and after exercise. Breathing data will be collected using a spirometer and the accompanying equipment. Data will then be analyzed by hand using varying degrees of mathematics and using the SPSS 12.0.1 system, doing two-way ANOVA and SNK values. We hypothesize that when your lungs are more open and have more room to expand, you will then inhale and exhale a much larger lung volume. We suspect the breathing forms investigated, from greatest lung capacity to least, will be in the following order; standing, sitting, lying, and post exercise.
- Lum, Gengkon** Biological Sciences Ohio Room 15:30 - 17:00
FunSecKB: A Knowledge Base of Fungal Secretomes
 FunSecKB (<http://proteomics.yzu.edu/secretomes/fungi.html>) provides a resource of all secreted proteins, i.e. secretomes, in all fungi. The database was constructed with all available protein data in fungi from the NCBI RefSeq database. The secreted proteins contains information from three sources: (1) the entries were identified using a computational protocol including SignalP, TMHMM, WolfPsort, Phobius and PS-Scan; (2) the entries that were mapped to UniProt database with annotation of subcellular locations that were either manually curated or computationally predicted; (3) the entries we manually curated from recent literature. With a web-based user interface, the database is searchable, browsable, and downloadable by using NCBI GI, RefSeq accession number, UniProt ID, key words, and species. A BLAST utility was integrated to allow users to query the database based sequence similarity to protein sequences of their interest. A tool was also included to support community annotation. With the complete data available from fungi and associated web-based tools, FunSecKB will be a valuable resource for exploring the potential applications of fungal secreted proteins.
- Lundberg, Rachel** Dana School of Music Jones Room 16:45 - 17:00
Digitizing the Scholar Experience
 Recently, the Scholars Program of Youngstown State University has integrated the LiveText ePortfolio into its curriculum. On behalf of the Scholars Program, Justin McIntyre, Cory Okular, and Rachel Lundberg, three University Scholars and Scholar Trustees, will present the LiveText ePortfolio and the possible impact that it can have on a student's undergraduate experience. The LiveText ePortfolio is a comprehensive collection of a student's work, including scholarship, leadership, community work, work experience, or any other category that a student wishes to integrate into their portfolio. It can then be used as a valuable tool in a student's attempts at procuring internships, scholarships, education following graduation from Youngstown State University, or entrance into a profession. What separates the LiveText ePortfolio from other ePortfolios that are available to students is the networking that the program allows. Work can be easily and efficiently shared with professors, advisers, fellow students, or anyone interested in a student's college experience. From there, LiveText ePortfolio becomes a communication tool and a student can receive feedback on their ePortfolio so that they may work improve their work before submitting to potential employers or other professionals. Justin McIntyre, Cory Okular, and Rachel Lundberg will use their own experience with the LiveText ePortfolio and its implementation into the Scholars Program to inform viewers on the potential benefits that students can receive by using an ePortfolio. Sample ePortfolios will be used to provide a base for viewers to understand the possibilities available with the LiveText ePortfolio.

- Lyda, Michael** Civil / Environmental & Chemical Engineering Jones Room 11:30 - 11:45
Reinforcement of a Concrete Canoe
 Reinforced concrete has many applications. One such application is in a lightweight concrete canoe. The purpose of this research was to investigate different methods of reinforcement in a concrete canoe. Concrete is known for being very strong in compression and very weak in tension. So in order to construct a structurally sound concrete canoe, research has to be conducted to find a suitable reinforcement material to withstand the tensile forces in a canoe. For this research, four different types of reinforcement mesh, and different methods of prestressing were investigated to find an ideal reinforcement scenario. Testing was conducted by casting concrete plates representative of a canoe hull (0.5" thick featuring two layers of reinforcement sandwiched between 3 layers of concrete). The plates were then loaded until failure, and the values recorded. Tests featuring prestressing tendons impregnated into the tensile face of the concrete plate were also conducted. These tests also featured a chemically prestressed concrete mix which is an innovation the YSU Concrete Canoe team has never before used. Through all the testing, it was found that a mix of chemically prestressed concrete, reinforced by 3/8" fiberglass mesh and 3/32" steel prestressing tendons will give the concrete canoe the required flexural strength it needs to withstand the rigors of competition racing.
- Mabbott, Benjamin** Mechanical & Industrial Engineering James Gallery 11:30 - 11:45
Development of a Microfluidic Impedance Sensor
 Microelectromechanical systems (MEMS) are a rapidly expanding research and development area. Nationwide research is being done to develop MEMS based sensing systems for the rapid detection of pathogenic bacteria and contaminants, which pose a threat to the public health. The technology is currently needed in the automotive, food, and medical industries. There are many methods for sensing pathogenic bacteria and contaminants in a sample available, but this study was done solely on impedance sensors. Two methods of production were used in this study. The first method was traditional micromachining. The second method was photolithography. Both methods were challenging for different reasons and their pros and cons were explored and analyzed. In addition, a computer model based on continuity equations was constructed for comparison with the actual sensors. The computer model consisted of a long microchannel with two electrodes placed on opposite sides of the channel. It was challenging to produce results consistent with the physical world from the computer program due to the model containing many variables. However the results were consistent with past research that had been performed in this field. Tests of the actual sensors detected contaminants. These results were compared with the computer model for verification.
- Macali, Mark** Mechanical & Industrial Engineering James Gallery 10:45 - 11:00
Design and Construction of a Human Powered Moonbuggy
 The moonbuggy project is part of a student competition known as the NASA Great Moonbuggy Race. This competition is held every year during the spring at the U.S. Space & Rocket Center in Huntsville, Alabama. Approximately fifty universities from all around the world compete for the best time. The event involves a vehicle erection time, course run time, and penalty time. The vehicle erection time is the amount of time it takes to erect the vehicle from a storage condition to an operable, drivable state. The course run time is the amount of time it takes a team to complete the course. The penalty time involves different penalties that are garnered during the vehicle erection and race. Penalties are attributed for a plethora of reasons from getting out of the moonbuggy to not completing an obstacle. The course is composed of harsh terrain conditions and several obstacles that emulate the surface of the moon. A collapsible human-powered vehicle was designed and fabricated that had design specifications provided by NASA to fit in a maximum volume of 4â€x4â€x4â€ in a collapsed fully assembled state. The vehicle was powered and controlled by one woman and one man. The design was improved by making a lighter frame out of aluminum; in addition, other things were improved: a new gearing system, more absorbent shocks, and all terrain tires. The challenge in constructing the moonbuggy was to keep it strong and durable while decreasing the weight of the vehicle.
- Madeline, Ronald** Sociology & Anthropology Bresnahan I and II 10:45 - 11:00
Archaeological Excavation and Research of Storr's Lake San Salvador (Commonwealth of the Bahamas)
 Excavation at the archaeological site SS-4 at the North end of Storr's Lake, on San Salvador Island in the commonwealth of the Bahamas. The excavations were completed by Youngstown State University students. As lead investigator, I took a team of six fellow YSU students to this site in order to excavate for artifacts from the Lucayan Indian Culture, who inhabited the island of San Salvador in the 1400's. Our job was to choose a site, clear, map, and lay transects where I decided to place our test pits. Our test pits were 1 by 1 square meters placed within our transects, and were dug approximately 40cm below the surface or until we hit sterile ground. The tools we used for our work included trowels, dust pans, brushes, shovels, compasses, string, marking tape, tape measures, five gallon buckets, stakes, and machetes for clearing our site. Our findings included broken pieces of Palmetto ware, shell beads, fish vertebrae, and broken pieces of shells. All of our finds were taken back to an archaeology lab where they were examined, cataloged, and stored.
- Mahoney, Brendan** Mechanical & Industrial Engineering James Gallery 11:15 - 11:30
Design of the Pressurized Shell for a Thick-Walled Hydraulic Actuator
 The goal of this project is to design a pressurized shell of a thick-walled cylindrical hydraulic actuator. Hydraulic actuators are used in large variety applications in heavy machinery. In this project the thickness of the 1020 steel cylinder must be determined for a design factor of safety of 2.5 in order to be able to lift a static load of 14,000lbs via a pressure supply of 2000psi. To simplify the problem, the stress concentration factors and deflections were ignored. The approach is to calculate the stresses within the wall of the pressure vessel as influenced by the wall thickness. In addition, parametric studies of various wall thicknesses were performed in order to optimize the cylinder design. Results were verified with a computer simulation using COMSOL, a commercially available FEA software and also compared with published literature.

- Majeti, Jaiakshmi Manasa** Chemistry Ohio Room 10:30 - 12:00
Preliminary Characterization of HIV-1 protein Vpr
 Human immunodeficiency virus type 1 (HIV-1) is a retrovirus that is well known to be the causative agent for acquired immunodeficiency syndrome (AIDS). HIV-1 contains many proteins such as Vpr, Tat, Rev, Vif, Vpu and Nef that help regulate its function. Viral protein R (Vpr) is an accessory protein that is involved in virus replication and plays a key role in the function of HIV-1. Vpr has the ability to arrest the cell cycle of infected cells in the G2 phase which leads to the immunopathogenicity of HIV-1. There are 96 amino acid residues in Vpr and is well conserved in HIV-1, HIV-2 and simian immunodeficiency virus (SIV). Structure determination and analysis of Vpr (1-96) molecule is anticipated to reveal more insights into its biological function and the role played by this protein during the virus life cycle. Our ongoing study involves the relationship between the structure and function of Vpr as it plays a significant role in HIV biology and in the pathogenesis of AIDS.
- Makara, Michael** Biological Sciences Ohio Room 10:30 - 12:00
Glycomimetics as an Inhibitor of Staphylococcus aureus Capsule Formation
 Staphylococcus aureus is a bacterial pathogen that causes a wide range of clinical infections. The enhanced virulence seen in S. aureus can be attributed to the formation of a protecting polysaccharide capsule that surrounds and protects the organism. The goal of this study is to synthesize a molecule that mimics the structure of an individual sugar unit, but, once incorporated, would halt the synthesis of capsular polysaccharide. The biomimetic tested, named TC-I-027, was added to growing cultures of S. aureus in varying concentrations and left to incubate. Once grown, the S. aureus was fixed and an ELISA was performed to determine the amount of capsule produced. In the ELISA assay, the S. aureus was incubated with antibodies that had previously been shown to bind to the capsular polysaccharide. The amount of antibody bound corresponded to the amount of capsule produced. Results of the data showed that compound TC-I-027 did not prevent capsule synthesis.
- Makridis, Nikki** Marketing Room 2068 14:30 - 14:45
The Penguin Odyssey at Youngstown State University: Exploring the Effects of Faculty-Led Study Abroad Tours
 As globalization continues to sweep across the world changing the way societies must think and act, the demand for an international education has become imperative. To meet the demands of the global marketplace, Youngstown State University has provided students from a variety of disciplines with opportunities to interact with their international peers, develop appreciation and understanding of foreign cultures, and engage in field work relevant to their areas of study. Through application of our collective qualitative research and cross-cultural studies in San Salvador, Hong Kong, Shanghai, Beijing, London, and Dublin, we conclude that faculty-led study tours allow students to transcend the traditional classroom setting and gain invaluable exposure to global travel in diverse cultures and their various stages of development.
- Mamounis, Joseph** Communication & Theater Pugsley Room 11:15 - 11:30
Paying Sources for the Facts: An Ethical Analysis and Case Study
 This paper analyzes the ethical dilemma presented to celebrity gossip website TMZ.com when they reportedly paid a source within the Los Angeles Police Department (LAPD) to leak the graphic crime scene photo of RnB singer Rihanna. To achieve this, moral and non-moral values considered in making this decision are analyzed to gain an understanding of the decision-making process. Also the moral theory of Natural Law is applied to the said situation in an attempt to evaluate whether the appropriate conclusion was made. The paper also includes the author's opinion regarding the decision made in relation to the ethical dilemma.
- Mancuso, Nicholas** Mechanical & Industrial Engineering James Gallery 16:00 - 16:15
Alternative Fuels Examined: Are Electric Cars the Future?
 This presentation addresses the ongoing search for alternative fuels with regard to automobiles and finds electricity to be the leading prospect. Ethanol, methanol, biodiesel, propane, and natural gas are other popular alternatives that are all briefly examined, but electricity outperforms the field in efficiency and supply. Electric cars are becoming increasingly popular among car manufacturers, and as competition increases to place an affordable, long-distance electric car on the market, it is speculated that technology will augment and costs will drop significantly. Lithium-ion batteries have already experienced such a technological enhancement as in just over one year they've jumped from powering cell phones to power tools, all while packing 10 more volts into a slimmer, smaller model battery. As engineers continue to work on improving battery life, the sky is the limit for electric car technology.
- Mattila, Leanna** Psychology Jones Room 08:45 - 09:00
Age, Similarity, and Perspective Taking: Factors that Affect Empathy for Animals
 In this study, the effects of three factors that affect empathy for animals is examined: age of animal, animal-to-human similarity, and perspective taking instructions. As was done in the work by Allen et al. (2002), subjects were presented with scenarios describing an instance of animal abuse. The animal was described as being young or adult, and as being an iguana or a chimpanzee. Half of the participants were given instructions to take the perspective of the animal prior to reading the scenario. The participants were then asked to offer a recommendation for the abuser's penalty and to rate their experience of empathy for the animal. Results showed that there was a significant effect of the animal's species on the fine amount recommended by the participant.

- Matune, Nicholas** Mechanical & Industrial Engineering James Gallery 11:30 - 11:45
Development of a Microfluidic Impedance Sensor
 Microelectromechanical systems (MEMS) are a rapidly expanding research and development area. Nationwide research is being done to develop MEMS based sensing systems for the rapid detection of pathogenic bacteria and contaminants, which pose a threat to the public health. The technology is currently needed in the automotive, food, and medical industries. There are many methods for sensing pathogenic bacteria and contaminants in a sample available, but this study was done solely on impedance sensors. Two methods of production were used in this study. The first method was traditional micromachining. The second method was photolithography. Both methods were challenging for different reasons and their pros and cons were explored and analyzed. In addition, a computer model based on continuity equations was constructed for comparison with the actual sensors. The computer model consisted of a long microchannel with two electrodes placed on opposite sides of the channel. It was challenging to produce results consistent with the physical world from the computer program due to the model containing many variables. However the results were consistent with past research that had been performed in this field. Tests of the actual sensors detected contaminants. These results were compared with the computer model for verification.
- McCann, Stephanie** Biological Sciences Ohio Room 10:30 - 12:00
Construction and Characterization of a Green Fluorescent Protein (gfp)/Titin ARMD Immunogenic Domain Fusion Protein.
 The aim of this study is to understand the role of specific titin domains in muscle development and function. This lab has been studying a specific titin domain RMMG6. Ultimately we want to transfect mouse muscle stem cells with an Autoimmune Rippling Muscle Disease (ARMD) immunogenic titan domain, RMMG6, and determine its effects of over expression of the RMMG6 on the cell's activity and development. The work presented here describes the construction of a fluorescent green protein/ ARMD immunogenic titin domain fusion protein (gfp/RMMG6). The plasmid chosen as the fusion vector is pAcGFP-C1, providing for a fluorescent marker protein. RMMG6 is derived from a plasmid originally constructed in this lab containing the rmmg6 gene (Gen Bank accession # EU428784). DNA sequence and restriction enzyme analysis of the resulting plasmids, indicate that we achieved construction of the correct plasmid. The expressed fusion gene should be a composite protein consisting of the fluorescent tag gfp and RMMG6. This will allow use to trace the RMMG6 within the muscle cells and thus define what part of the cell RMMG6 localizes to and what potential role it may play in structure/ function of the developing myocytes.
- McIntyre, Justin** Political Science Jones Room 16:45 - 17:00
Digitizing the Scholar Experience
 Recently, the Scholars Program of Youngstown State University has integrated the LiveText ePortfolio into its curriculum. On behalf of the Scholars Program, Justin McIntyre, Cory Okular, and Rachel Lundberg, three University Scholars and Scholar Trustees, will present the LiveText ePortfolio and the possible impact that it can have on a student's undergraduate experience. The LiveText ePortfolio is a comprehensive collection of a student's work, including scholarship, leadership, community work, work experience, or any other category that a student wishes to integrate into their portfolio. It can then be used as a valuable tool in a student's attempts at procuring internships, scholarships, education following graduation from Youngstown State University, or entrance into a profession. What separates the LiveText ePortfolio from other ePortfolios that are available to students is the networking that the program allows. Work can be easily and efficiently shared with professors, advisers, fellow students, or anyone interested in a student's college experience. From there, LiveText ePortfolio becomes a communication tool and a student can receive feedback on their ePortfolio so that they may work improve their work before submitting to potential employers or other professionals. Justin McIntyre, Cory Okular, and Rachel Lundberg will use their own experience with the LiveText ePortfolio and its implementation into the Scholars Program to inform viewers on the potential benefits that students can receive by using an ePortfolio. Sample ePortfolios will be used to provide a base for viewers to understand the possibilities available with the LiveText ePortfolio.
- McKinney, Aaron** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Time- domain transient equations for charging voltage and current of a RC circuit utilizing Differential & Integral Calculus, Differential Equations, Laplace Transform and Computer Simulations.
 Derivations of time domain transients of charging voltage and current of series RC (Resistor & Capacitor) circuit can be obtained utilizing various mathematical and simulation techniques. In this research project, the time- domain differential equations will be derived by using integration techniques and differential equation solutions. The differential equation will also be solved by applying Laplace Transform (transformation into complex frequency domain). The solutions (amplitude vs. time) will be shown in a graphic form using Microsoft Excel. This graph will be compared to the results obtained from RC circuit simulations utilizing Electronic Work Bench (EWB) Circuit Design Suite Multisim 10.1.
- Melia, Carrie** Psychology Jones Room 09:15 - 09:30
Interference of Perceptual Simulation by Suggested Location of Word and Image Cues
 Perceptual simulations are composed of modal symbols and are thought to represent concepts in the brain by activating neural pathways in the sensory cortices of the brain (Barsalou, 1999). Interference can occur if similar simulations are activated (Estes et al., 2008). In this study, the interference of simulations was tested by presenting subjects with words and images that denoted a high, a neutral, or a low spatial location, followed by a target appearing at the top or at the bottom of the screen. If perceptual simulations occur, reaction time (RT) should increase if the location indicated by the stimulus is the same as the presented target location (Estes et al., 2008). I found that there is a significant effect of suggested location and target position on RT. This study is an extension of Estes, Verges, and Barsalou (2008), and will be modified to include an image condition.

- Meyer, Cassidy** Teacher Education Ohio Room 13:30 - 15:00
Effects of Ethidium Bromide on Mitochondrial DNA in the yeast Saccharomyces Cerevisiae.
 Mitochondria are organelles found in eukaryotic cells. Mitochondria function as the powerhouse of the cells, converting food into energy through the Krebs cycle and oxidative phosphorylation. Mitochondria contain their own DNA (mtDNA) which varies in size depending on the organism. In humans it is ~80kbs, while yeast mtDNA is ~17kbs. This difference in size does not reflect the content and function of the genome. The larger yeast mtDNA genome actually encodes fewer proteins of the respiratory chain than the human mtDNA genome does. Mitochondrial DNA mutates at a higher rate than nuclear DNA, most likely due to inadequate repair mechanisms. Mutants (rho-) of yeast mtDNA with massive deletions occur spontaneously or can be induced by mutagens such as Ethidium bromide (EtBr). Some rho- mutants, HS rho-, contain a conserved rep sequence and have a pronounced replication/segregation advantage; others do not (N rho-). A nuclear gene, MGT1, that resolves recombination structures, is required for preferential transmission of HS rho- mutants, but is not required for normal mtDNA maintenance. Previous research done by Dr. Lorimer discovered that not all rho- mutants, HS or N, are maintained in the absence of MGT1, while others are relatively stable. Currently, not enough different rho- mutants have been screened for maintenance to determine what cis-acting DNA sequences may be involved in either maintenance or loss in the absence of MGT1. Therefore we are generating new rho- mutants with EtBr, and characterizing them. Mutants that have genomes of 1,000 bp or less will then be tested for stability in MGT1 knockouts and sequenced.
- Mike, Joshua** Mathematics & Statistics Ohio Room 08:30 - 10:00
The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex
 Senktide is a drug that increases firing activity in prefrontal cortex layer V pyramidal neurons. Senktide activates the NK3 receptor in the neurons. In order to investigate this response, we developed a biophysically based model incorporating the multiple currents effecting the firing activity of these neurons. This model was compared to our experimental data, obtained from whole cell patch recordings of the neurons in vitro, in order to determine the currents sensitive to senktide. Additionally, the model was numerically analyzed using dynamical systems techniques to determine the mechanisms of NK3 activation.
- Mike, Joshua** Mathematics & Statistics Coffelt Room 16:15 - 16:30
The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex
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- Mikula, Nicholas** Technology James Gallery 16:45 - 17:00
Water Conservation
 This project unites the mechanical skills of an engineer and the inventive concepts of an artist. We constructed a pro-active piece that allures the viewer with an unrecognizable construct. When water becomes polluted with anthropogenic contaminants it becomes dangerous for human activities and can no longer sustain life for aquatic communities. In the Mahoning Valley inorganic water pollutants are the leading contributor to our water conservation concerns. As a community we must become aware of our essential environment and work together to preserve it for the future of our natural world. By increasing public curiosity, we as students are presented with the opportunity to expand this awareness through a combination of sculpture and engineering.
- Miller, Kevin** Mechanical & Industrial Engineering James Gallery 10:30 - 10:45
Analysis of Shaft and Gear Transmission for a Small Winch-Crane Unit
 A transmission assembly constructed of steel spur gears has been analyzed for use in a small winch-crane unit operating at 95% efficiency. A winch-crane unit is a device utilized for lifting moderately heavy loads and transporting these around a shop or laboratory environment. Geometrical parameters of the transmission have been provided which contains 6 gears of given geometry, supported with flanged bearings. Analysis includes output speed and torque of the transmission, stress analysis performed on each gear and supporting shaft as well as stress analysis for the transmission housing itself. The analysis of the transmission have been done theoretically and validated through Finite Element Analysis (FEA) software simulation. Completion of this project has provided the company with insight into the reliability and efficiency of the winch-crane transmission.
- Minor, Jeremy** Mechanical & Industrial Engineering James Gallery 13:30 - 13:45
Constructing and Modelling a Small Horizontal Axis Wind Turbine
 With the increasing interest in green technologies, privately owned small scale wind turbines are becoming more and more popular. According to the American Wind Energy Association, the domestic market saw a 78% increase in sales from 2008 to 2009. This presentation documents the construction, modeling, and testing of a small horizontal axis wind turbine based on the following design variables: headwind speed, tip speed ratio, blade angle, rotor diameter, and airfoil shape of the blades. The main focus in construction was the design and fabrication of the blades and hub connections. The fabricated blades used a double airfoil design to maximize start-up in low winds and regulate rotation speeds in high winds. They were manufactured using polyurethane foam injection molding and reinforced with fiberglass. A second set of commercially available blades which used a single airfoil design and had known performance specifications were tested for comparison to the fabricated blades. Models of the various components of the wind turbine were created in a computer aided design package (Solidworks). Mechanical and fluid behavior of the system was predicted using computer analyses (Algor and Fluent) to ensure structural stability and fluid flow. Computer predictions of the wind turbine system using both sets of blades were compared with real world test data from the constructed wind turbine system.

- Mistovich, Laura** English Humphrey Room 13:30 - 13:45
Going up?: A Sociolinguistic Study of Verbal Interaction in Elevators
 This study will examine, from a sociolinguistic perspective, the nature and occurrence of verbal interactions between passengers involved in elevator encounters. The examination will attempt to define and predict which factors, if any, precipitate, predict, and limit acts of greeting and leave-taking between strangers who find themselves in unavoidably close proximity with other strangers in an elevator setting. In addition to incorporating live recorded data samples collected during actual elevator rides, the study will collect and analyze questionnaires regarding elevator behavior, distributed among members of the YSU student body. The results of these questionnaires will be compared to the results of the live data for the purposes of distinguishing between perceived and actual speech behavior. Our predictions are threefold: that greetings will reliably predict leave-taking; that the presence of fewer passengers will engender a greater likelihood of interaction, and the inverse; and that the occurrence of interaction is the exception rather than the norm.
- Moy, Jennifer** Chemical Engineering Ohio Room 10:30 - 12:00
The Use of Mathematics to Examine the Operation of an Electrochemical Cell
 The basics of an electrochemical cell were explored. In order to evaluate and understand the current distribution across an electrochemical cell, mathematical equations were investigated. These equations are expressed through upper-level calculus and differential equations. An objective of the project was to gain a better understanding of these equations.
- Moy, Stephen** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Triaxial Method Resonant Chamber for Low Frequency Electromagnetic Testing
 Design and Construction of a Low Cost Tube-in-Tube Triaxial Device The tube-in-tube test method is utilized for measuring the transfer impedance and the shielding and screening attenuation of the coupling of electromagnetic interference. It is a triaxial method for testing Electromagnetic Compatibility (EMC) of data communication transmission line structures (cable assembly and connection system). It provides an efficient and accurate way to test electromagnetic leakage at low frequencies. The network analyzer is used to measure the attenuation characteristics at the output of the tube-in-tube with test samples. Frequency sweep by the network analyzer will generate information on attenuation provided by the sample (cable assembly and/or connectors) at various test frequencies. The tube-in-tube test apparatus acts as a coaxial cable, allowing the measurement of voltage drop at the outside of the tube. This device is designed to allow for a cost improvement over a commercially available apparatus with similar functions. The device is also constructed to allow for better test flexibility to decrease test time and test cost. This is accomplished by incorporating a custom built lid and base assembly create a sealed chamber that is easy to open and close, making it more user-friendly. An adjustable end connector allows one to test different lengths of wire samples. Test results comparable to the commercially available device are verified.
- Moyer, Deborah** Ohio Room 13:30 - 15:00
The Impact of Shift Work on Hospital Employees
 Shift work is a necessary component of healthcare. Effective twenty-four hour healthcare coverage must be maintained at all times with attention to safe staffing levels. The purpose of this study is to examine the behaviors and attitudes of shift work employees in an urban hospital setting. Frequent issues related to shift work include fatigue, problems with sleep, and the consumption of junk food. This study examines the impact of shift work on such issues and the health, wellness, and the job satisfaction of shift employees. A non-experimental design was utilized to compare the habits of individuals working steady shifts to individuals working rotation shifts. The survey instrument includes items with a Likert type response format. It was distributed to employees from various nursing units at a local hospital in northeast Ohio. A stratified random selection process was utilized inviting 60 employees to participate in the study with 54 surveys returned yielding a 90% response rate. Over 50% of employees rotate shifts. The participants were predominantly female, over 41 years old, with 16 years or more in their current position. The results confirmed that employees that rotate shifts exhibit signs of stress and dissatisfaction with their positions to a greater degree than employees on a permanent shift work schedule. This study also revealed the rotation shift employees have a greater amount of problems with rest and sleep and a higher level of fatigue. The consumption of junk food during work hours was most often seen by the rotation shift employees. Information from this study and others like it may be useful in planning shift assignments and policies.
- Neiheisel, James** Mechanical & Industrial Engineering James Gallery 10:30 - 10:45
Analysis of Shaft and Gear Transmission for a Small Winch-Crane Unit
 A transmission assembly constructed of steel spur gears has been analyzed for use in a small winch-crane unit operating at 95% efficiency. A winch-crane unit is a device utilized for lifting moderately heavy loads and transporting these around a shop or laboratory environment. Geometrical parameters of the transmission have been provided which contains 6 gears of given geometry, supported with flanged bearings. Analysis includes output speed and torque of the transmission, stress analysis performed on each gear and supporting shaft as well as stress analysis for the transmission housing itself. The analysis of the transmission have been done theoretically and validated through Finite Element Analysis (FEA) software simulation. Completion of this project has provided the company with insight into the reliability and efficiency of the winch-crane transmission.
- Nemergut, Daniel** Astronomy / Physics Ohio Room 08:30 - 10:00
Calibration of OIII Spectrophotometric Standard Stars
 In observational astronomy, the brightness of stars is calibrated with observations of standard stars. There are many such stars for broad-band filters, but many fewer in narrow-band filters, such as the filter that transmits the doubly-ionized emission line of Oxygen ([O III]). This makes it difficult for calibrating images taken using this filter. The goal for this project was to carefully measure the magnitudes and positions of potential narrow-band standard stars around the galaxy M87 in the Virgo Cluster. The data was taken with the Kitt Peak WIYN 0.9-m telescope. The results of this project will be compared to an independent study that is being conducted using the same method, but with a different telescope. If the stars prove to be constant and easy to locate, then they will be published as being candidates for calibration in future studies.

- Newman, Jason** English Room 2068 10:30 - 12:00
Literature and Politics
 In case I Have to Return Some Video Tapes: The Carnival Paradox and the Politics of the Grotesque, I link Russian critic/philosopher Mikhail Bakhtin's theory of the carnivalesque to Bret Easton Ellis's novel American Psycho. In addition, I discuss how conformity to the politics of consumer capitalism eliminates the carnival spirit within the novel and how Ellis's message is resistant to consumer-capitalist ideology and therefore carnivalesque. The Grotesque then acts as a vehicle for Ellis's display of resistance to consumer capitalism. Along with my analysis, I will discuss the complex process of the paper's preparation: a semi-weekly blog documenting progress, a proposal explaining the intentions of the paper, a critical review essay discussing ongoing research of the topic and novel, a detailed outline of the paper, an in-class presentation on the paper and the research involved, a revised draft that was reviewed by both my professor and a critical friend who made suggestions for improvement, and finally the finished paper.
- Nezdoba, Jesse** Electrical & Computer Engineering Coffelt Room 13:45 - 14:00
Encrypted Wireless Network for Vibration Data Acquisition
 The structural integrity of U.S. bridges is to be monitored via wireless sensor networks to determine and monitor the structural health of a highway bridge. An algorithm will determine bridge health based on vibration data collected from a wireless network of SunSPOTS. This health index will further the efforts to save human lives, avoid costly repairs, prevent unnecessary reconstructions, and provide timely restorations. The basis for the hardware design is the Sun Small Programmable Object Technology, or SunSPOT. These devices contain a Squawk based Java VM and an IEEE 802.15.4 radio (Zigbee). The SunSPOT has digital IOs on board to which a daughter card can be attached. An attached daughter PCB houses an adjustable gain op amp and a single axis vibration sensor. The vibration sensor measures continuous and impulsive vibrations produced from automobile traffic. A network consisting of three SunSPOTS and their individual vibration sensors complete the mesh network. The network of sensors is integrated with a host computer to collect and organize the vibration data.
- Ngo, Lorna** Chemistry Ohio Room 10:30 - 12:00
Elucidation of the Function of the Glutathionylspermidine in E. coli
 Tripeptide glutathione (GSH) is the primary thiol found in most organisms including humans. It functions to protect organisms from oxidants and other harmful electrophiles. In E. coli, GSH partakes in a reaction with polyamine spermidine to form the conjugate, glutathionylspermidine (G-Sp). The physiological role of G-Sp is still unclear, although it was shown that in the late phase of bacterial growth as well as under anaerobic conditions a significant part of GSH is bound to spermidine. Two approaches were undertaken in order to elucidate the role of GSp. One is the analysis of the effect of the elimination of the genes responsible for the synthesis of GSp from the E. coli genome. Second is the creation of the affinity matrix with immobilized GSp to capture the proteins that could use GSp as a ligand or cofactor.
- Nguyen, David** Biological Sciences Ohio Room 10:30 - 12:00
Gels to Resolve the Large Molecular Protein Titin.
 Although it is a widely used laboratory technique for separating most proteins by size, sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) is inadequate for resolving proteins of relatively high molecular weight. To address this issue, large molecular weight proteins can be electrophoresed through gels of a different composition. These gels usually contain agarose or specific ratios of agarose to acrylamide. Agarose, which is used for gels that resolve DNA fragments, allows for a larger molecular pore size while retaining physical integrity. In this project, two previously published techniques were adapted for use in titin studies conducted in Dr. Gary Walker's laboratory. The first technique described a 1% agarose gel which was later doubled for a 2% gel. The second technique called for a composite polyacrylamide-agarose gel (2% and 0.5% respectively). The techniques were compared to each other for their resolution of large molecular weight proteins and transferability to membranes for Western blotting. Of the two techniques, the composite polycarylamide-agarose gel was able to resolve large proteins with clearer, sharper bands. The technique has implications for use in resolving titin in its native form for studies on rippling muscle disease associated with myasthenia gravis.
- Norge, Matt** Mechanical & Industrial Engineering James Gallery 14:15 - 14:30
Permanent Magnet Motor: Generating Electricity from Water Waves
 The continuous expansion of industrialization and new technologies dependence upon electricity has caused an increasing burden on the available resources. This shortage of available energy sources has caused a dramatic increase in research in the field of alternative energy sources. Several new concepts have been developed due to the push for new alternative energy methods. One alternative energy method is the generation of electricity by utilizing the power of ocean waves; in particular, the use of a permanent magnet motor to harness the energy from water waves. The permanent magnet motor is a device that converts reciprocating motion into rotational motion without direct contact. The sinusoidal like form of a wave creates the reciprocating motion of the motor, which in turn is transferred into rotational motion that can be used to run a generator. For every wave, there is one rotation, and each rotation can be geared to produce several rotations of a rotor to effectively generate electricity. The main challenge of this concept was developing a design to capture as much power from each wave as possible. Considerations included properly mounting magnets to achieve the optimal generation of force, high quality machining and easy assembly to reduce unnecessary energy losses. The utilization of SolidWorks was key to fabricating an effective design. The software allowed for several designs to be developed without the expense of materials.

- Nuss, Deidra** Dana School of Music Jones Room 16:15 - 16:30
The Evolution of the Third Movement in Symphonies of Haydn, Mozart, and Beethoven
 At the end of the Baroque period and through the classical period, the third movement of most four movement symphonies was in the form of a Da Capo Minuet or a Da Capo Minuet and Trio. However, this was no longer the case later in the Classical and in the early Romantic period. In my paper I will analyze the form of the third movement in order to determine its evolution in symphonies by Haydn, Mozart, and Beethoven. While Haydn and Mozart mainly used the Da Capo Minuet and Trio form, Beethoven began to change and alter this form, often replacing it with a scherzo. He continued to tweak the form of the third movement throughout all nine of his symphonies. In my paper, I will outline the Da Capo Minuet and Trio form in Haydn's Farewell Symphony no. 45 in F# minor, and then focus, more specifically, on Beethoven's deviations from the form in symphonies 1, 2, 3, 6, 8, and 9.
- Nuzzi, Anthony** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Robot Arm for Medical Applications
 The robotic arm was designed for real-time applications to which it would operate over a network. The design purpose was to construct a network host-server connection through which an operator that may be able to perform tasks from a remote location. This would give the user freedom to operate on objects or complete projects at their leisure without the need to travel to the given location. The design was made from aluminum in order to give it strength and durability. The control interfaces, which were implemented to provide user control and to facilitate the movement of the arm, were written in C# language and allow real-time user control through USB connectivity. The host-server connection was achieved via pre-existing VNC freeware. The result of the design gives the user freedom to rotate freely around a two feet radius, and the robotic arm can lift multiple objects of size and weight.
- Nycz, Michael** Astronomy / Physics Coffelt Room 11:15 - 11:30
Investigation of Ohmic Contacts on p-type Semiconductors
 Investigation of Ohmic Contacts on p-type Semiconductors An ohmic contact is a metal-semiconductor junction that allows for the transfer of current into an electronic device. Ohmic contacts are essential in the fabrication of a variety of devices such as LEDs, laser diodes and transistors used in everyday electronic devices. They have a linear current-voltage relationship with little resistance. Gallium nitride (GaN) and silicon carbide (SiC) are important semiconductors for making optical devices such as blue LEDs, photodiodes and laser diodes and for making electronic devices for high temperature applications. In this study, we investigated ohmic contacts on p-type GaN and p-type SiC. Tungsten boride (WB) was deposited onto these semiconductors and the resulting contacts were processed by further annealing in vacuum or in a nitrogen environment. On p-type GaN, both methods of annealing produced contacts with ohmic behavior, but the vacuum annealing at 900°C for 5 minutes gave the best result. Transmission-line model (TLM) characterizations were taken on the vacuum-annealed contacts on p-type GaN and a specific contact resistance of 0.55 Ω -cm² was obtained. We will provide other results obtained using other metal contacts.
- O'Brien, Adam** Mechanical & Industrial Engineering Ohio Room 08:30 - 10:00
Development of Production Standards in the Food Processing Industry
 The food preparation process was chosen for study in the cold prep processing line due to its impact on throughput goals. At the facility where 2,200 cases of sauce are produced per day it is critical to achieve 200 cases per hour and every process that contributes to the final product is critical. Therefore, work measurement data was collected and analyzed by the authors, Industrial and Systems Engineering students enrolled in ISEN 3736 and 3736L Methods Engineering & Laboratory. Classic tools together with a PC-based video system for Motion and Time Study were used for observation, data collection and analysis. This research conducted at a local company provided the authors with the opportunity to sharpen both technical and communication skills essential to their education and training as future Industrial Engineers.
- Okular, Cory** Political Science Jones Room 16:45 - 17:00
Digitizing the Scholar Experience
 Recently, the Scholars Program of Youngstown State University has integrated the LiveText ePortfolio into its curriculum. On behalf of the Scholars Program, Justin McIntyre, Cory Okular, and Rachel Lundberg, three University Scholars and Scholar Trustees, will present the LiveText ePortfolio and the possible impact that it can have on a student's undergraduate experience. The LiveText ePortfolio is a comprehensive collection of a student's work, including scholarship, leadership, community work, work experience, or any other category that a student wishes to integrate into their portfolio. It can then be used as a valuable tool in a student's attempts at procuring internships, scholarships, education following graduation from Youngstown State University, or entrance into a profession. What separates the LiveText ePortfolio from other ePortfolios that are available to students is the networking that the program allows. Work can be easily and efficiently shared with professors, advisers, fellow students, or anyone interested in a student's college experience. From there, LiveText ePortfolio becomes a communication tool and a student can receive feedback on their ePortfolio so that they may work improve their work before submitting to potential employers or other professionals. Justin McIntyre, Cory Okular, and Rachel Lundberg will use their own experience with the LiveText ePortfolio and its implementation into the Scholars Program to inform viewers on the potential benefits that students can receive by using an ePortfolio. Sample ePortfolios will be used to provide a base for viewers to understand the possibilities available with the LiveText ePortfolio.
- Okumu, Antony** Chemistry Ohio Room 15:30 - 17:00
Safe Alkyl and Acyl azide Synthesis Using Arylsulfonyl Azides
 Alkyl and acyl azides are important intermediates in the synthesis of various organic functional groups and heterocycles, however their use is often hampered by inherent instability and the use of metallic azides for their preparation. We have now found that readily handled arylsulfonyl azides are convenient reagents for azidation reactions of alkyl and acyl halides, as well as alcohols. Microwave heating speeds up conversions and the formation of azide products is easily monitored by IR analysis of reaction mixtures.

- O'Rell, James** Computer Science & Information Systems Humphrey Room 08:45 - 09:00
Individualized Asynchronous Distance Learning for Less Commonly Taught Foreign Languages
 As a graduate research assistant to Dr. Melissa Smith on a project about the YSU Department of Foreign Languages participation in a recently-inaugurated Northeast Ohio consortium on distance learning in foreign languages, my duties became both student and observer of the Beginning Japanese class, which was taught by Sharley Chang at the University of Akron. The observer end of these duties were far more successful than the student end of things. Therefore, Dr. Smith suggested I readjust my work as her research assistant to create an ideal method distance instruction, using my technical background. The goal was to create a user-friendly, asynchronous method for someone such as myself, a typical YSU student. My work is a comparative case study of existing methods. Therefore, I have been designing my own ideal course and the delivery of the curriculum. Of course, being a technical person by nature, my primary focus will be the delivery system. I have been interested in studying Japanese language because of its relevance to my field, which is game design. My major did not have a foreign language requirement. Due to my experience with Japanese 101, I have a decent concept of what works and what doesn't. My experience with the Japanese class is that current technology is not ready for synchronous foreign language distance learning. Dr Smith's expertise in language teaching methodology had already suggested that current classroom teaching methods are not appropriate for this kind of learning. I used this experience as a base to start creating the ideal, asynchronous distance-learning course.
- O'Rourke, Patrick** Electrical & Computer Engineering Coffelt Room 13:30 - 13:45
Design and Programming of an LED Cube
 As part of a research project for Electrical and Computer Engineering 3712, our group designed and constructed a four-by-four-by-four LED cube to display various three-dimensional patterns. An Altera Cyclone II FPGA programmed with VHDL code written in Quartus II software was used to control the cube. This presentation will detail our design and findings from simple LED functionality to complex microprocessor control.
- Oyler, Callie** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Food Labels
 A standard food label on most packaged foods in the US, in accordance with the Nutrition Labeling and Education Act of 1990, highlights caloric and nutrient content per serving including, carbohydrates, fiber, protein, total fat, saturated fat, cholesterol, and sodium (USDA, 2009). There is evidence that reading food labels can help individuals to change their eating patterns; however, the food label can be intimidating to those not familiar with the terminology or interpretation of the dietary information listed. The objective of this study is to define the scope of knowledge regarding food labels and their use among the undergrad student population at Youngstown State University. Students (n= 200), male and female, will be recruited from the YSU campus common areas and once the protocols are explained, will be asked to sign the Informed Consent form if they wish to participate. Participants will self-administer the 27-item survey. It is anticipated that significantly more female participants ($p < 0.05$) will read food labels than males and that there will be gender differences in the nutritional content values used by participants. It is also expected that participants who have taken a nutrition or health education course will use food labels for selecting foods significantly more frequently than those who have not.
- Palumbo, Adam** Mechanical & Industrial Engineering James Gallery 11:00 - 11:15
Design of a Conveyor Machine
 Conveyor machines are widely used in various applications to transport heavy loads. In this specific analysis, a dumpster with a load of 38,000 Newtons is transported by a conveyor machine that can be modeled as two parallel four-bar mechanisms. The conveyor machine is driven by a flywheel which transmits torque to the rods. The flywheel is driven by an electric motor connected by a belt. The purpose of this analysis is to design the shaft holding the flywheel as well as the connecting pins using the provided conveyor machine dimensions and material properties. This is accomplished by calculating forces in the entire conveyor machine and performing a fatigue analysis to find the appropriate shaft/pin dimensions to coincide with the given factor of safety. Engineering techniques such as stress analysis, machine optimization, dynamics, and kinematics were utilized to ensure a safe design. All analytical methods were verified by cross referencing computational results with theoretical calculations.
- Pant, Santosh** Civil / Environmental & Chemical Engineering Jones Room 11:00 - 11:15
Geomorphic Characterization of Restored Streams
 Research was performed on two stream restoration projects a) Austintown Township Park and b) Pine Hollow Run Tributary Stream Restoration Project in Hermitage, PA. The main goals of the research were to: 1. Determine the physical condition of two restored streams including longitudinal profile, cross-section, sinuosity, and substrate, through field surveys; 2. Perform Level II Stream classification based on Rosgen (1996); and 3. Evaluate the success of the stream restoration projects in meeting the objectives and goals of the client and designer. Field surveys were done on both projects to determine longitudinal profile, cross-section and channel materials. Rosgen (1996) Level I and Level II assessments were used to classify the streams. The essential morphological parameters that were determined from the field survey were bankfull width, mean bankfull depth, maximum bankfull depth, width of flood prone area, width/depth ratio, entrenchment ratio, channel materials and sinuosity. From those parameters the Rosgen Level II classification is being done. The Rosgen classification showed the unnamed tributary to Meander Creek running through Austintown Township Park as a B-type stream. The classification for Pine Hollow Run tributary stream is in progress.
- Parise, Robert** Biological Sciences Ohio Room 08:30 - 10:00
The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex
 Senktide is a drug that increases firing activity in prefrontal cortex layer V pyramidal neurons. This hyperactivity may be associated with psychological disorders such as schizophrenia and addictive behaviors. In order to investigate this response, we developed a biophysically based model incorporating the multiple currents affecting the firing activity of these neurons. This model was compared to our experimental data, obtained from whole cell patch recordings of the neurons in vitro, in order to determine the currents sensitive to senktide. Additionally, the model was analyzed using dynamical systems techniques to determine the mechanisms of the senktide response.

- Parise, Robert** Biological Sciences Coffelt Room 16:15 - 16:30
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Development of Production Standards in the Food Processing Industry
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- Pavlek, Leeann** Health Professions Ohio Room 10:30 - 12:00
Production of Monoclonal Antibodies against Staphylococcus aureus Type 5
 Staphylococcus aureus is the strain that most commonly infects humans, causing illnesses ranging from minor skin infections to life-threatening diseases. Each year, about 500,000 patients in American hospitals contract a staphylococcus infection. Our goal is to develop hybridomas that produce monoclonal antibodies against Staphylococcus aureus Type 5. A hybridoma is a fusion of a myeloma cell and a cell that is producing a specific antibody; hybridomas are capable of secreting the specific antibody over a long period of time. These monoclonal antibodies will specifically bind to only Staphylococcus aureus Type 5 and can help quickly detect the bacteria for clinical use. The hybridomas are produced using MRC-5 feeder cells and P3X myeloma cells. Subcloning is done by diluting the solution until only one cell is present in each well of a plate. An indirect enzyme-linked immunosorbent assay (ELISA) test will be done on the supernatant of each well to test if the monoclonal antibodies bind to the Staphylococcus aureus Type 5 bacteria.
- Perren, Dru** Ohio Room 13:30 - 15:00
Counselors Tips for Teachers: Easy Classroom Interventions for Students with Autism
 According to the Center for Disease Control (CDC), data shows that 1 in every 150 children can be classified as having Autism Spectrum Disorder (ASD). Those affected with ASD experience communication and social delays, and stereotyped behaviors that are usually recognized within a child's first three years of life. Currently, there is no cure and no cause of ASD. Thus, it is difficult to diagnose, treat, and most specifically educate those affected. Without early diagnosis it will be difficult for students diagnosed to participate appropriately in the classroom. Interventions need to be in place for those who interact with these students in order to ensure the highest quality of education. To aid the educational experience of these students, school and clinical mental health counselors can provide teachers with helpful interventions that can be used in a classroom setting. These strategies will benefit all of the students in the classroom as well as the educators. Different types of clinical interventions and evidence based treatments can be used in classrooms such as Antecedent Manipulations, Differential Reinforcement, Change in Instructional Context and self management. This poster explores each of those in more depth. These interventions can help reduce or eliminate problem behaviors students with autism often exhibit in the classroom.
- Petrinjak, Steve** Communication & Theater Pugsley Room 11:30 - 11:45
The Effects of Exposure to Advertising While Watching Sports: A Cultivation Perspective
 This article discusses the advertisements to which we are exposed when watching televised sporting events. Using cultivation analysis, it explores the influence of sports on how sports television viewers react to advertisements and how televised sports shape viewer reality. Viewers are exposed to this reality through advertisements shown while watching sporting events. Both genders are affected by advertisements and are responsible for the media exposure they receive. This article explores those affected by the media presented to them and the actual advertisements to which they are exposed. It also explores possible outcomes to viewing these televised sporting event advertisements.
- Pfeil, Erin** Biological Sciences Jones Room 14:30 - 14:45
Spatiotemporal-dependent Shifts in Grassland Invasibility
 Spatially and temporally discrete episodes of plant recruitment occur when relaxation of the resources that limit establishment and growth coincides with propagules. There are many ecological factors that affect below- and aboveground resource availability in a community and this research integrates important spatially and temporally varying components. In a managed grassland at the Pymatuning Laboratory of Ecology, we used a balanced split-plot factorial design to measure the interactive effects of grazing intensity (GI), soil resource availability (SRA) and soil disturbance patch size (DPS) on the invasion success of the annual smooth pigweed *Amaranthus hybridus* (L.) and velvetleaf *Abutilon theophrasti* (L.). Importantly, we considered two life history stages of each focal invader (i.e., emerged and established seedlings) because their invasion success probability (ISP; measured as biomass accumulation) may depend on when resource shifts coincide with particular life history stages. Based on models developed by Renne and Tracy (unpublished), we tested the following hypotheses: 1) thresholds in ISP exist across DPS, the magnitude of which increases with higher SRA levels, 2) as DPS declines, the interactive effects of invader life history stage, SRA and GI on ISP increase and 3) in the absence of grazing, SRA within a given DPS can have opposing effects on ISP. Based on quantile regression analysis, our empirical data generally corroborate models of grassland invasibility, where the interactive effects of timing and/or intensity of GI, SRA and DPS on invader life history stage largely dictate whether establishment and subsequent growth occurs.

- Pierson, Kristopher** Mechanical & Industrial Engineering James Gallery 13:45 - 14:00
Flow Visualization Wind Tunnel
 A small flow visualization wind tunnel was designed and built to study the pattern of flow around bluff and streamlined models. The visualization is created by injecting thin filaments of white smoke at the inlet of a small low-turbulence wind-tunnel. The wind-tunnel is a draw-through type and the flow is initiated by a small radial blower fan mounted near the exit of the tunnel. Air is drawn in through the inlet and exhausted at the tunnel exit. Part of the air exhausted can be forced into a smoke generating reservoir. The smoke, generated by vaporizing propylene glycol, is forced through the supply pipe into small nozzles and then emerges out of the nozzles as fine filaments. Models were placed in the test section for the study of flow patterns. The heater element and the blower fan are instrumented and controlled using computer software as well as manual controls. The machine has controls for starting the fan and the heating element along with a safety feature to turn off the heater and the fan if the temperature inside the smoke reservoir exceeds a certain threshold temperature. The flow patterns observed corroborated the concepts learned in fluid dynamics. In addition, flow visualization is used in many industries concerned with aerodynamics.
- Pietromonaco, Joseph** Mechanical & Industrial Engineering James Gallery 15:45 - 16:00
A Heat Transfer Model for Industrial Food Processes
 During the pasteurization process of jarred solid-liquid foods, conduction and convection occur simultaneously. Current literature lacks a complete model of which trend the heat transfer model follows when analyzing the contents of the jar as a whole. The objectives of this study were to compare specific heat capacities and time temperature profiles of different solid-liquid foods and create a physical model that will mimic the thermal properties of these foods. For experiments, various canned foods were heated in a 16 oz jar using a research and development pasteurizing machine. Temperature changes were taken using thermocouple wiring, and their specific heat was taken using a calorimeter. This study will be used as a benchmark to compare foods of different heat capacity and their container size to improve the industrial process time and quality of the final product.
- Pirigyi, Andrew** Mechanical & Industrial Engineering James Gallery 14:15 - 14:30
Permanent Magnet Motor: Generating Electricity from Water Waves
 The continuous expansion of industrialization and new technologies dependence upon electricity has caused an increasing burden on the available resources. This shortage of available energy sources has caused a dramatic increase in research in the field of alternative energy sources. Several new concepts have been developed due to the push for new alternative energy methods. One alternative energy method is the generation of electricity by utilizing the power of ocean waves; in particular, the use of a permanent magnet motor to harness the energy from water waves. The permanent magnet motor is a device that converts reciprocating motion into rotational motion without direct contact. The sinusoidal like form of a wave creates the reciprocating motion of the motor, which in turn is transferred into rotational motion that can be used to run a generator. For every wave, there is one rotation, and each rotation can be geared to produce several rotations of a rotor to effectively generate electricity. The main challenge of this concept was developing a design to capture as much power from each wave as possible. Considerations included properly mounting magnets to achieve the optimal generation of force, high quality machining and easy assembly to reduce unnecessary energy losses. The utilization of SolidWorks was key to fabricating an effective design. The software allowed for several designs to be developed without the expense of materials.
- Pitcairn, Carol** Chemistry Ohio Room 10:30 - 12:00
Cloning of Beta-Glucosidase from Escherichia coli
 β -glucosidase is an enzyme that catalyzes the hydrolysis of glucose polymers containing 1-4 bonds, such as cellulose. Microorganisms such as Escherichia coli utilize the action of this enzyme to degrade polysaccharides containing these bonds as a fuel source. Humans, and more generally eukaryotes, do not make β -glucosidase. Due to the lack of this enzyme in humans and the necessity of this enzyme in E. coli, the enzyme can be a target for drug therapy. Inhibition of the enzyme will cease the vital breakdown of cellulose for energy in the bacteria, leading to its death. The patient would remain unaffected since humans do not use β -glucosidase. The gene encoding for β -glucosidase is amplified by polymerase chain reaction (PCR) using E. coli genomic DNA. The gene will be then incorporated into an expression vector and used to produce large amounts of the enzyme β -glucosidase. Inhibitors of the enzyme will then be tested for potential use against bacterial infections. The enzyme may also be studied and characterized to model the active site of the enzyme where the catalytic properties are contained or to locate allosteric effector sites. This information can be used to eliminate the catalytic properties of the enzyme by inducing mutations in the active site.
- Poudel, Rajesh** Jones Room 10:45 - 11:00
Effectiveness of the Stream Restoration Projects
 The physical structure of the stream corridor is formed by the movement of water, materials, energy, and organisms within a multidimensional (lateral, longitudinal, vertical and temporal) framework. As movement affects structure, so too does structure affect movement. This natural feedback loop helps to create a state of balance within the stream corridor known as dynamic equilibrium, which allows the corridor to accommodate limited change while maintaining its essential structure and functions. Disturbances that affect stream corridors can be natural or human-induced. If they are severe enough, they can alter the structure and functions of a stream corridor to a point that dynamic equilibrium is disrupted. Restoration can then be employed to reestablish structure and functions so natural dynamic equilibrium can once again occur. My primary research area is the assessment of the stream condition and departure from its potential following restoration by quantifying the existing physical character of the stream channel using Rosgen's Stream Classification method. Research was performed on two stream restoration projects: a) Austintown Township Park and b) Pine Hollow Run Tributary in Hermitage, PA. The objectives of this research were to: 1) delineate stream type for two restored streams by calculating geomorphologic characteristics like bankfull stage, entrenchment, width/depth ratio, sinuosity, channel materials, and slope; 2) evaluate stability of the restored streams using the Level III analysis proposed by Rosgen (1996); and 3) evaluate the success of the stream restoration projects in meeting the goals of the designer.

- Price, Eric** Biological Sciences Ohio Room 15:30 - 17:00
Characterization of Mutants of Wangiella dermatitis Generated by Agrobacterium tumefaciens Mediated Transformation
 Characterization of mutants of Wangiella dermatitis generated by Agrobacterium tumefaciens mediated transformation Eric Price, Chester R. Cooper Jr. The polymorphic fungus Wangiella dermatitidis is a pathogen of humans and it is unique in that it displays three morphotypes. These three morphotypes are budding yeast, sclerotic bodies, and hyphae. The control for the switch into each of these morphotypes is pH dependent. Relatively few genetic studies have been conducted on this organism regarding the relationship of pathogenicity and polymorphism. Agrobacterium-mediated transformation was employed to generate random insertion events in W. dermatitidis genome and select morphological mutants. PCR analysis of these mutants was used to confirm A. tumefaciens DNA insertion. The specific gene mutated by this insertion event was subsequently identified by sequencing flanking regions and comparing the resulting DNA sequence to other known genes in genome databases, thereby suggesting the gene's possible function.
- Proch, Matthew** Technology James Gallery 16:30 - 16:45
Research in Engine Efficiency: The 100mpg Diesel Motorcycle
 Several claims have been made on the internet boasting that diesel-powered motorcycles can achieve fuel economy in excess of 100 mpg. The YSU Mechanical Engineering Technology (MET) Department is converting an existing gasoline motorcycle to one powered by a diesel engine and then verifying these calculations. The MET department has duplicated the mpg calculations, and estimates that fuel economy in excess of 100 mpg is indeed possible. The solution involves a low horsepower engine that has a high torque value, allowing satisfactory operation in most local commutes. The design will further incorporate a Continually Variable Transmission (CVT) to allow the engine to operate at the most efficient speed most of the time.
- Proctor, Lia** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Causes and Consequences of Childhood Obesity Among YSU Students
 The problem of childhood obesity in the United States has grown considerably in recent years with approximately 15 percent of children between the ages of 2-19 years being classified as obese (CDC, 2007). Obesity is among the easiest medical conditions to recognize, but one of the most difficult to treat. This study will examine the perceptions of the causes and consequences of childhood obesity among college students at Youngstown State University. Students 18 years or older will be recruited from the YSU campus common student areas. The study protocols will be explained to eligible participants and upon signed informed consent, participants will self-administer one of two surveys (one for students who have children and another for those without). Data will be analyzed using SPSS 15.0 to determine if overweight or obese children will be reported in significantly ($p < 0.05$) more Single-parented households than in Two-parented households; participants who are overweight/obese are significantly ($p < 0.05$) less likely to perceive overweight or obesity in their own children than non-overweight/obese parents; and parents of obese children will report a significantly ($p < 0.05$) lower daily intake of fruit and vegetables than those of non-obese children.
- Protain, Kristy** Criminal Justice Ohio Room 13:30 - 15:00
Raise a Hand Raise a Voice Raise a Killer...What are Some External Factors Related to Serial Killers?
 We want to believe that serial killers are infinitely complex, with millions of motivations, varieties of behaviors, and kill without warning. Yet, are they? In reality, every human being is a potential murder weapon: a gun. Genetics load the gun, psychology aims the gun and the environment and life experiences pull the trigger. This study is a content analysis based on a sample of thirty ($n=30$) convicted serial killers that describes a connection between childhood abuse, past criminal activity, ineffectiveness in the criminal justice system and serial killers' crimes. Future use of this research could assist professionals in the social work as well as the criminal justice system to identify early indicators of a destined serial killer.
- Ragan, Robert** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Time- domain transient equations for charging voltage and current of a RC circuit utilizing Differential & Integral Calculus, Differential Equations, Laplace Transform and Computer Simulations
 Derivations of time domain transients of charging voltage and current of series RC (Resistor & Capacitor) circuit can be obtained utilizing various mathematical and simulation techniques. In this research project, the time-domain differential equations will be derived by using integration techniques and differential equation solutions. The differential equation will also be solved by applying Laplace Transform (transformation into complex frequency domain). The solutions (amplitude vs. time) will be shown in a graphic form using Microsoft Excel. This graph will be compared to the results obtained from RC circuit simulations utilizing Electronic Work Bench (EWB) Circuit Design Suite Multisim 10.1
- Ramdin, Lindsey** English Room 2068 10:30 - 12:00
Literature and Politics
 In my project for the English Senior Seminar, I argue that literature can be used as a platform to set public agenda, and in my thesis I argue that Henry David Thoreau's environmental philosophy helped join him in political conversation. His philosophy has evolved into a call to action; one that many literary critics argue is imperative to the survival of the environment. Because literature is more accessible to the public than other political mediums, Thoreau's wisdom has endured for decades. The eco-philosophy of Thoreau is present in modern nature writing, and it differs only as modern nature writing is influenced by the rapid destruction of natural resources, and therefore includes a more urgent, progressive message.

- Rameezuddin, Mohammad** Mechanical & Industrial Engineering James Gallery 13:30 - 13:45
Constructing and Modelling a Small Horizontal Axis Wind Turbine
 With the increasing interest in green technologies, privately owned small scale wind turbines are becoming more and more popular. According to the American Wind Energy Association, the domestic market saw a 78% increase in sales from 2008 to 2009. This presentation documents the construction, modeling, and testing of a small horizontal axis wind turbine based on the following design variables: headwind speed, tip speed ratio, blade angle, rotor diameter, and airfoil shape of the blades. The main focus in construction was the design and fabrication of the blades and hub connections. The fabricated blades used a double airfoil design to maximize start-up in low winds and regulate rotation speeds in high winds. They were manufactured using polyurethane foam injection molding and reinforced with fiberglass. A second set of commercially available blades which used a single airfoil design and had known performance specifications were tested for comparison to the fabricated blades. Models of the various components of the wind turbine were created in a computer aided design package (Solidworks). Mechanical and fluid behavior of the system was predicted using computer analyses (Algor and Fluent) to ensure structural stability and fluid flow. Computer predictions of the wind turbine system using both sets of blades were compared with real world test data from the constructed wind turbine system.
- Reed, William** Chemistry Ohio Room 10:30 - 12:00
Novel Synthesis of Copper Chloride Quantum Dots in a Sodium Chloride Matrix
 We present a novel synthesis of non-toxic copper chloride nanocrystals in a sodium chloride matrix. Unlike other methods, this synthesis requires only simple materials such as common sodium chloride, common copper wire, standard ceramic crucibles, and standard lab heat sources, without the need for sophisticated crystal growth apparatus or control of atmosphere. The product is readily synthesized from the molten phase in as little time as is required to melt the sodium chloride, introduce the copper and cool the product. The product exhibits high fluorescence quantum yield and potential bi-exciton and exciton-phonon coupling under illumination with sources as mild as 400nm. We also present compelling evidence of thermal dependence in both fluorescence efficiency and lambda max. This rapid, straightforward and non-toxic synthesis is easily performed on the bench top and harbors potential for many applications including undergraduate instruction in Physical Chemistry.
- Reid, Natasha** Mechanical & Industrial Engineering James Gallery 11:45 - 12:00
Supercharger Pulley: Stress Distribution and Analysis
 An automobile supercharger ultimately increases the power output of the engine and is driven by a belt pulley system. As rotational speed increases on a pulley, the driving force or applied torque will decrease because they are inversely proportional. When the driving belt force decreases it causes the inertial load to increase making the internal stress in the pulley higher. A continuation of last year's supercharger pulley research, this project is a computational approach to determining the stress distributions in the pulley for various input RPM's. Two pulleys are to be examined; one with a carbide coating and one without a carbide coating. Assuming that power at the rotating shaft remains constant; the acting forces on the pulley are calculated and then simulated on the pulley using Finite Element Analysis (F.E.A.) software. The location of the maximum Von Mises equivalent stress will be determined. Also a plot of the Von Mises stress for the various rotational speed inputs will be created for different positions on the pulley. By knowing the power input, angle of contact of the belt on the pulley, and the pulley disk dimensions we will conduct a complete stress analysis of the two pulleys.
- Ridzon, Timothy** Mechanical & Industrial Engineering James Gallery 11:00 - 11:15
Design of a Conveyor Machine
 Conveyor machines are widely used in various applications to transport heavy loads. In this specific analysis, a dumpster with a load of 38,000 Newtons is transported by a conveyor machine that can be modeled as two parallel four-bar mechanisms. The conveyor machine is driven by a flywheel which transmits torque to the rods. The flywheel is driven by an electric motor connected by a belt. The purpose of this analysis is to design the shaft holding the flywheel as well as the connecting pins using the provided conveyor machine dimensions and material properties. This is accomplished by calculating forces in the entire conveyor machine and performing a fatigue analysis to find the appropriate shaft/pin dimensions to coincide with the given factor of safety. Engineering techniques such as stress analysis, machine optimization, dynamics, and kinematics were utilized to ensure a safe design. All analytical methods were verified by cross referencing computational results with theoretical calculations.
- Rife, Trixie** Civil / Environmental & Chemical Engineering Jones Room 11:15 - 11:30
Modeling the Impact of Development on the Value of Environmental Services in Allegheny County, Pennsylvania
 Ecosystem services are beneficial functions provided by the environment, such as water filtration, flood management, erosion control, and wildlife habitat. Land cover change and pollution loading are major factors that have altered the earth's terrestrial and aquatic ecosystems, degrading 60% of environmental services worldwide. Putting a price on environmental services could encourage sustainable development and make conservation more appealing. However, one of the difficulties in conservation is being able to quantify the cost of environmental services. The Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) modeling tool, created by the National Capital Project and Stanford University, will be used to determine the impacts of three different development approaches, conservation, planning, and development, on environmental services in Allegheny County, Pennsylvania. The model works as a toolbox in Geographic Information Systems (ArcGIS). The maps for soils, slope, watersheds, and basins were provided by Pennsylvania Spatial Data Access (PASDA), the digital elevation maps, and the land use, land cover maps were provided by the EPA. The Allegheny, Ohio and Monongahela Rivers all receive runoff from the surrounding area and have been negatively impacted by an increase in development. A better development planning strategy would help improve the storm water runoff quality and decrease the quantity, thereby improving environmental services in the area.

- Rivera, John** Computer Science & Information Systems Humphrey Room 09:15 - 09:30
Xbox LIVE: Could You be at Risk While Playing Online?
 Are you compromising your personal security while playing your favorite games online? We investigate the possible ways in which Xbox LIVE one of the most popular online gaming services can pose a threat to user security. Xbox LIVE is a complicated network of matchmaking servers and other Xboxes. When you play a game, a matchmaking server connects you to a game lobby and chooses an Xbox to serve as the host. However, directly connecting to another user's Xbox causes security concerns. The host is directly connected to each player in the game, and by using a simple packet sniffer, can get the IP address of all players in the game. Since many of the network protocols used are proprietary, the information being sent over the network is unknown. Nevertheless, just knowing another player's IP address creates security concerns. A Distributed Denial of Service (DDOS) attack can be performed using a botnet, causing a player's connection to the game to drop. Due to the Xbox LIVE game rules, when you leave a game in progress, no matter what the reason, you automatically lose the game. While DDOS attacks are illegal, tracing the attack is almost impossible because the attack comes from infected computers around the world. DDOS attacks are one of the most common forms of cheating on Xbox LIVE, as a player can DDOS all other players, causing the attacker to win. More importantly, knowing a user's IP address allows hackers to perform attacks on a user's network and compromise security. Our presentation suggests solutions that may help promote security on Xbox LIVE.
- Rizzo, Lee Ann** Chemistry Ohio Room 10:30 - 12:00
Synthesis of bis(2,2,2-trifluoroethyl) (Z)-vinyl Phosphonates from bis(2,2,2-trifluoroethyl) 1-alkynylphosphonates using Lindlar's Catalyst
 A new method for the synthesis of bis(2,2,2-trifluoroethyl) (Z)-vinyl phosphonates from bis(2,2,2-trifluoroethyl) 1-alkynylphosphonates is described. 1-Alkynylphosphonate, in the presence of Lindlar's catalyst, trifluoroethanol and H₂ (g), are used to prepare the corresponding vinyl phosphonates.
- Robertshaw, Joseph** English Humphrey Room 14:30 - 14:45
Taking the Hint: A Cross Sectional Survey of Perception Regarding Requests and Directness
 The title of this project is Taking the Hint: A cross sectional survey of perception regarding requests and directness. The main question we are addressing in our research is: Who do respondents believe will use higher levels of directness when making requests and who do respondents expect to be more indirect in request making? We initially suspected that we would find that respondents expect older women to offer more indirect requests but do not expect younger people or older men to be as likely to follow that practice. Our data gathering methods returned a sample of about 75-100 (analysis continues and some may be discounted) of scenario questionnaires. These questionnaires are multiple choice scenarios that have 4 possible responses. The responses have been secretly coded according to speech direction and according to directness. Our survey was completely voluntary and anonymous. Further levels of analysis will identify patterns of opinion with regard to gender and age groups within the scenarios and among the respondents. We have identified our subjects of data collection as YSU students taking Beginning and Intermediate Spanish classes and National College students. At this time, final results and conclusions are forthcoming. Possible applications for our research: Why do people have these socially-constructed expectations? Are these stereotypes? If so, what qualifies them as stereotypes? Have our findings indicated any change from the body of literature and research that the group consulted?
- Rose, Kristopher** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Triaxial Method Resonant Chamber for Low Frequency Electromagnetic Testing
 Design and Construction of a Low Cost Tube-in-Tube Triaxial Device The tube-in-tube test method is utilized for measuring the transfer impedance and the shielding and screening attenuation of the coupling of electromagnetic interference. It is a triaxial method for testing Electromagnetic Compatibility (EMC) of data communication transmission line structures (cable assembly and connection system). It provides an efficient and accurate way to test electromagnetic leakage at low frequencies. The network analyzer is used to measure the attenuation characteristics at the output of the tube-in-tube with test samples. Frequency sweep by the network analyzer will generate information on attenuation provided by the sample (cable assembly and/or connectors) at various test frequencies. The tube-in-tube test apparatus acts as a coaxial cable, allowing the measurement of voltage drop at the outside of the tube. This device is designed to allow for a cost improvement over a commercially available apparatus with similar functions. The device is also constructed to allow for better test flexibility to decrease test time and test cost. This is accomplished by incorporating a custom built lid and base assembly create a sealed chamber that is easy to open and close, making it more user-friendly. An adjustable end connector allows one to test different lengths of wire samples. Test results comparable to the commercially available device are verified.
- Rudnicki, Thomas** Chemistry Ohio Room 10:30 - 12:00
Purification and Characterization of Staphylococcus aureus Type 5 Capsular Polysaccharide
 Staphylococcus aureus (S.aureus) infections are notoriously difficult to treat due to antibiotic resistance and virulence. One virulence factor employed by S.aureus is a protective polysaccharide coating called a capsule. This structural component plays a significant role in immune response evasion. Drugs that target bacterial capsule circumvent the mechanisms utilized by traditional antibiotics and create a novel way to treat S.aureus infections. A systematic purification and characterization of the capsule can further drug development by elucidating the immunological interaction of this element. Purification of the capsule was achieved by implementing both ion-exchange and size exclusion chromatography. The relative efficacy of purification was validated through teichoic acid, reducing sugar and protein tests. Finally, we seek to characterize the purified capsular polysaccharide through nuclear magnetic resonance spectroscopy.

- Ruozzo, Stephanie** Dana School of Music Jones Room 15:45 - 16:00
Laughter and Tears in Mozart's Opera Buffa
 Mozart's *Le Nozze di Figaro*, *Così fan tutte*, and *The Magic Flute* are examples of opera buffa, or comic opera. Yet, Mozart undercuts the comic genre with insertions of tragedy, especially in the portrayal of his key characters. For instance, the tragic Countess Almaviva's aria *Porgi Amor* of *Le Nozze* is a reminder of the complexity of human relationships. Also intriguing is the complete disintegration of comedy in the second act of *Così fan tutti* when a trivial lovers' jest becomes convoluted competition. In *The Magic Flute*, the audience is treated to buffoonery and the customary laughs of a Schikaneder libretto. However, the plot also shows multiple threats of suicide from the heartbroken *Pamina* and *Papageno* and bears the influence of the occult that, again, undercuts the comedy. In my paper, I argue that Mozart did not compose in a traditional opera buffa style. Rather, by inserting elements of opera seria in his comic operas, he paved a way for composers such as Rossini, who hybridized these styles and crossed the gap between the genres.
- Russo, Anthony** Human Performance & Exercise Science Ohio Room 13:30 - 15:00
Assessment of Workers Compensation Claims Among North Carolina Firefighters
 The job of a firefighter is very physically demanding, especially due to the fact they operate under extreme temperatures. The risk of injury is high on every emergency call, and the threat of danger is inevitable. This study examined data collected from the Charlotte, North Carolina fire departments workers compensation claims. Injuries were recorded from 99 firefighters for the year of 2006. Most of the injuries occurred during a work related exercise. Also, most of the injuries occurred in the firefighter's wrists, hands, and the back regions of the body. By evaluating the data, the researchers were able to place the injuries into a numbered system that represented different areas of the body. By presenting this data, future researchers will be able to study new methods for fire departments to implement in order to prevent injuries.
- Sabo, Nicole** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Causes and Consequences of Childhood Obesity Among YSU Students
 The problem of childhood obesity in the United States has grown considerably in recent years with approximately 15 percent of children between the ages of 2-19 years being classified as obese (CDC, 2007). Obesity is among the easiest medical conditions to recognize, but one of the most difficult to treat. This study will examine the perceptions of the causes and consequences of childhood obesity among college students at Youngstown State University. Students 18 years or older will be recruited from the YSU campus common student areas. The study protocols will be explained to eligible participants and upon signed informed consent, participants will self-administer one of two surveys (one for students who have children and another for those without). Data will be analyzed using SPSS 15.0 to determine if overweight or obese children will be reported in significantly ($p < 0.05$) more Single-parented households than in Two-parented households; participants who are overweight/obese are significantly ($p < 0.05$) less likely to perceive overweight or obesity in their own children than non-overweight/obese parents; and parents of obese children will report a significantly ($p < 0.05$) lower daily intake of fruit and vegetables than those of non-obese children.
- Saborse, Jacob** Jones Room 14:45 - 15:00
Cultural Breakdown of Avian Mobbing Responses to Interspecific Alarm Calls: Implications to Management and Conservation
 Mobbing is a common response of prey birds to aggressively displace potential predatory birds. This response transcends lineages and empirical evidence indicates that auditory cues from one species elicit mobbing responses in the same and different species. The Black-capped Chickadee (BCCH) varies the number and amplitude of notes in the "chick-a-dee" mobbing call to denote information to other songbirds about the level of threat a potential predator poses. However, culturally transmitted vocalizations are known to quickly diminish in songbird populations that become isolated or are small in size due to habitat fragmentation, potentially exacerbating their decline. Whereas the BCCH and associated mixed flock members are common, we use this system as a model to study the cultural transmission of information important to prey survivorship and assess whether cultural breakdown occurs in isolated populations. This project will be replicated in areas containing persistent populations of Eastern Screech Owls (ESOW) and in those historically lacking them to assess whether BCCH alarm calls have a learned cultural component. Regional dialects are not hard-wired but learned in many songbirds, and locale-specific calls may uniquely convey information to members of the same mixed flock. If this is the case, mobbing responses to alarm calls should differ among locales, depending on whether they co-occur with ESOWs. If a high learned component to alarm calls emerges, this suggests management which increases the connectivity of otherwise isolated populations could be of strong conservation value to many songbirds in decline.
- Saborse, Jacob** Jones Room 14:30 - 14:45
Spatiotemporal-dependent Shifts in Grassland Invasibility
 Spatially and temporally discrete episodes of plant recruitment occur when relaxation of the resources that limit establishment and growth coincides with propagules. There are many ecological factors that affect below- and aboveground resource availability in a community and this research integrates important spatially and temporally varying components. In a managed grassland at the Pymatuning Laboratory of Ecology, we used a balanced split-plot factorial design to measure the interactive effects of grazing intensity (GI), soil resource availability (SRA) and soil disturbance patch size (DPS) on the invasion success of the annual smooth pigweed *Amaranthus hybridus* (L.) and velvetleaf *Abutilon theophrasti* (L.). Importantly, we considered two life history stages of each focal invader (i.e., emerged and established seedlings) because their invasion success probability (ISP; measured as biomass accumulation) may depend on when resource shifts coincide with particular life history stages. Based on models developed by Renne and Tracy (unpublished), we tested the following hypotheses: 1) thresholds in ISP exist across DPS, the magnitude of which increases with higher SRA levels, 2) as DPS declines, the interactive effects of invader life history stage, SRA and GI on ISP increase and 3) in the absence of grazing, SRA within a given DPS can have opposing effects on ISP. Based on quantile regression analysis, our empirical data generally corroborate models of grassland invasibility, where the interactive effects of timing and/or intensity of GI, SRA and DPS on invader life history stage largely dictate whether establishment and subsequent growth occurs.

- Sakacs, Leah** Criminal Justice Ohio Room 13:30 - 15:00
Studying Abroad at the University of Winchester
 We studied abroad at the University of Winchester to gain a broader understanding of the various cultures in the world. We studied at the university and traveled to other countries in Europe during break. While we were there, we grew as individuals and learned how people in other countries interact. We experienced the English educational system that increased our knowledge of their learning techniques and their beliefs. This poster will give a detailed outline of the application process and a brief review of our experience at the University of Winchester.
- Sara, Sara** Biological Sciences Ohio Room 10:30 - 12:00
Targeting Staphylococcus aureus, Type 8 Capsule, by Using a Carbohydrate Mimetic: TC-I-045
 Staphylococcus aureus is a serious hospital acquired infection due to increased antibiotic resistance. Type 5 and type 8 S. aureus cause 70 percent of S. aureus infections in hospitals. Capsular polysaccharides of Staphylococcus aureus (S. aureus) are virulence factors especially in type 5 and type 8 of S. aureus. In this study, a carbohydrate mimetic competes with the enzymes that produce the capsules, thus inhibiting the production of the capsule structure. If the mimetic decreases capsule production, it would elicit an immune response to fight the bacteria. Samples of T8 (49525) S. aureus were incubated with different amounts of the chemical TC-I-045 or ethanol, where ethanol acted as the control. The presence of capsular carbohydrate was tested for via an indirect enzyme-linked immunoabsorbent assay (ELISA). Results indicate that TC-I-045 does not prevent the synthesis of the bacterial capsule independent of the concentration of the chemical in the samples.
- Sarisky, Melissa** Ohio Room 13:30 - 15:00
Dental Hygiene: Associate or Baccalaureate Degree
 With all the new advances in dental hygiene such as the recent addition of hygienists being permitted to administer local anesthesia some professionals in the field are questioning which degree should be required. There are prerequisites that need to be taken before entering into the associate's degree program. This adds an additional year totaling 3 years for a two year degree. Youngstown State University is in the process of expanding their program to a 4 year degree. So the purpose of my research will be to find out with all the new advances which degree is more suitable for dental hygiene licensure. Youngstown State has an accredited hygiene program and they are moving into a four year degree program. There's a shortage of educators for the baccalaureate degree programs since this degree is needed for educators in the associate degree programs. Becoming a Dental Hygienist requires a 2 year Associate's degree; with all the new advances and responsibilities in the hygiene field a 4 year Baccalaureate degree provides the education needed for these new advances. The uniqueness of this research is that this is a current issue right now in the dental field. Youngstown State is on the way to expanding their program to a four year degree. More educators are needed for Associate degree programs and more researchers are needed in the dental hygiene field.
- Scacchetti, Jarrett** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
IEEE MicroMouse
 Micromouse is a robotics competition in which a team builds a relatively small autonomous robot, which movements resemble a mouse, that can not only navigate through a maze, but it also calculates on it's own, without human involvement, the most optimal route to take to get to the middle of the maze. By using digital infrared sensors on our robot we can track where a wall is located at and designate the programming code to either go left, right, or forward. Additionally by using analog infrared sensors on the left and right sides of the robot and encoder feedback, we can program a 'checks and balance' routine so that our robot will stay approximately in the middle of the walls so that it will not sidetrack and cut any corners decreasing the overall performance. We are using the Orangutan X2 Robotic controller made by Pololu that has 20+ I/O ports and an attachable LCD screen. The robot will be programmed with C language using a Freeware software product called AVR Studio. Our code will involve Recursive algorithms, flood and fill, and back fill. The competition is being held at the PAC, Professional Activities Conference, hosted by IEEE in Philadelphia, PA.
- Scacchetti, Jarrett** Electrical & Computer Engineering Coffelt Room 14:00 - 14:15
IEEE MicroMouse
 Micromouse is a robotics competition in which a team builds a relatively small autonomous robot, which movements resemble a mouse, that can not only navigate through a maze, but it also calculates on it's own, without human involvement, the most optimal route to take to get to the middle of the maze. By using digital infrared sensors on our robot we can track where a wall is located at and designate the programming code to either go left, right, or forward. Additionally by using analog infrared sensors on the left and right sides of the robot and encoder feedback, we can program a 'checks and balance' routine so that our robot will stay approximately in the middle of the walls so that it will not sidetrack and cut any corners decreasing the overall performance. We are using the Orangutan X2 Robotic controller made by Pololu that has 20+ I/O ports and an attachable LCD screen. The robot will be programmed with C language using a Freeware software product called AVR Studio. Our code will involve Recursive algorithms, flood and fill, and back fill. The competition is being held at the PAC, Professional Activities Conference, hosted by IEEE in Philadelphia, PA.
- Scacchetti, Jennifer** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Food Labels
 A standard food label on most packaged foods in the US, in accordance with the Nutrition Labeling and Education Act of 1990, highlights caloric and nutrient content per serving including, carbohydrates, fiber, protein, total fat, saturated fat, cholesterol, and sodium (USDA, 2009). There is evidence that reading food labels can help individuals to change their eating patterns; however, the food label can be intimidating to those not familiar with the terminology or interpretation of the dietary information listed. The objective of this study is to define the scope of knowledge regarding food labels and their use among the undergrad student population at Youngstown State University. Students (n= 200), male and female, will be recruited from the YSU campus common areas and once the protocols are explained, will be asked to sign the Informed Consent form if they wish to participate. Participants will self-administer the 27-item survey. It is anticipated that significantly more female participants (p < 0.05) will read food labels than males and that there will be gender differences in the nutritional content values used by participants. It is also expected that participants who have taken a nutrition or health education course will use food labels for selecting foods significantly more frequently than those who have not.

- Scheckelhoff, Chris** Chemical Engineering Ohio Room 10:30 - 12:00
The Use of Mathematics to Examine the Operation of an Electrochemical Cell
 The basics of an electrochemical cell were explored. In order to evaluate and understand the current distribution across an electrochemical cell, mathematical equations were investigated. These equations are expressed through upper-level calculus and differential equations. An objective of the project was to gain a better understanding of these equations.
- Schneider, Samantha** English Ohio Room 13:30 - 15:00
Studying Abroad at the University of Winchester
 We studied abroad at the University of Winchester to gain a broader understanding of the various cultures in the world. We studied at the university and traveled to other countries in Europe during break. While we were there, we grew as individuals and learned how people in other countries interact. We experienced the English educational system that increased our knowledge of their learning techniques and their beliefs. This poster will give a detailed outline of the application process and a brief review of our experience at the University of Winchester.
- Schwartz, Ryan** Biological Sciences Ohio Room 10:30 - 12:00
The Effect of TC-1-045 on Capsule Formation in Staphylococcus Aureus, Type 5
 Despite many medical advancements, Staphylococcus aureus is still a prevalent pathogen due to its resistance to antibiotics. The bacteria's unique polysaccharide capsule is composed of acidic polymers of uronic acid, which contributes to the virulence of this bacterium. Type 5 and type 8 S. aureus are the virulent strains of the bacteria; therefore, investigation of a chemical to disrupt capsule formation was performed in attempt to find a more effective treatment for S. aureus type 5 infections. To accomplish this, S. aureus samples were mixed with the chemical TC-1-045. In order to measure the effectiveness of the chemical, hybridoma cell antibodies were prepared and an ELISA was performed to determine the amount of bacterial type 5 capsule produced. A positive result (inhibition of capsule synthesis) would show decreased binding of the antibody to the bacterial capsule as the concentration of TC-1-045 increased. This trend was not present in the results, indicating the chemical may be ineffective. However, experimental errors may have also contributed to these results and further experiments should be performed.
- Sedlacko, David** Biological Sciences Ohio Room 15:30 - 17:00
Phylogenomic Analysis of the Chitin Synthetic Pathway in Fungi
 The enzymes of the essential metabolic pathway for chitin synthesis in fungi has been known for some time, however, the specific roles of the various chitin synthase enzymes of fungi have yet to be elucidated and characterized. The goal of this research is to apply phylogenomic techniques in the analysis of the chitin synthetic pathway of fungi with fully annotated and high quality draft sequences in order to determine the rates of mutation in genomic DNA and the evolution of protein sequences involved in the pathway responsible for chitin synthesis. The first committed step in the production of substrate for chitin synthase enzymes is performed by the enzyme glucosamine-6-phosphate synthase. Phylogenomic analysis of this enzyme and the subsequent enzymes involved in the production of chitin were carried out in order to better understand the evolution of the pathway with particular attention paid to the fungi that are capable of dimorphic growth.
- Seefeldt, Adam** Humphrey Room 13:45 - 14:00
Honey is for Bees: A Look at the Use of Endearments in the Service Industry
 The three student investigators will study the use of endearments in service encounters. We believe our research and field data will reveal a trend that is related to age and gender. We also hope to measure attitudes concerning the use of endearments in the service industry. The data we collect will allow us to measure not only what specific endearments are used by strangers in these settings, but the attitudes and connotative meanings behind these terms. We will gather our data with the use of short surveys (five fictional scenarios) to be completed by volunteer students at Youngstown State University, with the approval of each instructor in the classroom. The survey is completely anonymous and the information used is to be kept confidential, to be viewed by Mary Anne, Adam and Steve. There will no names used, nor will it be necessary for respondents to reveal campus location. (See attached for sample survey) The anonymous nature of the surveys will be clearly noted at the beginning of the survey. Potential respondents are not obligated to begin nor continue a survey. They may opt out at any time. We believe our data will reflect our hypothesis that older men use endearments more often toward younger females in service related jobs. We believe the attitude is more permissive when age is a factor. We believe our data will reveal trends in acceptance and attitude of these common terms used among strangers.
- Seelman, Adam** Mechanical & Industrial Engineering James Gallery 11:45 - 12:00
Supercharger Pulley: Stress Distribution and Analysis
 Supercharger Pulley: Stress Distribution and Analysis An automobile supercharger ultimately increases the power output of the engine and is driven by a belt pulley system. As rotational speed increases on a pulley, the driving force or applied torque will decrease because they are inversely proportional. When the driving belt force decreases it in turn causes the inertial load to increase making the internal stress in the pulley higher. A continuation of last year's supercharger pulley research, this project is a computational approach to determining the stress distributions in the pulley for various input RPM's. Two pulleys are to be examined; one with a carbide coating and one without a carbide coating. Assuming that power at the rotating shaft remains constant; the acting forces on the pulley are calculated and then simulated on the pulley using Finite Element Analysis (F.E.A.) software. The location of the maximum Von Mises equivalent stress will be determined by the F.E.A. software. Also a plot of the Von Mises stress for the various rotational speed inputs will be created for different positions on the pulley. By knowing the power input, angle of contact of the belt on the pulley, and the pulley disk dimensions we conducted a complete stress analysis of the two pulleys.

- Sefton, Edward** Mechanical & Industrial Engineering Ohio Room 08:30 - 10:00
Machining and Packaging Process Improvements Verification using Work Measurement Analysis Techniques
 The authors, method engineering students from Industrial and Systems Engineering at Youngstown State University, performed work measurement analysis at Treeman Industries both before and after improvements were made in the processing of an injection molded part critical to one of Treeman's customers. The process under study involved machining of the molded part and packaging of the finished product. The original process failed to optimize the work efficiency of the main machine operator. The improved process showed a possible 50 percent improvement, and a more efficient way to optimize their resources. The analysis was completed using video-based Time Pro software along with classic time and motion analysis techniques. Detailed motion analysis was used to assess ergonomic factors and work sampling analysis was used to establish machine and labor allowances. Ultimately, Treeman Industries was aided in the implementation of a new process while the authors were able to experience developing a relationship with a local engineering company and applying their skills there.
- Sethi, Sumedha** Biological Sciences Ohio Room 10:30 - 12:00
Analysis of Specific Cell Division Genes Using Bioinformatics Tools in Penicillium marneffeii
 Penicillium marneffeii is the only thermally dimorphic Penicillium species. It grows as a filamentous mold at room temperature 25°C producing a red pigment when grown for longer than 24 hours. When grown at 37°C, the fungus grows as unicellular yeasts. The dimorphism could be depending on the turning on or off of the cell division genes. Cell growth is highly regulated depending on the nutrition availability, temperature, stress situation and cell proliferation. Growth refers to increase in cell mass, which requires the positive regulation of anabolic processes and negative regulation of catabolic process. The chief cell growth gene which is the focus of this study is TOR and other genes related to cell proliferation and growth, like CDK1 and YAK1. TOR, also called Target Of Rapamycin is a cell growth, proliferation and motility regulator. It is a serine/threonine protein kinase. The TOR signaling pathway is unconventional, non-linear, and has a nutrient sensing checkpoint capacity. TOR signal mRNA encodes the proteins necessary for cell growth and autophagy inhibition. We use bioinformatics tools to analyze the proteins coded by these genes. Bioinformatics softwares and database tools allow us access the genome of this fungus and to find the protein domains, design phylogenetic trees and find structures of the these specific cell division proteins.
- Shadle, Jason** Physical Therapy Room 2068 09:00 - 09:15
Using a Diagnostic Algorithm to Direct Treatment in Two Patients With Shoulder Impingement Symptoms: a Case Report
 Design: A case report. Background and Purpose: Shoulder impingement is the most common pathology of the shoulder. Clinicians utilize numerous orthopedic special tests for diagnosis but, due to poor sensitivity and specificity, interpretation may be difficult. Utilized in this study is a diagnostic algorithm to control the order of orthopedic special tests performed in the examination and thereby direct intervention based on impingement etiology. Case Description: Two patients with classic shoulder impingement symptoms (described by Neer) were examined using a diagnostic algorithm and sequential special tests. Both patients were identified as having rotator cuff pathology or mechanical dysfunction of the infraspinatus and teres minor. Based on the algorithmic process, intervention included exercises specifically targeting the infraspinatus and teres minor. Outcomes: Both patients A and B demonstrated improvements in pain, range of motion, strength, and self-reported level of disability (DASH). Both self-discharged from treatment after 12 and 18 sessions, respectively, with the latter expressing no further need to continue. Discussion: Currently no classification approach to treating the shoulder exists. Evidenced by the success of treatment by the low back pain classification, a diagnostic shoulder algorithm has potential to reach good outcomes in a decreased number of treatment sessions.
- Shakya, Bijayandra** Electrical & Computer Engineering Coffelt Room 11:45 - 12:00
Magneto Optics, Multilayer Polymers, and Photonic Band Edge Enhancement
 Faraday rotation is commonly used in optical isolators to prevent unwanted back reflections and can also be used to understand the susceptibility of materials and measure small transient magnetic fields. In our work in magneto optics at YSU, we have theorized that an enhancement of Faraday rotation in a multi-layered polymer film should exist due to the increased path length of light passing near, or on the edge of, an interference band. What multilayer interference is, what Faraday rotation is, what we have predicted, and why it is justified will be covered in this part of the presentation.
- Sherokee, Angela** Biological Sciences Ohio Room 10:30 - 12:00
Construction and Characterization of a Green Fluorescent Protein (gfp)/Titin ARMD Immunogenic Domain Fusion Protein.
 The aim of this study is to understand the role of specific titin domains in muscle development and function. This lab has been studying a specific titin domain RMMG6. Ultimately we want to transfect mouse muscle stem cells with an Autoimmune Rippling Muscle Disease (ARMD) immunogenic titan domain, RMMG6, and determine its effects of over expression of the RMMG6 on the cell's activity and development. The work presented here describes the construction of a fluorescent green protein/ ARMD immunogenic titin domain fusion protein (gfp/RMMG6). The plasmid chosen as the fusion vector is pAcGFP-C1, providing for a fluorescent marker protein. RMMG6 is derived from a plasmid originally constructed in this lab containing the rmmg6 gene (Gen Bank accession # EU428784). DNA sequence and restriction enzyme analysis of the resulting plasmids, indicate that we achieved construction of the correct plasmid. The expressed fusion gene should be a composite protein consisting of the fluorescent tag GFP and RMMG6. This will allow use to trace the RMMG6 within the muscle cells and thus define what part of the cell RMMG6 localizes to and what potential role it may play in structure/ function of the developing myocytes.

- Shukla, Amar** Civil / Environmental & Chemical Engineering Ohio Room 08:30 - 10:00
Analysis of Structures Using Symbolic Mathematics
 The structural analysis is senior and graduate level courses in Civil, Mechanical and Aeronautical Engineering programs. The course topic deals extensively with higher level mathematics involving symbolic calculations. This paper demonstrates the use of an open source freely available symbolic mathematics package MAXIMA to solve the problems related to the structural analysis. Analysis of Structures Using Symbolic Mathematics is an integral component of Structural Design. It is used to analyze structures in the area of Civil, Mechanical and Aeronautical Engineering. Structural Analysis requires high level computations. The conventional approach to these computations is numerical in the past due to the unavailability of symbolic mathematics algorithms. We discuss the capabilities of a freely available open source software package Maxima that is capable of performing symbolic mathematics calculations. The use of algebraic solution allows the development of more general solutions at higher abstraction level as compared to the purely numerical solutions to the same computation problems. This work also presents the use of symbolic mathematics to develop algebraic solutions to the several problems in structural analysis for indeterminate structures.
- Skaggs, Matthew** Electrical & Computer Engineering Coffelt Room 12:15 - 12:30
Design and Application of Multilayer Films as Custom Spectral Filters
 The use of extruded multilayer films for specialized spectral filters offers unique opportunities as compared to more traditional sputtering, evaporation, or spin coating deposition techniques. Notably, the multilayer extrusion process enables rapid, low-cost, production of large-area free-standing films having a large number of layers. Applications include specialty filters for the lighting of artwork that are designed to eliminate regions of the visible spectrum that are not necessary for viewing a particular work. The proposed work is being done in collaboration with Prof. Carl Dirk of University of Texas, El Paso and will focus on design of multilayer interference filters for desired transmission features and combination of interference filters with absorbing filters to optimize their spectral characteristics from the ultraviolet to the infrared.
- Smaldino, Chris** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Time- domain transient equations for charging voltage and current of a RC circuit utilizing Differential & Integral Calculus, Differential Equations, Laplace Transform and Computer Simulations
 Derivations of time domain transients of charging voltage and current of series RC (Resistor & Capacitor) circuit can be obtained utilizing various mathematical and simulation techniques. In this research project, the time- domain differential equations will be derived by using integration techniques and differential equation solutions. The differential equation will also be solved by applying Laplace Transform (transformation into complex frequency domain). The solutions (amplitude vs. time) will be shown in a graphic form using Microsoft Excel. This graph will be compared to the results obtained from RC circuit simulations utilizing Electronic Work Bench (EWB) Circuit Design Suite Multisim 10.1.
- Smith, Andrew** Astronomy / Physics Coffelt Room 11:00 - 11:15
Characterizing WB/ SiC Schottky Barrier Diodes Using I-V-T Method
 Schottky diodes assume an essential role in electronic applications such as voltage clamps, rectifiers and sensors. Schottky diodes made using Silicon Carbide (SiC) in particular have a higher tolerance to heat which is of interest for operations under high-temperature and high power conditions. We have fabricated SiC Schottky barrier diodes with tungsten boride (WB) metal contacts. In order to investigate their performances under high-temperature conditions, we used the current-voltage-temperature method (I-V-T) technique. A special probe-station heating unit was built that was used to expose the diodes to different temperatures from 25Å°C to 300Å°C during the current-voltage measurements. Analyses of the results using the Richardson plot yielded barrier heights of 0.85 eV and Richardson's constant 18.67 AK-2cm-2. These measurements indicate that the diodes can operate even when exposed to a temperature of 300Å°C.
- Sobieska, Wanda** Computer Science & Information Systems Humphrey Room 09:00 - 09:15
Information Architecture & Music: A Comparative Study
 The relatively recent advent of the World Wide Web has given rise, among other things, to the emerging field of Information Architecture. Still in developmental stages, the field can be understood with greater insight and clarity through a comparison with music, both by means of similarity in their conceptual nature and contrast of a dynamically emergent realm with one that has existed alongside humanity for centuries. In particular, the study examines this juxtaposition in terms of structure, content, and user experience, in order -- it is hoped -- to bring out the unique validity of each field and in turn offer a deeper understanding of both.
- Spurr, Charles** Geology Humphrey Room 10:30 - 10:45
Field Investigations in Geology: A New Approach to Geoscience Education
 Field Investigations in Geology is an upper division geology course designed to develop basic field mapping skills and to provide a framework for understanding geologic history and the natural processes responsible for geologic change. The course involves a one-week field experience on the tiny remote island of San Salvador, Bahamas. Students are introduced to orienteering, GPS navigation, aerial photo and topographic map interpretation techniques, as well as concepts related to global sea level change, coastal change, and interpretation of ancient marine and shoreline environments. The course participants consisted of twenty students from a wide variety of academic disciplines; Biology (1), Chemistry (2), Education (9), Geology (3), Information Technology (1), Psychology (3), Undecided (1). The teaching methods were assessed using five separate evaluation instruments: a pre-field experience and post-field experience fifty question general topic survey, a pre and post orienteering ten question survey, a pre-field experience and post-field experience orienteering exercise, eight field book exercises dealing with individual and related topics, and one comprehensive field exercise conducted at the end of the field experience. The preliminary findings of the research are presented.

- Stacy, Rose** Ohio Room 13:30 - 15:00
The Therapeutic Relationship between Deaf Clients and their Hearing Counselors
 The deaf culture is emerging as a culture with its own recognized language; therefore, deafness has become a cultural and diversity issue that needs to be addressed by therapists. Any attempt to truly understand another individual requires an in-depth understanding of each of the elements involved. For an understanding of deaf individuals and their culture in therapeutic environments, counselors must realize the differences and variations between the dominant hearing culture and the minority deaf culture's behaviors and perspectives. Many critical aspects of the therapeutic process create issues in the therapeutic relationship between deaf clients and their hearing counselors such as behavioral expectations and communication barriers. This presentation is designed to examine the therapeutic relationship between deaf clients and their hearing counselors as well as provide an understanding of the counseling process that should occur to effectively treat clients who identify themselves as deaf.
- Stanek, Joseph** Mathematics & Statistics Ohio Room 08:30 - 10:00
A Mathematical Analysis of Peg Solitaire
 In this project we use the structure of the Klein 4 Group and tessellation to analyze the solvability of various peg solitaire games, including Central Solitaire, French Solitaire, and Triangular Solitaire. We have concluded based on our research that any board that can be successfully tessellated and can maintain a constant signature throughout game play is potentially solvable based on if the player moves the pegs correctly.
- Stanko, Kathleen** Psychology Jones Room 09:00 - 09:15
Impact of Social Partner Type on Coping Method in Anger-Inducing Scenarios
 Prior research has indicated that the expression as well as the experience of anger varies with context of the event (Averill, 1982; Ben-Zur & Breznitz, 1991; Ferguson & Rule, 1983; Weber, 2004). Specifically, it has been proposed that a person's attribution moderates the intensity of anger experienced. It is also believed that various contextual aspects of an event may mediate the expression of anger. However, there is limited research attempting to manipulate specific aspects of anger producing events (Weber, 2004). In the current study, participants will consider hypothetical anger-inducing scenarios where social partner type (close relationship, acquaintance, stranger) is manipulated. Intensity of anger as well as the coping method used to manage anger will be assessed. It is hypothesized that participants will use passive coping methods when dealing with stranger or acquaintance and more active methods when directing anger at someone with whom they have a close relationship (Webber, 2004).
- Stillwagon, Brittany** Electrical & Computer Engineering Coffelt Room 13:45 - 14:00
Encrypted Wireless Network for Vibration Data Acquisition
 The structural integrity of U.S. bridges is to be monitored via wireless sensor networks to determine and monitor the structural health of a highway bridge. An algorithm will determine bridge health based on vibration data collected from a wireless network of SunSPOTs. This health index will further the efforts to save human lives, avoid costly repairs, prevent unnecessary reconstructions, and provide timely restorations. The basis for the hardware design is the Sun Small Programmable Object Technology, or SunSPOT. These devices contain a Squawk based Java VM and an IEEE 802.15.4 radio (Zigbee). The SunSPOT has digital IOs on board to which a daughter card can be attached. An attached daughter PCB houses an adjustable gain op amp and a single axis vibration sensor. The vibration sensor measure continuous and impulsive vibrations produced from automobile traffic. A network consisting of three SunSPOTs and their individual vibration sensors complete the mesh network. The network of sensors is integrated with a host computer to collect and organize the vibration data.
- Stipetich, Michelle** Technology Ohio Room 08:30 - 10:00
Evaluation of Google Wave as Student Group Study Tool
 Evaluation of Google Wave as Group Study Tool. Google wave is an up and coming comprehensive learning tool for students. It is a combination of email, instant messaging, and an instantaneous real time multitasking system. Google wave will allow the students to send messages, up-load pictures, diagrams, and videos, and view the posted material of all participants. For this testing, three students, along with an instructor, will examine the benefits and problems with using Google Wave as a group study tool. They will post comments, helpful class information, opinions, and concerns they are experiencing with their class and report on the user friendliness of Google Wave.
- Strollo, Dana** Health Professions Coffelt Room 08:30 - 08:15
Weight-loss Outcomes after Laparoscopic Bariatric Surgery are Affected by Emotional Eating
 Disparate outcomes after bariatric surgery may be attributed to differences in psychosocial characteristics of patients. We sought to examine the construct of emotional eating (assessed preoperatively) and its effects on weight loss over time, in a cohort of 118 bariatric surgery patients. Data were analyzed using the mixed procedure in SAS 9.1, where effects on percent of excess weight lost (%EWL) were tested in mixed models with surgical method, emotional eating (using the Emotional Eating Scale, EES), time, and all possible interactions of the three, entered as factors. We then used the general linear model to further explore the effects of ethnicity and sex on emotional eating. A two-way interaction of emotional eating status and time was found for %EWL. Main effects of ethnicity and sex were found for total EES score, as well as for the EES depression subscale. Main effects of sex and type of surgery selected were found for the EES anxiety subscale. Our results demonstrate that emotional eating exerts effects on postoperative weight loss after bariatric surgery. Furthermore, emotional eating may be modulated by external factors such as ethnicity and sex of the patient. Consideration of EES status may allow mental health practitioners to more appropriately specify recommendations for perioperative counseling/other intervention with regard to detrimental eating behavior.

- Sujka, Brittany** Chemistry Ohio Room 10:30 - 12:00
Elucidation of the Function of the Glutathionylspermidine in E. coli
 Tripeptide glutathione (GSH) is the primary thiol found in most organisms including humans. It functions to protect organisms from oxidants and other harmful electrophiles. In *E. coli*, GSH partakes in a reaction with polyamine spermidine to form the conjugate, glutathionylspermidine (G-Sp). The physiological role of G-Sp is still unclear, although it was shown that in the late phase of bacterial growth as well as under anaerobic conditions a significant part of GSH is bound to spermidine. Two approaches were undertaken in order to elucidate the role of GSp. One is the analysis of the effect of the elimination of the genes responsible for the synthesis of GSp from the *E. coli* genome. Second is the creation of the affinity matrix with immobilized GSp to capture the proteins that could use GSp as a ligand or cofactor.
- Sumner, Rebecca** English Humphrey Room 14:00 - 14:15
Language Learning Motivation in International Students
 The purpose of this study was to deduce whether international students are more or less motivated to learn additional languages, and what their motivations are for learning additional languages. Information was collected via questionnaire. The questionnaire was based on a survey first developed by Bishop and Cannon (2009) and included multiple choice questions, a Leichardt scale, and constructed response questions. The responses were collected in person, at the Center for International Studies coffee hour, at the English Language Institute, and in the English for non-native speakers class. We also collected surveys online with the help of the Center for International Studies and Programs. We projected that international students would be more likely to learn a foreign language than American students and for different, more productive reasons. We found that 56% of international students surveyed are learning English simply because it would be useful in their future profession, and 41% are studying English because it was required in school. When asked what additional language they would learn, 33% responded French; however 62% had no preference as to which language they would prefer their (future) children to learn.
- Sumner, Rebecca** English Humphrey Room 14:15 - 14:30
'You Said That In Class!': A Study of the Use of Curse Words In College Classrooms
 Since using curse words in college courses seems to happen more frequently, we are distributing a survey to English 1550 courses to find out which curse words are being used, who is saying these words, the context in which curse words are used and/or accepted, and whether or not certain curse words are acceptable when used. We would like to do a presentation where we share our results with our colleagues. We hypothesize that there will be differences among survey participants in regards to age, gender, and what area of study the students are pursuing. Results are still being collected, at this point, and will be fully completed and tabulated by April 6, 2010.
- Suter Jr., Robert** English Humphrey Room 14:30 - 14:45
Taking the Hint: A Cross Sectional Survey of Perception Regarding Requests and Directness
 The title of this project is Taking the Hint: A cross sectional survey of perception regarding requests and directness. The main question we are addressing in our research is: Who do respondents believe will use higher levels of directness when making requests and who do respondents expect to be more indirect in request making? We initially suspected that we would find that respondents expect older women to offer more indirect requests but do not expect younger people or older men to be as likely to follow that practice. Our data gathering methods returned a sample of about 75-100 (analysis continues and some may be discounted) of scenario questionnaires. These questionnaires are multiple choice scenarios that have 4 possible responses. The responses have been secretly coded according to speech direction and according to directness. Our survey was completely voluntary and anonymous. Further levels of analysis will identify patterns of opinion with regard to gender and age groups within the scenarios and among the respondents. We have identified our subjects of data collection as YSU students taking Beginning and Intermediate Spanish classes and National College students. At this time, final results and conclusions are forthcoming. Possible applications for our research: Why do people have these socially-constructed expectations? Are these stereotypes? If so, what qualifies them as stereotypes? Have our findings indicated any change from the body of literature and research that the group consulted?
- Swickard, Aaron** History James Gallery 08:30 - 08:45
Comparisons of Ethnic Centers in the U.S.
 Ethnic centers such as Chinatown, San Francisco and Little Italy, Chicago are compared to contrasted to one another. Marking differences in culture and reasons for their beginnings. The Harlem area is discussed as well, showing its major differences in cultural heritage and development. Concluding that cultural centers developed and evolved into their current forms due to the culture brought from parent countries or, in the case of Harlem, created as a cultural refuge for the continued existence of their ways.
- Tacsik, Nate** Mechanical & Industrial Engineering James Gallery 14:30 - 14:45
Supermileage Vehicle
 With the current economy recovering from a recession, high fuel economy is used more often than it has in the past. One of the areas includes the use of gasoline. Fuel economy is used often in today's car industry as the basis of marketing. The ability of a lightweight vehicle to obtain the most fuel economy possible was tested. The vehicle was built to specifications provided by the Supermileage Vehicle Competition rulebook, which is sponsored by the Society of Automotive Engineers (SAE). A lightweight frame, aerodynamics, and a modified engine were the basis for achieving maximum fuel economy. The overall goal was to achieve a high miles-per-gallon rating, while following the standards of the competition. The overall design met the specifications mentioned in the SAE rulebook. Some of these included weight, brakes, and safety issues. All were taken into consideration in the design, while also maintaining an operative, fuel efficient vehicle.

- Tarajcak, Pamella** History James Gallery 09:15 - 09:30
Schools for the Women: A Comparative Study of the Education of Northern Women and Southern Women from 1800-1860.
 The study of women's education during the first half of the nineteenth century is important because of how the society trained women to adopt certain causes or viewpoints such as the antislavery movement in the North, the patriarchal mood in the South, and the national temperance movement. Many scholars maintain that there were major differences between how the education of southern women was conducted and how the education of Northern women was conducted. This in turn explained why the northern women were principle leaders in the Antislavery movement and the southern women were convinced that slavery was good. There obviously had to be some great differences in these women's early training to make them think and do such. However, in the nineteenth century, women's education was nationally uniform. This was the case in the curricula, philosophies, institutes, and alumnae's postgraduate life. There were two differences, though. Northern women received a more advanced education about a decade before southern women and were a little more vociferous and had a higher level of social involvement in post-educational life than their southern counterparts.
- Tatebe, Caleb** Chemistry Ohio Room 10:30 - 12:00
The Use of Mathematics to Examine the Operation of an Electrochemical Cell
 The basics of an electrochemical cell were explored. In order to evaluate and understand the current distribution across an electrochemical cell, mathematical equations were investigated. These equations are expressed through upper-level calculus and differential equations. An objective of the project was to gain a better understanding of these equations.
- Terzak, John** Mechanical & Industrial Engineering James Gallery 11:00 - 11:15
Design of a Conveyor Machine
 Conveyor machines are widely used in various applications to transport heavy loads. In this specific analysis, a dumpster with a load of 38,000 Newtons is transported by a conveyor machine that can be modeled as two parallel four-bar mechanisms. The conveyor machine is driven by a flywheel which transmits torque to the rods. The flywheel is driven by an electric motor connected by a belt. The purpose of this analysis is to design the shaft holding the flywheel as well as the connecting pins using the provided conveyor machine dimensions and material properties. This is accomplished by calculating forces in the entire conveyor machine and performing a fatigue analysis to find the appropriate shaft/pin dimensions to coincide with the given factor of safety. Engineering techniques such as stress analysis, machine optimization, dynamics, and kinematics were utilized to ensure a safe design. All analytical methods were verified by cross referencing computational results with theoretical calculations.
- Thomas, Dylan** Chemistry Ohio Room 10:30 - 12:00
Lung Function on a Daily Basis
 Our experiment is designed to compare and contrast the human lung capacity and breath period in differing physical situations of the body. The members of our group, five subjects total, will be studied while performing four differing breathing situations; standing, sitting, laying down, and after exercise. Breathing data will be collected using a spirometer and the accompanying equipment. Data will then be analyzed by hand using varying degrees of mathematics and using the SPSS 12.0.1 system, doing two-way ANOVA and SNK values. We hypothesize that when your lungs are more open and have more room to expand, you will then inhale and exhale a much larger lung volume. We suspect the breathing forms investigated, from greatest lung capacity to least, will be in the following order; standing, sitting, lying, and post exercise.
- Thompson, Jessica** Foreign Languages & Literature Room 2068 13:45 - 14:00
Study Abroad in Buenos Aires, Argentina
 This presentation will summarize the experiences of two YSU Spanish majors who had the opportunity to study abroad at la Universidad de Belgrano in Buenos Aires, Argentina during the summer of 2009. Topics to be discussed are the benefits of studying a foreign language abroad, the homestay experience, and the adjustment to everyday life in Argentina. Also to be discussed are the rewards of the cultural experiences of studying abroad, as well as the trips made to different sites within Buenos Aires and Iguazu Falls.
- Tingler, Jason** History James Gallery 09:00 - 09:15
Posse Comitatus in the 21st Century
 This work describes the increasing role that the United States military plays in domestic affairs. I analyze the history of domestic military use in the American colonies, how the founding fathers reacted against it, and the laws that were established in the name of posse comitatus. The paper then jumps to the modern day reliance on the military for numerous domestic catastrophes, ranging from natural disasters to public disorder, and the effects that its domestic deployment has. Finally, the paper forecasts some domestic events from the growing trend of the American reliance on the military.
- Tofil, Lisa** Biological Sciences Ohio Room 15:30 - 17:00
Quantitation of Ventricular Collagen in Male and Female Spontaneously Hypertensive Rats using Hydroxyproline Analysis
 Hypertension, or chronically elevated blood pressure, can result in altered cardiac function and structure. The key structural alteration associated with hypertension is left ventricular hypertrophy. This increase in myocardial mass is based upon an increase in myocyte size and collagen deposition in the heart. Hydroxyproline, a nonessential amino acid, is found primarily in collagen. As a result, measurement of the hydroxyproline content in tissues has been measured to determine collagen content using a modification of Reddy and Enwemeka's hydroxyproline assay (1996). We tested the hypothesis that the ventricular collagen content in the hypertrophied ventricles of males is greater than in females. Preliminary studies suggest that there is a difference in the amount of cardiac collagen content between male and female spontaneously hypertensive rats (SHRs). The cardiac collagen content in males was found to be $96.09 \pm 55.48 \mu\text{g collagen/mg protein}$ (N= 2) versus $129.85 \pm 50.28 \mu\text{g collagen/mg protein}$ (N=2) in females.

- Toth, Molly** Sociology & Anthropology Bresnahan I and II 10:30 - 10:45
A Preliminary Study of Human Skeletal Remains on the Island of San Salvador
 The island of San Salvador was once home to the Lucayan Indians and is purported to have been the first place Christopher Columbus reached in the New World. Youngstown State University has had ongoing excavations at North Storrs Lake site on San Salvador, Commonwealth of the Bahamas under the direction of Thomas Delvaux, the project's Principal Investigator. Excavations since the project's inception in 1995 have yielded palmetto wear pottery, beads made of shell, and pottery of Maya origin, suggesting the people of the Bahamas in the time of the Lucayan were engaged in trans-oceanic trade. In December of 2009, a preliminary, descriptive study, the focus of this presentation, was done to examine an assemblage of human skeletal remains housed at the Gerace Research Centre. The remains comprise of a skull missing the mandible, one occipital bone, two mastoid processes, one unidentified skull fragment, one left-side clavicle, one right-side scapula, one right-side ulna, one radial fragment, one thoracic vertebra, one sacrum, and one right-side tibia. Of particular interest is the skull, which shows signs of cradle-boarding on the frontal bone and suggests that it is of Lucayan ancestry. These are the only known remains on the island purported to belong to an individual of Lucayan ancestry. The skeletal remains are in many cases fragmentary; all are fragile and in need of basic conservation work. Additional research scheduled for December of 2010 is a more thorough study and includes: an estimated Minimum Number of Individuals in the inventory, biological profiles for the individual(s), metric and non-metric analysis, and an inventory of skeletal pathology and trauma.
- Troy, Jessica** English Humphrey Room 16:15 - 16:30
Little Red Cap and Hansel and Gretel: Conspiracies in Children's Literature
 Children are not the only ones who benefit from fairy tales. Adults use fairy tales for many reasons and in many ways. The tales teach lessons for children, but they also speak to adults culturally and socially. The underlying messages show what the writers of the tales believe about the stereotypical characters in the stories. Roles of women are one of the biggest subjects in the tales. Based on interpretation, female characters are the epitome of the battle between good and evil. Loving grandmothers and innocent little girls represent good while the evil step-mothers and diabolical witches represent evil; but this may only be one interpretation. It could be possible that the evil women simply represent freedom and liberation for the women reading the tales because these women are acting how they desire instead of how the rest of the world wants them to act. In my project, I explore the roles of women in fairy tales along with their collaborations with other characters in the fairy tales. Two of the tales that I focus on are Hansel and Gretel and Little Red Cap. Each of these stories has a suspicious union where characters seem to be conniving against others in order to fulfill a nasty desire. I prove that because of the odd plot holes there is room for discussion as to the extent of characters' collaborations.
- Truitt, Chris** Mechanical & Industrial Engineering James Gallery 11:00 - 11:15
Design of a Conveyor Machine
 Conveyor machines are widely used in various applications to transport heavy loads. In this specific analysis, a dumpster with a load of 38,000 Newtons is transported by a conveyor machine that can be modeled as two parallel four-bar mechanisms. The conveyor machine is driven by a flywheel which transmits torque to the rods. The flywheel is driven by an electric motor connected by a belt. The purpose of this analysis is to design the shaft holding the flywheel as well as the connecting pins using the provided conveyor machine dimensions and material properties. This is accomplished by calculating forces in the entire conveyor machine and performing a fatigue analysis to find the appropriate shaft/pin dimensions to coincide with the given factor of safety. Engineering techniques such as stress analysis, machine optimization, dynamics, and kinematics were utilized to ensure a safe design. All analytical methods were verified by cross referencing computational results with theoretical calculations.
- Tsarnas, Tracilyn** English Humphrey Room 15:30 - 15:45
Evolution of the International Phonetic Alphabet
 One of the building blocks of linguistic thought is the concept of phonetics. An essential part of the study of phonetics is phonetic transcription. Phonetic transcription is an integral part of linguistic study and research. This process utilizes a writing system that contains one symbol for every sound the human vocal system can make. This writing system was developed by the International Phonetic Association and is called the International Phonetic Alphabet (IPA). The objective of this research was to trace the evolution of the IPA from its conception to through its modern form, including its symbols, concepts, and important people. As the result of thorough research and reading, a brief history has been compiled and is ready to be presented.
- Twyford, Abbie** Political Science Pugsley Room 13:45 - 14:00
Assessing the Assessors: Institutional Research on Bureaucracy and Youngstown State University
 Be it public or private, the university plays an essential role in a person's life, and the life of the community. The years spent at an institute of higher education can have the most direct effect on a young scholar's future out of any bureaucratic structure they will encounter. Along the way, these men and women in pursuit of knowledge will encounter academics or professors who will challenge them to expand their scope of intelligence and interest, and to think creatively through course work or involvement in extracurricular activities. However, there is a group of professionals that a student may never encounter, but perhaps without even realizing it, more or less play a part in each and every aspect of their quest for higher education. The administration of a university, university system, or college, from the chancellor of the board of regents to the administrative assistant, has a hand in every single program, project, initiative, or decision made on a university campus. This research analyzes the bureaucratic nature of higher education, using Youngstown State University as a case study. The ultimate question of whom the university operates for will be discussed, as well as the history of higher education, higher education in the Youngstown area, and the bureaucratic structure of a university.

- Vadjinia, Tracy** Chemistry Ohio Room 15:30 - 17:00
Safe Alkyl and Acyl azide Synthesis Using Arylsulfonyl Azides
 Alkyl and acyl azides are important intermediates in the synthesis of various organic functional groups and heterocycles, however their use is often hampered by inherent instability and the use of metallic azides for their preparation. We have now found that readily handled arylsulfonyl azides are convenient reagents for azidation reactions of alkyl and acyl halides, as well as alcohols. Microwave heating speeds up conversions and the formation of azide products is easily monitored by IR analysis of reaction mixtures.
- Vaillancourt, Brett** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
A Mathematical Analysis of Peg Solitaire
 In this project we use the structure of the Klein 4 Group and tessellation to analyze the solvability of various peg solitaire games, including Central Solitaire, French Solitaire, and Triangular Solitaire. We have concluded based on our research that any board that can be successfully tessellated and can maintain a constant signature throughout game play is potentially solvable based on if the player moves the pegs correctly.
- Vavlas, Belinda** James Gallery 09:45 - 10:00
The Bubonic Plague in the United States: The Importance of the Third Pandemic in San Francisco, 1900-1908
 The third pandemic, which began in 1894 and ended in 1950, did not result in the catastrophic death tolls that the previous two pandemics had produced. The third pandemic was unique because it managed to infiltrate countries throughout the world and extend beyond its original focal point in the foothills of the Himalayan Mountains in Central Asia and the Mongolian steppes in Africa. Also, it provided a window for historians to study the urban social history of cities at the beginning of the twentieth century. Although cities throughout the world differed culturally, they all followed the same urbanization trends; they all had been shaped by industrialization practices, the global expansion of trade, and immigration. In addition, the third pandemic exposed emerging conflicts between medical scientists who felt it was their duty to combat disease on a global scale, and political figures who were primarily concerned with economic gain. The appearance of the plague in the United States provided scientists with a unique opportunity to study an ancient disease in modern times. Since the first recorded documentation of the bubonic plague in 541-542 C.E., it has proven to be virulent and resilient. The plague still continues to shape environmental and social issues for those who live in close proximity to reservoir areas and should not be taken lightly.
- Veeramachaneni, Rathna** Chemistry Ohio Room 15:30 - 17:00
Quantitation of mRNA levels in $\hat{I}^{\prime}S$ strain of Neurospora crassa
 Neurospora crassa belongs to the kingdom of fungi, phylum ascomycota and is eukaryotic. Neurospora has the ability to adapt and grow in environments with a variety of carbon sources. Gene systems involved in this adaptation in N.crassa such as the quinic acid (qa) gene cluster have been studied for many years. We are utilizing a strain of Neurospora which has the qa-1S repressor gene deleted ($\hat{I}^{\prime}S$) in it, is used for the study of carbon repression of qa gene cluster. In order to determine the levels of qa gene expression, RNA is isolated from the Neurospora ($\hat{I}^{\prime}S$) tissue grown in dextrose and quinic acid and one step RT-PCR is carried out. Preliminary results have shown that the messages of the quinic acid gene cluster can be detected in the $\hat{I}^{\prime}S$ strain using this technique. Qa-x- strain which has qa-x gene deleted in it, is grown in dextrose and quinic acid and a combination of both, a brown substance is separated and is being analyzed by NMR technique.
- Vesny, Rikki** Foreign Languages & Literature Room 2068 13:45 - 14:00
Study Abroad in Buenos Aires, Argentina
 This presentation will summarize the experiences of two YSU Spanish majors who had the opportunity to study abroad at la Universidad de Belgrano in Buenos Aires, Argentina during the summer of 2009. Topics to be discussed are the benefits of studying a foreign language abroad, the homestay experience, and the adjustment to everyday life in Argentina. Also to be discussed are the rewards of the cultural experiences of studying abroad, as well as the trips made to different sites within Buenos Aires and Iguazu Falls.
- Villone, Edward** Criminal Justice Ohio Room 13:30 - 15:00
Officers Armed with Degrees: Does Higher Education in Law Enforcement Reduce Police Officer Liability?
 Officers Armed with Degrees: Does Higher Education in Law Enforcement Reduce Police Officer Liability? Edward J. Villone, Youngstown State University This poster presentation depicts the exploration of whether higher education positively impacts police officer liability in law enforcement. Do officers with baccalaureate degrees and beyond experience lower liability rates when compared to those with only high school diplomas or GED's? In particular, this research examines criminal, civil, and administrative proceedings against degreed and non-degreed officers acting in their official capacities in a Mahoning County, Ohio police department. The results of the proceedings are then compared to determine whether the degreed officers have a reduced risk of criminal, civil, and administrative liability. As expected, higher education does have a positive impact on police officer liability. However, future researchers may want to explore whether this impact remains consistent over a larger population.
- Vinayak, Anubhav** Chemistry Ohio Room 10:30 - 12:00
Preliminary Characterization of HIV-1 protein Vpr
 Human immunodeficiency virus type 1 (HIV-1) is a retrovirus that is well known to be the causative agent for acquired immunodeficiency syndrome (AIDS). HIV-1 contains many proteins such as Vpr, Tat, Rev, Vif, Vpu and Nef that help regulate its function. Viral protein R (Vpr) is an accessory protein that is involved in virus replication and plays a key role in the function of HIV-1. Vpr has the ability to arrest the cell cycle of infected cells in the G2 phase which leads to the immunopathogenicity of HIV-1. There are 96 amino acid residues in Vpr and is well conserved in HIV-1, HIV-2 and simian immunodeficiency virus (SIV). Structure determination and analysis of Vpr (1-96) molecule is anticipated to reveal more insights into its biological function and the role played by this protein during the virus life cycle. Our ongoing study involves the relationship between the structure and function of Vpr as it plays a significant role in HIV biology and in the pathogenesis of AIDS.

- Vitulo, Tyler** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
A Mathematical Analysis of Peg Solitaire
 In this project we use the structure of the Klein 4 Group and tessellation to analyze the solvability of various peg solitaire games, including Central Solitaire, French Solitaire, and Triangular Solitaire. We have concluded based on our research that any board that can be successfully tessellated and can maintain a constant signature throughout game play is potentially solvable based on if the player moves the pegs correctly.
- Waldinger, Sarah** Biological Sciences Ohio Room 10:30 - 12:00
Lung Function on a Daily Basis
 Our experiment is designed to compare and contrast the human lung capacity and breath period in differing physical situations of the body. The members of our group, five subjects total, will be studied while performing four differing breathing situations; standing, sitting, laying down, and after exercise. Breathing data will be collected using a spirometer and the accompanying equipment. Data will then be analyzed by hand using varying degrees of mathematics and using the SPSS 12.0.1 system, doing two-way ANOVA and SNK values. We hypothesize that when your lungs are more open and have more room to expand, you will then inhale and exhale a much larger lung volume. We suspect the breathing forms investigated, from greatest lung capacity to least, will be in the following order; standing, sitting, lying, and post exercise.
- Walker, Michael** Computer Science & Information Systems Ohio Room 08:30 - 10:00
Privacy Scrubber: A Program To Secure Private Data On Windows Computers
 A wide range of personal information is distributed over the Internet by what appear to be benign software applications, such as iTunes and Coupon.com's printing software. These applications have access to any and all personal information stored in the computer. This information can be used for tracking or profiling purposes. These applications can and do send such private information to not only the software developers, but also to marketing and tracking services. The goal of this project is to demonstrate that it is possible to protect personal information without altering the execution of these applications. To do this, a software program called Privacy Scrubber intercepts a leaking program's attempts to access personal data. After interception, a fake value will be returned to the requesting application. The information that is faked by Privacy Scrubber has to return a value conforming to the format of the requested data, but randomized to protect privacy. This is done to prevent any issues with execution of the software, and to allow the user to continue to operate the program. This project has two benefits. First, it identifies some of the most commonly leaked information by software applications. Second, it proposes techniques to intercept and replace the leaked information, without altering the execution of the software. This initial project is not meant to be complete in its protection of private information, nor is it meant to defend against all the software applications that exist. This Privacy Scrubber is a starting point for a scalable and extensible framework to start protecting a person's private information from unintended software leakage.
- Wells, Joelle** Chemistry Ohio Room 10:30 - 12:00
Analysis of Isolated and Purified Staphylococcus aureus Type 5 Capsular Polysaccharide via Monoclonal Antibodies and Nuclear Magnetic Resonance Spectroscopy.
 Staphylococcus aureus is an opportunistic bacterial pathogen responsible for causing a variety of human diseases including foreign body infection, bacteremia, abscesses, and wound infections. Eleven antigenically distinct capsular polysaccharides, which have been shown to enhance virulence, are recognized for Staphylococcus aureus. Of these eleven, two types (type 5 and type 8) comprise about 70% of the isolates from patients with S. aureus disease. The type 5 capsule (Lowenstein) of S. aureus is isolated by killing the bacteria and removing DNA, RNA, and teichoic acid. The sample is then applied to a DEAE column, heavily sonicated, treated with lysozyme, and finally put through a Sephacryl S-300 column for further purification. After each column the sample is tested for presence of carbohydrates (red tetrazolium test) and teichoic acid (phosphate test). Monoclonal antibodies specific for capsule are then used in an ELISA as a final step to identify the purified capsular polysaccharides. Samples can then be analyzed by nuclear magnetic resonance spectroscopy to confirm the structure of the capsule. Confirmation of the capsule structure will be used in the development of several treatments for S. aureus.
- Werkmeister, Lora** Human Ecology Coffelt Room 09:30 - 09:45
The Effectiveness of an Educational Brochure designed to Promote an Emphasis for an Accredited Dietetic Program
 Youngstown State University (YSU) recently declared a concentration in Community Wellness for its Coordinated Program in Dietetics (CPD); it is essential to inform supervised practice preceptors, administrative professionals, and students of this change. The American Dietetic Association does not currently provide a brochure or materials to help higher education institutions promote the concentration area(s) of their dietetic program(s), and there are few studies related to the effectiveness of an educational brochure on administrative and supervised practice/internship preceptor knowledge. The objectives of this study are to (1) evaluate the effectiveness of an educational brochure and (2) to communicate YSU's newly declared concentration of Community Wellness for its CPD. RD and DTR subjects, professionals from the departments of Human Ecology and Career and Counseling Services at YSU, and students currently enrolled in Normal Nutrition general education classes will be conveniently selected. An electronic message will be sent to each subject; it will contain an invitation to participate in the survey and a unique link to the online survey. A Likert-type scale will be used to better assess perception changes as a result of receiving the brochure. The survey will be designed and analyzed with the assistance of SurveyMonkey, an online tool used to create web surveys. Results are pending. Results from this study will allow us to understand community awareness of a newly declared dietetic program emphasis. Furthermore, they will enable the University (or dietetics faculty) to ascertain optimal marketing strategies for both the program and the profession.

- White, Bartholomew** Biological Sciences Ohio Room 15:30 - 17:00
Patterns of Strain in the Femur of the Opossum (Didelphis virginiana) During Terrestrial Locomotion
 Previous studies have found that limb bones from upright, cursorial species of eutherian mammals experience high bending loads with minimal torsion, whereas the limb bones of non-avian reptiles exhibit considerable torsion in addition to bending. To help determine the evolutionary timing of this divergence in bone loading patterns, we measured in vivo terrestrial locomotor strains in the femur of the Virginia opossum (*Didelphis virginiana*). This species not only uses more crouched limb posture than cursorial mammals but, as a marsupial, belongs to a clade phylogenetically between reptiles and the eutherian mammals studied previously. The presence of substantial torsion in the femur of opossums, similar to non-avian reptiles, would suggest that this loading regime likely reflects an ancestral condition for tetrapod limb bone design. Strain recordings indicate the presence of both bending and moderate torsion in the opossum femur. Shear strains appear similar in magnitude to peak compressive axial strains, with opossum femora experiencing lower bending loads but higher levels of torsion compared with most previously studied mammals. Thus, loading patterns of opossum limb bones appear intermediate in some respects between those of non-avian reptiles and mammals. Supported by NSF I0B-0517340.
- Williams, Heather** Biological Sciences Ohio Room 15:30 - 17:00
*Determining the Role of MGT1 in the Biased Inheritance of Mutant mtDNA in the Yeast *Saccharomyces cerevisiae**
 Mitochondria produce much of the cell's energy through aerobic metabolism which depends on proteins encoded in both the nuclear and mitochondrial genome. The yeast *S. cerevisiae* is a facultative anaerobe, which survives by fermentation if it has mutant mitochondrial DNA (p- mtDNA) which has large deletions with the remaining DNA amplified in many head to tail repeats. HS p- genomes display an overwhelmingly biased inheritance pattern in favor of p- when mated to a wild type strain (p+), and N p- lack biased inheritance. HS p- strains' replication or segregation advantage is conferred through multiple copies of conserved rep sequences. The MGT1/CCE1 gene encodes a protein that resolves recombination junctions and reverses the biased inheritance of HS p- in matings to p+ strains. In the absence of MGT1, p- mtDNA sometimes fails to segregate into daughter cells during mitosis due to unresolved recombination in their repetitive genomes. However, there may also be a rep sequence-specific effect of the MGT1 gene that directly affects the biased inheritance. To clarify this, the MGT1 gene is knocked out of p+, HS p-, and N p- strains and the resulting cells screened for the presence of mtDNA. Mating experiments are then done with all the strains, notably the p- to each other, in the presence and absence of MGT1. The mtDNA of the resulting colonies is isolated and analyzed by Southern blots to determine mtDNA inheritance. No change in the inheritance pattern when HS p- and N p- are mated supports the hypothesis that it is the high levels of unresolved recombination structures in p- relative to p+ mtDNAs that leads to the loss of bias, not a rep sequence-dependent effect.
- Williams, Lynn** Nursing Room 2068 14:00 - 14:15
Economic Impact of the Gerace Research Centre on the Economy of San Salvador Island
 The Gerace Research Centre is located on San Salvador Island in the Bahamas and operates as a research and educational facility in collaboration with The College of The Bahamas. In the 2008-2009 season, over 1,300 students and faculty visited the Gerace Research Centre constituting over 13,000 nights in residence at the centre. These excess of 13,000 nights generated over \$650,000 for room-and-board fees. In addition to this, students and faculty spend money on other various items around the island leading to even greater expenses impacting the economy of San Salvador. My research analyzed expenditures of a group of 25 Youngstown State University students and faculty; this group consisted of two different classes that traveled to the Gerace Research Centre in December 2009. The faculty and students were all given a log to track their daily expenditures on, and this log consisted of five different areas: food/drink and social club/restaurant, souvenirs (manufactured), souvenirs (local handicrafts), incidentals, and other. One purpose of this research was to provide the Gerace Research Centre with an estimate of the overall monetary expenditures that the visiting students, faculty, and researchers bring to the island of San Salvador. The other purpose of this research was to provide Youngstown State University faculty with an estimate of the student and faculty spending patterns so they can make recommendations to oncoming students about estimated spending money that may be brought on the trip.
- Wilmouth, Devin** Mechanical & Industrial Engineering James Gallery 13:45 - 14:00
Flow Visualization Wind Tunnel
 A small flow visualization wind tunnel was designed and built to study the pattern of flow around bluff and streamlined models. The visualization is created by injecting thin filaments of white smoke at the inlet of a small low-turbulence wind-tunnel. The wind-tunnel is a draw-through type and the flow is initiated by a small radial blower fan mounted near the exit of the tunnel. Air is drawn in through the inlet and exhausted at the tunnel exit. Part of the air exhausted can be forced into a smoke generating reservoir. The smoke, generated by vaporizing propylene glycol, is forced through the supply pipe into small nozzles and then emerges out of the nozzles as fine filaments. Models were placed in the test section for the study of flow patterns. The heater element and the blower fan are instrumented and controlled using computer software as well as manual controls. The machine has controls for starting the fan and the heating element along with a safety feature to turn off the heater and the fan if the temperature inside the smoke reservoir exceeds a certain threshold temperature. The flow patterns observed corroborated the concepts learned in fluid dynamics. In addition, flow visualization is used in many industries concerned with aerodynamics.
- Wilms, Scott** Accounting & Finance Ohio Room 13:30 - 15:00
Study Abroad in Winchester, England
 This poster presentation will focus on a forty page book we wrote detailing our experiences while studying abroad in Winchester, England. Our goal with this book/project is to provide advice to students at Youngstown State who would like to study abroad. This project describes in detail our personal, cultural and academic experiences in the United Kingdom. This book primarily explains the detailed preparation process. Overall, this project provides information from a student's perspective to future study abroad students.

- Wilson, Andreen** Communication & Theater Pugsley Room 10:45 - 11:00
An Exploration of Parent-Child Relationship Communication: Motives, Climate, Openness and Age
 Communication between parents and their children evolves and changes over time. In most cases, the parent-child relationship continues into the child's adulthood. However, what is unknown are the factors that change parent-child communication patterns over time. Four factors that may contribute to the change in parent-child communication are: a) the motives parents and children have to communicate, b) climate in the parent-child relationship at various stages of that relationship, c) the degree of openness in the parent-child relationship, and d) the age of the parent and child. To understand parent-child communication patterns, it was important to look at why parents and children continue to communicate. The purpose of this study was to examine some of the barriers to improving communication in parent-child relationships.
- Wilson, Solita** Chemistry Ohio Room 10:30 - 12:00
The Use of Mathematics to Examine the Operation of an Electrochemical Cell
 The basics of an electrochemical cell were explored. In order to evaluate and understand the current distribution across an electrochemical cell, mathematical equations were investigated. These equations are expressed through upper-level calculus and differential equations. An objective of the project was to gain a better understanding of these equations.
- Witmer, Kayla** Human Ecology Ohio Room 13:30 - 15:00
Perceptions of Causes and Consequences of Childhood Obesity Among YSU Students
 The problem of childhood obesity in the United States has grown considerably in recent years with approximately 15 percent of children between the ages of 2-19 years being classified as obese (CDC, 2007). Obesity is among the easiest medical conditions to recognize, but one of the most difficult to treat. This study will examine the perceptions of the causes and consequences of childhood obesity among college students at Youngstown State University. Students 18 years or older will be recruited from the YSU campus common student areas. The study protocols will be explained to eligible participants and upon signed informed consent, participants will self-administer one of two surveys (one for students who have children and another for those without). Data will be analyzed using SPSS 15.0 to determine if overweight or obese children will be reported in significantly ($p < 0.05$) more Single-parented households than in Two-parented households; participants who are overweight/obese are significantly ($p < 0.05$) less likely to perceive overweight or obesity in their own children than non-overweight/obese parents; and parents of obese children will report a significantly ($p < 0.05$) lower daily intake of fruit and vegetables than those of non-obese children.
- Wolf, Kathryn** Mechanical & Industrial Engineering Ohio Room 08:30 - 10:00
Work Measurement Techniques Applied to the Improvement of a Material Handling Process in the Fastener Manufacturing Industry
 The author, a member of the methods engineering class in the Industrial and Systems Engineering program at Youngstown State University, applied work measurement analysis techniques at a fastener manufacturing company in Girard, Ohio. The complete process of converting bulk inventory to packaged and palletized product was observed. This process was captured as digital video and analyzed with motion and time analysis software. Using this modern approach together with classic work measurement methods inefficient steps in the process were isolated. Improvements toward safety and productivity were then proposed and verified using pre-determined times analysis tools. This research activity provided the author with industrial experience and showcased an important industrial engineering capability to a local industrial partner.
- Worst, Arthur** Mechanical & Industrial Engineering James Gallery 11:45 - 12:00
Supercharger Pulley: Stress Distribution and Analysis
 An automobile supercharger ultimately increases the power output of the engine and is driven by a belt pulley system. As rotational speed increases on a pulley, the driving force or applied torque will decrease because they are inversely proportional. When the driving belt force decreases it in turn causes the inertial load to increase making the internal stress in the pulley higher. A continuation of last year's supercharger pulley research, this project is a computational approach to determining the stress distributions in the pulley for various input RPMs. Two pulleys are to be examined; one with a carbide coating and one without a carbide coating. Assuming that power at the rotating shaft remains constant; the acting forces on the pulley are calculated and then simulated on the pulley using Finite Element Analysis (F.E.A.) software. The location of the maximum Von Mises equivalent stress will be determined by the F.E.A. software. Also a plot of the Von Mises stress for the various rotational speed inputs will be created for different positions on the pulley. By knowing the power input, angle of contact of the belt on the pulley, and the pulley disk dimensions we conducted a complete stress analysis of the two pulleys.
- Yamsek, Laura** Geological & Environmental Science Jones Room 14:15 - 14:30
Changes in Shoreline Sedimentation at Sandy Point, San Salvador
 Sandy Point is a prominent landform located at the southwestern corner of San Salvador, Bahamas. It is a massive peninsula-shaped sand deposit created by the combination of long-shore drift along the southern and western shores of the island and intensive wave refraction at the point. GPS surveys of the shoreline conducted in March for the years 2005 to 2009 demonstrate regular and non-predictable change of the shoreline position from year to year. Visual observations and crude line-level transects for the same years indicate equally dramatic change in the overall morphology of the deposit. In an effort to better understand the processes responsible for the observed changes and document the magnitude of change, a detailed study of Sandy Point was initiated in June 2009. The data included shoreline GPS surveys, shoreline to back-beach transects (GPS and total station), and sand textural analyses. A second set of measurements and analyses was completed in March 2010. Preliminary results demonstrate a dramatic change in shoreline position from June 2009 to March 2010. In accordance with shoreline change, the beach transects show dramatic change in the overall morphology of the sand deposit. Over all, the sediment can be characterized as poorly sorted coarse sand composed of primarily carbonate shell fragments. The resulting data of shoreline and transect surveys were plotted on the topographic map of the island (1971) using ArcGIS.

- Zahran, Michael** Electrical & Computer Engineering Ohio Room 08:30 - 10:00
Triaxial Method Resonant Chamber for Low Frequency Electromagnetic Testing
 Design and Construction of a Low Cost Tube-in-Tube Triaxial Device The tube-in-tube test method is utilized for measuring the transfer impedance and the shielding and screening attenuation of the coupling of electromagnetic interference. It is a triaxial method for testing Electromagnetic Compatibility (EMC) of data communication transmission line structures (cable assembly and connection system). It provides an efficient and accurate way to test electromagnetic leakage at low frequencies. The network analyzer is used to measure the attenuation characteristics at the output of the tube-in-tube with test samples. Frequency sweep by the network analyzer will generate information on attenuation provided by the sample (cable assembly and/or connectors) at various test frequencies. The tube-in-tube test apparatus acts as a coaxial cable, allowing the measurement of voltage drop at the outside of the tube. This device is designed to allow for a cost improvement over a commercially available apparatus with similar functions. The device is also constructed to allow for better test flexibility to decrease test time and test cost. This is accomplished by incorporating a custom built lid and base assembly create a sealed chamber that is easy to open and close, making it more user-friendly. An adjustable end connector allows one to test different lengths of wire samples. Test results comparable to the commercially available device are verified.
- Zame, Kenneth** Geological & Environmental Science Jones Room 13:30 - 13:45
Carbon Dioxide Capture Using The Micro-algae Chlorella Vulgaris.
 As an option for handling the large quantities of carbon dioxide (CO₂) released into the atmosphere, fossil-fired utilities are pursuing deep geological sequestration in response to the pressure to reduce emissions. Though not fully known, liability issues for deep sequestration are potentially significant. Flue gas separation is expensive, and for smaller emitters of carbon dioxide, access to geological sequestration is limited and costly. Algae, which represents about 0.5% of global biomass produces about 70% of the net oxygen on earth. In the process CO₂ is sequestered in large quantities by photosynthetic means producing algae biomass rich in lipid which is usable for biofuels. Algae thus offers alternative and sustainable solution in two main ways; 1) value-added sequestration of CO₂ through conversion to biomass and 2) biomass which can be use to produce renewable fuels. This research would be focused on the use of the fresh water microalgae, Chlorella vulgaris for photosynthetic mitigation of point source carbon dioxide emissions in a vertical packed bubble column photobioreactor. It is expected that the rate of mass transfer of carbon CO₂ into the Chlorella vulgaris alga culture phase and subsequently into biomass using the vertical packed bubble column photobioreactor in conditions aerated with 2 to 10% carbon dioxide (by volume) would be significantly high.
- Zeljak, Alaina** Criminal Justice Ohio Room 15:30 - 17:00
Analysis of Genetic Variations of cpDNA in Elm species
 Chloroplasts are the membranous organelles found in plant and algae cells that produce energy through the process of photosynthesis. Chloroplasts have their own separate genome which is often and maternally inherited, known as chloroplast DNA (cpDNA). Chloroplast DNA can be used in research to examine genetic diversity within plant genusâ€™™ and speciesâ€™™, as well as evolutionary relationships. The American elm, Ulmus Americana, is a deciduous tree found primarily in bottomlands and floodplains, but also naturally thrives near streams along and throughout the Appalachian Mountains. The resilience of the American elm allowed for the species to be cultivated and widely planted outside of its natural hardiness zone. Unfortunately much of the cultivated American elm tree population was destroyed by Dutch elm disease, caused by the fungus ascomycete microfungi. The vector by which the disease is transferred is the Elm Bark Beetle. This research is investigating the cpDNA genetic diversity between two particular Elm species, Ulmus americana and Ulmus rubra. DNA was isolated from healthy tissues in the old growth forest in Zoar Valley, New York, and from cultivated trees in the vicinity of YSU. CpDNA has been amplified through polymerase chain reaction conserved primers that flank more variable regions. These products are cloned, isolated and then quantitated before being sequenced for analysis. The goal of this research is to analyze the genetic differences within the cpDNA to see if there is a difference between Healthy wild trees and cultivated susceptible Elms.
- Zell, Elizabeth** Chemistry Ohio Room 10:30 - 12:00
Novel Synthesis of Copper Chloride Quantum Dots in a Sodium Chloride Matrix
 We present a novel synthesis of non-toxic copper chloride nanocrystals in a sodium chloride matrix. Unlike other methods, this synthesis requires only simple materials such as common sodium chloride, common copper wire, standard ceramic crucibles, and standard lab heat sources, without the need for sophisticated crystal growth apparatus or control of atmosphere. The product is readily synthesized from the molten phase in as little time as is required to melt the sodium chloride, introduce the copper and cool the product. The product exhibits high fluorescence quantum yield and potential bi-exciton and exciton-phonon coupling under illumination with sources as mild as 400nm. We also present compelling evidence of thermal dependence in both fluorescence efficiency and lambda max. This rapid, straightforward and non-toxic synthesis is easily performed on the bench top and harbors potential for many applications including undergraduate instruction in Physical Chemistry.
- Zordich, Joseph** Geography Bresnahan I and II 11:00 - 11:15
Muang Thai: The Growth of the People that have Inhabited the Area in South Aast Asia Known as Thailand and How They Became the Beautiful Country they are Today
 All people on this planet have their own story of how they became what they are today. This presentation explores the historical transformation of the people who have occupied the region formerly known as Siam. Better known now to the inhabitants literally as “free nation” and to us outside of the country as the “land of smiles” or simply Thailand. Today the area is a democratic monarchy that has relatively recently broke free from its military monarchical roots which gave birth to the name which united these people. Thailand occupies part of Southeast Asia, having a significant mountainous region which are foothills to the Himalayan mountain range of the southern Asian area, a fertile plateau, and important river systems that produce a fertile central plane with a prosperous set of tributaries running to the gulf of Thailand. Due to its North South orientation, Thailand experiences a variety of climatic difference which produces much variability in the vegetative landscape and land use. Thailand’s history is explored in this presentation through the occupying and adjacent kingdoms as a function of these landscapes over the past thousand years of history.

