THE UNIVERSITY OF ALABAMA

RESEARCH

Undergraduate Research & Creative Activity Conference

Oral and Poster Presentations
Schedule and Abstracts

THE UNIVERSITY OF ALABAMA

April 9th, 2012
Bryant Conference Center
8:00 a.m.- 5:00 p.m.

Office of the
Vice President for Research

April 9, 2012

THE UNIVERSITY OF
ALABAMA
RESEARCH

Dear Participants

Welcome to the Fifth Annual University of Alabama Undergraduate Research and Creative Activity Conference. We are excited to have over 400 students representing a variety of academic disciplines participating in this year's event. This is a record number of participants and the continued growth in participation proves that research and creative activities have become a hallmark of the undergraduate experience at The University of Alabama.

Our faculty constantly seeks new opportunities to engage our undergraduate students in quality research, discovery and creative endeavors that will define their academic experience at the Capstone. We want to provide special thanks to the faculty members who have mentored our student presenters today as these talented students begin what we hope will be a long journey of scholarly achievement and discovery. We also offer hardy congratulations to each student participant for his/her contribution to the impressive body of work presented today.

Through the collaborative efforts of the Office for Research, the Graduate School, the Undergraduate Research and Creative Activities Committee, and a number of our colleges and schools, this has become a premier event at The University of Alabama. Sincere thanks to these groups for making today's conference possible through their tireless efforts in planning and development.

We celebrate this established tradition of annually recognizing the research and creative accomplishments of our best and brightest undergraduate students.

Judy Bonner
Interim President

Joe Benson
Vice President for Research

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*Poster presentations are designated morning and afternoon by an “A” or “B” following the number respectively.

SCHEDULE OF EVENTS

SUNDAY, 8 APRIL 2012

6:00pm – 8:00pm Sellers Lobby
Arts & Sciences and Nursing Poster Presentation Registration & Set-Up
All Oral Presentation Registration/Visual Upload

MONDAY, 9 APRIL 2012

7:30am – 8:20am Sellers Lobby
Arts & Sciences and Nursing Poster Presentation Registration & Set-Up

8:30am – 10:00am Sellers Auditorium
Judges Preliminary Review of Arts & Sciences Poster Presentation Displays

10:00am – 12:00pm Sellers Auditorium
Arts & Sciences and Nursing Poster Presentations

10:00am-10:20am Nichols Room
Nursing Oral Presentations

11:00am – 12:15pm Sellers Lobby
Oral Presentation Registration/ Visual Upload

11:45am – 1:00pm Sellers Lobby
Afternoon Poster Registration

12:00 – 12:15pm Sellers Auditorium
Arts & Sciences and Nursing Poster Presentation Break Down

12:20 – 1:00pm Sellers Auditorium
Afternoon Poster Presentation Set-Up

1:00pm – 5:00pm Rast Conference A&B, Wilson, Central, & Birmingham Rooms
College of Arts & Sciences Oral Presentations

1:00pm-3:15pm Nichols Room
Culverhouse College of Commerce & Business Administration Oral Presentations

1:00pm-3:30pm Logan Room
College of Communication & Information Sciences Oral Presentations

1:00pm – 4:00pm Thames Room
Emerging Scholars Oral Presentations

1:00 – 3:00pm Sellers Auditorium
Afternoon Poster Presentations

2:30pm – 4:00pm Morgan Room
College of Education and School of Social Work Oral Presentations

SCHEDULE OF ORAL & POSTER PRESENTATIONS

5TH ANNUAL UNDERGRADUATE RESEARCH & CREATIVE ACTIVITIES CONFERENCE

COLLEGE OF ARTS & SCIENCES

DIVISION OF SOCIAL SCIENCES – SCHEDULE OF ORAL PRESENTATIONS

Rast A Group 1

1:00
Paige Bussanich, Psychology
Shika Mukkamala, Human Development & Family Studies
Faculty Mentor: Frances Conners, Psychology
Down syndrome and Emotional Expressivity further explored

1:20
Erika Curtis, Political Science
Faculty Mentor: Barbara Chotiner, Political Science
A Great Divide: Causes and Conflicts of the Velvet Divorce

1:40
Amanda Elam, Political Science
Faculty Mentor: Barbara Chotiner, Political Science
Cronyism in Vladimir Putin's Russia

2:00
Benjamin Fisher, Political Science
Faculty Mentor: Douglas Gibler, Political Science
Militarized Interstate Disputes

2:20
Caroline James, New College
Faculty Mentor: Sheila Black, Political Science
Terrorists, Fags and Spics: A Study on Public Opinion, Issue Coding and Public Policy

2:40
Carl Napps, Political Science
Faculty Mentor: Karl DeRouen, Political Science
Audience Costs and Information Asymmetry in a Bargaining Framework of Terrorism

3:00
Lindsay Turner, New College
Faculty Mentor: Ellen Spears, New College
Ecofeminism in a Modern World

3:20
Lindsay Turner, New College
Faculty Mentor: Andrew Dewar, New College
Fighting Food Security: India and One Organization's Approach to Organic Production

Rast B Group 2

1:00
Matthew Bailey, Political Science
Faculty Mentor: Utz McKnight, Political Science
The American "Dream" and the Disadvantages that Minorities face in America

1:20
Lauren Collier, Anthropology
Kimberly Roy, Anthropology
Faculty Mentor: Elizabeth Cooper, Anthropology
What Students Want: Patterns of Difference in Knowledge and Desire for UA Library Services

1:40
John Fox, History
Faculty Mentor: Lisa Dorr, History
Martha Strudwick Young: Alabama's Lost Remus Writer

2:00
Amanda Kimbrough, Psychology
Faculty Mentor: Rosanna Guadagno, Psychology
Gender Differences in Technology Use: Women Connect More than Men

2:20
Dorie Kogut, Political Science
Faculty Mentor: B Lichtenstein, Consumer Sciences
Client Advocates or Law Enforcers: Health Worker/Client Relations and HIV Disclosure Laws

2:40
Isabela Morales, History
Faculty Mentor: Jenny Shaw, History

Letters from a Planter's Daughter: Understanding Freedom and Independence in the Life of Susanna Townsend (1853-1869)

3:00
Briana Royster, History
Faculty Mentor: Lisa Lindquist-Dorr, History
Constructing a New Image: The Social Lives of Southern African American College Women in the 1920s

3:20
Rita Martin, Criminal Justice
Faculty Mentor: Mark Lanier, Criminal Justice
Negative Virtual Peer Association: From Social Networking to Juvenile Delinquency

DIVISION OF SOCIAL SCIENCES – LISTING OF POSTER PRESENTATIONS

1A
Stephanie Glaze, Psychology
Faculty Mentor: Ansley Gilpin, Psychology
Spontaneous Imitation in Children with Autism Spectrum Disorders

2A
Grace McNatt, Psychology
Brandon Dare, Psychology
Faculty Mentor: Franes Conners, Psychology
Implicit Learning and IQ

3A
Meghan Metcalf, Psychology
Faculty Mentor: Matthew Jarrett, Psychology
Attention-Deficit/Hyperactivity Disorder (ADHD) Symptoms and Functioning in Undergraduates

4A
Ted Nelson, Anthropology
Faculty Mentor: John Blitz, Anthropology
Magnetometry and Ground Truthing Excavations at Actuncan, Belize

5A
Ally Sequeira, Psychology
Paige Bussanich, Psychology

Faculty Mentor: Frances Conners, Psychology
Autism Symptoms in Non-Autistic Participants

6A
Amanda Buxton, Political Science
Faculty Mentor: Joseph Smith, Political Science
Barnett v. Friedman: Analyzing the U.S. Commerce Clause

7A
Emma Buchalter, New College
Faculty Mentor: Julia Cherry, New College
Disaster and Crisis Management: Tornadoes, Tuscaloosa, Theory, and Methodology

8A
Dylan Sandy, Mathematics
Faculty Mentor: John Lochman, Psychology
Leadership and Aggression

9A
Margaret McCormick, History
Faculty Mentor: Lawrence Clayton, History
The Air War Over the Bay of Pigs

10A
Amanda Nichols, Communicative Disorders
Katy Erstine, Communicative Disorders
Jocelyn Fowler, Human Development & Family Studies
Faculty Mentor: Jason Scofield, Human Development & Family Studies
Children's Knowledge of Object Names and Functions

11A
Molly Stenner, Psychology
Faculty Mentor: Ed Merrill, Psychology
The Development of Sex Differences in Wayfinding

12A
D. Paul Strickland, Political Science
Faculty Mentor: Glenn Davis, Community Health Science
Investigating Criteria for Trauma System Registration in Emergency Calls

13A
Stephen Snider, Psychology
Faculty Mentor: Martin Sellborn, Psychology
Relations Between Narcissistic Personality Disorder and Proposed Trait Domains for the DSM-5

DIVISION OF FINE ARTS & HUMANITIES – SCHEDULE OF ORAL PRESENTATION

Wilson Room

1:00
Catherine (Kelsie) Dodson, Art
Faculty Mentor: Stacy Morgan, American Studies
How the Narrative Explanations of Lonnie Holley's Abstract Artworks Detract from their Aesthetic Worth

1:20
Ashley Frazier, Music
Faculty Mentor: Andrea Cevasco, Music
The Role of Music Therapy in the State of Alabama's Early Intervention Curriculum

1:40
Michael Proaps, Religious Studies
Faculty Mentor: Steven Ramey, Religious Studies
The Dilemma of Religious Terrorism

2:00
Tiffany Reese, Gender & Race Studies
Faculty Mentor: Jennifer Shoaff, Gender & Race Studies
I Put On: Blackness and Cultural Appropriation

DIVISION OF FINE ARTS & HUMANITIES – LISTING OF POSTER PRESENTATIONS

14A
Anna Baird, Music
Faculty Mentor: Andrea Cevasco, Music
Developing music therapy programming for patients at the VAMC of Tuscaloosa based on the music therapy literature and current practices

15A
Blake Franklin, Music
Faculty Mentor: Andrea Cevasco, Music
The Effects a Single Music Therapy Session on the Mood of Cancer Patients

16A
Laura Hagerty, Music
Faculty Mentor: Andrea Cevasco, Music
Frequency of Dangerous Volume of Music on Personal Listening Devices Among College Students

17A
Wesley Hyde, Music
Faculty Mentor: Andrea Cevasco, Music
Effects of the Non-verbal Qualities of Music on Short-Term Retention of Factual Information

18A
Christopher Nix, Music
Faculty Mentor: Andrea Cevasco, Music
The Effects of Classical music and Contemporary Dance music on results in a Spatial Abilities Test

19A
Greg Randall, Art
Joseph Robertson, Art
Faculty Mentor: Sarah Marshall, Art
Discovering Photogravure

20A
Jameson Sanford, Theatre & Dance
Faculty Mentor: Andy Fitch, Theatre & Dance
"The Seagull" Scenic Design Production

21A
Kimberly Vick, New College
Faculty Mentor: Dr. Michael Steinberg, New College and Geography
"Doing It" Yourself: Writings on DIY Sexual and Reproductive Health in Feminist Zines

22A
Holly Gray, Theatre & Dance
Faculty Mentor: Sarah Barry, Dance
For Your Entertainment: The Jazz in Jack

23A
William Cotton, Theatre
Faculty Mentor: Andy Fitch, Theatre
The Seagull

DIVISION OF SCIENCE & MATHEMATICS – SCHEDULE OF ORAL PRESENTATION

Group 1 Central Bank Room

1:00
Laura Frost, Biological Sciences
Faculty Mentor: John Clark, Biological Sciences
Diversification and convergence of flower shapes in the Neotropical plant genus Drymonia (Gesneriaceae)

1:20
Bryan Herren, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Investigating the VPS-C Complex of Genes in Alzheimer's Disease

1:40
Matthew Hicks, Chemical and Biological Engineering
Bwarenaba Kautu, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Investigat The Role of Heterotrimeric G-protein Signaling in a C. elegans Parkinsonâ€™s Disease Model

2:00
Sean Mendez, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
The effect of two diets on the lipid concentration in third instar larvae in Drosophila melanogaster

2:20
Kay Rainey, Biological Sciences

Faculty Mentor: Ryan Earley, Biological Sciences
Temperature-Dependent Sex Determination in a Hermaphroditic Fish: A Direct Look at Genes vs. Environment

2:40
Benjamin Sinderman, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Stress recovery, contest initiation, and dominance in male green swordtail fish (Xiphophorus helleri)

3:00
Zac Lovoy, Biological Sciences
Faculty Mentor: John Clark, Biological Sciences
The Gesneriacie Image Library: To Ecuador and Back

Group 2 Birmingham Room

1:00
Jonathan Belanich, Biological Sciences
Faculty Mentor: Stephen Secor, Biological Sciences
No free meals for scorpions; Energetic costs of meal digestion

1:20
Thomas Bertalan, Chemical and Biological Engineering
Faculty Mentor: Roger Sidje, Mathematics
Multi-Multi-Grid: A Parallelized Multigrid Solver Library for Python

1:40
Claire Davis, Chemistry
Faculty Mentor: Patrick Frantom, Chemistry
Biochemical Characterization of Isopropylmalate Synthase from E. coli

2:00
Jessica Duke, Chemistry
Faculty Mentor: David Dixon, Chemistry
Modeling Water in Supercritical CO2 and Reactions at Mineral Surfaces for the Geological Sequestration of CO2

2:20
Matthew Kelley, Chemistry
Faculty Mentor: David Dixon, Chemistry

Potential Energy Surfaces for Reactions of Alcohols on Group VI Transition Metal Oxide Nanoclusters

2:40
Erica Schwalm, Chemistry
Faculty Mentor: Patrick Frantom, Chemistry
Allosteric Regulation of Alpha-Isopropylmalate Synthase

3:00
Justin Tarbox, Mathematics
Faculty Mentor: Patrick Kung, Electrical and Computer Engineering
Spectroscopic Imaging of Nanowires

DIVISION OF SCIENCE & MATHEMATICS – LISTING OF POSTER PRESENTATIONS

Group 1

24A
Kirsten Ansorge, Biological Sciences
Faculty Mentor: Matthew Jenny, Biological Sciences
Identification of key members of the aryl hydrocarbon receptor (AHR) pathway and related oxidative stress genes from the American Oyster,Crassostrea virginica.

25A
Alexandra Arnold, Chemistry
Jon Brauer, Chemistry
Faculty Mentor: Greg Szulczewski, Chemistry
Photodgradation of organic dyes with titanium dioxide nanoparticles

26A
Mirza Beg, Chemistry
Faculty Mentor: David Nikles, Chemistry
Functionalizing Magnetite Nanoparticles for use in a Cancer Drug Delivery System

27A
Mitchell Belue, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Variation in Growth Rates in the Mangrove Rivulus (Kryptolebias marmoratus)

28A
Stephanie Bevans, Chemistry
Faculty Mentor: Kevin H. Shaughnessy, Chemistry
The Use of New Bisphosphine Ligands in Buchwald-Hartwig Amination of Alkyl Amines

29A
Johan Both, Chemistry
Faculty Mentor: David Dixon, Chemistry
DFT Benchmarking of the Clustering Energies and Electron Detachment Energies of Transition Metal Oxides

30A
Katie Bray, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Lipid Storage for Insulin/Tor Mutants

31A
Luke Brechtelsbauer, Chemistry
Faculty Mentor: Kevin Shaughnessy, Chemistry
Synthesis of Tridentate and Tetradenatate OXO-Lignads Used in Octahedral Titanium (IV) Complexes

32A
Karson Brooks, Chemistry
Faculty Mentor: Shanlin Pan, Chemistry
Surface enhanced Raman spectroscopy of single conjugate polymer molecules on nanotextured silver film

33A
Katie Brown, Biological Sciences
Trunnell De'Anna, Biological Sciences
Faculty Mentor: Janis O'Donnell, Biological Sciences
Drosophila Melanogaster: A Model for Characterizing the Long Term Consequences of Juvenile Exposure to Environmental Neurotoxins

34A
Lindsey Cobb, Chemical and Biological Engineering
Faculty Mentor: David Nikles, Chemistry
Synthesis, Recrystallization, and Characterization of a Diblock Copolymer to be used in a Targeted, Magentically Triggered Drug Delivery System

35A
Sarah Crocker-Buta, Biological Sciences
Charles Nechtman, Biological Sciences
Faculty Mentor: Stephen Secor, Biological Sciences
Impact of Meal Size and Body Size on the Cost of Digestion for the Corn Snake

36A
Dana Davis, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Third Chromosome Mutations and Lipid Storage in Drosophila

37A
Samuel Dotson, Chemistry
Faculty Mentor: Jennifer Edmonds, Biological Sciences
Characterizing Dissolved Organic Matter in the Talladega Wetland Ecosystem by Parallel Factor Analysis of Excitation-Emission Matrices

38A
Ryan Flamerich, Chemical and Biological Engineering
Faculty Mentor: David Dixon, Chemistry
Structures and Hydrolysis Reactions of Actinide Oxide (AcO2)n Clusters in the Ground and Excited States

Group 2

39A
Jesse Gettinger, Chemistry
Faculty Mentor: David Nikles, Chemistry
Poly(ethylene glycol-caprolactone-lactic acid) Triblock Copolymers for a Magnetically Triggered Drug Delivery System

40A
Sarah Griffin, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Temperature Effects on Sex Determination in the Mangrove Rivulus: Are some genotypes more sensitive than others?

41A
Alfred Hamilton, Chemistry
Faculty Mentor: Kevin Shaughnessy, Chemistry
Suzuki Coupling of Aryl Bromides Using Sterically Hindered Benzyl Substituted Phosphine Ligands

42A
Joana Hubickey, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
The Effect of Mutation in Laminin A Gene on Egg Size in Drosophila melanogaster

43A
Margaret Johnson, Chemistry
Faculty Mentor: David Nikles, Chemistry
Use of Semiconductor Quatum Dots as Nanothermometers to Measure the Local Temperature in Magnetically Heated Polymer Micelles

44A
Andrew Jones, Chemical and Biological Engineering
Faculty Mentor: David Dixon, Chemistry
Prediction of Reaction Thermodynamics and Acidities for the Production of Key Fuels and Intermediates from Biomass

45A
Jessica Jones, Chemistry
Faculty Mentor: Kevin Shaughnessy, Chemistry
Synthesis of New Palladium Complexes and Their Use in Pd-Catalyzed Cross-Coupling Reactions

46A
Leah Leonard, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
The Effects of High Fat and Normal Diets on the Dark Pupae Weight of Drosophila melanogaster

47A
Matthew Lollar, Biological Sciences
Austin Hardaway, Biological Sciences
Ryan Turner, Information Systems, Statistics & Management Science
Faculty Mentor: Janis O'Donnell, Biological Sciences
Modeling aberrant behavioral phenotypes of Autism Spectrum Disorders using mutations in the gene UBE3A

48A
Sara Martin, Biological Sciences
Laura Purvis, Biological Sciences
Faculty Mentor: Julia Cherry, Biological Sciences
Biomass allocation between Juncus roemerianus and Spartina alterniflora in two Gulf of Mexico salt marshes

49A
Keegan McNally, Chemistry
Ashley Jolly, Chemistry
Alie Mallet, Chemistry
Faculty Mentor: Marco Bonizzoni, Chemistry
Probing dye-electrolyte aggregation through absorption and fluorescence spectroscopy

50A
Meredith Mills, Biological Sciences, Honors College
Faculty Mentor: Margaret Johnson, Biological Sciences
Epigenetic Mechanisms Involved in Generating the Curly Tail Phenotype

51A
Joshua Moon, Chemical and Biological Engineering
Faculty Mentor: David Dixon, Chemistry
The Design of New Synthons for Inorganic Materials: Novel Metal Oxide Clusters

52A
Landon Mueller, Biological Sciences
Faculty Mentor: Jennifer Edmonds, Biological Sciences
Using dissolved organic matter fluorescence to signal changes in carbon cycling during a cave stream experiment

53A
Daniel Mulder, Biological Sciences
Faculty Mentor: Paul LeBlanc, Biological Sciences
Photosynthesis of Cassiopea xamachana in Eutrophic Environment

Group 3

54A
Divya Nadella, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Lipid Analysis of Previously Implicated Mutations in Drosophila Melanogaster

55A
Matthew Outlaw, Chemistry
Faculty Mentor: David Dixon, Chemistry
DFT Studies of the Hydration Reactions of H2O with Transition Group IVB Metal Oxide Nanoclusters

56A
Cheyenne Paiva, Biological Sciences
Anna Hawkins, Biological Sciences
Faculty Mentor: Heath Turner, Chemical and Biological Engineering
Computer Simulation of N-Functionalized Imidazole Solvents for CO2 Separation and Capture

57A
Lauren Perkins, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Evaluation of Glucose Levels in Drosophila and the Potential Protective Effect of the LanA Gene

58A
Mark Pinkerton, Biological Sciences
Faculty Mentor: Matthew Jenny, Biological Sciences
Identification of Several Glutathione S-transferase and Multixenobiotic Resistance Transporter Genes from the American Oyster, Crassostrea virginica

59A
Ottavio Pirocchi, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Chaperone Protein TorsinA Modulates Aî²42 toxicity in C. elegans Alzheimer's disease model

60A
Amelia Randazzo, Biological Sciences
Mimi Bach, Biological Sciences
Faculty Mentor: Stephen Secor, Biological Sciences
Amphiuma preserve digestive function during aestivation

61A
Chelsea Raulerson, Biological Sciences
Ryan Jones, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Linking Biomechanics and Behavior: Swimming Performance, Muscle Physiology, and Endurance in Fish

62A
Stephanie Robinson, Biological Sciences
Andrea Jones, Biological Sciences
Lindsay Highbaugh, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences

Phenotypic plasticity and integration: hormonal, morphological, and behavioral responses to salinity in a self-fertilizing, hermaphroditic fish (Kryptolebias marmoratus)

63A
Mary Katherine Sweeney, Chemistry
Faculty Mentor: Martin Bakker, Chemistry
Viscosity Correlation to Megaspore and Mesospore Size in Metal Oxides

64A
Sara Vaughn, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Adapting to Local Conditions: Variation of Fecundity in Mangrove Rivulus (Kryptolebias marmoratus)

65A
Jason Wang, Chemistry
Faculty Mentor: Kevin Shaughnessy, Chemistry
Synthesis of a Water Soluble Tris(dibenzylideneacetone)dipalladium(0) [Pd2(dba)3] for Palladium-catalyzed Cross Coupling Reactions

66A
Morgan Whitaker, Chemistry
Faculty Mentor: David Nikles, Chemistry
Polymer Coated Magnetic Nanoparticles Formation and Usage for Cancer Therapy

67A
Ali Yousuf, Chemistry
Faculty Mentor: Greg Szulczewski, Chemistry
Thermoelectic Properties of Polymer/Inorganic Materials

68A
Mike Zhang, Biological Sciences
Grant Fairchild, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Development of an animal model for dopamine neuron regeneration

Group 4

69A
Jamie Davies, Geological Sciences
Faculty Mentor: Ryan Ewing, Geological Sciences
Traveling with the Dunes

70A
Aaron Coleman, Chemical and Biological Engineering
Faculty Mentor: Kevin Shaughnessy, Chemistry
Reactivity and Stability of Allyl Palladium Precatalysts in Hartwig-Buchwald Amination

71A
Nicholas Izor, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Genotype-by-Diet Interactions in Blood Sugar Levels in Drosophila Melanogaster

72A
Nicholas Janzen, Political Science
Faculty Mentor: Fred Andrus, Geological Sciences
The Timing and Shell Growth Rate of Donax Variabilis

73A
Corey McCormick, Geological Sciences
Stephane Troy, Geological Sciences
Faculty Mentor: Ryan Ewing, Geological Sciences
Dune reorientation on Saturn's Moon Titan from Different Wind Regimes

74A
Stephanie Troy, Geological Sciences
Faculty Mentor: Ryan Ewing, Geological Sciences
Mysterious Patches

75A
Micah Larsen, Geography
Faculty Mentor: Seth Appiah-Opoku, Geography
Southwest Urban Growth Negatively Effecting the Future of Lake Mead

76A
Matthew Ledet, Electrical and Computer Engineering
Elizabeth Philip, Electrical and Computer Engineering
Sarah Betzig, Electrical and Computer Engineering
Faculty Mentor: Patrick LeClair, Physics & Astronomy
Observation of Atomic and Thermal Spectra

77A
Annie Lenox, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Effect of Male Presence on Outcrossing in Kryptolebias marmoratus

78A
Neil Tindell, Biological Sciences
Faculty Mentor: John Yoder, Biological Sciences
Teashirt and its role in sexually dimorphic abdominal segment number in Diptera

79A
Koushik Kasanagottu, Biological Sciences
Hae dong Kim, Biological Sciences
Yi Chen, Biological Sciences
Faculty Mentor: Janis O'Donnell, Biological Sciences
Investigating the mechanism for Î±-synuclein induced neuropathology

80A
John Powers, Biological Sciences
Faculty Mentor: Matthew Jenny, Biological Sciences
Development of a Web-Based Transcriptomic Database for Marine and Aquatic Organisms

81A
Ryan Turner, Management & Marketing
Faculty Mentor: Janis O'Donnell, Biological Sciences
Analyzing the role of UBE3A in Autism Spectrum Disorders using novel, custom-developed computational analysis application

82A
John Taylor Davis,
Faculty Mentor: David Dixon, Chemistry
Computational Studies of Gas-Phase Substituted Amino Acid Acidities in the Gas Phase and Solution

CULVERHOUSE COLLEGE OF COMMERCE & BUSINESS ADMINISTRATION

SCHEDULE OF ORAL PRESENTATIONS

Nichols Room

1:00
Emily Howitz, Management & Marketing
Faculty Mentor: Kim Campbell, Management & Marketing
Responses to Hostile Questions in Public Meetings

1:20
Taylor Konkel, Information Systems, Statistics & Management Science
Faculty Mentor: Lonnie Strickland, Management and Marketing
iParticipate

1:40
Callie Smith, Information Systems, Statistics & Management Science
Doug Packard, Information Systems, Statistics & Management Science
Faculty Mentor: Robin Buell, Information Systems, Statistics & Management Science
Our Project: Organizing the Organizers

2:00
Corey Whaley, Economics, Finance & Legal Studies
Mark Lail, Economics, Finance & Legal Studies
Matt Newton, Information Systems, Statistics & Management Science
Alyssa Yoon, Management & Marketing
Andrea Olson, Information Systems, Statistics & Management Science
Faculty Mentor: David Heggem, CBHP
Pride of Tuscaloosa

2:20
Joshua White, Economics, Finance & Legal Studies
Faculty Mentor: Ron Dulek, Economics, Finance & Legal Studies
The Impact of Service Learning Initiatives on Student Development

LISTING OF POSTER PRESENTATIONS

1B
Austin Collins, Economics, Finance & Legal Studies
Faculty Mentor: Paan Jindapon, Economics, Finance & Legal Studies
Testing the Olson Paradox: A Public Goods Game

2B
Kyle Weeks, Economics, Finance & Legal Studies
Faculty Mentor: William Barry, Economics, Finance & Legal Studies
Webfolio for Culverhouse Investment Management Group (CIMG)

COLLEGE OF COMMUNICATION & INFORMATION SCIENCES

SCHEDULE OF ORAL PRESENTATIONS

Logan Room

1:00
Ashley Allman, Electrical and Computer Engineering
Faculty Mentor: Chip Brantley, Journalism
The Arts Gang: A Collaboration on a Community Journalism Masterâ€™s Project

1:20
Meredith Hawkins, Advertising/Public Relations
Anne Warren, Advertising/Public Relations
Brandon Walker, Advertising/Public Relations
Kelli Wilbanks, Advertising/Public Relations
Myreete Wolford, Advertising/Public Relations
Faculty Mentor: Teri Henley, Advertising/Public Relations
Millennials: Who They Are and How They Buy Cars

1:40
Somhang Kim, Telecommunications & Film
Faculty Mentor: Teddy Champion, Telecommunications & Film
Through the Eyes of "Savannah Tribune"

2:00
Amber Parker, Advertising/Public Relations
Faculty Mentor: Teri Henley, Advertising/Public Relations
LessThanUThink Campaign: Alcohol Expectancy Research and Results

2:20
Taylor Romero, Communication Studies
Faculty Mentor: Boylorn Robin, Communication Studies
My (Gendered) Life as Taylor

LISTING OF POSTER PRESENTATIONS

3B
Leslie Bacon, Communication Studies
Faculty Mentor: Janis Edwards, Communication Studies
Religion in the 2012 GOP Race

***4*B**
Sean Fleming, Telecommunications & Film
Shea Matthew, Art
Faculty Mentor: Alana Baldwin, Telecommunications & Film
Behind the Design: Building Rotators

5B
Bethany Rogers, Telecommunications & Film
Morgan Kendrick, Telecommunications & Film
Robin Lovvorn, Telecommunications & Film
Faculty Mentor: Rick Dowling, Telecommunications & Film
Multimedia Services Video Team

COLLEGE OF EDUCATION

SCHEDULE OF ORAL PRESENTATIONS

Morgan Room

2:30
Lauren Huffman, Psychology
Faculty Mentor: Lisa M. Hooper, Educational Studies in Psychology
The Assessment of Culturally-Tailored Mental Health Treatment and Services: The Planning and Implementation of a Patient-centered Pilot Study

LISTING OF POSTER PRESENTATIONS

6B
Meagan Reif, Chemistry
Faculty Mentor: Lisa M. Hooper, Educational Studies in Psychology
ParentificaciÃ³n: Comprendiendo la voz latina (Parentification: Understanding the Latino Voice)

COLLEGE OF ENGINEERING

LISTING OF POSTER PRESENTATIONS

7B
Hisham Ali, Aerospace Engineering & Mechanics
Faculty Mentor: James Paul Hubner, Aerospace Engineering & Mechanics
Application of the Luminescent Photoelastic Coating Technique to Rapid Prototyping

8B
Robert Anderson, Chemical and Biological Engineering
Faculty Mentor: Hung-Ta Wang, Chemical and Biological Engineering
Large-scale solvothermal synthesis of Bi2Te3 nanoplates for thermoelectric power generation

9B
Jordan Busing, Chemical and Biological Engineering
Faculty Mentor: Christopher Brazel, Chemical and Biological Engineering

Medical Prognosis and Management of Eosinophilic Disorders

10B
Jose Roberto Cayaban, Civil, Construction & Environmental Engineering
Faculty Mentor: Derek Williamson, Civil, Construction & Environmental Engineering
Comparing Evapotranspiration Estimation Methods in Watershed and Floodplain Modeling at Coastal States of the Northern Gulf of Mexico

11B
Ria Domier, Chemical and Biological Engineering
Faculty Mentor: Ryan Hartman, Chemical and Biological Engineering
Understanding the Role of Hydrate Particle Interactions in Subsea Pipelines

12B
Tyler Evans, Chemical and Biological Engineering
Faculty Mentor: Hung-Ta Wang, Chemical and Biological Engineering
Chemical vapor transport synthesis of Bi2Te3 nanoplates for thermoelectric applications

13B
David Gillespie, Electrical and Computer Engineering
Faculty Mentor: Yang-Ki Hong, Electrical and Computer Engineering
Effect of Hexaferrite Material and Substrate Position on Miniature Antenna Performance

14B
Hayden Gunter, Civil, Construction & Environmental Engineering
Faculty Mentor: Steven Jones, Civil, Construction & Environmental Engineering
CARE Analysis of Pedestrian Crashes in Alabama

15B
Jill Hershman, Mechanical Engineering
Faculty Mentor: Kevin Chou, Mechanical Engineering
2D Orthogonal Cutting Experiments Using Diamond-Coated Tools with Force and Temperature Measurements

16B
Carina Herz, Chemical and Biological Engineering
Wesley Burkett, Chemical and Biological Engineering
Faculty Mentor: Ryan Hartman, Chemical and Biological Engineering
Developing Methods for the Chemical Engineering Education of the Millennials

17B

Christopher Hodapp, Computer Science
Faculty Mentor: Jeff Gray, Computer Science
An Automated Tool for Converting App Inventor Projects To Java

18B
Sarah Johnson, Mechanical Engineering
Clay Burrows, Mechanical Engineering
Faculty Mentor: Marcus Ashford, Mechanical Engineering
Alcohol Fuels in Engines - Emissions Analysis

19B
Amber Kaderbek, Aerospace Engineering & Mechanics
Faculty Mentor: Paul Hubner, Aerospace Engineering & Mechanics
Rapid Prototyping in MAV Research

20B
David Kilgo, Mechanical Engineering
Faculty Mentor: Leila Ladani, Mechanical Engineering
Analytical Prediction of Electronic Package Reliability

21B
Nikolai Kochurov, Electrical and Computer Engineering
Faculty Mentor: Qi Hao, Electrical and Computer Engineering
Java Programming for Multi-Agent Intelligent Sensor Networks

22B
Brent LaForte, Aerospace Engineering & Mechanics
Courtney Kronenberger, Aerospace Engineering & Mechanics
Faculty Mentor: Amy Lang, Aerospace Engineering & Mechanics
The Effects of Cavities on Low Reynolds Number Drag

23B
Kevin Miller, Aerospace Engineering & Mechanics
Faculty Mentor: Semih Olcmen, Aerospace Engineering & Mechanics
Design of a Probe for Measuring Shock Wave Boundary Layer Interaction Using Laser Doppler Velocimetery

***24*B**
Zack Morris, Mechanical Engineering
Faculty Mentor: Brian Fisher, Mechanical Engineering
Fuel Injection Spray Chamber

25B
Jesseca Paulsen, Chemical and Biological Engineering
Faculty Mentor: Christopher Brazel, Chemical and Biological Engineering
Characterization of Nanoparticle Heating for a Magnetically-Triggered Drug Delivery System

26B
Logan Ream, Mechanical Engineering
Faculty Mentor: Kenneth Ricks, Electrical and Computer Engineering
Lunar Mining Equipment: A Robotic Excavator

27B
John Skelton, Mechanical Engineering
Faculty Mentor: Xiangrong Shen, Mechanical Engineering
Knee-Ankle Orthosis Using Pneumatic Actuators

28B
Matthew Weider, Computer Science
Faculty Mentor: Stephen Lovell, Computer Science
alertEDU: Connecting The University of Alabama

29B
Emma Whitaker, Civil, Construction & Environmental Engineering
Charles Phillips, Civil, Construction & Environmental Engineering
Faculty Mentor: Yingyan Lou, Civil, Construction & Environmental Engineering
Literature Review of Highway-Rail At-Grade Crossing Safety Analysis

COLLEGE OF HUMAN ENVIRONMENTAL SCIENCES

LISTING OF POSTER PRESENTATIONS

30B
Katie Bennett, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Prevalence of Breastfed Children in Alabama is Lower than the Nation

31B
Alexa Constantine, Human Nutrition & Hospitality Management

Bradley Almon, Human Nutrition & Hospitality Management
Elizabeth Donahue, Human Nutrition & Hospitality Management
Rainie Carter, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Self-efficacy in food preparation does not differ by weight status of college students

32B
Miranda Dowdell, Health Sciences
Faculty Mentor: Lori Turner, Health Sciences
Reducing Teen Pregnancy in Rural Alabama

33B
Hayley Howard, Human Development & Family Studies
Faculty Mentor: Maria Hernandez-Reif, Human Development & Family Studies
The Child Development and Family Interaction Project

34B
Brantley Judah, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Food Insecurity and Nutrition-Related Chronic Disease

35B
Miranda Latremore, Health Sciences
Faculty Mentor: Lori Turner, Health Sciences
Reducing Excess Sodium Intake for Hypertension Control: Use of the Health Belief Model and Social Cognitive Theory

36B
Claude Mask, Human Nutrition & Hospitality Management
Meredith Mims, Human Nutrition & Hospitality Management
Micah Morlas, Human Nutrition & Hospitality Management
Kendyl Nuckols, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Student attitudes about the importance of nutrition and taste vary based on self-reported health status.

37B
Margit Sample, Human Nutrition & Hospitality Management
Faculty Mentor: Linda knol, Human Nutrition & Hospitality Management
Prevalence of Physical Activity in Alabama High School Students
38B

Kelsey Thomas, Human Nutrition & Hospitality Management
Lauren Clendenon, Human Nutrition & Hospitality Management
Megan Stough, Human Nutrition & Hospitality Management
Dana Flaherty, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Availability of food within the home does not differ based on student weight status

39B
Mary Ellen Williams, Human Nutrition & Hospitality Management
Jordan Willett, Human Nutrition & Hospitality Management
Erica Viani, Human Nutrition & Hospitality Management
Anna Zellner, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Food Purchasing and Preparation Behaviors Vary by UA Students' Place of Residency

CAPSTONE COLLEGE OF NURSING

SCHEDULE OF ORAL PRESENTATIONS

Nichols Room

10:00
Mallory Thompson, Nursing
Michael Robson, Computer Science
Faculty Mentor: Felecia Wood, Nursing
Creating and Piloting an iOS App for Diabetes Self-Management: From Coding to Clinical Practice

LISTING OF POSTER PRESENTATIONS

83A
Kelly Bond, Nursing
Lindsey Strader, Nursing
Matthew Matala, Nursing
Mary Clanton, Nursing
Natalie Johnston, Nursing
Megan Widmer, Nursing
Rylee Landers. Nursing
Meredith Barrett, Nursing
Faculty Mentor: Jeff Beans, Nursing
Preventing Central Venous Catheter (CVC) Blood Stream Infections (BSIs) in Hospitalized Patients

84A
Chelsea Courturier, Nursing
Katie Swann, Nursing
Katherine Holbrook, Nursing
Marie Sarris, Nursing
Madeline Lamon, Nursing
Faculty Mentor: Jek Sampson, Nursing
Patient Safety: Improving High Nurse to Patient Ratios

85A
Alexandria Giannini, Nursing
Emily Copeland, Nursing
Kristin Bush, Nursing
Kyndall Reid, Nursing
Leah Marsh, Nursing
Rachael Lindmark, Nursing
Lesley Terry, Nursing
Katherine Messina, Nursing
Faculty Mentor: Meridith Rice, Nursing
Proper Care and Maintenance of Jackson-Pratt Bulb Drains

86A
Kayla Glass, Nursing, Honors College
Faculty Mentor: Barbara Graves, Nursing
Hand Hygiene: Lowering Neonatal Nosocomial Infection

87A
Kelli Montgomery, Nursing
Clare Kozel, Nursing

Sarah Sims, Nursing
Kayla Scott, Nursing
Lauren Strauss, Nursing
Rachel Moler, Nursing
Mary Ellen Coleman, Nursing
Taylor Stevens, Nursing
Faculty Mentor: Stephanie Ragland, Nursing
Filter Needles

88A
Brittany Morgan, Nursing
Alexandra Carroll, Nursing
Elizabeth Gilbert, Nursing
Amanda Shaw, Nursing
Lauren Williams, Nursing
Polly Gleneck, Nursing
Amy Kirkpatrick, Nursing
Kelsey Lightfoot, Nursing
Faculty Mentor: Clara Owings, Nursing
Promoting Quality of Life Through Consistently Scheduled Activities for Dementia Patients

89A
Jeana Parker, Nursing, Honors College
Faron Barnes, Nursing
Holly Harmon, Nursing
Evan King, Nursing
Brittany Longosz, Nursing
Haley Mullins, Nursing
Jade Obrien, Nursing
Erin Tracy, Nursing
Faculty Mentor: Sandra Ambrose, Nursing
Guidelines to Decrease Hospital Acquired Infections

90A
Christy Perkins, Nursing
Christopher Williams, Nursing
Chanley Wynn, Nursing
Caroline Dondi, Nursing
Carli Patrick, Nursing
Faculty Mentor: Paige Johnson, Nursing

Privacy Curtains: Are Current Cleaning Practices of Hospital Privacy Curtains Enough to Prevent Infections?

91A
Malissa Pettis, Nursing
Kelsey Boswell, Nursing
Jessie Love, Nursing
Joshua Meadows, Nursing
Kayla Krininger, Nursing
Erica Hess, Nursing
Rachel Hudson, Nursing
Katie Adcock, Nursing
Faculty Mentor: Stephanie Ragland, Nursing
Spread the News: Cap that Tube!

92A
Elaina Tirador, Nursing
Clifton Wilson, Nursing
Courtney Lee, Nursing
Demi Lamb, Nursing
Emily Williamson, Nursing
Kaitlyn Wilson, Nursing
Elizabeth Gee, Nursing
Faculty Mentor: Leslie Palardy, Nursing
An Intervention to Promote Nursing Adherence to Contact Precaution Policies in a Hospital Setting

93A
Sahar Vali, Nursing
Shelby Woltjen, Nursing
Merideth Sawyer, Nursing
Stephanie Whiting, Nursing
Sara Lewis, Nursing
Sarah Catherine Black, Nursing
Josh Sawyer, Nursing
Faculty Mentor: Heather Reeves, Nursing
Rapid Response Team

94A
Rachael Vaughan, Nursing, Honors College
Faculty Mentor: Ann Graves, Nursing

Quality Improvement: Family Presence during Resuscitation

95A
Katherine Whitely, Nursing
Katie Fortenberry, Nursing
Kristine Kelly, Nursing
Susanna Stanbury, Nursing
Taylor McCauley, Nursing
Tucker Reeves, Nursing
Te'Airra King, Nursing
Victoria Street, Nursing
Faculty Mentor: Teresa Randolph, Nursing
Interventions to Prevent Medication Errors in a Hospital Setting

96A
Lauren Wilkes, Nursing
Anna Almand, Nursing
Amy Galloway, Nursing
Bethany Holcomb, Nursing
Audrey Inman, Nursing
Amanda Kirkley, Nursing
Ashley Lott, Nursing
Faculty Mentor: Sandra Ambrose, Nursing
The Importance of Proper Hand-Off Communication

SCHOOL OF SOCIAL WORK

SCHEDULE OF ORAL PRESENTATIONS

Morgan Room

3:10
Adrienne McCollum, Social Work
Faculty Mentor: Cassandra Simon, Social Work
How Self Efficacy and Parental Influences Affect Academic Achievement and Career Aspirations among Black and White College Males

3:30
Hailah Saeed, Social Work
Bradford Brittnay, Social Work
Faculty Mentor: Javonda Williams, Social Work
The Mixed Effect of Religion and Culture on Mate Selection

LISITNG OF POSTER PRESENTATIONS

40B
Alex Comensky, Social Work
MaryEllen McIlwain, Social Work
Kendall Holmes, Social Work
Jasmine Green, Social Work
Faculty Mentor: Javonda Williams, Social Work
The Effects of Social Networking on Self Esteem

41B
Sarah Lawler, Social Work
Craegh Ragsdale, Social Work
Cameron Smith, Social Work
Rebecca Tucker, Social Work
Faculty Mentor: Javonda Williams, Social Work
impact of media on the socialization of boys

42B
Joi Mallory, Social Work
Tierra Gleason, Social Work
Rodney Glover, Social Work
Brianna Darby, Social Work
Faculty Mentor: Javonda Williams, Social Work
Is the Saying True: Love Don't Cost a Thing?

43B
Iris Minor, Social Work
Ingram Rosetta, Social Work
Faculty Mentor: Javonda Williams, Social Work
African American, Black or American?

EMERGING SCHOLARS

DIVISION OF PHYSICAL & BIOLOGICAL SCIENCES, MATHEMATICS, AND ENGINEERING

SCHEDULE OF ORAL PRESENTATIONS

Thames Room

1:00
Wesley Walker, Biological Sciences
Faculty Mentor: Ann Webb, Biological Sciences
Effects of Traumatic Events on the Human Psyche

LISTING OF POSTER PRESENTATIONS

ES1
Melodie Adolphe, Biological Sciences
Faculty Mentor: Edwin Stephenson, Biological Sciences
Determining the Role of the Swallow Protein in RNA Localization in Drosophila Oogenesis

ES2
Casey Allen, Biological Sciences
Faculty Mentor: Robert Findlay, Biological Sciences
Nitrogen in the Food Chain

ES3
Tyler Arnold, Mathematics
Faculty Mentor: Weihua Greg, Mathematics
Mathematically Modelling Autoimmune Myasthenia Gravis

ES4
Matthew Billiard, Chemistry
Logan Murray, Chemistry
Faculty Mentor: Daniel Goebbert, Chemistry
Mass Spectrometry of Polymers

ES5
Jessica Cook, Chemistry

Faculty Mentor: Shane Street, Chemistry
Expanding The Knowledge of Fluorescing Sites of PAMAM and Analog Dendrimers

ES6
Andrew DeSantis, Biological Sciences
Faculty Mentor: Stephen Secor, Biological Sciences
Cardiac Performance for Pythons, Does Size Mater?

ES7
Samantha Durfey, Biological Sciences
Faculty Mentor: Robert Findlay, Biological Sciences
Maximizing Production of PHA Using Cellulosic Materials in a Two-Stage Bioreactor

ES8
Danielle Dutra, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
The Effect of Exercise on Swimming Performance and Physiology in Mangrove Killifish

ES9
John Dykes, Metallurgical & Materials Engineering
Faculty Mentor: Nitin Chopra, Metallurgical & Materials Engineering
Analysis of Thermal Stability of Silicon Nanowire/Gold Nanoparticle Heterostructures

ES10
Douglas Fair, Biological Sciences
Michael Goetsch, Biological Sciences
Faculty Mentor: Jane Rasco, Biological Sciences
The Potential Adverse Effect of Positive and Negative Iron Oxide Composite Nanoparticles on the offspring of CD-1 Mice.

ES11
Al-Karim Gilani, Chemical and Biological Engineering
Faculty Mentor: Cassandra Ford, Nursing
Community Assessment of a Rural Community in the Black Belt of Alabama

ES12
James Gray, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Temperature Dependent Sex Determination in the Mangrove Rivulus

ES13
Brittani Hays, Chemistry
Faculty Mentor: Patrick Frantom, Chemistry
Mechanism of Allosteric Regulation of a-Isopropylmalate Synthase from Mycobacterium Tuberculosis

ES14
Katelyn Howard, Biological Sciences
Zach Stubbs, Biological Sciences
Faculty Mentor: Stevan Marcus, Biological Sciences
Cellular Responses to Avicins

ES15
Margaret Jones, Biological Sciences
Faculty Mentor: Avani Shah, Psychology
Should psychopathology be required in graduate social work programs?

ES16
James Krafcik, Electrical and Computer Engineering
Faculty Mentor: Seongsin Margaret Kim, Electrical and Computer Eng
Optical properties of ZnO nanowires for applications in photonic devices

ES17
Cassidy Lamm, Computer Science
Lauren Lambert, Psychology
Faculty Mentor: Jeff Gray, Computer Science
Improving Socialization and Emotion Recognition for Autistic Children using a Smartphone App

ES18
Connor Lawson, Electrical and Computer Engineering
Faculty Mentor: Sushma Kotru, Electrical and Computer Engineering
Alternate Materials for Photovolaics

ES19
Mary Leisgang, Geological Sciences
Joseph Cardosi, Geological Sciences
Faculty Mentor: Rona Donahoe, Geological Sciences
Dispersant Analysis of Trace Elements from the BP Oil Spill

ES20
Robert Lind, Chemical and Biological Engineering

Faculty Mentor: Kevin Chou, Mechanical Engineering
Computer-Aided Design Modeling for Development Applications

ES21
Bobby Logsdon, Physics & Astronomy
Faculty Mentor: Rainer Schad, Physics & Astronomy
Improving Instrumentation

ES22
Gabrielle "Brie" Lowery, Geography
Faculty Mentor: Jason Senkbeil, Geography
A Study of Air Quality in the Tuscaloosa Area

ES23
Rachel Mach, Computer Science
Faculty Mentor: Andrew Graettinger, Civil, Construction & Environmental Engineering
Analyzing Factors in Tuscaloosa's Resiliency

ES24
Caitlin Marsh, Biological Sciences
Faculty Mentor: Julie Olson, Biological Sciences
Comparison of Recovery of Streptomyces across Environment-specific and Streptomyces-specific Media

ES25
Anna Moyer, Biological Sciences
Kevin Walker, Biological Sciences
Faculty Mentor: Janis O'Donnell, Biological Sciences
A Role for Dopamine in Glial Migration in Drosophila melanogaster?

ES26
Joshua Oriez, Chemistry
Faculty Mentor: Silas Blackstock, Chemistry
The Cocrystallization of DDQ and DPTZ

ES27
Amy Schmitt, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Reproduction in Hermaphroditic Species: Do Females Exist?

ES28
Josh Sharpe, Electrical and Computer Engineering
Faculty Mentor: Susan Burkett, Electrical and Computer Engineering
Quantitative Analysis of Adhesive Strength for Silicon Wafer Bonding

ES29
Grace Spears, Biological Sciences
Faculty Mentor: Stephen Woski, Chemistry
Synthesis and Characterization of a Novel Dye Linker Molecule for Solar Cell Applications

ES30
Andrew Treadway, Aerospace Engineering & Mechanics
Brian Booker, Aerospace Engineering & Mechanics
Faculty Mentor: Semih Olcmen, Aerospace Engineering & Mechanics
How Different Nose Shapes affect Drag

ES31
David Wallace, Chemical and Biological Engineering
Faculty Mentor: Greg Szulczewski, Chemistry
The Synthesis of Bismuth Telluride Nanostructures for Thermoelectrics

ES32
David Ward, Biological Sciences
Faculty Mentor: Juan Lopez-Bautista, Biological Sciences
Molecular comparison between Coastal Alabama and Florida Ulva and Enteromorpha species of green algae

ES33
Lloyd Michael Wells, Biological Sciences
Faculty Mentor: Carol Duffy, Biological Sciences
Attachment of proteins to magnetic iron oxide nanoparticles via a novel coiled-coil mechanism: expression and purification of engineered coil fusion proteins

ES34
Heather Wilson, Civil, Construction & Environmental Engineering
Faculty Mentor: Pauline Johnson, Civil, Construction & Environmental Engineering
Water Infrastructure Sustainability and Health in Alabama's Black Belt

DIVISION OF SOCIAL & BEHAVORIAL SCIENCES

SCHEDULE OF ORAL PRESENATIONS

Thames Room

1:20
Patrick Crowley, Economics, Finance & Legal Studies
Faculty Mentor: Paan Jindapon, Economics, Finance & Legal Studies
Financial Markets in the Laboratory

1:40
James Ha, Management & Marketing
Faculty Mentor: Paul Drnevich, Management & Marketing
Technological Drivers of Innovation and Performance in Small Businesses

2:00
Patrick Norwood, Telecommunications & Film
Faculty Mentor: Andrew Billings, Telecommunications & Film
Patrick Norwood

2:20
Austin Wikle, Economics, Finance & Legal Studies
Faculty Mentor: Susan Chen, Economics, Finance & Legal Studies
Regional differences in Federal and State Program Participation of Newly Disabled Workers

LISTING OF POSTER PRESENTATIONS

ES35
Leslie Bacon, Communication Studies
Faculty Mentor: Janis Edwards, Communication Studies
Religion in the 2012 GOP Race

ES36
Rachel Childers, Psychology
Faculty Mentor: Natalie Dautovich, Psychology
Age Differences in the Association Between Sleep and Depressive Symptoms

ES37
Emily Collum, Psychology

Shaquilla Brown, Psychology
Faculty Mentor: John Lochman, Psychology
Effective Treatment Methods for Children Displaying Deviant Behavior

ES38
Brandon Delavar, Management & Marketing
Faculty Mentor: Jonathon Halbesleben, Management & Marketing
Productivity and Personal Initiative

ES39
Conner Downey, Psychology
Faculty Mentor: Beverly Thorn, Psychology
Literacy and Response to Treatment in a Low-SES, Community Sample with Chronic Pain

ES40
Hubbell Godsey, Psychology
Faculty Mentor: Matthew Jarrett, Psychology
The Relationships Between ADHD Symptoms and Functional Impairments in College Students

ES41
Francie Johnson, Advertising/Public Relations
Faculty Mentor: Meg Lamme, Advertising/Public Relations
Elbert Hubbard: A Different Take On Corporate Public Relations

ES42
Chelsea Lee, Nursing
Faculty Mentor: Tony Roberson, Nursing
The Affect Of Being Incarcerated On Adolescents

ES43
Clare Newman, Psychology
Faculty Mentor: Kenny Lichstein, Psychology
Insomnia Relief Through Cognitive Behavior Therapy

ES44
Jackson Pace, Information Systems, Statistics & Management Science
Sean Jackson-Sippial, Information Systems, Statistics & Management Science
Faculty Mentor: David Hale, Information Systems, Statistics & Management Science
Driving Non-Profit E-Commerce Sales through Social Media

ES45
Leslie Perez-Meza, Advertising/Public Relations
Faculty Mentor: Janis Edwards, Communication Studies
Reaching the Hispanic Voter

ES46
Polly Piggott, Nursing
Faculty Mentor: Marilyn Handley, Nursing
Knowledge, Beliefs, and Barriers to Smoking Cessation in Pregnancy

ES47
Catherine Porter, Economics, Finance & Legal Studies
Faculty Mentor: Ian Chapman, History
Cross-Culture Comparison in Festival, Ritual, and Play

ES48
Halee Rape, Anthropology
Faculty Mentor: Jason DeCaro, Anthropology
Meaningful Routines in Children

ES49
Will Schnede, Accounting
Craig Fulda, Econimics, Finance and Legal Studies
Faculty Mentor: Jase Ramsey, Management & Marketing
Global Managers

ES50
Erin Smith, Anthropology
Faculty Mentor: Ian Brown, Anthropology
Lithic Analysis of the Dickerson site of Western Mississippi

ES51
Amanda Turner, Human Development & Family Studies
Faculty Mentor: Jason Scofield, Human Development & Family Studies
Learning With Your Hands

ES52
Dontavius Wade, Advertising/Public Relations
Faculty Mentor: Kinney Lance, Advertising/Public Relations
Media Impact

ES53
Heather Wilson, Civil, Construction & Environmental Engineering
Faculty Mentor: Pauline Johnson, Civil, Construction & Environmental Engineering
Water Infrastructure Sustainability and Health in Alabamaâ€™s Black Belt

ES54
John Wimberly, Management & Marketing
Faculty Mentor: Craig Armstrong, Management & Marketing
The Impact a Head Coach Has On His Team

ES55
Taylor Wood, Philosophy
Faculty Mentor: Rekha Nath, Philosophy
Causes and Effects of Rising Economic Inequality in the United States

DIVISION OF ARTS & HUMANITIES

SCHEDULE OF ORAL PRESENTATIONS

Thames Room

2:40
Jacob Boyd, Modern Languages & Classics
Faculty Mentor: Ana Corbalan, Modern Languages & Classics
Representation of Queer Family Units in Spanish Cinema After 2005

3:00
Andrew Branton, English
Faculty Mentor: Hank Lazer, English
N18 and Social Media

3:20
Aubrey Edkins, History
Faculty Mentor: James Mixson, History
Cluny in the 13th and 14th centuries

3:40
Anna Traylor, English
Faculty Mentor: Chip Brantley, Journalism
The Pistachio Wars

LISITNG OF POSTER PRESENTATIONS

ES56
Anthony Widenor, History
Kayla Light, English
Patrick Sequeira, Histoy
Charlie Deer, Accounting
Robert Aydin, New College
Faculty Mentor: David Michelson, History
Syriac Reference Portal

ORAL & POSTER PRESENTATION STUDENT ABSTRACTS

5TH ANNUAL UNDERGRADUATE RESEARCH & CREATIVE ACTIVITIES CONFERENCE

COLLEGE OF ARTS AND SCIENCES

Kirsten Ansorge, Biological Sciences, Computer-Based Honors Program
Faculty Mentor: Matthew Jenny, Biological Sciences
Identification of key members of the aryl hydrocarbon receptor (AHR) pathway and related oxidative stress genes from the American Oyster,Crassostrea virginica.
The BP Deepwater Horizon oil spill of 2010 released millions of barrels of crude oil into the Gulf of Mexico. Crude oil is toxic to living organisms and activates cellular stress response pathways that prevent and repair cellular damage. While the hydrocarbon stress response pathway has been previously characterized in many organisms, this pathway had not been fully investigated in the American oyster, Crassostrea virginica. We used RACE-PCR and quantitative PCR (qPCR) to clone the aryl hydrocarbon receptor homolog (AHR) and its target gene, cytochrome P450 (CYP1) and to characterize expression of these genes during oil exposure in oysters.

Alexandra Arnold, Chemistry, Honors College
Jon Brauer, Chemistry
Faculty Mentor: Greg Szulczewski, Chemistry
Photodgradation of organic dyes with titanium dioxide nanoparticles
Titanium dioxide, TiO_2, nanoparticles have been studied for many years as a photocatalyst, since they absorb ultraviolet photons and create reactive electrons and holes. We have synthesized nitrogen-doped TiO_2 nanoparticles because they are known to absorb visible light. The photocatalytic activity of the particles toward visible-light was tested by the ability of the nanoparticles to catalyze the degradation of organic dye molecules. Specifically, methylene blue, a cationic dye, and bromophenol blue, and anionic dye, were tested with TiO2 and nitrogen-doped TiO_2. It was found that methylene blue was degraded with nitrogen-doped TiO2 when using visible light.

Matthew Bailey, Political Science, Honors College
Faculty Mentor: Utz McKnight, Political Science
The American "Dream" and the Disadvantages that Minorities face in America
The American dream has become part of America's national ethos, and many Americans continue to believe in it. This project explains the ways that many Americans are limited in achieving this dream. Institutional, educational and workplace, as well as social discrimination hold back racial minorities, women, and those in the LGBT community. After pointing out the disadvantages that these groups face in pursuit of the American dream several solutions to many of the problems will be proposed.

Anna Baird, Music
Faculty Mentor: Andrea Cevasco, Music

Developing music therapy programming for patients at the VAMC of Tuscaloosa based on the music therapy literature and current practices
Over the past several decades, there has been extensive music therapy research conducted in the hospice setting. However, there is a paucity of research regarding music therapy services for veterans receiving hospice services in Veterans Administration Medical Centers (VAMC). The purpose of this study is to 1) review the literature regarding music therapy in hospice and palliative care, 2) examine the research literature regarding veterans needs in the end of life care, and 3) determine music therapy interventions for veterans receiving hospice and palliative care services. Further examination will indicate how this fits the needs of the VAMC of Tuscaloosa.

Mirza Beg, Chemistry, Computer-Based Honors Program, Honors College
Faculty Mentor: David Nikles, Chemistry
Functionalizing Magnetite Nanoparticles for use in a Cancer Drug Delivery System
The project objective is to build a nanoscale, targeted, magnetically triggered drug delivery system for cancer therapy. The approach is to trap magnetite nanoparticles and a cancer drug in the semi-crystalline core of polymer micelles. 3-aminopropyltrimethoxysilane was bound to the surface of 16 nm diameter magnetite nanoparticles. Polycaprolactone was grown from the polymer surface by the ring-opening polymerization of ε-caprolactone, initiated from the amine terminus of the silane. The polycaprolactone coated particles were incorporated into the core of polymer micelles, made from poly(ethylene glycol-caprolactone) diblock copolymers, giving magnetic micelles.

Jonathan Belanich, Biological Sciences, Computer-Based Honors Program
Faculty Mentor: Stephen Secor, Biological Sciences
No free meals for scorpions; Energetic costs of meal digestion
Mandatory to any meal is the energy expended to break down and absorb that meal, the meal's specific dynamic action (SDA). Because scorpions chew and ingest intact insects, we examined the SDA responses of six species of scorpions originating from the US, Africa and Asia. With feeding, scorpions rapidly increase their metabolic rate by 4-5 times within 6-12 hours after feeding. After which their metabolism declines more gradually over the next day. The cumulative cost of digestion for scorpions is equivalent to 4 – 11% of the energy in the meal, similar to that observed for other invertebrates.

Mitchell Belue, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Variation in Growth Rates in the Mangrove Rivulus (Kryptolebias marmoratus)
Variation of Growth Rates in the Mangrove Rivulus (Kryptolebias marmoratus) Mitchell Belue, Mark J Garcia, Sara Vaughn, Ben Sinderman & Ryan L Earley Variation in life history traits such as growth rates can be observed both within and among populations and emerges as a result of phenotypic plasticity and/or local adaptation. Our aim is to evaluate variation in growth rates in

the mangrove rivulus fish (Kryptolebias marmoratus). Thirty-three lineages were derived from field caught individuals collected from nine populations in coastal Florida. Second generation individuals from each lineage were raised under standardized conditions, and measured every two weeks after reaching 1 month of age. Preliminary results show significant variation in growth both within and between populations.

Thomas Bertalan, Chemical and Biological Engineering, Honors College
Faculty Mentor: Roger Sidje, Mathematics
Multi-Multi-Grid: A Parallelized Multigrid Solver Library for Python
Large-scale systems of equations often arise in the form Au=b, where A is a linear operation to be performed on the unknown data u, producing the known right-hand-side, b. Since u can a quadrillion elements, direct solution is too slow, so we solve partially at full resolution, and then solve directly only at low resolution to create a correction vector. This technique–called multigrid–is not new, but the dominant Python implementation is not parallelized. Our work on a parallel implementation would be welcomed by petroleum engineers solving pressure equations,medical imaging scientists solving diffusion equations,and many others.

Stephanie Bevans, Chemistry, Honors College
Faculty Mentor: Kevin H. Shaughnessy, Chemistry
The Use of New Bisphosphine Ligands in Buchwald-Hartwig Amination of Alkyl Amines
The Use of New Bisphosphine Ligands in Buchwald-Hartwig Amination of Alkyl Amines
Stephanie L. Bevans Palladium-catalyzed cross-coupling reactions are important for C-C and C-heteroatom bond formations, which are typically used in natural product and pharmaceutical synthesis. There is continued interest in developing new ligand/metal combinations to provide improved catalyst systems. In this work, a new family of diphosphine ligands was designed an applied in palladium-catalyzed cross-coupling. The synthesis of bisphosphine ligands was accomplished by reacting 2-bromo-benzyl bromide with various dialkylchlorophosphines and dialkylphosphines. The resulting ligands were used in the palladium-catalyzed Buchwald-Hartwig amination with various alkylamines. The optimization study was accomplished by varying solvents, temperature differences, and palladium loadings.

Johan Both, Chemistry, Computer-Based Honors Program,
Faculty Mentor: David Dixon, Chemistry
DFT Benchmarking of the Clustering Energies and Electron Detachment Energies of Transition Metal Oxides
There is substantial interest in the development of transition metal oxides (TMOs) as catalysts. Our focus is nanoclusters of Group IVB and VIB transition metal oxides. Density functional theory (DFT) is often used to study the energetics of TM catalysts. We are determining the best DFT functionals for use in predicting the properties of TMO clusters. The chosen functionals will be used to predict the potential energy surfaces for reactions of larger nanoclusters to convert

biomass. The results will be used will in the design of new catalysts for the conversion of biomass to fuels.

Katie Bray, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Lipid Storage for Insulin/Tor Mutants
More than one third of Americans are obese. Previous experiments have shown that genes play an important role in the storage of lipids. By isolating these genes, we can infer precisely what role they play. For this experiment, Drosophila melanogaster lines with single gene mutations in the insulin/tor signaling pathway were crossed with wild type lines. Larvae were processed to compare the lipid concentrations for the various gene mutations relative to the normal flies. We found that the effect of the mutations on lipid storage varied with the genetic background of the wild type lines. By manipulating the genetic composite in the model Drosophila, specific genes can be identified that play a similar role in the development of obesity in humans.

Luke Brechtelsbauer, Chemistry, Honors College
Faculty Mentor: Kevin Shaughnessy, Chemistry
SYNTHESES OF TRIDENTATE AND TETRADENTATE OXO-LIGANDS USED IN OCTAHEDRAL TITANIUM (IV) COMPLEXES
There are numerous commercially available 2 coordinate oxo-ligands but few 3 or 4 coordinate oxo-ligands. Herein lies the syntheses of bis (2-hydroxybenzyl) ether (1) and 1,3 [bis(2-hydroxybenzyloxy)] propane (2). In an octahedral titanium centered complex the tridentate [O,O,O] ligand (1) in combination with a chelating ligand will ensure a single site remains open. While the tetradentate [O,O,O,O] ligand (2) forces the remaining open sites to have a cis stereochemistry. These octahedral titanium complexes are useful in modeling semiconductor interface TiO2 based solar cells.

Karson Brooks, Chemistry, Honors College
Faculty Mentor: Shanlin Pan, Chemistry
Surface enhanced Raman spectroscopy of single conjugate polymer molecules on nanotextured silver film
In this study, single molecule Raman spectroscopy to investigate Raman activities of individual Poly(3-Hexylthiophene) (P3HT) polymer chains to reveal their Raman characteristics and the dependence on their conformation changes. We first tested the nanotextured Raman substrate for single molecule detection by obtaining a single molecule spectrum of Rhodamine 6G, an exceptionally Raman active molecule. The procedure was repeated with P3HT, and both Raman images and time flow of Raman spectra were collected, in order to determine how the polymer behaves on the nanostructured surface and how the polymer conformation is memorized by changing the solvent in which P3HT is dissolved.

Katie Brown, Biological Sciences, Honors College
Trunnell De'Anna, Biological Sciences
Faculty Mentor: Janis O'Donnell, Biological Sciences
Drosophila melanogaster: A Model for Characterizing the Long Term Consequences of Juvenile Exposure to Environmental Neurotoxins
Parkinson's Disease (PD) is one of the most common neurological disorders in the United States and is characterized by the loss of dopaminergic neurons in the midbrain. Epidemiological studies have shown that the use of neurotoxic herbicides, such as paraquat, in rural communities has been associated with a higher incidence of PD. However, because PD is a disease of the aging, individuals exposed to neurotoxins early in life may not develop Parkinson's until decades later. To model this real life scenario, we use Drosophila melanogaster to characterize the long term effects of early exposure to environmental neurotoxins.

Emma Buchalter, New College, Honors College
Faculty Mentor: Julia Cherry, New College
Disaster and Crisis Management: Tornadoes, Tuscaloosa, Theory, and Methodology
Disaster management and emergency/crisis response are inherently interdisciplinary subjects. As a result, these disciplines have spun a theoretical and academic web that includes a wide array of subjects ranging from sociology, ecology, and psychology all the way to economics, politics, and even technology. After the tornado disaster of last April, the city of Tuscaloosa has found itself in a unique position to methodologically corroborate disaster management research with these theoretical frameworks. Using Tuscaloosa as a case study, I will attempt to substantiate my experience in working with a local emergency management force with both the behavioral patterns of the city and the academic literature on crisis response.

Paige Bussanich, Psychology, Honors College
Shika Mukkamala, Human Development and Family Studies
Faculty Mentor: Frances Conners, Psychology
Down syndrome and Emotional Expressivity further explored
People generally consider children with Down syndrome (DS) as happier than typically developing (TD) children. However, recent research has not supported this "friendly stereotype" when samples of children with DS were compared to TD children of a similar chronological age. Our study examined emotional expressivity in youth with DS compared to TD children of a similar mental age. Parents reported on their children's emotion-related behaviors using subtests of the Children's Behavior Questionnaire (CBQ). According to the CBQ, children with DS showed fewer expressions of "smiling and laughter" than TD children of similar developmental level and level of emotion knowledge.

Amanda Buxton, Political Science, Honors College
Faculty Mentor: Joseph Smith, Political Science

Barnett v. Friedman: Analyzing the U.S. Commerce Clause
Barnett and Friendman offer opposing views in their articles "The Original Meaning of the Commerce Clause" and "The Sometimes Bumpy Stream of Commerce Clause Doctrine." In Barnett's "The Original Meaning of the Commerce Clause" Barnett sets forth arguments supporting a narrow, originalist interpretation of the Commerce Clause and its subsequent implementation in jurisprudential precedent. Friedman offers a broader interpretation of the Commerce Clause, effectively siding with the infamous New Deal Court's rulings. In this essay I hope to offer direct comparison of these competing theories, thereby establishing arguments in favor of Friedman's theory of a "drift toward equilibrium" theory.

Lindsey Cobb, Chemical and Biological Engineering, Computer-Based Honors Program, Honors College
Faculty Mentor: David Nikles, Chemistry
Synthesis, Recrystallization, and Characterization of a Diblock Copolymer to be used in a Targeted, Magentically Triggered Drug Delivery System
While current chemotherapy treatment has proven effective in attacking tumors, the delocalization of the cancer-fighting drug has damaging effects including hair loss, fatigue, and infertility. Because of these side effects, developing a targeted mechanism that would incorporate doxorubicin and magnetic nanoparticles inside diblock copolymers is of great interest. In this work poly(ethylene glycol-caprolactone) diblock copolymers with different block lengths were prepared by the ring-opening polymerization of caprolactone from the alcohol terminus of poly(ethylene glycol) monomethylether. The critical micelle concentration was determined. This measurement will be essential when determining how much drug to incorporate in the micelle.

Aaron Coleman, Chemical and Biological Engineering
Faculty Mentor: Kevin Shaughnessy, Chemistry
Reactivity and Stability of Allyl Palladium Precatalysts in Hartwig-Buchwald Amination
The reactivities of various substituted allyl complexes were investigated for Hartwig-Buchwald amination reactions. Previous research shows that allyl complexes have higher stability than complexes of the type Pd(PR3)2 and Pd(PR3)2Cl2. A series of palladium allyl complexes (R'n-allyl)(PR3)PdCl were prepared (where R'n = 1-methyl, 2-methyl, 1,3-dimethyl, 1-phenyl, 1,3-diphenyl, or H and PR3 = di-tert-butylneopentylphosphine, tert-butyl-dineopentylphosphine, or trineopentylphosphine). The stability of the varying allyl substituents in Hartwig-Buchwald amination were compared via NMR experiments.

Lauren Collier, Anthropology
Kimberly Roy, Anthropology
Faculty Mentor: Elizabeth Cooper, Anthropology
What Students Want: Patterns of Difference in Knowledge and Desire for UA Library Services

Academic libraries are a university's intellectual hub and are vital for student success and retention, underscoring the importance of targeted evaluation. This study assesses student knowledge of existing resources at Gorgas Library and desire for additional resources as influence by academic maturation and time of library use. Employing participant observation and structured interviewing with a quota sample (n=204) recruited at three academic levels (freshman, senior, graduate) during weekday morning and evening peaks, this study reveals what students know about library services and how the library can better meet student needs in relation to academic level and visitation patterns.

William Cotton, Theatre, Honors College
Faculty Mentor: Andy Fitch, Theatre
The Seagull
Anton Chekov's The Seagull stands as one of the most recognized pieces of realistic theatre. With an abstract set, and a realistic approach to the costumes and acting style, the cornerstone of my design was to blend the real with the abstract for our production, while never straying too far towards one of those extremes. The nature of the set allowed me to use the lighting to suggest the more realistic elements of the setting, while opening up the possibility of a number of intriguing effects. This show allowed me, as a designer, a great deal of control over focus, as the nature of the set allowed me to reveal or draw focus to any element through subtle shifts. I believe the final result successfully blended the set with the costumes to complete the overall vision for this production.

Sarah Crocker-Buta, Biological Sciences, Honors College
Charles Nechtman, Biological Sciences
Faculty Mentor: Stephen Secor, Biological Sciences
Impact of Meal Size and Body Size on the Cost of Digestion for the Corn Snake
We examined the effects of meal size and body size on the cost of meal digestion and assimilation (the meals' specific dynamic action-SDA) for the corn snake (Pantherophis guttata). Snakes were fed rodent meals ranging from 15-35% of snake body mass and snake body masses ranged from 12-400 g. All snakes experienced a rapid increase in metabolic rate with feeding. Larger meals took more time to digest and required more energy to be assimilated. For a given meal size, SDA was isometrically matched to body size; that is the increase in cost was proportionate to increase in body mass.

Erika Curtis, Political Science, Honors College
Faculty Mentor: Barbara Chotiner, Political Science
A Great Divide: Causes and Conflicts of the Velvet Divorce
After years of Czech and Slovak debate on the future of the federation, Czechoslovakia split into two separate states. This dissolution, known as the "Velvet Divorce", was distinguishable both for its peaceful nature and lack of popular support. As Leff (1996) articulates, "Czechoslovakia ended without a military battle, without a referendum, without a clear secession, and without

even a widespread independence movement in either republic." If the two republics were able to part in such a peaceful manner, why were they unable to work out their differences within the common state? I argue that- fueled by the Prague Spring, media influence and the erosion of communist influence- a combination of structural, institutional, ideological, and ethnic factors contributed both to the dissolution of Czechoslovakia and the peaceful nature in which the two republics parted ways.

Jamie Davies, Geological Sciences
Faculty Mentor: Ryan Ewing, Geological Sciences
Traveling with the Dunes
Giant sand dunes form patterns that persist on desert landscapes for ten's of thousands of years and through many climate cycles. Interpreting climate signals from these patterns is limited by not knowing how and how fast these giant dunes migrate. Dune migration rates are difficult to calculate because a number of variables play a role. Using time series aerial photographs of the Algodones dunes, rates are calculated by measuring dune crestline migration. These rates are then compared to previous research. Understanding the mechanisms and rates of megadune migration will help to constrain the timescales over which desert landscapes change.

Claire Davis, Chemistry, Computer-Based Honors Program
Faculty Mentor: Patrick Frantom, Chemistry
Biochemical Characterization of Isopropylmalate Synthase from E. coli
A model enzyme for the study of allosteric mechanisms is α-isopropylmalate synthase (IPMS). IPMS catalyzes the first step in the biosynthesis of L-leucine and is subject to feedback inhibition. The *LeuA* gene from *Eschericha coli* was expressed in the pET28b plasmid. The enzyme was then isolated and purified using Ni-chromatography. The next goal of the research is to determine kinetic parameters (K_m and V_{max}) as well as examining inhibition upon the addition of L-leucine. The results of the kinetic assays will be compared to those obtained with IPMS isolated from *Mycobacterium tuberculosis*.

Dana Davis, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Third Chromosome Mutations and Lipid Storage in Drosophila
Obesity is a modern-day epidemic that affects approximately 330 million people and has been linked to the development of diseases such as Type 2 diabetes, heart disease, hypertension, and metabolic syndrome to name a few. In my research, I use Drosophila melanogaster as a model organism for humans because it has many genes that are homologous to human genes. In my experiment, I wanted to know how mutations on the third chromosome of a fruit fly may affect its lipid concentration. In order to do this, I crossed third chromosome mutant and non-mutant male flies with wild type females and separated the mutant and non-mutant larvae from that cross. I performed lipid analysis on these samples, and the results showed that there

was a significant difference in lipid concentration between the larvae that had the third chromosome mutation and the ones that did not. These results could suggest that mutations in genes influencing the same functions in humans could have an effect on lipid storage and a human's predisposition to obesity and obesity-related illnesses.

Glenn Davis, Political Science, Computer-Based Honors Program
Faculty Mentor: Paul Strickland, Political Science
Investigating Criteria for Trauma System Registration in Emergency Calls
The purpose of this study is to examine the accuracy of criteria utilized by emergency medical personnel to register an emergency patient with the Alabama Trauma System, with the accuracy being measured by the outcome of the call (hospitalization vs. release). Data were obtained from the Alabama Department of Public Health Office of EMS and Trauma (OEMST) database of EMS electronic patient care reports (ePCR) and the Alabama Trauma System database. A Pearson's chi-square analysis using SAS statistical software version 9.2 will be conducted to assess proportional differences between outcomes of each criteria used.

Catherine (Kelsie) Dodson, Art, Honors College
Faculty Mentor: Stacy Morgan, American Studies
How the Narrative Explanations of Lonnie Holley's Abstract Artworks Detract from their Aesthetic Worth
Self-taught artist Lonnie Holley overcame adversity and the social stigmas associated with self-taught art to become a renowned sculptor. This study analyzes how Holley's experiences with poverty, abuse, and racial oppression initiated abstraction in his works, similar to the nonsensical abstraction in Dada art of the early twentieth century. Critic Roger Manley argues that Holley's assemblage "Fourth of July Pot" becomes more relevant after Holley explains its narrative meaning. I dispute Manley's emphasis on Holley's narrative, as it distracts from the work's abstraction and aesthetic appeal, devaluing Holley's creative ability to that of an illustrator, not an artist.

Samuel Dotson, Chemistry, Honors College
Faculty Mentor: Jennifer Edmonds, Biological Sciences
Characterizing Dissolved Organic Matter in the Talladega Wetland Ecosystem by Parallel Factor Analysis of Excitation-Emission Matrices
The legacy of beaver-created wetlands associated with the chemical complexity of dissolved organic matter was investigated using fluorescence spectroscopy in a year-long study of Alabama Coastal Plain streams. Excitation-emission matrices were generated for 128 samples and analyzed by Parallel Factor Analysis. Six general fluorophore classes representing families of fluorescing carbon compounds were identified. The abundance of these components at a sampling site was significantly correlated with wetland history. Coupled with the analysis of water chemistry and seasonality, this dataset provides insight into changes in organic carbon

dynamics following the destruction of wetland communities that may be important for ecosystem functioning.

Jessica Duke, Chemistry, Computer-Based Honors Program, Honors College
Faculty Mentor: David Dixon, Chemistry
Modeling Water in Supercritical CO2 and Reactions at Mineral Surfaces for the Geological Sequestration of CO2
The storage of CO2 in deep geologic formations represents a promising option for mitigating the impacts of greenhouse gases on global warming due to the large capacity of these formations and their broad regional availability. A critical issue is to demonstrate that CO2 will remain stored over the long-term in the geological formation where it is injected. As little is known about the properties of wet CO2, CO2/H2O clusters are being modeled using electronic structure theory. The reactions of silicates and carbonates on metal ions are being modeled to understand how mineral transformations occur with CO2 and H2O present.

Amanda Elam, Political Science
Faculty Mentor: Barbara Chotiner, Political Science
Cronyism in Vladimir Putin's Russia
Vladimir Putin, recently reelected as the president of Russia, has been a notorious international figure for over a decade. By analyzing Russian political articles and opinion polls, research has identified Putin's rampant use of cronyism, the act of appointing friends or allies to positions of power regardless of their qualifications. Cronyism is one main political tactic that Putin has used to keep power in Russia despite his popularity decreasing with the Russian people. This presentation explores Putin's methods of employing cronyism in Russia and especially focuses on the tandem relationship between Putin and Dmitry Medvedev, former Russian president.

Benjamin Fisher, Political Science, Honors College
Faculty Mentor: Douglas Gibler, Political Science
Militarized Interstate Disputes
The Correlates of War project collects a wide range of data on armed conflict with the goal of better understanding the causes of conflict. One dataset focuses on subwar conflicts, or Militarized Interstate disputes. Recently, COW initiated a project to verify existing data and collect new variables for the MID dataset, which is what I have been working on. Most MIDs have been checked, but this is still an ongoing process. As a critical resource for those trying to understand what causes conflict, it is important that COW data be accurate and reliable.

Ryan Flamerich, Chemical and Biological Engineering, Computer-Based Honors Program
Faculty Mentor: David Dixon, Chemistry
Structures and Hydrolysis Reactions of Actinide Oxide (AcO2)n Clusters in the Ground and Excited States

A predictive understanding of actinide aggregation in aqueous solution under conditions relevant to nuclear-waste storage and reprocessing of spent fuel is needed. Intractable, small aggregates in nuclear-waste streams can impair clean-up, forcing a low-level waste stream to be treated as high-level waste, thereby increasing treatment costs. Electronic structure methods are used to predict the structures and energetics of thorium oxide nanoclusters, (ThO2)n, for n up to 9, and their ability to bind and react with water molecules. This work this provides the first good estimates for the thermodynamics of physisorption and dissociative chemisorption of water onto thorium oxide surfaces.

John Fox, History
Faculty Mentor: Lisa Dorr, History
Martha Strudwick Young: Alabama's Lost Remus Writer
Martha S. Young was born in Greensboro, Alabama in 1862. Her mother, a Tutwiler, and father a Civil War hero were of prominent standing in the state. Young became fascinated with stories told to her by the family's former slaves and local ex-slaves. She obsessed in mimicry of old slave dialect and animal noises that paired with her writings of slave life, gave her international fame. Said to be better than Joel C. Harris himself in portrayal she is remembered by few. An Alabama superstar rediscovered through research of primary documents in the Hoole Special Collections Library.

Blake Franklin, Music
Faculty Mentor: Andrea Cevasco, Music
The Effects a Single Music Therapy Session on the Mood of Cancer Patients
The purpose of this study is to examine the effects of a single music therapy session on the mood of cancer patients receiving chemotherapy at the DCH Cancer Center. Participants (N=28) were provided music therapy services consisting of patient preferred music through individualized active and passive listening and singing. Sessions lasted between five and twenty minutes, consisting of one to five patient selected songs. Five measurements (agitation, anxiety, distress, tension, and comfort) were measure pre- and post-session, with patients indicating their current state using a Likert Scale. Clinical implications are discussed.

Ashley Frazier, Music
Faculty Mentor: Andrea Cevasco, Music
The Role of Music Therapy in the State of Alabama's Early Intervention Curriculum
Music therapy in early intervention settings has become a vital tool to many pre-kindergarten schools around the country; however, only two programs exist in the state of Alabama. The purpose of this study is to examine how music therapy can be used to support Alabama's early intervention curriculum. The Alabama Developmental Standards for Preschool Children includes the following areas: social-emotional skills, communication skills, academic skills, health and daily living skills, and physical development. The music therapy research literature will be linked to each of these areas and specific examples of music therapy interventions will be provided.

Laura Frost, Biological Sciences, Honors College
Faculty Mentor: John Clark, Biological Sciences
Diversification and convergence of flower shapes in the Neotropical plant genus Drymonia (Gesneriaceae)
Drymonia is one of the most morphologically variable and largest genera within the Neotropical members of the flowering plant family Gesneriaceae. The traditional classification of Drymonia has been changed because phylogenetic based studies have shown that flower shapes within the genus and closely related genera are convergent. Molecular sequence data from nuclear and chloroplast markers were generated to test whether or not pouches have one or multiple origins within Drymonia. Field studies were also conducted to better understand the role of bird and bee pollinator interactions. Pollen dosage studies were conducted as a basis to predict specific pollinator visitors for different corolla shapes.

Jesse Gettinger, Chemistry, Honors College
Faculty Mentor: David Nikles, Chemistry
Poly(ethylene glycol-caprolactone-lactic acid) Triblock Copolymers for a Magnetically Triggered Drug Delivery System
The goal is to create a magnetically triggered drug delivery system in which the micelle will contain a cancer drug, such as doxorubicin. The delivery system consists of magnetite nanoparticles and doxorubicin, a cancer drug, trapped in the core of polymer micelles made from poly(ethylene glycol-caprolactone-lactic acid) triblock copolymers. First a diblock copolymer was made by the tin-catalysed ring opening polymerization of ε-caprolactone from the alcohol terminus of poly(ethylene glycol) monomethylether. In the second stage the rind opening polymerization of 3,6-Dimethyl-1,4-dioxane-2,5-dione was initiated from the alcohol terminus of the diblock copolymer to give the triblock with the composition, CH3O-(CH2CH2O)x-(COCH2CH2CH2CH2CH2O)y-(COCHCH3O)z-H, with degrees of polymerization of 120, 36, and 36, respectively.

Stephanie Glaze, Psychology, Honors College, Psychology Honors Program
Faculty Mentor: Ansley Gilpin, Psychology
Spontaneous Imitation in Children with Autism Spectrum Disorders
The ability to spontaneously imitate motor actions has been found to be impaired in children with autism (Ingersoll, 2008; McDuffie et al., 2007). The current study examined spontaneous object and vocal imitation in children with autism spectrum disorder (ASD) in comparison to a typically developing control group using Ingersoll's (2008) Unstructured Imitation Assessment. In the current study each child was given ten opportunities to imitate vocal and physical action behaviors of another. Results suggest that TD participants verbally and behaviorally imitated the experimenter more often than ASD participants, demonstrating that social imitation is impaired in ASD preschoolers.

Holly Gray, Dance
Faculty Mentor: Sarah Barry, Dance
For Your Entertainment: The Jazz in Jack
Jack Cole, the "father of jazz dance", is a man who has not only influenced the world of dance, but he has influenced the American culture. His influence on the film industry and Broadway industry has changed our society by including the art of dance through theatrical entertainment. By researching Cole and following through the historical events of his time, I present a work of my own based off of Jack Cole's choreographic methods, as well as his choreographic technique, concepts, and influences.

Sarah Griffin, Biological Sciences, Honors College
Faculty Mentor: Ryan Earley, Biological Sciences
Temperature Effects on Sex Determination in the Mangrove Rivulus: Are some genotypes more sensitive than others?
Mangrove rivulus (fish) are self-fertilizing hermaphroditic vertebrates and can produce offspring that are genetically identical to the parent. Eggs can develop into males and past studies suggest this could be regulated by temperature. When raised at colder temperatures, eggs are more likely to develop into males than at warmer temperatures. We hypothesized that different genotypes might have different sensitivities to temperature during development. We incubated eggs from four different isogenic lines at three different temperatures and then determined the sex of the adults. We describe our results and their implications for understanding the environmental regulation of sex.

Laura Hagerty, Music, Honors College
Faculty Mentor: Andrea Cevasco, Music
Frequency of Dangerous Volume of Music on Personal Listening Devices Among College Students
The purpose of this study was to examine the volume level of college students' mp3 players. Twenty-two percent of the surveyed subjects' mp3 players exhibited decibel levels at or exceeding 85. Clinical implications are discussed.

Alfred Hamilton, Chemistry
Faculty Mentor: Kevin Shaughnessy, Chemistry
"Suzuki Coupling of Aryl Bromides Using Sterically Hindered Benzyl Substituted Phosphine Ligands"
Palladium catalyzed coupling reactions are a utilized method of forming carbon-carbon bonds and carbon-heteroatom bonds in organic synthesis. Palladium catalyzed coupling reactions are facilitated by the use of sterically hindered, electron rich phosphine ligands to promote the catalytic cycle and stabilize the active catalytic species. Phosphine ligands that provide steric bulk in the form of diadamantyl, dicyclohexyl, and di-tert-butyl substitutions in conjunction with a flexible pi-coordinating benzyl group have been synthesized. These ligands are effective in the

Suzuki couplings of electron-poor, electron-rich, and sterically hindered aryl bromides. Future research will study the activity these ligands in various types of coupling reactions with the intent of better understanding the role that the ligand plays in these reactions through structural variation.

Bryan Herren, Biological Sciences, Honors College
Faculty Mentor: Kim Caldwell, Biological Sciences
Investigating the VPS-C Complex of Genes in Alzheimer's Disease
Alzheimer's disease (AD) is the most prevalent neurodegenerative disease in the world. However, the mechanism by which it presents itself has not yet been completely determined. The misfolding of the protein beta-amyloid 42 (Abeta 42) and misfolding-associated toxicity have been implicated as the possible "culprit" for AD. This research focuses on the associated protein folding defect. Using C. elegans to model the expression of Abeta 42 and RNA interference, we were able to identify several gene products that modulate the toxicity of this aggregated protein. These genes could serve as therapeutic targets for the treatment of AD.

Matthew Hicks, Chemical and Biological Engineering, McNair Scholar
Bwarenaba Kautu, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Investigat The Role of Heterotrimeric G-protein Signaling in a C. elegans Parkinson's Disease Model
Two hallmarks of Parkinson's disease are the degeneration of dopamine neurons and the aggregation of α-synuclein. It has been shown that α-synuclein overexpression in dopamine neurons elevates intracellular dopamine levels, leading to neurodegeneration. Heterotrimeric G-protein signaling mediated by GOA-1 and EGL-30 regulates dopamine signaling in C. elegans. We hypothesize altering this pathway may impact the integrity of dopamine neurons. Our findings suggest loss of GOA-1 and EGL-30 causes neuroprotection and neurodegeneration, respectively, when α-synuclein is overexpressed. These data suggest this heterotrimeric G-protein signaling pathway regulates the integrity of dopamine neurons and could represent a novel therapeutic target for Parkinson's disease.

Joana Hubickey, Biological Sciences, Honors College
Faculty Mentor: Laura Reed, Biological Sciences
The Effect of Mutation in Laminin A Gene on Egg Size in Drosophila melanogaster
With the obesity rate reaching epidemic proportions nationwide, many researchers have turned to model organisms as a practical tool for mapping the genetic basis of this disease. One gene that has proven important in triacylglycerol (TAG) storage, body weight and total protein content in Drosophila melanogaster is the Laminin A (Lan A) gene. Female homozygous mutant flies for the Lan A gene had significantly lower TAG storage, body weight, and total protein content than their wildtype counterpart (Deluca, 2008). This raised an interesting question of the effect of this mutation on the next generation, specifically egg size. This experiment

investigated variations in egg size between two mutant lines (1662B, 1389B) and one control line (Oregon R). Eggs were collected from a laying chamber and photographed using a camera mounted to a microscope, at a magnification of 10X. Motic software was used to measure the length and width of the eggs. Both mutant lines showed a significant difference in egg size when compared to the wildtype.

Wesley Hyde, Music
Faculty Mentor: Andrea Cevasco, Music
Effects of the Non-verbal Qualities of Music on Short-Term Retention of Factual Information
While research has been done on the efficacy of using music as a means of teaching, research that specifically evaluates the non-verbal qualities of music is limited. In this study, participants (N=30) were asked to either listen to a song (n=15), or to listen to the lyrics of the song spoken (n=15). Participants then took a multiple choice test on subject matter. While results were statistically insignificant ($p>.05$), the mean test score of participants who listened to the song was higher than the mean test score of participants who listened to the lyrics spoken, suggesting that non-verbal qualities of music may enhance learning.

Nicholas Izor, Biological Sciences, Honors College
Faculty Mentor: Laura Reed, Biological Sciences
Genotype-by-Diet Interactions in Blood Sugar Levels in Drosophila Melanogaster
With the rapid growth of obesity and diabetes in Westernized human populations, it has become increasingly important to determine the underlying causes of Metabolic Syndrome, a collection of related symptoms including hypertension, elevated triglyceride levels, obesity, and insulin resistance, which increase the risk of heart disease and diabetes. To examine these causes, Drosophila melanogaster serves as a suitable model organism in which the effects of diet and genotype can be viewed both together and separately as they lead to increased risks of obesity and Type-2 diabetes. To test and contrast diet and genotype effects, several recombinant inbred genetic lines were fed a control diet and a high fat diet, and the blood sugar levels in the adult flies were measured. The lines on the high fat diet were marginally more susceptible to elevated blood sugar, but the primary factor influencing blood sugar was the genotype-by-diet interaction, which accounted for the largest percentage of the variation. These results have helped account for a large portion of the total blood sugar variation in Drosophila, which suggests that a similar mechanism for the development of the precursors of obesity and Type-2 diabetes is present in humans.
Caroline James, New College, Honors College
Faculty Mentor: Sheila Black, Political Science
Terrorists, Fags and Spics: A Study on Public Opinion, Issue Coding and Public Policy
Studies show that stigmatized groups are sometimes socially tied with public policy issues; hence, public perceptions of the group can shade the perception of the policy issue (Devine and Elliot, 1995; Katz and Braly, 1993). Commonly referred to as “issue coding,” this phenomena suggests that biases are problematic for the democratic process. The current study seeks to

determine if negative perceptions or biases against LGBT, Muslims, and Latinos, negatively affect public policies regarding marriage, anti-terrorism and immigration, respectively. This study seeks to further clarify the relationship between minority groups and public policy in order to ultimately connote a democratic issue.

Nicholas Janzen, Political Science, Honors College
Faculty Mentor: Fred Andrus, Geological Sciences
The Timing and Shell Growth Rate of Donax Variabilis
This project investigates the timing and rate of shell growth in surf coquina clam Donax variabilis. Growth increment patterns are compared between shells that grew in diurnal to semi-diurnal tidal habitats from the Atlantic coast of Florida and the Alabama Gulf of Mexico coast, respectively. Examining the fine-scale growth bands of D. variabilis in this context can indicate if the timing of shell accretion is controlled by tidal or daily factors. The results of this research have important implications for understanding mollusk biominerology, as it gives insight into the fundamental mechanisms that control timing of growth.

Nicholas Janzen, Political Science, Honors College
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Margaret Johnson, Chemistry, Computer-Based Honors Program
Faculty Mentor: David Nikles, Chemistry
Use of Semiconductor Quatum Dots as Nanothermometers to Measure the Local Temperature in Magnetically Heated Polymer Micelles
The objective is to develop a magnetically triggered drug delivery system, consisting of magnetite nanoparticles and a cancer drug trapped in the semi-crystalline core of polymer micelles. The drug will be released when the micelle is subjected to a radio frequency magnetic which heats the magnetite particles, thereby heating the core of the micelle above its melting point. In order to understand and control the heating, the temperature rise inside the micelle core must be measured. Cadmium selenide quantum dots in toluene solution have a temperature dependent fluorescence spectrum, with the peak in the fluorescence spectrum increasing 0.173 nm/°C.

Andrew Jones, Chemical and Biological Engineering, Computer-Based Honors Program

Faculty Mentor: David Dixon, Chemistry
Prediction of Reaction Thermodynamics and Acidities for the Production of Key Fuels and Intermediates from Biomass
There is a substantial need to provide clean energy to power the US that is from renewable resources and is carbon neutral, for example biomass. Reliable electronic structure methods have been used to predict the thermodynamic properties and reactions of biomass and biomass- derived compounds to produce fuels and critical feedstocks for the chemical industry. The thermodynamics for the reactions starting from oxygenated species such as glucose, 5-hydoxymethyl furfural, sorbitol, glycerol, itaconic acid, 3-hydroxybutyrolactone, xylitol, arabinitol, furfural and lactic acid have been predicted in the gas phase and in the liquid phase. The acidities and Pka's are also being studied.

Jessica Jones, Chemistry, Honors College
Faculty Mentor: Kevin Shaughnessy, Chemistry
Synthesis of New Palladium Complexes and Their Use in Pd-Catalyzed Cross-Coupling Reactions
Palladium-catalyzed cross-coupling reactions are instrumental for carbon-carbon or carbon-heteroatom bond formation. Phosphine ligands that stabilize palladium complexes have a range of steric properties, which can have significant effects on the efficiency of a reaction. Previously, neopentyl phosphines have been shown to be efficient ligands in cross-coupling reactions. The synthesis of new palladium complexes with neophyl phosphines is shown. The neophyl phosphines are analogous to the neopentyl phosphines, but the neophyl group has the potential to coordinate with the palladium as well as being further functionalized to change the electronic properties of the ligand. The palladium/neophyl phosphine complexes have been used in Buchwald-Hartwig amination and diarylether syntheses.

Koushik Kasanagottu, Biological Sciences, Honors College
Hae dong Kim, Biological Sciences
Yi Chen, Biological Sciences
Faculty Mentor: Janis O'Donnell, Biological Sciences
Investigating the mechanism for α-synuclein induced neuropathology
Research has strongly implicated human α-synuclein and its mutant isoforms as major contributors in the pathology of many severe neurological diseases. Misfolding and aggregations of this protein have been shown to cause detrimental and irreversible neuronal damage and cell death, particularly in dopamine neurons located in the substantia nigra. A strong age-dependent factor has also been shown to contribute to this degeneration. Here, we investigate the ability of both wildtype and mutant α-synuclein to induce oxidative stress and stimulate a neuroinflammatory immune response in adult and adolescent brains. This study aims to further elucidate the mechanism of these synuclein-induced disorders.

Matthew Kelley, Chemistry, Computer-Based Honors Program, Honors College
Faculty Mentor: David Dixon, Chemistry

Potential Energy Surfaces for Reactions of Alcohols on Group VI Transition Metal Oxide Nanoclusters
Transition metal oxides (TMO) form an important class of materials widely used in industry as heterogeneous catalysts and catalyst supports. The catalytic conversion of biomass-derived molecules to liquid fuels and chemical intermediates is an important type of reaction on such clusters. Dehydration, dehydrogenation, and cluster (ether) formation of alcohols on TMO nanoclusters have been studied using electronic structure theory at different levels. The calculations show that three alcohols are needed for ether formation with one alcohol being used to generate a strong Bronsted acid site on the cluster, a completely new mechanism.

Amanda Kimbrough, Psychology
Faculty Mentor: Rosanna Guadagno, Psychology
Gender Differences in Technology Use: Women Connect More than Men
Previous research has shown that while men use the Internet more than women, they use it for different things. For instance, Weiser (2000, 2001) reported that men, compared to women are more likely to use the Internet to read the news, look for job leads, get information, and play games, whereas women, compared to men, are more likely to use it for interpersonal communication (email, chatting, etc.) We took a contemporary look at these gender differences in Internet use. [58]Participants discussed their experiences with many forms of technology including social networking sites, e-mail, video calls, and instant messaging, as well as off-line technologies such as phone calls and text messaging. Contrary to prior research, our results indicate that women, compared to men, are more frequent technology users and show a greater preference for mediated communications.

Dorie Kogut, Political Science
Faculty Mentor: B Lichtenstein, Consumer Sciences
Client Advocates or Law Enforcers: Health Worker/Client Relations and HIV Disclosure Laws
HIV criminalization has become increasingly common, especially for non-disclosure of a positive HIV diagnosis to sexual partners. The proliferation of HIV-specific statutes has created an ethical dilemma for social workers who are responsible for post-test counseling. If clients must be counseled about legal requirements for disclosure, then how does this practice affect the social worker/client relationship? Ethical issues include: 1) should clinics require clients to sign forms to indicate that they have been counseled about their legal responsibilities? 2) Should social workers report those clients who are suspected of non-disclosure to authorities? 3) How do social workers see their role in terms of client advocacy versus the law? I will present the data I collected over the course of the 2011-2012 school year, examining the how social worker/client relations are challenged due to these HIV criminalization laws.

Micah Larsen, Geography
Faculty Mentor: Seth Appiah-Opoku, Geography
Southwest Urban Growth Negatively Effecting the Future of Lake Mead

This research study investigates the detrimental effects of rapid urban growth to Nevada's Lake Mead. The main area of urban study for this project was Clark County, better known as Las Vegas. Census data from Clark County and satellite imagery from NASA were acquired to compare and contrast population density with receding vegetation cover and water levels. This study supports the idea that urban growth is becoming increasingly harmful to the natural processes of the environment.

Matthew Ledet, Electrical and Computer Engineering, Honors College
Elizabeth Philip, Electrical and Computer Engineering
Sarah Betzig, Electrical and Computer Engineering
Faculty Mentor: Patrick LeClair, Physics & Astronomy
Observation of Atomic and Thermal Spectra
The purpose of this experiment was to understand the importance of examining the spectra of both atomic elements as well as thermal objects. We observed and measured the discrete wavelengths of different colors of light emitted by atoms (in particular Hydrogen, Helium, and Chlorine) as well as observed and measured the thermal spectra from the sun and a common household light bulb. Using this information, we were able to estimate the temperature of the thermal sources as well as establish the likely presence of both Hydrogen and Helium in the sun.

Annie Lenox, Biological Sciences, Honors College
Faculty Mentor: Ryan Earley, Biological Sciences
Effect of Male Presence on Outcrossing in Kryptolebias marmoratus
Kryptolebias marmoratus is the only vertebrate capable of self-fertilization, yet hermaphrodites occasionally mate with males. This study is the first to examine how social environment affects this mixed-mating strategy. We hypothesized that hermaphrodites exposed to males would forgo selfing and lay more unfertilized eggs than when alone or when paired with other hermaphrodites. We found no difference in the number of unfertilized eggs across treatments but hermaphrodites laid more total eggs when with males. We are genotyping the offspring to determine if outcrossing occurred, which will allow us to generate hybrids and examine the genetic basis for many phenotypic traits.

Leah Leonard, Biological Sciences, Honors College
Faculty Mentor: Laura Reed, Biological Sciences
The Effects of High Fat and Normal Diets on the Dark Pupae Weight of Drosophila melanogaster
Type-2 diabetes in a growing problem in today's society, especially here in the United States. Drosophila is a good model organism to study the environmental and genetic interactions, which we expect play a role in the symptoms commonly associated with type-2 diabetes. By performing round robin crosses on recombinant inbred lines, our experiment focuses on differences in specific phenotypes of the Drosophila when fed a normal vs. high fat diet. It is expected that the dark pupae weight of crosses raised on high fat food will differ from those

raised on normal food. Our research hopes to help us better understand the role of the genetic and environmental interactions on the precursors to type-2 diabetes, such as obesity.

Matthew Lollar, Biological Sciences, Honors College
Austin Hardaway, Mechanical Engineering
Ryan Turner, Information Systems, Statistics, & Management Science
Faculty Mentor: Janis O'Donnell, Biological Sciences
Modeling aberrant behavioral phenotypes of Autism Spectrum Disorders using mutations in the gene UBE3A
Autism and Autism Spectrum Disorders (ASDs) are a cluster of neurodevelopmental syndromes characterized by a wide range of symptoms including repetitive behaviors, communication and social behavior abnormalities, motor deficits and aggression. Genetically, defects in the gene UBE3A, encoding the enzyme ubiquitin-protein ligase E3A, have been linked to several of these dysfunctions. We hypothesize that UBE3A expression in different genetic backgrounds will affect the range of ASD phenotypes observed. Employing a Drosophila model, we elucidate the role of UBE3A in ASDs by conducting behavioral assays such as grooming, mobility, aggression, and social interaction in different mutant strains of the UBE3A gene.

Zac Lovoy, Biological Sciences, Computer-Based Honors Program, Honors College
Faculty Mentor: John Clark, Biological Sciences
The Gesneriacie Image Library: To Ecuador and Back
The Clark Lab, located on the University of Alabama campus, houses one of the world's largest collections of flora samples and images of the plant family Gesneriaceae. This vast and remarkable collection contains many samples that cannot be found anywhere else in the world. Until recently, this collection has mainly been a private collection, but has recently been made available using iDevices and online for use in the field by the lab (gesneriads.ua.edu). This system was tested in Ecuador this summer as part of the UA in Ecuador Program in order to find out what worked and what did not.

Rita Martin, Criminal Justice, Honors College
Faculty Mentor: Mark Lanier, Criminal Justice
Negative Virtual Peer Association: From Social Networking to Juvenile Delinquency
The rise in popular use of and accessibility to social networking sites (SNS) has fundamentally changed the way the world socializes. In addition, SNS have also displayed the potential to negatively affect the process in which juveniles form peer associations. Using Akers' Social Learning Theory as theoretical context, this study evaluated two recent criminal cases in which negative virtual peer associations initiated on social networking sites led to delinquency in juveniles. Results pave the way for a mixed methods study of the role of SNS in negative virtual peer association within the American juvenile population.

Sara Martin, Biological Sciences, Honors College
Laura Purvis, Biological Sciences
Faculty Mentor: Julia Cherry, Biological Sciences
Biomass allocation between Juncus roemerianus and Spartina alterniflora in two Gulf of Mexico salt marshes
Wetlands play important roles in the landscape as sites of high primary productivity, nutrient retention and biodiversity. Spartina alterniflora and Juncus roemerianus are dominant plants in Gulf of Mexico (GoM) marshes. We measured above- and below-ground biomass in S. alterniflora and J. roemerianus zones at Grand Bay, MS and Point-Aux-Pines, AL in summer 2011using rhizotron and harvesting techniques. While J. roemerianus was more productive above-ground than S. alterniflora, Grand Bay was more productive overall regardless of species. These results suggest differences in biomass allocation between species, and reveal a potential productivity gradient in northern GoM marshes.

Caitlin McClusky, Geological Sciences, Honors College
Faculty Mentor: Julia Cherry, Biological Sciences
Hazards in Appalachian Headwaters: An exploration of study, mitigation, and regulation of mountaintop removal valley fill operations and their proven impacts on freshwater systems
Recent scientific studies have shown that the practice of surface coal mining, called mountaintop removal valley fill operations, negatively impact ecologically important headwater streams in the Appalachian mountains. This research analyzes these environmental impacts and seeks to determine whether or not current regulation adequately offsets them. Exploration into current policies that address the establishment of these operations, including analysis of mitigation and permitting processes, reveals that several approaches to mitigate impacts are entirely inadequate.

Corey McCormick, Geological Sciences
Stephane Troy, Geological Sciences
Faculty Mentor: Ryan Ewing, Geological Sciences
Dune reorientation on Saturn's Moon Titan from Different Wind Regimes
Saturn's moon Titan has landscape and an active climate system similar to Earth. Sand dunes cover the equatorial regions of Titan and are a key to understanding Titan's surface climate. Here we use radar images of Titan's surface and ArcGIS to digitize the dune's crestlines in order to better constrain Titan's past and present surface winds. We find two intersecting crestlines as evidence for change in surface wind patterns. This change could relate to long-term scale cycling of Titan's wind regime or may indicate Titan has recently undergone a climate shift.

Margaret McCormick, History
Faculty Mentor: Dr. Lawrence Clayton, History
The Air War Over the Bay of Pigs
This project covers the air war that occurred during the Bay of Pigs invasion in 1961. It takes an

in depth look into the training, provided in large part by the Alabama Air National Guard, and missions that these pilots flew. A great deal of information on the actual battles that took place in the sky is derived from firsthand accounts. I have transcribed interviews with key participants in the Bay of Pigs invasion and I conducted primary and secondary source research for this project.

Keegan McNally, Chemistry
Ashley Jolly, Chemistry
Alie Mallet, Chemistry
Faculty Mentor: Marco Bonizzoni, Chemistry
Probing dye-electrolyte aggregation through absorption and fluorescence spectroscopy
Supramolecular aggregates are gaining importance as vectors for controlled or targeted drug delivery; however our understanding of their spontaneous aggregation processes is still incomplete. We investigated the binding of ionic fluorescent probes to water-soluble polyelectrolytes bearing the opposite charge. We followed these spontaneous binding processes through telltale variations in the light absorption and re-emission properties of the dye aggregates. We propose a model to explain observed trends in binding affinity and stoichiometry, and we further demonstrate the use of our method to study the aggregation of spectroscopically inactive substances, whose binding is otherwise much more difficult to observe.

Grace McNatt, Psychology
Brandon Dare, Psychology
Faculty Mentor: Franes Conners, Psychology
Implicit Learning and IQ
Implicit learning, as opposed to explicit learning, is learning that occurs without conscious awareness. Implicit learning was measured in a college student sample using two tasks: a serial reaction time (SRT) task and a prototype learning task. Analyses of the tasks individually revealed that participants showed a significant implicit learning effect in both tasks. These implicit learning effects were then examined to see if they correlated with IQ. IQ was measured using the Kaufman Brief Intelligence Test-2nd Edition. Results indicated that the SRT task showed a significant correlation with IQ, but the prototype task did not.

Sean Mendez, Biological Sciences, Honors College
Faculty Mentor: Laura Reed, Biological Sciences
The effect of two diets on the lipid concentration in third instar larvae in Drosophila melanogaster.
Metabolic syndrome is a collection of symptoms such as obesity, elevated blood lipids, and insulin resistance that often predicts type-2 diabetes and cardiovascular disease. The growing prevalence of this disease suggests a changing interaction between genotype and environment that is not yet fully understood. Drosophila melanogaster is an important model organism for

studying the genetic and environmental factors and their interaction regarding metabolic syndrome. Our experiment involves crosses of recombinant inbred lines of D. melanogaster, whose offspring are then raised on either high fat or control diets starting at the 1st instar stage. The larvae develop on their respective diets and are then measured for six phenotypes including lipid and glucose concentration in the 3rd instar larvae, larvae survival rate and pupae survival rate, development time, and weight. My specific research deals with the lipid concentration of the third instar larvae. I expect the overall concentration of triglycerides to be higher in larvae raised on a high fat diet but with a significant amount of variation in levels between the crosses due to genetic variation. The results of this experiment will hopefully help us gain insight into the complex genetic interactions associated with obesity so it can be applied to prevention of this costly disease.

Meghan Metcalf, Psychology, Honors College
Faculty Mentor: Matthew Jarrett, Psychology
Attention-Deficit/Hyperactivity Disorder (ADHD) Symptoms and Functioning in Undergraduates
Meghan Metcalf, Psychology Faculty Mentor: Dr. Matthew Jarrett Attention-Deficit/Hyperactivity Disorder (ADHD) Symptoms and Functioning in Undergraduates It is estimated that ADHD symptoms affect 2% to 4% of the college student population (Weyandt & DuPaul, 2006). Relative to the childhood literature, less is known about ADHD in adults, especially college students with symptoms of ADHD. The principle purpose of this study was to investigate how symptoms of ADHD relate to executive functioning, psychological functioning, and substance abuse. The current study included students recruited from the Psychology 101 research participant pool (n=300) who were asked to complete a comprehensive inventory of physical and mental health concerns. Our hypothesis is that the students who self-report significant symptoms of ADHD will show increased executive functioning deficits, more symptoms of psychological distress such as anxiety and depression, and greater use of substances. Study analyses will involve correlational analyses and regression analyses. This study will help us gain an understanding of the interrelationships among ADHD symptoms, executive functioning, other psychological symptoms, and substance use in a college student population.

Meredith Mills, Biological Sciences, Honors College
Faculty Mentor: Margaret Johnson, Biological Sciences
Epigenetic Mechanisms Involved in Generating the Curly Tail Phenotype
It is hypothesized that abnormal levels of inositol phosphate in the brain produce distorted cell-cell communication, which leads to neurological disorders and birth defects, including spina bifida. Myo-inositol-1-phosphate synthase (MIP) is the only known enzyme to synthesize inositol phosphate, de novo. By analyzing promoter regions of the MIP gene, the research aimed to identify important differences between genetically identical mutant mice that are phenotypically discordant. Only one mutant exhibits the neural tube disorder, spina bifida. The

goal was to determine whether epigenetic differences, specifically the methylation of the MIP promoter region, contributed to the phenotypic differences observed in the mutants.

Joshua Moon, Chemical and Biological Engineering, Computer-Based Honors Program, , Honors College
Faculty Mentor: David Dixon, Chemistry
The Design of New Synthons for Inorganic Materials: Novel Metal Oxide Clusters
The increasingly complex materials that will drive the future technologies of our energy-intensive and environmentally-threatened globe demand sophisticated synthesis and growth approaches that move past current Edisonian, 'cook-and-look' practices. We are developing a mechanistic approach for the directed syntheses of inorganic materials. Electronic structures calculations of the M6O88+ and M8O128+ clusters for M = Ti, Zr, Hf, and Ce with carboxylate, sulfate and selenate ligands provide new insights into their stability, reactivity and role as nucleation site precursors. When these clusters are protonated, they are medium to strong gas phase and weak aqueous phase acids.

Isabela Morales, History, Honors College, McNair Scholars
Faculty Mentor: Jenny Shaw, History
Letters from a Planter's Daughter: Understanding Freedom and Independence in the Life of Susanna Townsend (1853-1869)
Alabama planter Samuel Townsend had already fathered eight children by seven enslaved women by the time Susanna Townsend was born in 1853—both legal property and legal heir to part of Samuel's $200,000 estate. Seven years old when she was emancipated, Susanna remembered little of the courtroom drama that ended in 1860, when the Probate Court declared Samuel's will valid. Even so, Susanna Townsend lived in a borderland of gender, race, and power. Reconstructing and examining her life illuminates meanings of freedom and autonomy after the Civil War—as well as in the creation of the archive itself.

Landon Mueller, Biological Sciences, Honors College
Faculty Mentor: Jennifer Edmonds, Biological Sciences
Using dissolved organic matter fluorescence to signal changes in carbon cycling during a cave stream experiment
With no primary production and limited mechanisms for the entry of detritus and dissolved organic matter (DOM), cave ecosystems are assumed to be energy and nutrient limited. To test the energy limitation hypothesis, a cave stream was amended with corn stover for a year. Water samples were analyzed for nutrient chemistry and fluorescence of compounds in the DOM found in the water. PARAFAC statistical analysis transformed fluorescence intensities of water samples to create a model with four components. Changes in fluorescence composition were observed as a result of the added stover as well as from frequent flood events.

Daniel Mulder, Biological Sciences
Faculty Mentor: Paul LeBlanc, Biological Sciences
Photosynthesis of Cassiopea xamachana in Eutrophic Environment
Anthropogenic disturbances (environmental disturbance caused by humans) are increasing the stress on coral reefs. Fourteen wild Cassiopea xamachana, upside-down jellyfish that have a symbiotic relationship with photosynthetic organisms called zooxanthellae, were selected for the experiment because they are model organisms for coral polyps. C. xamachana were randomly assigned to one of three experimental groups, which varied in fertilizer induced nitrogen and phosphorous levels. Pulse amplitude modulated flourometry measured the photosynthetic response of zooxanthellae to the increase of nitrogen and phosphorous. Photosynthetic output was directly correlated to inorganic nutrient levels, which indicates symbiosis is affected by eutrophication.

Divya Nadella, Biological Sciences, Honors College
Faculty Mentor: Laura Reed, Biological Sciences
Lipid Analysis of Previously Implicated Mutations in Drosophila Melanogaster
Genetics plays a vital role in lipid concentration in animals. Lipid concentrations have been shown to be a significant component of metabolic syndrome. This study takes genes implicated in previous research and studies their effect on lipid concentration in the fruit fly, Drosophila melanogaster. Using a series of fly crosses to produce flies with the specific genotypes targeted, we measured the lipid concentration using lipid assays. The results show a significant difference in lipid concentration between mutated flies and normal flies. We can use these results to further study the genetic basis of metabolic syndrome.

Carl Napps, Political Science, Honors College
Faculty Mentor: Karl DeRouen, Political Science
Audience Costs and Information Asymmetry in a Bargaining Framework of Terrorism
Conflicts with terrorists present unique challenges for states and policymakers due to their unconventional nature. To help resolve these challenges, a multistage conflict model will be developed based on the conceptualization of terrorism as a bargaining game. Special emphasis will be placed on the role of state audience costs. Ultimately, it will be posited that audience costs always lead to socially inferior outcomes, audience costs force states to incur expenditures disproportionate to terrorist threats, and audience costs make possible state victory over a rational terrorist. These deductions carry important implications for both policymakers and conflict scholars.

Xavier Neal-Burgin, New College, Honors College
Faculty Mentor: Catherine Roach, New College
Portrait of the Storm: How The Documentary Was Made
On April 27, 2011 the town of Tuscaloosa, Alabama was hit by a massive tornado that devastated everything in its path. After the storm ended, President Obama issued a state of

emergency for the search and rescue response in Alabama. The tornado was considered the worst disaster in recent Alabama history. Two days later, Xavier Burgin began documenting the damage of the storm, producing what is known as “Portrait of the Storm: Tuscaloosa, AL” a short documentary highlighting the devastation of the storm and people who survived it.

Ted Nelson, Anthropology, Honors College
Faculty Mentor: John Blitz, Anthropology
Magnetometry and Ground Truthing Excavations at Actuncan, Belize
Actuncan is an ancient Maya site in Belize, Central America. During the Summer of 2011, a team of archaeologists performed a magnetometer survey over portions of the site to gather information about human activity that cannot be seen from the surface. The data collected by the survey showed magnetic signatures of subsurface features that could be either cultural or natural deposits. I reported on the post survey excavations that were done to more specifically identify magnetic anomalies. By comparing magnetic signatures and excavation data, areas of buried human activity were identified and can be better understood.

Amanda Nichols, Communicative Disorders
Katy Erstine, Communicative Disorders
Jocelyn Fowler, Human Development & Family Studies
Faculty Mentor: Jason Scofield, Human Development & Family Studies
Children's Knowledge of Object Names and Functions
Research shows that children believe a person who knows the names of familiar objects is trustworthy for the names of unfamiliar objects. This proposed study asks whether that person is also trustworthy for the functions of objects. Preschoolers will see 2 people, one who correctly names objects and one who does not. Then they see the object being used correctly or incorrectly and are asked which person is using it. If children believe that a person who knows the name of an object also knows its function then they should guess that the person who names it correctly uses it correctly.

Christopher Nix, Music
Faculty Mentor: Andrea Cevasco, Music
The Effects of Classical music and Contemporary Dance music on results in a Spatial Abilities Test
Music has been shown to have a significant impact on many things such as study habits, attention span, and level of exercise in College students. Concerning the Mozart effect, there are no published research studies with findings suggesting that there is a significant impact on students in College and results in a test. This research study analyzes the statistical analysis of the effects of music on test results when 2 groups of subjects listened to Classical Music and Contemporary Dance music, followed by a Spatial Abilities test.

Matthew Outlaw, Chemistry, Computer-Based Honors Program, Honors College
Faculty Mentor: David Dixon, Chemistry
DFT Studies of the Hydration Reactions of H2O with Transition Group IVB Metal Oxide Nanoclusters
The transition metal oxide TiO2 is a photocatalyst for the control of chemical transformations. TiO2 can split water to form hydrogen and oxygen. Electronic structure theory is used to study the initial steps of water activation on the heavier element ZrO2 and HfO2 nanoclusters in the ground and excited state to understand these reactions as the solids have a very different band gap from TiO2. The goal is to design new materials which can use solar energy to split water efficiently so that hydrogen can be used as an energy carrier to minimize atmospheric carbon emissions.

Cheyenne Paiva, Biological Sciences, Computer-Based Honors Program, Honors College
Anna Hawkins, Biological Sciences
Faculty Mentor: Heath Turner, Chemical and Biological Eng
Computer Simulation of N-Functionalized Imidazole Solvents for CO2 Separation and Capture
Current methods for capturing carbon dioxide emissions are not very efficient. However, N-functionalized imidazole molecules have been shown to be more effective in capturing carbon dioxide from industrial sources. This project focuses on simulating the properties of several different imidazole molecules, using the commercial modeling software GROMACS. Molecular simulations are used to determine thermodynamic and physical properties of these imidazoles at a range of conditions. We will screen these properties to determine which of these imidazole molecules could be applied to future methods of carbon dioxide capture. Eventually, whichever of the imidazole molecules are determined to be the most efficient will be synthesized experimentally, in order to actually test its efficiency in capturing carbon dioxide emissions.

Lauren Perkins, Biological Sciences
Faculty Mentor: Laura Reed, Biological Sciences
Evaluation of Glucose Levels in Drosophila and the Potential Protective Effect of the LanA Gene
The prevalence of obesity has increased dramatically within the last 50 years. Among numerous secondary diseases that obesity may lead to, gestational diabetes is among them. This particular type of diabetes has significant harmful effects on the mother as well as the child. Drosophila melanogaster have proven to be an excellent model for obesity as well as insulin resistant diabetes. The method of this research involved measuring glucose levels in virgin and non-virgin Drosophila to determine if gestational diabetes had developed in the female flies. The lines studied were mutant for the LanA gene; which is homologous to mammalian Lamα 5 gene. When glucose levels were measured, the result indicated that the male mutants showed significantly lower glucose levels when compared to the wild type Canton S. males. The female mutant showed no significant difference from the wild type. These findings are intriguing because it appears that the LanA gene has a protected effect on controlling glucose levels in the female.

Elyse Peters, New College, Honors College
Faculty Mentor: Andrew Dewar, New College
Redefining Soul Food
School gardens have attempted to address the institutionalized inequalities involved in accessing fresh, affordable food in areas known as food deserts. These gardens not only provide nutritional benefit, but also rekindle the value of food through the creation of community. Through ethnographic methodology of participant observation, relationships were created and observed through different activities. Three students were selected to complete a garden journal, take photographs and participate in an interview. These interviews illustrated how the garden was a space to nurture identity. The garden was a space for personal and communal growth and a place of physical and mental healing.

Mark Pinkerton, Biological Sciences, Computer-Based Honors Program, Honors College
Faculty Mentor: Matthew Jenny, Biological Sciences
Identification of Several Glutathione S-transferase and Multixenobiotic Resistance Transporter Genes from the American Oyster, Crassostrea virginica
Estuarine systems along the Gulf of Mexico were severely impacted by millions of barrels of crude oil released from the BP oil spill in 2010. Crude oil is toxic to living organisms, activating cellular stress response pathways, which had not yet been investigated in the American oyster, Crassostrea virginica. We were able to identify several members of the glutathione S-transferase(GST) family, phase II metabolism genes involved in the biotransformation of xenobiotics and found several candidate multixenobiotic resistance (MXR)transporters that confer resistance. Gene expression studies for laboratory control and field deployed oysters were performed.

Ottavio Pirocchi, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Chaperone Protein TorsinA Modulates Aβ42 toxicity in C. elegans Alzheimer's disease model
Alzheimer's disease (AD) is the most prevalent neurodegenerative disease affecting approximately 2.5 million Americans. Aggregation of amyloid-beta 42 peptide (Aβ42) and therefore caused toxicity have been demonstrated to contribute to the AD pathology. Therefore, exploring the mechanisms of modulating Aβ42 toxicity can pave ways for therapeutic treatment for AD. In this study, we have taken advantage of the attributes of the nematode, Caenorhabitis elegans, to examine the effect of a chaperone protein TorsinA on modulating Aβ42 toxicity.

Michael Proaps, Religious Studies, Honors College
Faculty Mentor: Steven Ramey, Religious Studies
The Dilemma of Religious Terrorism
Through a comparison of rhetoric involving Japanese Shinto Religion during World War II and present day rhetoric used by leaders such as Israel's Netanyahu involving Hamas, I want to

illustrate that uses of the terms "religious" and "terrorist" are not so much describing things "out there," but are more like mechanisms immersed in legitimation engines that are themselves immersed in dynamic and complex systems of relationships and powers.

Kay Rainey, Biological Sciences, Honors College
Faculty Mentor: Ryan Earley, Biological Sciences
Temperature-Dependent Sex Determination in a Hermaphroditic Fish: A Direct Look at Genes vs. Environment
The mangrove killifish, Kryptolebias marmoratus, is the only known self-fertilizing hermaphroditic vertebrate. Prolonged bouts of selfing can eliminate genetic variability within a lineage. Previous experiments from the 1960's showed that lowering temperatures causes these fish to develop as males. Our experiment provides a more detailed examination of this phenomenon by using four separate isogenic lineages of K. marmoratus originally taken from three different geographical regions and raised during embryological development at three different temperatures. We hypothesized that temperature would significantly influence sexual differentiation, and that the four isogenic lineages would vary in their sensitivity to temperature.

Greg Randall, Art
Joseph Robertson, Art
Faculty Mentor: Sarah Marshall, Art
Discovering Photogravure
Photogravure is a process to etch a photographic image onto a copper plate so that the image can be reproduced; it served as the primary form of photographic reproduction from the 1850s through the early 20th century. Photogravure has experienced a small revival through fine art photographers who use it for it's unique aesthetic qualities. We completed extensive secondary research to determine the ideal photogravure methodology. Additionally we built equipment required for the photogravure process. We are currently doing primary research to perfect our methodology using the equipment we built. To date we have generated several promising photogravure prints.

Amelia Randazzo, Biological Sciences, Honors College
Mimi Bach, Biological Sciences
Faculty Mentor: Stephen Secor, Biological Sciences
Amphiuma preserve digestive function during aestivation
During dry seasons, the amphiuma, a large aquatic salamander, will bury into the soil at the bottom of a drying pond and survive extended periods of dormancy (aestivation) until rains restore the water. We predicted that during aestivation, the amphiuma would shut down their digestive system to save energy during aestivation. To test this prediction, we assayed the activities of pancreatic and intestinal enzymes of active and aestivating amphiuma. Counter to

our predictions, amphiuma preserve the activities of their pancreas and small intestine even after 6 months of aestivation.

Chelsea Raulerson, Biological Sciences, Computer-Based Honors Program, Honors College
Ryan Jones, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Linking Biomechanics and Behavior: Swimming Performance, Muscle Physiology, and Endurance in Fish
A fundamental question in the biological sciences is how performance traits, such as locomotion, and the physiological mechanisms underlying variation in such traits relate to survival and reproductive success. This project investigates this question in the mangrove rivulus(Kryptolebias marmoratus), which affords complete control over both genetic and environmental sources of variation in performance. Using three genetic lineages of this fish, we will train individuals in a swimming flume and measure physiological responses to training. We predict thatperformance, muscle physiology, and reproductive investment will differ among the genetically distinct lineages and among treatments that expose animals to different training intensities.

Tiffany Reese, Gender & Race Studies
Faculty Mentor: Jennifer Shoaff, Gender & Race Studies
I Put On: Blackness and Cultural Appropriation
U.S. society prides itself on being a diverse and inclusive "melting pot." The entertainment industry appropriates this ethos of multiculturalism. However, as an avid fan of all genres of music and film, I was positioned as an "outsider" at my predominately black high school for "rejecting black culture." If "culture" in the U.S. is a commodity equally accessible to all, why did I feel so isolated by embracing the dominant culture? In this creative presentation, I will analyze selected clips from films and music videos to examine the limits of cultural appropriation to experiences of belonging.

Stephanie Robinson, Biological Sciences
Andrea Jones, Biological Sciences
Lindsay Highbaugh, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Phenotypic plasticity and integration: hormonal, morphological, and behavioral responses to salinity in a self-fertilizing, hermaphroditic fish (Kryptolebias marmoratus)
Complex phenotypes emerge from interactions between a finite number of genetic and physiological mechanisms and the developmental environment. It is possible that the strength of trait covariances might change as a function of environmental conditions. I propose to examine how salinity affects the expression and covariance of phenotypic traits in the hermaphroditic fish, mangrove rivulus. Juvenile rivulus raised in freshwater develop morphological and behavioral characteristics substantially different from isogenic siblings that

remain in saltwater. I propose exposure to different salinity treatments during development will alter neuropeptide production and, as a result, covariances among behavioral, morphological, and color traits.

Briana Royster, History
Faculty Mentor: Lisa Lindquist-Dorr, History
Constructing a New Image: The Social Lives of Southern African American College Women in the 1920s
This presentation will focus on the ability of colleges to influence the social lives of its African American female students in the 1920s. Administrators made a conscious effort to counteract whites' stereotypes of black women as a means to promote racial uplift. Through exposure to prominent African Americans in the arts, church affiliations, the Y.W.C.A, and stringent rules in dress and propriety, administrators created a new face of the black woman that was not widely seen in white America during the 1920s.

Dylan Sandy, Mathematics, Computer-Based Honors Program
Faculty Mentor: John Lochman, Psychology
Leadership and Aggression
The objective of my research is to observe how leadership correlates to aggression, dominance, revenge, and affiliation. Leadership as it relates to gender is also of interest. The data being used has been collected from late elementary-aged students for the use of the Coping Power Program, a preventative intervention program for students that are identified as being at-risk for substance abuse and delinquent behavior. The data was collected at the beginning and again at the end of a school year for two different cohorts.

Jameson Sanford, Theatre & Dance
Faculty Mentor: Andy Fitch, Theatre & Dance
"The Seagull" Scenic Design Production
My initial approach to the scenic design for the UA production of Anton Chekhov's "The Seagull" was to craft something that encompassed both the real world of the characters and the theatricality of the world in which we were presenting it. Through extensive research and collaboration with the faculty director, our production developed a stylized concept – utilizing a fractured great-room, with realistic furniture being brought into the space to evoke the look and feel of 1890's Russia. The stylized and symmetrically driven design served as an opposing image to the chaotic nature of the play.

Erica Schwalm, Chemistry, Computer-Based Honors Program
Faculty Mentor: Patrick Frantom, Chemistry
Allosteric Regulation of Alpha-Isopropylmalate Synthase
A better understanding of allosteric regulation mechanisms is important for the creation of industrial synthetic enzymes and for use as a possible drug target for new medical treatments.

Using alpha-isopropylmalate synthase, or IPMS, with the inhibitor leucine as a model enzyme system, insight can be gained into allosteric mechanisms. The goal of this portion of the project is to determine the rate limiting step of the reaction of IPMS using rapid quench to monitor the reaction. In addition, we will look to determine the effect of leucine binding on this rate limiting step.

Ally Sequeira, Psychology, Honors College
Paige Bussanich, Psychology
Faculty Mentor: Frances Conners, Psychology
Autism Symptoms in Non-Autistic Participants
Some studies suggest a high rate of autism among youth with Down syndrome (DS). However, some autism symptoms are consistent with intellectual disability (ID), and this may be a contributing factor. We asked whether youth with DS who do NOT have autism are nevertheless elevated for autism symptoms compared to youth with non-DS ID without autism. Parents of youth age 10-21 with DS (N=37) and ID (N=28) completed two autism screeners for their sons/daughters. Unexpectedly, participants with ID scored higher in autism symptoms than participants with DS. Also, both groups showed elevated communication symptoms and lower repetitive behavior symptoms.

Benjamin Sinderman, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Stress recovery, contest initiation, and dominance in male green swordtail fish (Xiphophorus helleri)
Stress recovery, contest initiation, and dominance in male green swordtail fish (Xiphophorus helleri) Sinderman B, Boulton K, Pearce MR, Wilson AJ & Earley RL When studying behaviour, experimental protocols may unintentionally present novel disturbances that impact behavior and contest outcome. We hypothesized that latency to recover from disturbances is a key determinant of contest initiation and outcome. Staged contests between size-matched male green swordtails (Xiphophorus helleri) were run and evaluated for the individual that: (1) began swimming first, (2) initiated the contest, and (3) won the contest following a disturbance (removal of partition separating opponents). Results show that individuals that rapidly resumed normal swimming after disturbance had higher stress hormone levels and initiated contests faster but were not more likely to win the contest.

Molly Stenner, Psychology, Honors College
Faculty Mentor: Ed Merrill, Psychology
The Development of Sex Difference in Wayfinding
Men and women show significant sex differences in a variety of cognitive areas, one of which is spatial ability. Spatial ability is a significant factor in wayfinding, which is the process of learning and mentally manipulating one's environment to move from one point to another. Previous research on the topic has focused on adult wayfinding, or child wayfinding, and has not

extensively explored the development of sex differences in wayfinding across the early developmental period. The current study examines this early developmental period as it relates to various wayfinding perspectives. A stepwise regression analysis was performed to identify any combination of sex, age, and spatial ability that can be used to predict wayfinding.

Mary Katherine Sweeney, Chemistry, Honors College
Faculty Mentor: Martin Bakker, Chemistry
Viscosity Correlation to Megaspore and Mesospore Size in Metal Oxides
The process of filtrating silica monoliths with different concentrations of metal oxides such as cobalt nitrate and nickel nitrate has been accomplished through the preparation of silica monoliths followed by vacuum solution infiltration with the various metal oxides prepared. Upon viewing these monoliths under the SEM microscope, the mesospore sizes were observed and recorded. Afterward, the viscosity of each metal oxide was found and ultimately compared to the concentration and composition of each salt. After observing the size of microspores within the mesospores, it was concluded that more viscous salts diffuse from the outside to the inside of the monolith.

Justin Tarbox, Mathematics, Computer-Based Honors Program
Faculty Mentor: Patrick Kung, Electrical and Computer Engineering
Spectroscopic Imaging of Nanowires
Semiconducting nanowires have become a widely researched field in recent years for uses in areas such as solar cells, batteries, and computer technology. Spectroscopic imaging of nanowires is an important tool that can help in the study of their physical properties at the nanometer scale. In order to have easier analysis of the data, a software application was developed to convert the data acquired to a form that is easily interpreted and manipulated. This project created such an application to provide imaging and computational tools to interpret data from spectroscopic imaging of semiconducting nanowires.

Neil Tindell, Biological Sciences, Honors College
Faculty Mentor: John Yoder, Biological Sciences
teashirt and its role in sexually dimorphic abdominal segment number in Diptera
We study mechanisms of evolution using the Order Diptera (true flies) to investigate genetic changes driving the appearance of new physical traits. Both sexes of primitive flies have eight abdominal segments. However, in higher Diptera, represented by Drosophila melanogaster, males have fewer segments than females: a sexually dimorphic trait. Here we show the gene teashirt (tsh) co-regulates the genetic cascade that promotes this male-specific reduction in segment number. Experimentally reducing tsh activity restores development of missing male segments. Additional segment transformations caused by reduced tsh activity suggest this gene has played a central evolutionary role in sculpting the fly abdomen.

Stephanie Troy, Geological Sciences
Faculty Mentor: Ryan Ewing, Geological Sciences
Mysterious Patches
Titan, a moon of Saturn, has a landscape remarkably similar to Earth alluding to surface conditions that may support life. Cassini radar images of Titan's surface show different types of bright patches of unknown origin. The relationship between sand dunes and the patches has been used to infer wind direction. Measurements of patch area, curvature, length, width, and spatial distribution are compared across regions of Titan and used to better understand the relationship between patches and dune patterns. Observations and measurements indicate that dunes shapes vary with patch type, which include craters, continuous or isolated patches and mottled patch surfaces.

Lindsay Turner, New College, Honors College
Faculty Mentor: Ellen Spears, New College
Ecofeminism in a Modern World
Using the cultural ecofeminism philosophy of Carolyn Merchant and Vandana Shiva as a founding principle, this research reflects upon the philosophy's strengths, relevance and pitfalls and offers an alternative approach to ecofeminism. Drawing upon primary research collected in rural India and observatory field data, the concepts of justice, gender neutrality and nature are explored and critiqued. A neo-ecofeminism is then proposed, addressing the problems which ecofeminism presents and offering alternatives to the way in which gender and nature should coexist in a valued manner throughout global societies.

Lindsay Turner, New College, Honors College
Faculty Mentor: Andrew Dewar, New College
Fighting Food Security: India and One Organization's Approach to Organic Production
Utilizing research gathered primarily through ethnographic interviews conducted with Navdanya NGO staff and organic and conventional farmers in the rural area outside of Dehradun in Uttarakhand state, India, as well as drawing upon secondary sources, this research looks at the concept of food security and alternate food systems with a specific focus on one Indian organization's efforts to reintroduce food security to India's rural poor. Detailed analysis of Navdanya's food system is provided then, using primary source data, deconstructed as an alternative to fighting food security issues within India and the rest of the globe.

Sara Vaughn, Biological Sciences
Faculty Mentor: Ryan Earley, Biological Sciences
Adapting to Local Conditions: Variation of Fecundity in Mangrove Rivulus (Kryptolebias marmoratus)
Variation in fecundity, a fitness-related life history trait, can result from plasticity, local adaptation, or both. We hypothesized that significant variation in fecundity and reproductive investment would exist among populations of the hermaphroditic mangrove rivulus fish

(Kryptolebias marmoratus). Second generation individuals were generated from field caught animals collected from 33 lineages derived from 9 populations distributed throughout coastal Florida and Florida Keys. Individuals were raised under standardized conditions where egg production and size were monitored daily. Our results will help illuminate the selection pressures driving variation in life history traits among populations inhabiting areas with distinct environmental conditions.

Kimberly Vick, New College
Faculty Mentor: Michael Steinberg, New College and Geography
"Doing It" Yourself: Writings on DIY Sexual and Reproductive Health in Feminist Zines
Feminists throughout history have utilized underground and alternative media to share information about ideas seen as illegitimate or subversive by mainstream society. While the debate surrounding birth control funding has recently become a hot topic in Washington, the voices of those who rely on birth control are rarely heard and often silenced. Young feminists are actively self-publishing zines on do-it-yourself sexual and reproductive health in which they discuss non-hormonal birth control methods, alternative medicine, sexuality, and personal experience. This project explores the importance of these zines and the role they play in the health and well-being of their readers.

Jason Wang, Chemistry, Honors College
Faculty Mentor: Kevin Shaughnessy, Chemistry
Synthesis of a Water Soluble Tris(dibenzylideneacetone)dipalladium(0) [Pd2(dba)3] for Palladium-catalyzed Cross Coupling Reactions
In recent years, there has been an increased amount of work dedicated to palladium as a catalyst in cross-coupling reactions for the formation of new carbon-carbon bonds. The palladium-catalyzed reactions, such as Heck, Suzuki, Sonogashira, Negishi, Stille, and the Hartwig-Buchwald couplings, are becoming more prevalent throughout the organic synthesis community. Our goal is to synthesize a water-soluble version of tris(dibenzylideneacetone)dipalladium(0) or Pd2(dba)3 so that no organics or waste materials are attached to it. Water is a safer and more desirable solvent so the water soluble ligand is potentially more environmentally sustainable and allows a recycling of the water soluble catalyst. The water-soluble dibenzylideneacetone (dba) is synthesized by an aldol condensation of 4-hydroxybenzaldehyde and acetone with hydrochloric acid in methanol at room temperature. Reacting this with 2-bromoethanesulfonate or 3-bromopropanesulfonate and sodium carbonate with methylene chloride under reflux provides a product that can react with palladium(II) acetate to give Pd2(dba)3. This complex will then be used as precatalysts in combination with a water-soluble ligand to catalyze cross-coupling reactions.

Morgan Whitaker, Chemistry, Computer-Based Honors Program, Honors College
Faculty Mentor: David Nikles, Chemistry
Polymer Coated Magnetic Nanoparticles Formation and Usage for Cancer Therapy

Magnetite nanoparticles were made by the decomposition of iron(III) oleate in refluxing 1-octadecene. A poly(ethylene glycol-caprolactone) diblock copolymer, having an alcohol group at the polycaprolactone terminus of the diblock, was reacted with 3-isocyanatopropyltrimethoxysilane to give a silane-terminated polymer. This modified polymer was covalently bound to the surface of the magnetite particle through the silane terminus. These polymer micelles, when crystallized, can trap cancer drug in their centers and become the basis for a targeted, magnetically triggered drug delivery system for cancer therapy.

Ali Yousuf, Chemistry, Honors College
Faculty Mentor: Greg Szulczewski, Chemistry
Thermoelectic Properties of Polymer/Inorganic Materials
The goal of this project was synthesize a thermoelectric thin polymer composite composed of the highly conductive polymer, PEDOT:PSS, with tellurium (Te) nanowires. The Te nanowires were synthesized by reducing telluric acid with ascorbic acid and hydrazine monohydrate in water. Scanning electron microscopy images showed the Te nanowires were approximately 300nm long and 50nm wide. The polymer/Te nanowire dispersions were doped with DMSO and thin films were made by drop-casting and spin-coated. The films were annealed to remove the water and the electrical conductivity was measured. Films with ~5 % DMSO were the most electrically conductive films.

Mike Zhang, Biological Sciences, Honors College
Grant Fairchild, Biological Sciences
Faculty Mentor: Kim Caldwell, Biological Sciences
Development of an animal model for dopamine neuron regeneration
Following injury to neurons, axonal regeneration is important for recovery. Regrowth occurs in invertebrates, yet the process is not understood. When neurons begin to die in human brains they do not recover, as in Parkinson's disease (PD) where dopamine neurons die. We are modeling regeneration of dopamine neurons in the nematode C. elegans. We determined that a combination of RNAi depletion of the cytoskeletal protein spectrin, which plays a role in maintaining structural integrity of neurons, and exposure to oxidative stress results in the sprouting of new dopaminergic neuron branches. This new model will be studied for PD therapeutic interventions.

CULVERHOUSE COLLEGE OF COMMERCE & BUSINESS ADMINISTRATION

Austin Collins, Economics, Finance & Legal Studies, Computer-Based Honors Program, Honors College
Faculty Mentor: Paan Jindapon, Economics, Finance & Legal Studies
Testing the Olson Paradox: A Public Goods Game
Although the field of public good experimentation has received much focus in economics literature, few articles have definitively resolved the Olson (Group Size) Paradox - whether larger groups produce resources more efficiently. However, in this experiment currently underway, a lottery system is utilized to induce contribution to a group fund in order to receive a prize. The totality of individual awards is translated into monetary compensation to induce rational behavior. Initial results proved to be inconclusive thus far, though there seemed to be significant evidence of a learning effect as well as free riding in large groups.

Emily Howitz, Management & Marketing, Honors College
Faculty Mentor: Kim Campbell, Management & Marketing
Responses to Hostile Questions in Public Meetings
Our research addressed questions about effectiveness of communication strategies in public meetings devoted to community-related issues: preferences among demographically distinct segments and effects of shortening a previously tested research instrument. Following IRB approval, we recruited a sample of 36 subjects who judged five different strategies for responding to hostile questions. Using the method of paired comparisons, each potential response was randomly paired with every other potential response for a total of five hostile questions, resulting in 50 test items. We partially corroborated prior findings that the timing strategy is most preferred. We found no differences related to age or gender.

Taylor Konkel, Management Information Systems, Computer-Based Honors Program, Honors College
Ben Sigmon, Electrical Engineering
Faculty Mentor: Lonnie Strickland, Management & Marketing
¡Participate
University professors often have large class sections, and capturing attendance and participation is difficult. This data capture usually uses tedious paper and pen seating charts. Streamlining this process would not only result in more accurate grades, but also free up professors' time for them to leverage in more productive ways. This project is to develop an iPad application to capture class attendance and participation. An iPad is well suited to the task: it can be carried around the classroom, has an intuitive touch screen interface, and can display a visual representation of the classroom. Altogether the application would allow capturing attendance and participation in a few short minutes, more accurately, and less tediously.

Callie Smith, Information Systems, Statistics & Management Science, Computer-Based Honors Program
Doug Packard, Information Systems, Statistics & Management Science
Faculty Mentor: Robin Buell, Information Systems, Statistics & Management Science
Our Project: Organizing the organizers
The goal of this project is to automate the survey and reporting process for the Association for Library and Information Science Education by developing a database solution. Faculty from universities across North America will input data specific to their programs for accreditation purposes. The data will be stored in a data cube and accessible through a web portal to manage the information and produce visual representations of the historical and relative context to be utilized across Library and Information Science programs. The information will be available to generate reports, which will facilitate the possibility to create future thesis research statements.

Kyle Weeks, Economics, Finance & Legal Studies, Computer-Based Honors Program, Honors College
Faculty Mentor: William Barry, Economics, Finance & Legal Studies
Webfolio for Culverhouse Investment Management Group (CIMG)
Kyle Weeks worked with William Barry of the Culverhouse school's technology group in building a web-based portfolio for the Culverhouse Investment Management Group, the business school's student-led investment club. The group manages about $300,000 of donated money, so accountability and transparency are major focuses for them. Kyle's project addresses both of those focuses by clearly displaying all of the group's current stock holdings and prices in one place. In order to keep the stock prices current with each refresh of the page, this "webfolio" accesses realtime data from Yahoo Finance.

Corey Whaley, Economics, Finance & Legal Studies, Honors College
Mark Lail, Economics, Finance & Legal Studies
Matt Newton, Information Systems, Statistics & Management Science
Alyssa Yoon, Management & Marketing
Andrea Olson, Information Systems, Statistics & Management Science
Faculty Mentor: David Heggem, Business Honors Program
Pride of Tuscaloosa
Researching and Developing a Corporate Sponsorship Program for Pride of Tuscaloosa

Joshua White, Economics, Finance & Legal Studies, Computer-Based Honors Program
Faculty Mentor: Ron Dulek, Economics, Finance & Legal Studies
The Impact of Service Learning Initiatives on Student Development
Over the last year and a half, I have worked with Dr. Ron Dulek in the Department of Management and Marketing to evaluate the effectiveness of service learning. The focus of this

study has been the University Fellows Experience and the impact of its service learning initiatives on student development. A qualitative research study was conducted last May on the freshman class of University Fellows as they participated in the Black Belt Experience. This study was designed to determine the efficacy of the Black Belt Experience in fulfilling its role as the signature service initiative of the University Fellows Experience.

COLLEGE OF COMMUNICATION & INFORMATION SCIENCES

Ashley Allman, Electrical and Computer Engineering, Computer-Based Honors Program, Honors College
Faculty Mentor: Chip Brantley, Journalism
The Arts Gang: A Collaboration on a Community Journalism Master's Project
The Department of Journalism's one-year master's program in community journalism requires its students to create an innovative news project that uses news media to help communities. The Arts Gang is a website that addresses the lack of a prominent arts community in Tuscaloosa. Many local artists feel a "disconnect" from the general community. To address this disconnect, the Arts Gang hosts a weekly discussion among several area artists about an issue of local importance. The site is designed to build a strong, powerful connection among members of the arts community and ultimately raise awareness of the arts in the community as a whole.

Morgan Casavant, Advertising/Public Relations, Honors College
Tess Tarrillion, Communicative Disorders
Faculty Mentor: Teresa Golson, Advertising/Public Relations
Quality vs. Convenience: How Camera Grade Affects the Quality of Photos
It is understood that different levels of camera technology will produce differing photo qualities, but we wanted to see just how significant those differences were. Taking our research a step further, we were interested to see how photo editing programs, such as Adobe Photoshop, affect the quality of the final product. We used a basic cell phone camera, a smart phone camera (both Android and iPhone), a commercial point-and-shoot, a Nikon D80, and a Nikon D2Xs all in automatic settings to conduct our research, expecting the professional grade cameras would give us higher quality photos.

Sean Fleming, Telecommunications & Film
Shea Matthew, Art
Faculty Mentor: Alana Baldwin, Telecommunications & Film
Behind the Design: Building Rotators

Within this presentation I will demonstrate the design process behind the rotator images that we create, used on OIT's home page. I will give a step by step description of what we do behind digital design.

Meredith Hawkins, Advertising/Public Relations, Honors College
Anne Warren, Advertising/Public Relations
Brandon Walker, Advertising/Public Relations
Kelli Wilbanks, Advertising/Public Relations
Myreete Wolford, Advertising/Public Relations
Faculty Mentor: Teri Henley, Advertising/Public Relations
Millennials: Who They Are and How They Buy Cars
In comparison with the previous generation, millennials have a completely different approach to every aspect of their life – including car buying. Millennials believe that the defining feature of their generation is technology, and the UA Ad Team has addressed this in its fully integrated marketing campaign for Nissan to target multicultural millennials ages 18-29, specifically those in the African American, Chinese American and Hispanic segments. The UA Ad Team conducted more than 1000 total primary research responses as well as analyzed secondary research sources in order to build a foundation for the Nissan campaign.

Somhang Kim, Telecommunications & Film
Faculty Mentor: Teddy Champion, Telecommunications & Film
Through the Eyes of "Savannah Tribune"
In the south, stories of African American movements in early 1900s are studied frequently, yet the tales of African Americans and their fight for freedom during Reconstruction is rarely told. This paper examines the African American society in Savannah, Georgia, through a black press, Savannah Tribune, specifically in the year of 1876. Looking through articles of news, opinion, and advertisement in Savannah Tribune, my purpose is to understand African American's lifestyle during Reconstruction with underlying fear from white suppressors, as well as, learn how their struggle paved the way for African American Civil Rights movements in 1900s.

Bethany Rogers, Telecommunications & Film, Honors College
Morgan Kendrick, Telecommunications & Film
Robin Lovvorn, Telecommunications & Film
Faculty Mentor: Rick Dowling, Telecommunications & Film
Multimedia Services Video Team
We created this poster to highlight what we've accomplished as student assistants in the Multimedia Services of the CIT department. These accomplishments range from filming events on campus to animating promotional videos to creating content for iTunesU. We feel that by demonstrating what we've produced, others can have an deeper understanding of our role as student assistants on the University of Alabama campus.
Taylor Romero, Communication Studies, Honors College

Faculty Mentor: Boylorn Robin, Communication Studies
My (Gendered) Life as Taylor
This scrapbook explores the influence of gender in my life. First, I discuss the gendered world I was born into and social constructions I learned. Second, I present examples of gendered language I use through music, literature, and the internet. Next, I show how my body represents and performs femininity to others, using clothes and accessories. Lastly, I offer an analysis of the two most significant institutional influences on my gendered life, the Catholic Church and the media. Throughout the scrapbook, I offer comparisons of my experiences to the relevant theories and concepts of gender to critique socialized gender "norms."

COLLEGE OF EDUCATION

Lauren Huffman, Psychology, Computer-Based Honors Program, Honors College
Faculty Mentor: Lisa M. Hooper, Educational Studies in Psychology
The Assessment of Culturally-Tailored Mental Health Treatment and Services: The Planning and Implementation of a Patient-centered Pilot Study
Cultural competency, the ability to infuse cultural and social factors into assessment, diagnosis, and treatment plans, has been suggested as a potential solution to minority health disparities. Project ACTS aims to decrease health disparities by studying the views of patients, providers, and researchers on the importance and efficacy of culturally tailored health services. A newly launched pilot study will study the voice of patients from local medical centers to examine the relationships between perceived cultural competencies of health providers and treatment adherence, overall wellness, and involvement in treatment decisions in preparation of expanding Project ACTS to include practitioners and researchers nationwide in an online study.

Meagan Reif, Chemistry, Honors College
Faculty Mentor: Lisa M. Hooper, Educational Studies in Psychology
Parentificación: Comprendiendo la voz latina (Parentification: Understanding the Latino Voice)
Parentification, or parent-child role reversals, is known to cause many detrimental outcomes across the lifespan. Some negative effects evidenced in the literature include violence, anxiety, depression, and suicide. The purposes of this study are two-fold: (1) to clarify how Parentification is defined in Latino communities and (2) to investigate whether current Parentification measures accurately capture how Latino families experience parent-child role reversals. In order to infuse the perspectives and experiences of the Latino families, we will use a qualitative research methodology. More specifically, focus groups and cognitive interviews in English and Spanish will be used in this study.

COLLEGE OF HUMAN ENVIRONMENTAL SCIENCES

Katie Bennett, Human Nutrition & Hospitality Management, Honors College
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Prevalence of Breastfed Children in Alabama is Lower than the Nation
The Healthy People 2020 objective for breastfeeding is to increase the proportion of infants who are breastfed to 81.9%. The purpose of this study was to determine how many women in Alabama meet this objective. According to the CDC's National Immunization Survey 56.7% of Alabama women have attempted to breastfeed in 2011. Alabama is ranked 46th in the nation in women who breastfeed. The breastfeeding rates in Alabama are significantly lower than the national rate of 74.6%. The breastfeeding rates in Alabama do not meet the Healthy People 2020 objective.

D'Amber Chambers, Health Sciences
Faculty Mentor: Lori Turner, Health Sciences
Roles and Responsibilities of Physicians, Physician Assistants, and Nurse Practitioners
With the patient to physician ratio rising more each day, doctors are relying on strategic teams of physician assistants and nurse practitioners to handle daily visitations and tasks; even so, many people still do not understand the nature of their work. This study analyzes the similarities and differences between the three in their duties and care to patients. The study also investigates their reinforcement of preventative health measures in reducing disease and illness. Its purpose is to raise awareness and reduce stigma surrounding primary care personnel and to show that the addition of physician assistants and nurse practitioners make for better health care.

Alexa Constantine, Human Nutrition & Hospitality Management
Bradley Almon, Human Nutrition & Hospitality Management
Elizabeth Donahue, Human Nutrition & Hospitality Management
Rainie Carter, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Self-efficacy in food preparation does not differ by weight status of college students
Students with low self-efficacy in food preparation may choose convenience foods more often, thus tend to be more overweight. This study aimed to determine whether cooking self-efficacy differed by weight status among 544 University of Alabama undergraduate students. Using a questionnaire administered in fall 2011, participants ranked self-efficacy for cooking using a scale ranging from extremely confident to not at all confident. Student's self-reported weight was classified as underweight/normal or overweight/obese. Self-efficacy scores did not differ by weight status between genders. Students' cooking skills may still be developing, and they may therefore report cooking self-efficacy similarly, independent of weight status.

Miranda Dowdell, Health Sciences
Faculty Mentor: Lori Turner, Health Sciences
Reducing Teen Pregnancy in Rural Alabama
Reducing Teen Pregnancy in Rural Alabama Problem: Most teen pregnancies are unplanned and result in risk for adverse birth outcomes and high societal costs. Purpose: To examine the problem of teen pregnancy in Alabama and to find effective strategies for preventing teen pregnancy. Method: A literature search was conducted using Google Scholar and findings from the local, state and national campaigns to prevent teen pregnancy. Results: Alabama is 16th in the nation for teen pregnancy. In 2009 there were 11, 850 teen pregnancies in Alabama and 503 teen pregnancies in Tuscaloosa County. Conclusions: Teens who received comprehensive sex education had fewer pregnancies than those who received abstinence-only education.

Hayley Howard, Human Development & Family Studies
Faculty Mentor: Maria Hernandez-Reif, Human Development & Family Studies
The Child Development and Family Interaction Project
The purpose of this longitudinal study is to find variables in early childhood (i.e., 0 to 3 years) that predict to preschool age children's (i.e., 3 to 5 year olds) development in order to create a data base of information and a model for comparison. The database information will be collected via parent and teacher questionnaires, including a Developmental Profile questionnaire (DP), the Communication and Symbolic Behavior Scales (CSBS) and a daily family activities scale (DFA) and through sampling children's' saliva. The following questions will guide research: 1: Does development (measured by CSBS and DP - 3) in the 0-to-3 year period relate to development (DP) in the 3-to-5 year period? 2: Are cortisol levels, developmental scores (CSBS and DP - 3), and children's behaviors and sleep correlated? 3: Do children's sleep behaviors and daily family activities in 0 to 3 year old period predict child development scores (CSBS and DP) at age 5? 4: Which variables in the 0 to 3 age range predict cortisol scores at 3, 4 and 5?

Brantley Judah, Human Nutrition & Hospitality Management, Honors College
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Food Insecurity and Nutrition-Related Chronic Disease
Food insecurity is defined as having limited or uncertain availability of nutritionally adequate food and limited or uncertain ability to acquire acceptable foods in socially acceptable ways.The prevalence of food insecurity is higher in Alabama than the nation or 17.3% versus 14.5%. Food insecurity is associated with nutrition-related chronic diseases and the ability for patients to self-manage these conditions. Because of this correlation, health care professionals need to assess a patient's food security status and make appropriate recommendations.

Miranda Latremore, Health Sciences
Faculty Mentor: Lori Turner, Health Sciences

Reducing Excess Sodium Intake for Hypertension Control: Use of the Health Belief Model and Social Cognitive Theory

Excess sodium intake is a grave concern to society because of its strong link to hypertension. Hypertension is a leading risk factor for cardiovascular disease, which is the #1 killer in the United States. Although the DRI for sodium is 1,500 mg, Americans consume 4,000 mg each day. This excess intake is a leading cause of hypertension, preceding 650,000 deaths each year from cardiovascular related events. Adhering to this type of diet is challenging. By applying the Health Belief Model and Social Cognitive Theory, this study will discuss how two theories can be utilized to help reduce excess sodium intakes.

Claude Mask, Human Nutrition & Hospitality Management
Meredith Mims, Human Nutrition & Hospitality Management
Micah Morlas, Human Nutrition & Hospitality Management
Kendyl Nuckols, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management

Student attitudes about the importance of nutrition and taste vary based on self-reported health status.

Student's self reported health status may be linked to food purchases rather than actual health conditions. The purpose of this study was to investigate whether attitudes about nutrition, taste, convenience, and price differed by self-reported health status. In fall 2011, 544 returning students at The University of Alabama completed a questionnaire assessing health status and attitudes when eating away from home. Students reporting poor health considered nutrition and taste significantly less important than students who considered themselves to be in good health. Further research is needed to determine whether students perceive their health based on behaviors or actual health problems.

Margit Sample, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management

Prevalence of Physical Activity in Alabama High School Students

The Youth Risk Behavior Surveillance System tracks Healthy People 2020 objectives for the nation and each state. The purpose of this study was to determine the percentage of Alabama high school students who meet the current Healthy People 2020 objectives. The percentage of students who completed at least 60 minutes of physical activity daily was 62.7% while the percentage of students who watch more than three or more hours of television was 37.8%. A percentage of Alabama students do not meet the HP 2020 physical activity requirements.

Kelsey Thomas, Human Nutrition & Hospitality Management, Honors College
Lauren Clendenon, Human Nutrition & Hospitality Management
Megan Stough, Human Nutrition & Hospitality Management
Dana Flaherty, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management

Availability of food within the home does not differ based on student weight status
One would think that the availability of nutritionally adequate foods in the home would have a considerable effect on obesity status. However, results from a survey that included self-report of height, weight and availability of certain foods, indicated that this was not the case for 544 students at The University of Alabama. The availability of foods assessed did not vary based on students' weights. Variations in physical activity patterns or in food consumed away from the home may contribute more to student weight than food within the home.

Mary Ellen Williams, Human Nutrition & Hospitality Management
Jordan Willett, Human Nutrition & Hospitality Management
Erica Viani, Human Nutrition & Hospitality Management
Anna Zellner, Human Nutrition & Hospitality Management
Faculty Mentor: Linda Knol, Human Nutrition & Hospitality Management
Food Purchasing and Preparation Behaviors Vary by UA Students' Place of Residency
The purpose of this study was to investigate how students' living environment affects food purchasing and preparation behaviors. Between October and November 2011, 544 returning students completed surveys assessing frequency of performing healthy food behaviors (menu planning, making a grocery list, etc.) using a valid scale. Answers were used to create preparation and purchasing scores. Though scores were relatively low for all students, students residing off-campus had significantly higher scores than those living in sorority and fraternity housing. Differences in availability of food and cooking utilities may play a role in the variations observed between these two groups of students.

SCHOOL SOCIAL WORK

Alex Comensky, Social Work
MaryEllen McIlwain, Social Work
Kendall Holmes, Social Work
Jasmine Green, Social Work
Faculty Mentor: Javonda Williams, Social Work
The Effects of Social Networking on Self Esteem
Social networking allows users a mode of constant communication, and a window into the lives of others. Social Comparison Theory theorizes that people evaluate themselves in comparison to others, thus forming self-concept and self esteem. By giving a sample of adolescents and young adults, ages 18-25, a questionnaire to measure their general self esteem, then having them browse their Facebook account and measure their self esteem again though a questionnaire, social networking's effect on self esteem could be determined.

Sarah Lawler, Social Work
Craegh Ragsdale, Social Work
Cameron Smith, Social Work
Rebecca Tucker, Social Work
Faculty Mentor: Javonda Williams, Social Work
impact of media on the socialization of boys
In this project we are researching the impact of social media and the effects it has on boys. The social media that we focused on is super heroes and how boys are taught at a young age to live up to stereotypes associated with super heroes.

Joi Mallory, Social Work
Tierra Gleason, Social Work
Rodney Glover, Social Work
Brianna Darby, Social Work
Faculty Mentor: Javonda Williams, Social Work
Is the Saying True: Love Don't Cost a Thing?
During the course of this research endeavor there will be explicit attention given to the romantic relationships in the African American community. We will first focus on African Americans living in Tuscaloosa, AL. The study will explore romantic partner preferences in the African American community across socio-economical status and sexual orientation. Within this sample we will give more direct attention to young adulthood, within ages between 20-34 years old, in reference to Erickson's Psychosocial Theory of Intimacy versus Isolation. During this crucial stage, individuals who successfully overpower this crisis in their lives are able to achieve the virtue of love.

Adrienne McCollum, Social Work, McNair Scholars,
Faculty Mentor: Cassandra Simon, Social Work
How Self Efficacy and Parental Influences Affect Academic Achievement and Career Aspirations among Black and White College Males
The purpose of this research is to identify the relationship between self-efficacy and parental influences, looking at how they affect academic achievement and career aspirations. It is important to examine the differences between black males and white males so that we may better understand the academic achievement gap between the two races. Using the survey methodology, the measure for self-efficacy is fifteen questions taken from A Guide for Constructing Self-efficacy Scales by Albert Bandura. Parental influence is measured by using the Young Adult Questionnaire, an instrument created by Li and Kerpelman (2007).

Iris Minor, Social Work
Ingram Rosetta, Social Work
Faculty Mentor: Javonda Williams, Social Work
African American, Black or American?

Students on The University of Alabama's campus recently proposed a question about a particular population of people. Should African American students remain referred to as African Americans or should they be categorized as American or Black? Through questionnaires and case studies, we will research the psychological effects that cultural references have on the students. This case will be based on Erik Erikson's developmental stage of intimacy versus isolation in young adulthood and the effects of socialization in the college atmosphere. A conclusion and recommendation for intervention will be drawn later.

Hailah Saeed, Social Work, McNair Scholars
Bradford Brittnay, Social Work
Faculty Mentor: Williams Jevonda, Social Work
The Mixed Effect of Religion and Culture on Mate Selection
Religion and culture are two highly influential social institutions. These institutions tend to influence the way we act, dress, and perceive others. However, how great of an effect do these social institutions play when finding a mate? Which social institution proves to be the greatest determinant when looking for a mate? These are two questions we plan on investigating through surveys and face-to-face interviews with the student body here at the University of Alabama.

COLLEGE OF ENGINEERING

Hisham Ali, Aerospace Engineering & Mechanics, Computer-Based Honors Program, Honors College
Faculty Mentor: James Paul Hubner, Aerospace Engineering & Mechanics
Application of the Luminescent Photoelastic Coating Technique to Rapid Prototyping
The Luminescent Photoelastic Coating (LPC) technique is a full-field optical method for measuring the surface strains on a specimen with applications in aerospace and mechanical design. Although the LPC technique has been previously applied to three-dimensional specimens, the technique's application in design is limited due to the difficulty in constructing multiple physical prototypes. This research explores the possibility for applying the LPC technique to rapidly prototyped specimens, allowing analysis to occur before the production phase. Results presented are from an exploratory study conducted using the fused deposition modeling process, including material characterization, coating adherence, and preliminary optical strain response data.

Robert Anderson, Chemical and Biological Engineering, Honors College
Faculty Mentor: Hung-Ta Wang, Chemical and Biological Engineering
Large-scale solvothermal synthesis of Bi2Te3 nanoplates for thermoelectric power generation

Large-scale solvothermal synthesis of Bi2Te3 nanoplates for thermoelectric power generation Robert C. Anderson, Lingling Guo, and Hung-Ta Wang Thermoelectric generators or TEG's are used for recycling waste heat to generate electricity. Specialized V-VI chalcogenides, in this case Bi2Te3, are used to generate power from low quality heat (<200oC). The problem is that the average efficiency of these V-VI chalcogenides is only between 3-5%. Our goal is to synthesize Bi2Te3 nanoplates in a large-scale using a facile solvothermal method. With a large surface-to-volume, the thermal conductivity of these nanoplates is greatly reduced, which will increase the overall efficiencies of these chalcogenides.

Jordan Busing, Chemical and Biological Engineering, Honors Colleg,
Faculty Mentor: Christopher Brazel, Chemical and Biological Eng
Medical Prognosis and Management of Eosinophilic Disorders
Eosinophilic disorders are a set of diseases that are profiled by an increase in the prevalence of a type of white blood cell known as an eosinophil. These cells are normally responsible for combating parasites and controlling the mechanisms that regulate asthma and allergies. In relation to eosinophilic disorders, the dramatic increase in eosinophils signals a response to foreign substances in the body. For this reason, an eosinophilic disorder is classified as an autoimmune and inflammatory disease that is characterized by high levels of eosinophils that directly lead to inflammation in the body. Once the foreign substance has left...(cont)

Jose Roberto Cayaban, Civil, Construction & Environmental Engineering, Honors College
Faculty Mentor: Derek Williamson, Civil, Construction & Environmental Eng
Comparing Evapotranspiration Estimation Methods in Watershed and Floodplain Modeling at Coastal States of the Northern Gulf of Mexico
The role of upper watershed catchments in local and coastal flooding during extreme weather events (i.e tropical storms and hurricanes) is evaluated through watershed and floodplain models. To properly simulate floodplain-water dynamics, a complete spatially and temporally resolved water balance would be ideal. While much research has been performed on groundwater recharge, relatively little has been focused on including evapotranspiration on floodplain responses to extreme events. This study compares multiple approaches for estimating evapotranspiration in floodplains at varying spatial and temporal scales in order to find an appropriate method to incorporate its role in watershed and floodplain modeling.

John Taylor Davis, Computer-Based Honors Program, Honors College
Faculty Mentor: David Dixon, Chemistry
Computational Studies of Gas-Phase Substituted Amino Acid Acidities in the Gas Phase and Solution
Sequencing of peptides and proteins by mass spectrometry has become a major tool in proteomics research. Information on sequence is frequently a first step to understanding protein structure and function, which are important in biological, biochemical, and biomedical studies. Reliable electronic structure methods are being used to predict the acidities of the

amino acids terminated with an amide or methyl ester instead of a carboxylic acid. The results provide insights into the role of hydrogen bonding and the acidity of the backbone. PKa calculations of the compounds in aqueous solution provide further insight into their properties.

Ria Domier, Chemical and Biological Engineering, Honors College
Faculty Mentor: Ryan Hartman, Chemical and Biological Engineering
Understanding the Role of Hydrate Particle Interactions in Subsea Pipelines
Naturally occurring gas hydrates present a costly problem for the petroleum and natural gas industry; companies spend over half a billion dollars annually managing hydrate plugs in production pipelines. Understanding the flow resistances during hydrate formation is critically necessary to minimize production losses. Through the analysis of experimental pressure data we are studying how the formation and the presence of hydrates influences the laminar flow behavior of a model water-propane system. Scale-up from the laboratory to production is an ongoing challenge, and our experimental approach focuses on understanding fundamental scale-up issues from the micro-to the meso-scale using laminar flow reactors.

Tyler Evans, Chemical and Biological Engineering, Honors College
Faculty Mentor: Hung-Ta Wang, Chemical and Biological Engineering
Chemical vapor transport synthesis of Bi2Te3 nanoplates for thermoelectric applications
Solid-state thermoelectric generators (TEGs) are suitable for recycling waste heat for power generation, but have limited efficiency (8~10%) due to matierials' conflicting thermal and electrical properties. The efficiency of chalcogenide-based TEGs can be significantly enhanced by using a nanoplate structure. With the extremely large surface-to-volume ratio, the thermal conductivity of these chalcogenide nanoplates are strongly reduced, and the Seebeck coefficient is maximized due to the quantum confinement effect. These effects combined make them ideal for practical TEG applications. In this presentation, Bi2Te3 nanoplates are synthesized using a chemical vapor transport process. Controlling shape and composition is the research goal.

David Gillespie, Electrical and Computer Engineering , Honors College
Faculty Mentor: Yang-Ki Hong, Electrical and Computer Engineering
Effect of Hexaferrite Material and Substrate Position on Miniature Antenna Performance
Miniature antennas are in high demand for current wireless communication systems. We designed and fabricated miniature hexaferrite antenna based on antenna performance parameters simulated with HFSS simulator and also compared with dielectric antenna. The hexaferrite miniature antenna outperformed the dielectric antenna. This is attributed to the hexaferrite having both permeability and permittivity greater than one, whereas the dielectric has permeability equal to one. It was found that substrate material and spatial substrate positioning play a key role in achieving desired antenna performance for miniature antenna. We will present our simulated antenna performance and compare it with our experimental data.

Hayden Gunter, Civil, Construction & Environmental Engineering, Computer-Based Honors Program, Honors College
Faculty Mentor: Steven Jones, Civil, Construction & Environmental Engineering
A Study on Basic Characteristics of Pedestrian Crashes in Alabama
Nationally, as well as in the State of Alabama, pedestrian crashes continue to be extremely dangerous and even fatal. This study investigates pedestrian crashes in terms of who, what, when, and where. CARE, a data mining tool that interfaces with the State's crash reporting database, is being used for filtering out necessary crash data and performing frequency distributions and cross tabulations of different characteristics of pedestrian crashes. Some of these characteristics include age, gender, severity, lighting, type of road, etc. The results will be compared with relevant previous studies as well as basic national and local statistics of pedestrian crashes.

Jill Hershman, Mechanical Engineering
Faculty Mentor: Kevin Chou, Mechanical Engineering
2D Orthogonal Cutting Experiments Using Diamond-Coated Tools with Force and Temperature Measurements
Two dimensional (2D) orthogonal cutting experiments using diamond-coated tools were conducted with forces and tool-tip temperatures measured by dynamometery and infrared thermography, respectively. The objectives of this study are to examine a developed cutting simulation model and to investigate cutting parameter effects in diamond-coated tool machining. Three effects are examined: (1) The uncut thickness effect on specific cutting energy, force ratio, and tool temperatures, (2) The cutting speed effect on specific cutting energy, force ratio, and tool temperatures, and (3) The edge radius effect on specific cutting energy, force ratio, and tool temperatures.

Carina Herz, Chemical and Biological Engineering, Honors College
Wesley Burkett, Chemical and Biological Engineering
Faculty Mentor: Ryan Hartman, Chemical and Biological Engineering
Developing Methods for the Chemical Engineering Education of the Millennials
Traditional chemical engineering education has for decades prepared students to solve diverse technical problems. We are expanding the scope of engineering education through non-traditional educational methods. As examples, music and comic strips have the potential to become refined engineering educational tools; composing chemical engineering song lyrics and comics can translate reaction engineering concepts outside of the traditional classroom. Visualization experiments conducted in the laboratory also have the potential to outreach K-12 students through the Internet. Our focus towards this end is the study of oscillating reactions in microfluidic devices that could someday teach microreactor concepts.

Christopher Hodapp, Computer Science, Honors College

Faculty Mentor: Jeff Gray, Computer Science
An Automated Tool for Converting App Inventor Projects To Java
The App Inventor from Google/MIT is designed to allow those without experience with the Android Platform or the Java language to develop basic Android Applications. It has been deployed in K-12, as well as college courses, in order to subtly introduce the core concepts of programming. There is potential to use the App Inventor as a motivation for learning Java, such that students can see the mapping from the familiar App Inventor program to its equivalent in Java. This poster introduces the App Inventor Java Translator, which can convert an App Inventor project to an Eclipse Java project.

Sarah Johnson, Mechanical Engineering, Computer-Based Honors Program, Honors College
Clay Burrows, Mechanical Engineering
Faculty Mentor: Marcus Ashford, Mechanical Engineering
Alcohol Fuels in Engines - Emissions Analysis
We are working to mitigate some of the difficulties of using alcohol-gasoline blended motor fuels. Alcohol fuels suffer from difficulty starting due to high boiling points. Using various concentrations of butanol, we will explore methods to facilitate the use alcohol-blended alternative motor fuels in the US Fleet. During our testing, we will measure the effectiveness and efficiency of the engine, as well as the emissions. Fuels will be tested in two separate direct injection engines, one of which has been modified from its original state as a carbureted engine.

Amber Kaderbek, Aerospace Engineering & Mechanics, Computer-Based Honors Program
Faculty Mentor: Paul Hubner, Aerospace Engineering & Mechanics
Rapid Prototyping in MAV Research
To understand the aerodynamics of micro air vehicles (MAVs), small aircraft no bigger than birds, research is investigating flexible membrane wings. One potential production method is rapid prototyped (3D printed) models. An exploratory study is being performed to determine the feasibility of fabricating 3D wings and wing frames. Material and the aerodynamic properties of various designs are being investigated, including the material strength, flexibility, membrane adhesion and aerodynamic efficiency. Research in this area aims to determine whether improved performance of membrane wings is due to the time-averaged inflation or the vibration of the membrane.

David Kilgo, Mechanical Engineering
Faculty Mentor: Leila Ladani, Mechanical Engineering
Analytical Prediction of Thermo- Mechanical Reliability of High Density Electronic Packages
I assisted Dr. Leila Ladani with her research on the topic of the reliability of microelectronic interconnects. Our goal was to develop an analytical model to predict the stress and strain in the interconnects as well as thermo-mechanical reliability of an electronic package based upon the package's design parameters. We developed a MATLAB code that is capable of determining

the stress and strains in interconnects. The next step is to expand the code to determine the reliability effectively. This would be very useful as the current method for determining reliability is finite element analysis, which is very time consuming.

Nikolai Kochurov, Electrical and Computer Engineering, Computer-Based Honors Program, Honors College
Faculty Mentor: Qi Hao, Electrical and Computer Engineering
Java Programming for Multi-Agent Intelligent Sensor Networks
A wireless sensor network consists of spatially distributed autonomous nodes which monitor physical or environmental conditions. Multi-agent based middleware can provide an intelligent organization of all kinds of distributed hardware and software for such networks. Sun SPOT sensor network development platform allows programmers who have little knowledge about embedded systems to use Java to program sensor networks. Besides, a popular existing multi-agent framework (JADE) is based on Java. Therefore, exploration of Java programming in the sensor networks is very important. Furthermore, we are integrating the widely used Android and iOS platforms with the Sun SPOTs via Bluetooth communication.

Brent LaForte, Aerospace Engineering & Mechanics, Computer-Based Honors Program, Honors College,
Courtney Kronenberger, Aerospace Engineering & Mechanics
Faculty Mentor: Amy Lang, Aerospace Engineering & Mechanics
The Effects of Cavities on Low Reynolds Number Drag
Biomimetics is the process of looking towards nature's adaptations for answers to today's Engineering obstacles. Dr. Amy Lang of the Aerospace and Mechanics Department believes that by creating a structure that mimics the scales on a butterfly, we will be able to significantly decrease the amount of surface drag on a given wing. The science behind this logic is a phenomenon knowing as the roller-bearing effect. Upon successful experimentation, the technology could be applied to micro-aerial vehicles in hopes of increasing flight time while diminishing energy consumption.

Kevin Miller, Aerospace Engineering & Mechanics
Faculty Mentor: Semih Olcmen, Aerospace Engineering & Mechanics
Design of a Probe for Measuring Shock Wave Boundary Layer Interaction Using Laser Doppler Velocimetery
The project's goal was to design a three component LDV probe for the SWBLI model in the TGF at Wright-Patterson AFB given rigorous size and design constraints. The probe works by using two laser beams that are focused by a lens onto a measurement volume that is essentially a point. Light scattered by the particles in the air that are passing through the measurement volume are used to determine the velocity component perpendicular to the bisector of the beams. By then using three pairs of laser beams, it is possible to discern the three components of the velocity vector.

Zack Morris, Mechanical Engineering, Computer-Based Honors Program, , Honors College
Faculty Mentor: Brian Fisher, Mechanical Engineering
Fuel Injection Spray Chamber
Internal combustion engines are increasingly relying on high-pressure fuel injection to introduce the fuel into the combustion chamber. The high-pressure fuel spray sets up the initial conditions for combustion, and the characteristics and behavior of the spray heavily influence combustion efficiency and the formation of harmful emissions. Therefore, it is necessary to devise experiments that allow researchers to study fuel injection and spray behavior. This project will involve the design of a spray rig and associated fuel system, for future use in laser- and optical-based experiments.

Jesseca Paulsen, Chemical and Biological Engineering, Computer-Based Honors Program, Honors College
Faculty Mentor: Christopher Brazel, Chemical and Biological Engineering
Characterization of Nanoparticle Heating for a Magnetically-Triggered Drug Delivery System
Iron oxide nanoparticles have potential applications in a magnetically-triggered drug delivery system. In order to develop more accurate heat transfer and diffusion models for drug release, it is important to characterize the heating of these nanoparticles. This research investigates the temperature on the surface of the nanoparticles in a magnetic field applied by a solenoid coil, as well as methods of determining the specific absorption rate of the particles from this data. We also examine non-specific heating in the coils, as well as the equations used to calculate the strength of the generated magnetic field.

Logan Ream, Mechanical Engineering
Faculty Mentor: Kenneth Ricks, Electrical and Computer Engineering
Lunar Mining Equipment: A Robotic Excavator
A major difficulty in designing and implementing equipment for operation on the moon is that the techniques used on Earth will not work in space. On Earth, mining and processing techniques require large quantities of energy to operate and can be locally operated with few communication problems. In space, any machine must be teleoperated or autonomous. Also, due to the lack of atmosphere on the moon, any pneumatic equipment is ultimately infeasible. Dust control is also an issue, as regolith is very rigid on a small scale, so it can increase the wear of mechanical systems, or even clog them.

John Skelton, Mechanical Engineering, Computer-Based Honors Program
Faculty Mentor: Xiangrong Shen, Mechanical Engineering
Knee-Ankle Orthosis Using Pneumatic Actuators
An orthosis is a device similar to a leg brace with powered extenders at the joints, called actuators. Most orthoses are restricted by a stationary power source. The purpose of this project is to design an orthosis with a light enough power source that it is not restricted to one

location. An untethered orthosis would permit physical therapy in places more convenient for the patient than clinics. The project began with the design of the actuator using the three dimensional drafting software SolidWorks. Calculations were performed to find the optimum length of each actuator. This project is ongoing.

Justin Tarbox, CBHP, Computer-Based Honors Program
Faculty Mentor: Patrick Kung, Electrical and Computer Engineering
Spectroscopic Imaging of Nanowires
Semiconducting nanowires have become a widely researched field in recent years for uses in areas such as solar cells, batteries, and computer technology. Spectroscopic imaging of nanowires is an important tool that can help in the study of their physical properties at the nanometer scale. In order to have easier analysis of the data, a software application was developed to convert the data acquired to a form that is easily interpreted and manipulated. This project created such an application to provide imaging and computational tools to interpret data from spectroscopic imaging of semiconducting nanowires.

Matthew Weider, Computer Science
Faculty Mentor: Stephen Lovell, Computer Science
alertEDU: Connecting The University of Alabama
alertEDU is a cross-platform mobile application dedicated to connecting students, faculty, and The University of Alabama, instantly and effectively. Communication on campus requires a party to check their email or myBama, so why not simplify the process? Teachers can instantly notify their students that class is cancelled. The University can send urgent messages to all students and teachers during a dangerous situation. Student organizations can send reminders of important events. No text messages, no contact lists, no hassle. alertEDU delivers instant, effective, and important messages directly to your mobile device!

Emma Whitaker, Civil, Construction & Environmental Engineering, Computer-Based Honors Program
Charles Phillips, Civil, Construction & Environmental Engineering
Faculty Mentor: Yingyan Lou, Civil, Construction & Environmental Engineering
"Literature Review of Highway-Rail At-Grade Crossing Safety Analysis"
An extensive literature review was conducted on safety analysis of highway-rail at-grade crossings. The goal is to develop a draft research proposal on this topic to Alabama Department of Transportation. The review focuses on impact factors and statistical methods studied in the literature that could be applied for evaluating highway-rail at-grade crossings in the state of Alabama. Common variables include annual average daily traffic, number of collisions, and type of warning devices. Binomial count regression models are among the most commonly adopted statistical models. This project also explored potential sources, such as the Federal Railroad Administration to investigate data availability.

CAPSTONE COLLEGE OF NURSING

Kelly Bond, Nursing
Lindsey Strader, Nursing
Matthew Matala, Nursing
Mary Clanton, Nursing
Natalie Johnston, Nursing
Megan Widmer, Nursing
Rylee Landers. Nursing
Meredith Barrett, Nursing
Faculty Mentor: Jeff Beans, Nursing
Preventing Central Venous Catheter (CVC) Blood Stream Infections (BSIs) in Hospitalized Patients
Nursing staff education is an effective way to reduce blood stream infections (BSIs) that occur from centrally-placed intravenous catheters. Hospital policy states that hubs of central venous catheters (CVCs) should be vigorously scrubbed five seconds before each use. Research states that five seconds of scrubbing is insufficient. In addition, using antiseptic-barrier caps on CVC hubs is effective in preventing contamination. The objective of this study is to compare actual practice, facility policy, and national guidelines. We identified inconsistencies after conducting our comparisons. This project examines interventions that should be implemented to increase nursing compliance and reduce BSIs.

Chelsea Courturier, Nursing
Katie Swann, Nursing
Katherine Holbrook, Nursing
Marie Sarris, Nursing
Madeline Lamon, Nursing
Faculty Mentor: Jek Sampson, Nursing
Patient Safety: Improving High Nurse to Patient Ratios
Quality of care is improved with a low nurse-to-patient ratio. The purpose of our research is to improve patient safety and satisfaction by identifying the risks associated with having a high nurse-to-patient ratio. Many hospitals make recommendations on nurse-to-patient ratios, however, often the assigned number of patients that nurses have each shift exceed recommendations. We seek to implement policies for nurse-to-patient ratios in an effort to improve quality of care, patient, family and nurse satisfaction.

Alexandria Giannini, Nursing

Emily Copeland, Nursing
Kristin Bush, Nursing
Kyndall Reid, Nursing
Leah Marsh, Nursing
Rachael Lindmark, Nursing
Lesley Terry, Nursing
Katherine Messina, Nursing
Faculty Mentor: Meridith Rice, Nursing
Proper Care and Maintenance of Jackson-Pratt Bulb Drains
Jackson-Pratt (JP) bulb drains are used by surgeons to prevent the accumulation of fluid around an operative incision. We discovered discrepancies between one hospital's JP drain policy and procedure and the actual practice demonstrated by nursing staff. Hospital policy states that JP drains should be emptied by aspirating the drainage with a syringe. We observed that many nurse squeeze the contents of the bulb into a cup rather than aspirating the contents with a syringe. Studies show that this improper practice may actually contaminate the patient's environment. This project will examine interventions to educate nurses on proper JP drain procedures.

Kayla Glass, Nursing, Honors College
Faculty Mentor: Barbara Graves, Nursing
Hand Hygiene: Lowering Neonatal Nosocomial Infection
Hand hygiene drastically decreases the incidence of nosocomial infections, which in turn lowers the costs, mortality, and morbidity. Despite this, the simple act of hand-washing is often not completed properly. A scholarly review of a number of evidence based practice studies advocates the use of the Plan-Do-Study-Act (PDSA) cycle in order to devise, implement, evaluate, and reformulate a method of reducing nosocomial infections in Neonatal Intensive Care Units. This method includes one-on-one educational programs and personal evaluations, which demonstrates the importance of proper techniques of hand hygiene. These hand hygiene programs have been found to significantly lower nosocomial infection rates.

Kelli Montgomery, Nursing
Clare Kozel, Nursing
Sarah Sims, Nursing
Kayla Scott, Nursing
Lauren Strauss, Nursing
Rachel Moler, Nursing
Mary Ellen Coleman, Nursing
Taylor Stevens, Nursing
Faculty Mentor: Stephanie Ragland, Nursing
Filter Needles

Filter Needles The practice of using filter needles to aspirate medication from glass ampoules in a medical setting can decrease the risk of harm to patients. When filter needles are not utilized there is an increased risk of glass particles infiltrating the syringe and being transferred intravenously to a patient. The purpose of this project was to evaluate the use of filter needles in a selected medical facility. The institution's policy and evidence based research were congruent. However, observations and interviews with nursing staff indicated the policy was not followed. This project identified interventions that would enhance policy compliance.

Brittany Morgan, Nursing
Alexandra Carroll, Nursing
Elizabeth Gilbert, Nursing
Amanda Shaw, Nursing
Lauren Williams, Nursing
Polly Gleneck, Nursing
Amy Kirkpatrick, Nursing
Kelsey Lightfoot, Nursing
Faculty Mentor: Clara Owings, Nursing
Promoting Quality of Life Through Consistently Scheduled Activities for Dementia Patients
Studies show that consistent meaningful interaction with the care team can improve quality of life for dementia patients. Our study's objective is to compare actual practice, facility policy, and current research recommendations. One local facility's policy states that patients should participate in consistent, frequent therapeutic recreation to increase interaction with the care team and decrease loneliness, boredom, and agitation. We found that actual practice was inconsistent with facility policy and current recommendations. Our project examines how implementation of a volunteer program within dementia care facilities can increase patient participation in therapeutic recreation and improve quality of life for dementia patients.

Jeana Parker, Nursing, Honors College
Faron Barnes, Nursing
Holly Harmon, Nursing
Evan King, Nursing
Brittany Longosz, Nursing
Haley Mullins, Nursing
Jade Obrien, Nursing
Erin Tracy, Nursing
Faculty Mentor: Sandra Ambrose, Nursing
Guidelines to Decrease Hospital Acquired Infections
Hospital Acquired Infections (HAI) not only contribute to longer hospitalizations and increased medical costs, but can also cause serious illness and sometimes death. In an effort to decrease the number of HAI and thereby decrease the costs associated with treating those infections, Good Clinical Practice (GCP) guidelines were researched. These guidelines were then compared

to a local hospital's institutional policy and current nursing practices, as observed by nursing students on one particular unit. This presentation will point out differences in the recommendations and actual nursing practice, as well as interventions to improve compliance with the hospital policy and GCP guidelines.

Christy Perkins, Nursing
Christopher Williams, Nursing
Chanley Wynn, Nursing
Caroline Dondi, Nursing
Carli Patrick, Nursing
Faculty Mentor: Paige Johnson, Nursing
Privacy Curtains: Are Current Cleaning Practices of Hospital Privacy Curtains Enough to Prevent Infections?
Research has shown that hospital privacy curtains are contaminated with drug resistant organisms and this could lead to an increased risk of infection for patients. After reviewing a mid-sized hospital's policy on privacy curtains, the following problems were identified: the cleaning procedures currently enacted are inadequate, a lack of education about infection control and privacy curtains exists among hospital personnel, and housekeeping personnel do not follow through with documented curtain cleaning procedures. This project examines procedures that can be implemented to reduce infectious organisms on privacy curtains leading to decreased infection control rates.

Malissa Pettis, Nursing
Kelsey Boswell, Nursing
Jessie Love, Nursing
Joshua Meadows, Nursing
Kayla Krininger, Nursing
Erica Hess, Nursing
Rachel Hudson, Nursing
Katie Adcock, Nursing
Faculty Mentor: Stephanie Ragland, Nursing
Spread the News: Cap that Tube!
Hospital-associated infections have been identified as a national concern for patient safety. Medications administered intravenously are delivered utilizing the sterile process. The problem of "looping" was identified on a selected medical unit. "Looping" is inserting the sterile tip of intravenous (IV) tubing into an unsterile free port. This practice places the patient at an increased risk for infection. The objective was to compare the hospital policy and clinical standards of care. The policies and recommended guidelines were in agreement. However, the policies were not being consistently followed by nursing staff. Interventions were identified to promote policy compliance and patient safety.

Mallory Thompson, Nursing, Computer-Based Honors Program, Honors College,
Michael Robson, Computer Science
Faculty Mentor: Felecia Wood, Nursing
Creating and Piloting an iOS App for Diabetes Self-Management: From Coding to Clinical Practice
The purpose of this research is to collect pilot data on the effectiveness of an interactive iOS application for diabetes self-management as used by rural Alabamians with type 2 diabetes. Diabetes is primarily a self-managed disease, so patient knowledge is a crucial part of their health care. The application was created with a specific focus on rural Alabamians with low health literacy, containing a dictionary, an interactive quiz with informative videos, a fitness assessment, and general health reminders with response tracking. Results, to date, indicate increased knowledge of diabetes management skills and comfort using the iOS technology.

Elaina Tirador, Nursing
Clifton Wilson, Nursing
Courtney Lee, Nursing
Demi Lamb, Nursing
Emily Williamson, Nursing
Kaitlyn Wilson, Nursing
Elizabeth Gee, Nursing
Faculty Mentor: Leslie Palardy, Nursing
An Intervention to Promote Nursing Adherence to Contact Precaution Policies in a Hospital Setting
Hospitals experience difficulty preventing the spread of nosocomial (hospital-acquired) infections. Research-based clinical practice guidelines have been formulated to assist with the development of hospital policies to prevent nosocomial infections. Nursing staff in one hospital were observed taking equipment from infected patients' rooms without first disinfecting the equipment. They also failed to wear proper protective equipment while in contact with patients with known infections. Interventions should be structured to properly educate health care workers about the importance of following contact precaution protocols. This project explains an intervention used to educate healthcare workers on proper clinical practice and nosocomial infection prevention.

Sahar Vali, Nursing
Shelby Woltjen, Nursing
Merideth Sawyer, Nursing
Stephanie Whiting, Nursing
Sara Lewis, Nursing
Sarah Catherine Black, Nursing
Josh Sawyer, Nursing
Faculty Mentor: Heather Reeves, Nursing

Rapid Response Team

Abstract Rapid response teams (RRT) are utilized in the hospital setting to address patients that are demonstrating medical deterioration outside of the critical care unit. Early detection and treatment of clinical changes can prevent adverse patient events. The purpose of this project was to determine if a chosen hospital setting was compliant with the recommended standards of care for the use of RRT. It was found that the hospital protocol was not congruent with the recommended guidelines. This project identifies interventions that could be utilized to enhance patient care, provide prompt treatment of declining patients, and educate nursing staff.

Rachael Vaughan, Nursing, Honors College
Faculty Mentor: Ann Graves, Nursing

Quality Improvement: Family Presence during Resuscitation

Family presence (FP), allowing the family or significant other at the bedside with visual or physical contact during cardiopulmonary resuscitation, is an increasingly prevalent ethical issue in healthcare. Research shows that there are misconceptions, benefits, and ethical considerations to be made regarding family presence that are often not acknowledged. As a result, there are numerous inconsistencies in policy and/or protocol implementations regarding family presence in this field. An appropriate quality improvement intervention for this problem is the development and implementation of a FP protocol for professional health care providers and patients' families. Registered nurses should assess the need for FP protocols or assess active FP protocols on their unit for beneficial or negative outcomes and promote changes to the protocol accordingly.

Katherine Whitely, Nursing
Katie Fortenberry, Nursing
Kristine Kelly, Nursing
Susanna Stanbury, Nursing
Taylor McCauley, Nursing
Tucker Reeves, Nursing
Te'Airra King, Nursing
Victoria Street, Nursing
Faculty Mentor: Teresa Randolph, Nursing

Interventions to Prevent Medication Errors in a Hospital Setting

Medication errors are one of the main causes of adverse patient events in the hospital setting. EMARs, electronic medication administration records, have been proven to reduce the number of medication errors in the hospital setting. The objective of this project is to review a synthesis of clinical trials and systematic reviews, also known as clinical practice guidelines, to determine if a chosen hospital setting is compliant with recommended standards for medication administration. We found that the hospital's policy was not synonymous with recommended guidelines. This project examines interventions that could be implemented to reduce medication errors and adverse patient events.

Lauren Wilkes, Nursing
Anna Almand, Nursing
Amy Galloway, Nursing
Bethany Holcomb, Nursing
Audrey Inman, Nursing
Amanda Kirkley, Nursing
Ashley Lott, Nursing
Faculty Mentor: Sandra Ambrose, Nursing
The Importance of Proper Hand-Off Communication
Each time patient care is transferred from shift-to-shift or unit-to-unit, the potential for errors and miscommunication increases. In an effort to standardize the transfer of patient care, minimize errors, decrease family anxiety, and improve safety, a review of good clinical practice (GCP) guidelines was conducted. This project details student observations of actual nursing practice, a review of the current hospital policy, recommendations found in the review of GCP guidelines, and action taken to improve the current practice. This presentation demonstrates how bedside hand-off communication assures appropriate, clear, accurate, and complete information is relayed during this critical time.

EMERGING SCHOLARS

Melodie Adolphe, Biological Sciences, Honors College
Faculty Mentor: Edwin Stephenson, Biological Sciences
Determining the Role of the Swallow Protein in RNA Localization in Drosophila Oogenesis
In this research we are mostly concerned with the localization of bicoid mRNA, an important determiner of embryonic polarity, and how the site of localization within the Drosophila (fruit fly) egg depends on the function of the swallow protein. In earlier work from this lab, a hybrid swallow-Green Fluorescent Protein gene was constructed; the hybrid swa-GFP protein provides swallow function, and GFP portion of the protein allows its easy detection in oocytes and eggs. Using recombinant DNA methods, we are constructing novel hybrid genes with reduced swallow function to test the role of swallow in bicoid mRNA localization.

Casey Allen, Biological Sciences, Honors College
Faculty Mentor: Robert Findlay, Biological Sciences
Nitrogen in the Food Chain
As organisms from lower in the food chain are ingested by organisms in higher trophic stages, their materials are incorporated in different ways. The point of our research is to study the changes in the nitrogen isotope throughout the food chain. In order to accomplish this, we

grow algae in the lab to feed to cultures of daphnia, which in turn will eventually be fed to fish once the research has progressed further. Samples of these organisms are tested for increases in the nitrogen-15 isotope as the trophic stage increases. Collected data will broaden the understandings of the food chain.

Tyler Arnold, Mathematics, Honors College
Faculty Mentor: Weihua Geng, Mathematics
Mathematically Modeling Autoimmune Myasthenia Gravis
Myasthenia Gravis is a neuromuscular autoimmune disease that causes one to lose the ability to contract his, or her muscles. Myasthenia Gravis has unanswered questions pertaining to how one contracts it, how certain treatments work, and future treatment of it. The aim of this research is to mathematically model MG to bet aid doctors in understanding the disease with the ultimate goal being to eradicate the disease entirely. The research is in its infancy, and we are thoroughly studying the disease on both clinical and molecular level for its mathematical modeling. The outlook for the research is promising.

Leslie Bacon, Communication Studies, Honors College
Faculty Mentor: Janis Edwards, Communication Studies
Religion in the 2012 GOP Race
Throughout the 2012 GOP race, religion has played a dominant role in the debates and campaigning because of the diversity of the candidates' religious affiliations. Editorial cartoonists have documented this evident issue through their portrayals of the GOP candidates, namely Mitt Romney and Rick Santorum. Through a compilation of editorial cartoons, it is evident that religion has been a not only a factor in this election, but has brought up the issue of the way religious diversification is perceived in the United States, based on the representation of candidates in editorial cartoons.

Matthew Billiard, Chemistry, Honors College
Logan Murray, Chemistry
Faculty Mentor: Daniel Goebbert, Chemistry
Mass Spectrometry of Polymers
Polyethylene glycols, or PEGs, are common polymer molecules with the formula HO-(C2H4O)n-H. Li+ PEG complexes fragment in specific patterns when accelerated through an electric field and subjected to collisions with Argon gas under extremely low atmospheric pressures. These collisions reveal certain patterns by which the PEG-Ion hybrid breaks down. In a mass spectrometer, the oxygen atoms in PEGs break their bonds surrounding Li+ ions in certain ways. We will study the fragmentation process and obtain bond energies. This information is relevant as PEGs are found in consumer products, and research on PEG interactions with biological cations is important.

Jacob Boyd, Modern Languages & Classics, Honors College

Faculty Mentor: Ana Corbalan, Modern Languages & Classics
Representation of Queer Family Units in Spanish Cinema After 2005
This study will focus on representations of queer family units in Spanish cinema after the legalization of gay marriage in Spain in 2005. The study will examine three films in order to obtain a better understanding of the cinema's reaction to the newfound governmental acceptance of gay marriages: Reinas (Manuel Goméz Pereira, 2005), Fuera de Carta (Nacho García Velilla, 2008), y Spinnin':6000 millones de personas diferentes (Eusebio Pastrana, 2008). The presentation will confront the problem of the integration of an entirely other subculture into the mainstream national identity of their setting.

Andrew Branton, English, Honors College
Faculty Mentor: Hank Lazer, English
N18 and Social Media
To observe the day-to-day life of a poet, gain insight into the creative process, and explore social media's promotional capabilities, I worked closely with Dr. Hank Lazer. I observed a performance of Hank's poetry and Dr. Dewar's saxophone playing. I collaborated with Creative Campus interns, graduate students from the Creative Writing department, and Hank to do a multi-voice reading of Hank's poetry. I helped promote Hank's newest book N18 (Complete) using Facebook, Twitter, and 6Sides. As a result, Hank and I co-wrote a song; several books were sold; and I observed the weaving of Hank's day job and creative pursuits.

Rachel Childers, Psychology, Honors College
Faculty Mentor: Natalie Dautovich, Psychology
Age Differences in the Association Between Sleep and Depressive Symptoms
This study analyzed depression and sleep in younger and older adults to examine age differences, filling a gap in the literature by investigating both groups concurrently. 50 younger and 50 older adults completed the Beck Depression Inventory II (BDI) and a 14-consecutive-day sleep diary. Correlations were calculated between BDI and sleep variables using SPSS. BDI and Sleep Quality Rating (SQR) were negatively correlated in younger and older adults. BDI and Total Sleep Time (TST) were negatively correlated in younger adults only. The depression-sleep relationship may manifest differently across age which may have implications for accurate assessment of older adult sleep.

Emily Collum, Psychology
Shaquille Brown, Psychology
Faculty Mentor: John Lochman, Psychology
Effective Treatment Methods for Children Displaying Deviant Behavior
Substance use and delinquent behavior is an ongoing problem among youth. Through the Coping Power Program developed by John E. Lochman, Ph. D., this unwanted behavior will hopefully have a significant decline in participating children. The design of the screen fourth graders then assign at risk children to a random treatment in either a group or individual

setting. Coping power studies the advantages and disadvantages of group setting versus individual setting treatment to find the most effective method for children. At the end of this study, data will hopefully show a decline in deviant behavior of children after receiving treatment.

Jessica Cook, Chemistry, Honors College
Faculty Mentor: Shane Street, Chemistry
The Fluorescence of PAMAM and Analog Dendrimers
Polyamidoamine (PAMAM) dendrimers are a class of self-contained hyperbranched polymers that fluoresce when exposed to UV light. This fluorescence is commonly attributed to their tertiary amines. However, this ignores the other functional sites that could be playing a role in fluorescence. Through the combination of Fischer esterification, aminolysis, and Eschweiler-Clarke reactions, one can synthesize dendrimers that only include specific sites that may fluorescence. These sites are then tested through the use of a fluorimeter and quenching with metal ions. When complete, these experiments should identify the sites that fluoresce and how quenching describes their binding ability.

Patrick Crowley, Economics, Finance & Legal Studies, Honors College
Faculty Mentor: Paan Jindapon, Economics, Finance & Legal Studies
Financial Markets in the Laboratory
Within the field of finance, a discrepancy exists between theoretical and experimental financial markets. This increasing discrepancy adds to the complexity and danger of financial markets. The current literature review analyzes the liquidity and efficiency of markets in terms of transparency, type of market, herding, and information cascades. The forthcoming experiment will consider the effect of transparency on a market maker and trader in a financial market. The future results will allow for a better understanding of the effect of transparency on increasingly complex financial markets.

Brandon Delavar, Management & Marketing, Honors College
Faculty Mentor: Jonathon Halbesleben, Management & Marketing
Productivity and Personal Initiative
Jonathon Halbesleben and I researched two behavioral types, proactivity and personal initiative, and how they apply to a job setting. To perform my research, I read and summarized eighteen articles with the subject of both behavioral types. Our research is still on going; however, we discovered many factors, like leadership and role breadth self-efficacy, which can associate the way an employee interacts with his company or fellow employers. With our results and further research, we can find which characteristics in a work setting that profits both the employee and company to better increase productivity.

Andrew DeSantis, Biological Sciences, Honors College
Faculty Mentor: Stephen Secor, Biological Sciences

Cardiac Performance for Pythons, Does Size Mater?
We used Burmese pythons to examine effects of body mass on cardiac output and heart rate at rest, during exercise, and during digestion. Perivascular blood flow probes were surgically implanted around blood vessels exiting the heart of pythons ranging in mass from 0.11 to 16.3 kg. Pythons at rest, crawling, or during meal digestion experienced an allometric relationship (slope ~0.7) between cardiac output and body mass. That is as snakes got larger, cardiac performance did not increase at the same pace. Heart rate at rest and exercise, though not digestion, decreased with body size; larger pythons possessed lower heart rates than smaller pythons.

Conner Downey, Psychology, Honors College
Faculty Mentor: Beverly Thorn, Psychology
Literacy and Response to Treatment in a Low-SES, Community Sample with Chronic Pain
Chronic pain can be a debilitating condition that is often comorbid with other physical and mental conditions. Low socioeconomic standing compounds problems with pain through poor access to adequate and effective health care and a number of related chronic stressors. Existing disparities in treatment and health are compounded by low literacy, which leads to poor short- and long-term outcomes. Psychosocial interventions are effective for the treatment of chronic pain. However, little is known about how low literacy affects treatment with psychosocial interventions. The current study presents the effects of low literacy on patient retention and response to two psychosocial interventions conducted with a low-SES, community sample with chronic pain.

Samantha Durfey, Biological Sciences, Honors College
Faculty Mentor: Robert Findlay, Biological Sciences
Maximizing Production of PHA Using Cellulosic Materials in a Two-Stage Bioreactor
Poly-β-hydroxyalkanoates (PHA) are biopolymers produced by bacteria exposed to stressful conditions. In this study, PHA are being explored as source material for a novel biofuel in a two-stage bioreactor setup. To reduce production costs, this study involves the use of non-sterile feedstocks,anaerobic breakdown of lignocellulosics to volatile fatty acids (VFA; 1st stage)and subsequent production of PHA (2nd stage) using these VFA. VFA monitoring, along with phospholipidphosphate analysis (PLP) and phospholipid fatty acid analysis (PLFA) of biomass and community structure respectively, indicate that this approach could serve as a feasible source of VFA and potentially PHA.

Danielle Dutra, Biological Sciences, Honors College
Faculty Mentor: Ryan Earley, Biological Sciences
The Effect of Exercise on Swimming Performance and Physiology in Mangrove Killifish
Exercise changes the body both chemically and physically. Using the self-fertilizing mangrove killifish, we tested the hypothesis that exercise would cause variation in swimming performance, reproductive investment, and muscle physiology. As hermaphrodites, mangrove killifish allow us to overcome genetic variation and focus how training environments affect performance and physiology. We will train fish from three distinct genetic lineages (20 per lineage) in a swim tunnel once, twice, or three times, and compare muscle and gonad characteristics among the training regimes and lineages. We predict that genes and exercise training will interact to drive variation in post-training performance and muscle physiology.

John Dykes, Metallurgical & Materials Engineering, Honors College
Faculty Mentor: Nitin Chopra, Metallurgical & Materials Engineering
Analysis of Thermal Stability of Silicon Nanowire/Gold Nanoparticle Heterostructures
Nanoscale heterostructures composed of silicon nanowires nucleated with gold nanoparticles are of current interest because they have a varied number of applications, including biosensing, energy storage, and nanoelectronics. The purpose of this research project is to observe the thermal stability of gold-nucleated silicon nanowires as a function of the temperature, duration, and environment of heat treatment of the heterostructures, as well as the effect that these conditions have on the dispersion and aggregate size of the gold nanoparticles. The effects upon the morphology of the heterostructures were observed through use of SEM, TEM, Uv-vis, optical microscopy, and Raman spectroscopy.

Aubrey Edkins, History
Faculty Mentor: James Mixson, History
Cluny in the 13th and 14th centuries
Cluny was one of France's most influential monasteries. Historians have studied its early history (c. 900-1200), but there has never been much study of the abbey after 1200. My project begins to explore Cluny's history in this later, neglected era. I researched the abbey in the 13th and 14th centuries, whether it truly declined, and how the monastery was affected by the reform movements of the later middle ages. My project will add to the understanding of Cluny and its role in European history c. 1200-1500.

Douglas Fair, Biological Sciences, Honors College
Michael Goetsch, Biological Sciences
Faculty Mentor: Jane Rasco, Biological Sciences
The Potential Adverse Effect of Positive and Negative Iron Oxide Composite Nanoparticles on the offspring of CD-1 Mice.
Nanoparticles are currently being used as drug delivery systems and could potentially be used as treatments for fatal diseases. The rising prevalence of nanoparticles coupled with increased

human exposure to these materials raises concerns over possible health risks. These health concerns warrant further investigation into the pathways nanoparticles take in the human body as well as any short and long-term side effects they might cause. In order to test the toxicity of the nanoparticles, we used pregnant CD-1 mice as a model organism, injecting iron oxide nanoparticles on different gestation days to determine any harmful side effects on the offspring.

Al-Karim Gilani, Chemical and Biological Engineering, Honors College
Faculty Mentor: Cassandra Ford, Nursing
Community Assessment of a Rural Community in the Black Belt of Alabama
Community assessments provide a valuable method to explore environmental factors that may affect health disparities related to chronic disease and are valuable in understanding the implications of chronic disease in the Black Belt region. The purpose of this study is to complete a community assessment of Dallas County. Resources currently available and needed will be identified. The assessment will be completed utilizing various methods, including a windshield survey and key informant interviews. Data collection is in progress. Preliminary results indicate the community assessment will be an effective method for gaining insight into community resources and needs.

Hubbell Godsey, Psychology, Honors College
Faculty Mentor: Matthew Jarrett, Psychology
The Relationships Between ADHD Symptoms and Functional Impairments in College Students
The Relationships Between ADHD Symptoms and Functional Impairments in College Students
Hubbell Godsey Faculty Mentor: Matthew A. Jarrett, Ph.D.
Inattention and hyperactivity/impulsivity are core symptom domains of attention - deficit/hyperactivity disorder (ADHD; American Psychiatric Association, 2000). This study examines relationships between ADHD and domains of life functioning such as academic performance, driving, social relationships, and work performance. Students from the Psychology 101 research participant pool (n = 300) were asked to complete an inventory of health concerns. Analyzing standardized measures of adult ADHD symptoms and measures of life functioning should help us understand functional impairments in college students.

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Michael Goetsch, Biological Sciences, Honors College
Faculty Mentor: Robin Rogers, Biological Sciences
Testing Ionic Liquids as Pain Management Pharmaceuticals
Ionic liquids (ILs) are useful in pharmaceutical applications because they can be used to effectively combine two different active ingredients in one IL. One such IL is lidocaine docusate. This IL is preferable to the current form of lidocaine, lidocaine hydrochloride, because it has a faster transdermal absorption rate and as such is a faster acting medication. The combination of two pharmaceuticals also reduces the need for multiple doses. The purpose of this study is to determine biodistribution and toxicity of lidocaine docusate *in vivo* using rattus norvegicus as a model organism.

James Gray, Biological Sciences, Honors College
Faculty Mentor: Ryan Earley, Biological Sciences
Temperature Dependent Sex Determination in the Mangrove Rivulus
The phenotypic traits displayed by an individual arise from a combination of genetic and environmental influences that an organism experiences during development. The mangrove rivulus (Kyrptolebias marmoratus) is the only vertebrate capable of self-fertilization, thus allowing us to isolate how environmental factors affect the phenotype of genetically identical individuals. We hypothesized that incubating embryos in colder temperatures would produce more males. We tested the effect of temperature on rivulus sex determination by exposing three distinct genetic lineages derived from different geographical regions to three temperatures. We hope to better understand the relationship between temperature and sex-determination in the mangrove rivulus.

James Ha, Management & Marketing, Honors College
Faculty Mentor: Paul Drnevich, Management & Marketing
Technological Drivers of Innovation and Performance in Small Businesses
Innovation can be an important source of competitive advantage, particularly for young or small, resource constrained businesses where technology can enhance existing capabilities and enable new ones. In this study, we theorize and examine endogenous and exogenous technological drivers of innovation activity. Results from an analysis of a sample of 753 small and medium enterprises (SMEs) suggest that technology that is unique, advanced, and/or used in new ways may be important drivers of innovation activity. These results suggest that several interrelated technology-based factors appear to affect a firm's ability to build successful innovation capabilities.

Brittani Hays, Chemistry, Honors College
Faculty Mentor: Patrick Frantom, Chemistry
Mechanism of Allosteric Regulation of α-Isopropylmalate Synthase from Mycobacterium Tuberculosis
Allosteric enzymes can be regulated through networks of amino acids; understanding these networks could have implications in drug design. A model allosteric enzyme is α-isopropylmalate synthase from Mycobacterium tuberculosis (MtIPMS). MtIPMS catalyzes the first step in the biosynthesis of L-leucine and is subject to allosteric feedback inhibition by L-leucine. The enzyme is activated by K+ ions, and a possible inhibition mechanism involves L-leucine binding interfering with this activation. To test this hypothesis, the parameters of K+ activation were determined in the presence and absence of L-leucine. The results show L-leucine does not affect K+ ion activation of the enzyme.

Katelyn Howard, Biological Sciences, Honors College
Zach Stubbs, Biological Sciences
Faculty Mentor: Stevan Marcus, Biological Sciences
Cellular Responses to Avicins
Avicins are high molecular weight plant derived compounds that selectively inhibit cancer cell growth and which have recently been approved for Phase I clinical trials. Although avicins have been shown to affect multiple cellular processes, molecular targets and mechanisms of uptake of the drug have not been determined. Because they have multiple polar functional groups, it is unlikely that avicins enter cells via diffusion across the plasma membrane. One hypothesis is that avicins are taken up by cells via endocytosis. My research is aimed at investigating this possibility and the potential role of lysosome-mediated stress response systems in mediating cellular resistance to avicins.

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Francie Johnson, Advertising/Public Relations, Honors College
Faculty Mentor: Meg Lamme, Advertising/Public Relations

Elbert Hubbard: A Different Take On Corporate Public Relations
Elbert Hubbard was a prominent figure in the American late 19th and early 20th centuries. During this time period, the workers' rights movement cast a negative shadow upon wealthy businessmen. Historians have found that the rise of corporate public relations coincided with the need for big business to respond to public disapproval. Hubbard, however, refused to sympathize with the working class. An analysis of several of Hubbard's authored works provides insight into his opinion that elite businessmen were victims to the laziness and disloyalty of their employees. This introduces a completely new perspective on the history of corporate public relations.

Margaret Jones, Biological Sciences
Faculty Mentor: Avani Shah, Psychology
Should psychopathology be required in graduate social work programs?
The purpose of this study is to determine what percentage of Masters Social Work (MSW) programs require a course on the assessment and diagnosis of mental illnesses. Two raters reviewed the curriculum's of CSWE accredited MSW programs on websites. If a description indicated that a required/elective course covered the assessment and diagnosis of mental illness, raters recorded this information in a spreadsheet. If the information was unclear, the MSW programs were contacted for further clarification. Description of the results will be provided in tables.

James Krafcik, Electrical and Computer Engineering, Honors College
Faculty Mentor: Dr. Seongsin Margaret Kim, Electrical and Computer Engineering
Optical properties of ZnO nanowires for applications in photonic devices
Despite decades of research, many aspects of physical and optical properties of nanostructured ZnO has not been fully understood. ZnO has many advantages over other wide band-gap semiconductors for photonic device applications, therefore fully understanding how photons interact with nanostructured ZnO is essential to designing potentially high impact devices such as photovoltaics with improved performances. We present the results of optical properties of vertically-aligned ZnO nanowires from performing comprehensive confocal micro-photoluminescence measurements with respect to differing excitation powers, temperatures, and observed heights. Our results offer further insight into these properties and will help enhance performance of ZnO nanowire-based photonic devices.

Cassidy Lamm, Computer Science, Honors College
Laurent Lambert, Psychology
Faculty Mentor: Jeff Gray, Computer Science
Improving Socialization and Emotion Recognition for Autistic Children using a Smartphone App
Smartphone apps are used with increased frequency to teach children. In particular, children with autism could benefit from applications suited to help them overcome social challenges. In our research, we first investigated and compiled a list of existing apps to see where gaps exist in

topic coverage. From this survey of existing smartphone apps for children with autism, we developed a new app that challenges children to interact in a social setting by responding to emotional cues, and having other children guess their emotions. This app provides a new context to help children learn about their emotions through peer interaction.

Connor Lawson, Electrical and Computer Engineering, Honors College
Faculty Mentor: Sushma Kotru, Electrical and Computer Engineering
Alternate Materials for Photovolaics
With the recent green movement pushing society to be more environmentally friendly, emphasis has been placed on developing solar energy generation technologies. The current state of the art in this field is solar panels exploiting P-N silicon junctions to generate electric current. The purpose of this project is to evaluate the photovoltaic response of solar cells made from an alternative material, Lead-doped Lanthanum Zirconium Titanate (Pb.96La.04Zr.54Ti.46), commonly known as PLZT, which is a type of ferroelectric material. Results are not yet complete, but prior research suggests that this material could have significantly greater efficiency than comparable silicon materials.

Chelsea Lee, Nursing
Faculty Mentor: Tony Roberson, Nursing
The Affect Of Being Incarcerated On Adolescents
Dr. Roberson from the college of nursing and Dr. Church from the college of social work are in the process of collaborating on a research project to study the mental affects on adolescents that come from spending time in a juvenile detention center. My job is to research articles on this matter and find statistics related to juvenile detention rates nationally, in the south, the state of Alabama, and in Tuscaloosa. The information I find I will present to Dr. Roberson, which he will use in whichever way is most relevant to his research with Dr. Church.

Mary Leisgang, Geological Sciences
Joseph Cardosi, Geological Sciences
Faculty Mentor: Rona Donahoe, Geological Sciences
Dispersant Analysis of Trace Elements from the BP Oil Spill
On April 20, 2012, the Deep Horizon, a BP oil rig, exploded off Louisiana's Gulf Coast, releasing 4.9 million gallons of crude oil into the gulf. We hypothesized that the crude oil, as well as the dispersants used would cause microbes to eat away at the iron-rich sediment, releasing trace elements. As these trace elements are released again during storms, they could bio-accumulate to toxic levels, harming marine life. We examined how the oil and dispersant used changed the chemistry of the sediment. We set up two experiments, a time series experiment and one comparing different concentrations of oil in our samples. We have not finished analyzing all of our data yet, but we think that the dispersant will help lower the trace element levels.

Robert Lind, Chemical and Biological Engineering, Honors College
Faculty Mentor: Kevin Chou, Mechanical Engineering
Computer-Aided Design Modeling for Development Applications
Computer-Aided Design (CAD) Modeling is the process of drawing, scaling, dimensioning, and creating objects through a computer program (i.e. SolidWorks). In this research, SolidWorks 2011 was used to assist in redesigning three sub-projects. The first project uses CAD Modeling to see how close the software allows operators to reduce the area of a blade for diamond cutting tools. The second project uses CAD modeling to regenerate a standard part. The third project uses CAD modeling to redesign a jaw implant so the amount of stress and the length of time that the joint can be used effectively, is increased.

Bobby Logsdon, Physics & Astronomy, Honors College
Faculty Mentor: Rainer Schad, Physics & Astronomy
Improving Instrumentation
In order to demonstrate scientific theories, we must have the necessary instrumentation. Physics, especially, is difficult to understand without a visual aid. My mentor and I have been working on improving instruments and developing new ones. After examining our resources, we constructed a Ruben's tube and are currently working on a clear oscilloscope, a Tesla coil, and a bowling ball pendulum. The Ruben's tube will demonstrate the properties of standing waves at different frequencies. A clear oscilloscope will demonstrate the effects of magnetism on electrons. A Tesla coil will demonstrate how resonance can amplify voltage and current.

Gabrielle "Brie" Lowery, Geography, Honors College
Faculty Mentor: Jason Senkbeil, Geography
A Study of Air Quality in the Tuscaloosa Area
In this research, the air quality of the Tuscaloosa area was examined using a handheld gas sensor and a particulate matter sensor. The amount of carbon dioxide, sulfur dioxide, and particular matter in the lower atmosphere was analyzed in February and March 2012 when wind speeds are higher, which provides better ventilation of surface pollutants, at multiple locations in Tuscaloosa. Carbon dioxide, sulfur dioxide, and particular matter are pollutants which have National Ambient Air Quality Standards (NAAQS) set by the EPA. Results indicate that carbon dioxide and sulfur dioxide levels in Tuscaloosa were below hazardous thresholds at every location.

Rachel Mach, Computer Science, Honors College
Faculty Mentor: Andrew Graettinger, Civil, Construction & Environmental Engineering
Analyzing Factors in Tuscaloosa's Resiliency
Resiliency is a measure of how long it takes something to return to normal after an event occurs. As part of an ongoing project, digital photos are being collected along the tornado path in Tuscaloosa with an automatic Contour GPS camera attached to the window of a car. Using recovery information, time after the event, and location information, researchers can

determine an understanding of Tuscaloosa's resiliency. If patterns can be identified in reconstruction in Tuscaloosa, the information can be used in future reconstruction plans in cities across the U.S.

Caitlin Marsh, Biological Sciences, Honors College
Faculty Mentor: Julie Olson, Biological Sciences
Comparison of Recovery of Streptomyces across Environment-specific and Streptomyces-specific Media
Streptomyces, a genus of bacteria primarily found in soil, are easily identifiable on media due to their distinctive colony morphology and spore production. Soil samples were taken from multiple counties and land use patterns across the state of Alabama and cultured on traditionally Streptomyces-specific and environment-specific media. Starch casein agar and soya mannitol agar were used as Streptomyces-specific media and the environment specific media was made from soil extractions of each sampled site. Potential streptomycetes were isolated from the soil samples over a period of six weeks and statistical analysis was used to determine differences in recovery across different media.

Anna Moyer, Biological Sciences, Honors College
Kevin Walker, Biological Sciences
Faculty Mentor: Janis O'Donnell, Biological Sciences
A Role for Dopamine in Glial Migration in Drosophila melanogaster?
The neurotransmitter dopamine (DA) plays important roles in movement, memory, learning, and mood. In Drosophila melanogaster it is involved in the migration of tracheal cells during development. Glial cells, which are critical to maintaining the health of the nervous system in many organisms, are another type of migratory cell. After observing that glial cells localize in close proximity to DA machinery in Drosphila embryos, we sought a possible role for DA in the migration of these cell types. Here, we utilized immunohistochemistry to visualize alterations in their migration as a result of changes in DA synthesis.

Clare Newman, Psychology, Honors College
Faculty Mentor: Kenny Lichstein, Psychology
Insomnia Relief Through Cognitive Behavior Therapy
30%-50% of the population has insomnia, a sleep disorder characterized by the inability to sleep. Cognitive Behavior Therapy (CBT) is a treatment for insomnia that involves mental adjustments and lifestyle changes. To test the effectiveness of CBT, this study surveys patients from UMC who have trouble sleeping. Participants fill out three sleep-diaries, watching a CBT DVD between the first and second set. Analyzing data from all diaries will determine if there is significant difference in sleep after watching the CBT DVD. Presently, few participants completed the diaries, but this research has the potential to help subdue a serious health problem.
Patrick Norwood, Telecommunications & Film

Faculty Mentor: Andrew Billings, Telecommunications & Film
Race in Sports Focus Groups
Race has always played an important role in sports. However today, race is about much more than just breaking barriers. It now has a prominent significance in sports. Since the rise of SportsCenter in 1979, fans have watched athletes' every move. They have seen changes in the ways that positions are dominated by certain ethnicities. With a combination of compiled research and focus groups, data will be collected to examine which ethnicity (if any) college age sport aficionados believe have an advantage at a particular position, but also to see if this could have potential psychological effects on athletes.

Joshua Oriez, Chemistry, Honors College
Faculty Mentor: Silas Blackstock, Chemistry
The Cocrystallization of DDQ and DPTZ
This semester of research has been spent co-crystallizing the chemical compounds 2,3-Dichloro-5,6-dicyano-1,4benzoquinone (DDQ) and 3,6-diphenyl-1,2,4,5-tetrazine (DPTZ). The first portion of research involved purifying my sample of DDQ through recrystallization. I later analyzed the purity of my recrystallized DDQ through UV-vis spectrometry. By dissolving the DDQ and DPTZ in a solvent and allowing them to recrystallize together, I hoped to create DDQ and DPTZ co-crystals. Co-crystals have a major presence in pharmaceuticals, and can be used to treat a variety of illnesses. My goals this semester were to establish an efficient procedure for creating DDQ/DPTZ co-crystals.

Jackson Pace, Information Systems, Statistics & Management Science, Honors College
Sean Johnson-Sippial, Information Systems, Statistics & Management Science
Faculty Mentor: David Hale, Information Systems, Statistics & Management Science
Driving Non-Profit E-Commerce Sales through Social Media
The Black Belt region is one of the most artistically and culturally significant regions in the State of Alabama. Black Belt Treasures is a respected, non-profit art gallery whose mission is to develop the region's artistic base. Federal investment in small business development has decreased, and the gallery's budget has been radically reduced. Therefore, the gallery must now increase revenue through online sales. Our research focuses on how businesses leverage social media platforms strategically to increase connections with consumers and improve sales. We are enhancing the gallery's digital shopping experience using social media such as Facebook, Twitter, and Hubpages.

Leslie Perez-Meza, Advertising/Public Relations, Honors College
Faculty Mentor: Janis Edwards, Communication Studies
Reaching the Hispanic Voter
In an election year, the media focuses heavily on creating messages for the public while covering the election. Hispanics, who have become the largest minority group in the United States, will prove crucial in this campaign. I am comparing how Spanish language newspapers

and English language newspapers interpret the 2012 campaign. The Newspapers being analyzed are La Opinion, El Diaro, The New York Times, and the Chicago Tribune. By analyzing the discussion of key primary election events in these newspapers I can deduce how the overall message is tailored to the Hispanic voter.

Polly Piggott, Nursing, Honors College
Faculty Mentor: Marilyn Handley, Nursing
Knowledge, Beliefs, and Barriers to Smoking Cessation in Pregnancy
This study examines knowledge and beliefs of women who smoked during pregnancy and possible barriers to smoking cessation. Despite evidence that smoking is harmful to one's health, many women continue to smoke through pregnancy. Smoking while pregnant may harm the mother's health, and also be severely detrimental to the fetus. In this study, fifty pregnant women who smoke were surveyed. Data were collected to determine the mother's history of cessation attempts and to better understand smoking cessation failure. Data collection is complete. Descriptive and comparative statistics will be used for analysis.

Catherine Porter, Economics, Finance & Legal Studies, Honors College
Faculty Mentor: Ian Chapman, History
Cross-Culture Comparison in Festival, Ritual, and Play
Cultures are historically defined by their differences; each may have individual ritualistic practices, festivals, and methods of play unique to that particular people. However, the lack of a large scale, in-depth comparison between the cultures' practices raises questions concerning both the development of these practices and amount of influence these cultures exerted on each other across religious, societal, and physical borders. The location and understanding of primary texts will help to develop a cross-culture comparison in festival, ritual, and play, leading to a better grasp of these ancient cultures and their habits.

Halee Rape, Anthropology
Faculty Mentor: Jason DeCaro, Anthropology
Meaningful Routines in Children
This study is about trying to get a better understanding of a cultural model of child development for preschool-age children in the metro-Atlanta area to better understand how their stress levels, everyday schedules, and their parents cultural beliefs interact with each other. One week during the child's spring pre-school year and one week during the child's fall kindergarten year are compared using data put into palm pilots by the child's parents in 15 minute increments. I am reading through interviews from these time frames and coding circumstances that would contribute to the child's routines.

Amy Schmitt, Biological Sciences, Honors College
Faculty Mentor: Ryan Earley, Biological Sciences
Reproduction in Hermaphroditic Species: Do Females Exist?
The mangrove rivulus (Kryptolebias marmoratus) population consists of self-fertilizing hermaphroditic vertebrates with males being the rarer sex. Currently, no females have been found in natural populations. We are conducting an experiment to determine if a female morph exists within five different isogenic populations derived from southern Florida. We hypothesize that variation in fertilized egg production among individuals and lineages will correlate with the amount of testicular tissue in the hermaphroditic gonad and concentrations of sex steroid. We have documented significant variation in egg production and, after 3 months, we will conduct detailed examinations of both hormones and gonad histology.

Will Schnede, Accounting, Honors College
Craig Fulda, Economics, Finance & Legal Studies
Faculty Mentor: Jase Ramsey, Management & Marketing
Global Managers
With corporations expanding throughout the world, business leaders must think globally in order to retain the same success as they have had in their native markets. Global mindset, the ability to see the world from a broad perspective, forms a pillar in the transition from domestic to global success in the business world. This study's primary goal is finding out if global mindset leads to better performance in the international workplace. We also wish to figure out how global mindset can help the areas of corporate policy and strategy. As the project is ongoing, we do not have final results.

Josh Sharpe, Electrical and Computer Engineering, Honors College
Faculty Mentor: Susan Burkett, Electrical and Computer Engineering
Quantitative Analysis of Adhesive Strength for Silicon Wafer Bonding
Quantitative Analysis of Adhesive Strength for Silicon Wafer Bonding Josh Sharpe, Matthew Jordan, Mark Barkey, and Susan Burkett Electrical and Computer Engineering Department The University of Alabama This experiment measured the force required to initiate bond failure for three adhesives commonly used in temporary silicon wafer bonding. Shear strength data was collected via tensile testing to determine the load at which the adhesives fail. This data is necessary for researchers developing technologies that allow for 3D integration, a technology which requires device wafers to be bonded to a carrier wafer since their thinned dimensions make handling difficult. The bond must be strong enough to withstand the thinning process yet still able to debond after further processing. Bond strength will be quantified and an adhesive will be recommended.

Erin Smith, Anthropology, Honors College
Faculty Mentor: Ian Brown, Anthropology
Lithic Analysis of the Dickerson site of Western Mississippi

The Dickerson site is located in the Yazoo basin in western Mississippi. An archaeological survey of this prehistoric Native American site yielded ample quantities of lithic materials. What is disguised underfoot as simple rocks and pebbles is, upon closer inspection, tools from a once vibrant society. Creating useful tools from simple stones is a process that takes considerable skill, a crucial provision for survival. Analyzing these lithic pieces is important in understanding the stone technologies and the uses of stone by these ancient Lower Mississippi Valley inhabitants. There is much to be learned from studying the objects they left behind.

Grace Spears, Biological Sciences, Honors College
Faculty Mentor: Stephen Woski, Chemistry
Synthesis and Characterization of a Novel Dye Linker Molecule for Solar Cell Applications
We are attempting to increase the efficiency of current solar cell technologies by using the properties of dye-sensitized solar cells (DSSCs). By attaching a light-absorbing molecule to a metal semiconductor, we hope to mimic the effect of photosynthesis by increasing the electrical current using light energy. We will create a new dye based on acetylacetonate which will attach the dye to a semiconductor while protecting the dye's environment, again mimicking a biological process in which lipid molecules protect a plant's chloroplast photosystems. Currently, we are working on synthesizing long-chain alkyl-substituted acetylacetonate.

Zachariah Stubbs, Biological Sciences, Honors College
Faculty Mentor: Stevan Marcus, Biological Sciences
The Cell Cycle Regulation Effects of Avacin
Cancer is unregulated cell growth, to the point that it becomes detrimental to the host and prevents functioning. A lot of research goes into finding a cure, but it is difficult because the main way to stop cancer is to prevent the altered cells from reproducing. However, there is currently no way to target specific cells. The experiment conducted was designed to find a strain of DNA in the model organism S. Pombe that was hypersensitive to Avacin, a drug that inhibits the cell reproductive cycle. By growing different mutant strains of S. Pombe, you can observe which strain and concentration of Avacin has maximum effectiveness. The Avacin creates a "zone of inhibition", a circle devoid of growth, indicating the effectiveness of the treatment.

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strain and concentration of Avacin has maximum effectiveness. Avacin creates a “zone of inhibition”, a circle devoid of growth, indicating the effectiveness.

Anna Traylor, English, Honors College
Faculty Mentor: Chip Brantley, Journalism
The Pistachio Wars
The purpose of this project is to research material for use in a nonfiction book by Chip Brantley about the geopolitics of the pistachio trades. Brantley will examine different aspects of the pistachio trade and write about the effect that food and food policy has on international relations. This research project has shown the interrelation of these countries through something as seemingly insignificant as the pistachio nut. The Internet was used to find articles relevant to The Pistachio Wars, obtain the contact information of related experts, and verify previously acquired reporting and research. The research done so far has covered issues in the United States, Israel, China, Turkey, and Iran.

Andrew Treadway, Aerospace Engineering & Mechanics
Brian Brooker, Aerospace Engineering & Mechanics
Faculty Mentor: Semih Olcmen, Aerospace Engineering & Mechanics
How Different Nose Shapes affect Drag
Our task is to evaluate the drag of several different nose shapes, and to compare the data to earlier experiments. We are evaluating the drag through use of a High-Speed Wind Tunnel with a Four Component Force-Balance in it, focusing mainly on the axial and normal forces. The results of tests will show the nose shape with the least drag and will be compared to the earlier experiments to determine if errors were made. Through this research, we will either validate or disprove old data and, if disproved, find out why it was wrong.

Amanda Turner, Human Development & Family Studies, Honors College
Faculty Mentor: Jason Scofield, Human Development & Family Studies
Learning With Your Hands
The disambiguation effect is used to test children’s word learning. When children are shown two objects, one unfamiliar and one familiar, and asked to select the object which accompanies the unknown name, they will choose the unfamiliar object. In this study, children, 3-5 years old, practice word learning while touching an object they cannot see. Children were trained with the object they were touching. Afterwards, the children were asked to identify the object which has an unknown name. The experiment is still ongoing, but results so far show that children often pick the original object instead of the unnamed object.

Dontavius Wade, Advertising/Public Relations
Faculty Mentor: Kinney Lance, Advertising/Public Relations
Media Impact

Web design and press kits involve a wide variety of techniques to create a successful media outlet and other portfolios for businesses. Social media is one of the largest growing forms of advertisement on the internet. Building a press kit is a common basis of organization to reach specific audiences. Press kits help organized information to be sent to companies for promotional use. One of the biggest social networking websites, Facebook, is one of the best ways to advertise any product, musician, or business and has been proven to attract attention with some of its basic ideas of advertising.

Wesley Walker, Biological Sciences, Honors College
Faculty Mentor: Ann Webb, Biological Sciences
Effects of Traumatic Events on the Human Psyche
Project Rebound is a FEMA funded organization run through the University of Alabama. The project's focus is to aid those that have been affected by the April tornado of 2011. The goal of the project is to ease the lives of those that have been traumatized by this tragic event. Additionally the project's goal is to prepare a plan of action if an event occurs like this again on any University campus in the United States. I am observing their work in action and reporting the effects of their efforts.

David Wallace, Chemical and Biological Engineering, Honors College
Faculty Mentor: Greg Szulczewski, Chemistry
The Synthesis of Bismuth Telluride Nanostructures for Thermoelectrics
Thermoelectric materials are able to convert heat into electricity. Bismuth telluride nanostructures were synthesized in an aqueous solution of PEDOT:PSS, a conducting polymer, by reducing bismuth chloride and telluric acid with ascorbic acid and hydrazine monohydrate. Transmission electron microscopy images revealed a nano "barbell" structure, specifically bismuth telluride "ends" and tellurium "handles". Thin films of the dispersions doped with DMSO were prepared through spin coating and drop casting. Electrical conductivity of the films was measured after annealing in air to various temperatures. It was found that doping the dispersions with roughly five percent DMSO lead to the highest electrical conductivity.

David Ward, Biological Sciences, Honors College
Faculty Mentor: Juan Lopez-Bautista, Biological Sciences
Molecular comparison between Coastal Alabama and Florida Ulva and Enteromorpha species of green algae
Morphological contrasts between laminar and tubular taxa of ulvacean green algae have placed them in two genera, *Ulva* and *Enteromorpha*. However, molecular analysis shows a closer relationship. As a result a taxonomic conundrum has been developed. What are the correct names for these taxa in the neighboring Gulf Coast? In order to answer this question a collection trip has provided specimens for sequencing of the nuclear-encoded ITS rDNA and the chloroplast-encoded *rbc*L. Our results are providing with a better understanding of *Ulva* and

*Enteromorpha'*s relationships. Moreover, the name *Ulva* has precedence over *Enteromorpha* and thus, our representatives must be renamed.

Lloyd Michael Wells, Biological Sciences, Honors College
Faculty Mentor: Carol Duffy, Biological Sciences
Attachment of proteins to magnetic iron oxide nanoparticles via a novel coiled-coil mechanism: expression and purification of engineered coil fusion proteins
There has been a growing interest in the role of magnetic nanoparticles for biomedical applications such as cancer therapy and detection. Attachment of protein ligands that bind receptors uniquely located on cancerous cells will provide a mechanism for cell-specific nanoparticle uptake and, thus, will greatly improve both the safety and efficacy of nanoparticle-based therapies and diagnostics. Using coiled-coil interactions and red/green fluorescent proteins as model proteins, we present a novel mechanism for the attachment of engineered fusion proteins to iron oxide nanoparticles in these studies. The present study describes the expression and purification of the coil fusion proteins.

Anthony Widenor, History, Honors College
Kayla Light, English
Patrick Sequeira, Arts & Sciences - Fine Arts & Humanities
Charlie Deer, History
Robert Aydin, New College
Faculty Mentor: David Michelson, History
Syriac Reference Portal
The Syriac Reference Portal project was conceived to produce tools and reference resources that will overcome some of the access and discovery problems which currently impede scholarly research on Syriac language, cultures, and history. Presently, the project focuses on converting print information into digital information for use in the portal. The project has created the foundations of an information hub that includes, among other things, an online encyclopedia, classified bibliography, and classification system for Syriac studies. When completed, the Syriac Reference Portal will be a source for easily accessible Syriac-related information and will facilitate further research in the field.

Austin Wikle, Economics, Finance & Legal Studies, Honors College
Faculty Mentor: Susan Chen, Economics, Finance & Legal Studies
"Regional differences in Federal and State Program Participation of Newly Disabled Workers"
Newly disabled workers may depend on government programs to replace lost earnings. This study provides a descriptive analysis of the program income sources used by this population and the extent to which they replace lost earnings. Federal spending on Disability Insurance (DI) has grown by 93% over the last decade. A crucial part of understanding why disabled workers transition unto DI is to understand how they cope when they first become disabled. Using 2004

data from the SIPP I find that strong regional differences in government program participation could be driving the high DI application rates seen in the South.

Heather Wilson, Civil, Construction & Environmental Engineering, Honors College
Faculty Mentor: Pauline Johnson, Civil, Construction & Environmental Engineering
Water Infrastructure Sustainability and Health in Alabama's Black Belt
This project examines the relationship between aging infrastructure, water quality, and health. The goal of the project is to observe how failing infrastructure affects water quality and find the best strategies to target rural water system resources . Water from 900 households is tested for turbidity, pH, E. coli, chlorine, and system pressure. The inhabitants also answer surveys and keep diaries of their health. Because this 4 year project is in its early stages, preliminary research will be presented on GIS for participant identification and sampling and analytical protocols.

John Wimberly, Management & Marketing, Honors College
Faculty Mentor: Craig Armstrong, Management & Marketing
The Impact a Head Coach Has On His Team
Inspired by the success of the University of Alabama football team in recent years, my research is attempting to find a connection between the head coach of a specific team in correlation to that team's success in the years under their tenure. In order to compile this information, we will gather data on the head coaches for every school in the NCAA Division I from 1917 to 2010. Upon the completion of our research, we hope to find whether a coach's win-loss record along with other idata impacts the outcome of his record at a particular school.

Taylor Wood, Philosophy, Honors College
Faculty Mentor: Rekha Nath, Philosophy
Causes and Effects of Rising Economic Inequality in the United States
Lack of social egalitarianism can adversely affect a society. This research examines the major causes and impact of growing social inequality in the United States. More specifically, I investigated how inequality has affected social perceptions of class division, social cohesion, and political apathy. Through empirical research, I analyzed Robert Frank's book 'Falling Behind,' Jacob Hacker and Paul Pierson's book 'Winner-Take-All Politics,' Larry Bartels' book 'Unequal Democracy,' and a variety of other books & news articles. Although this project is still in progress, it will help shape proposals for addressing economic inequality and reveal the degree to which inequality affects Americans.

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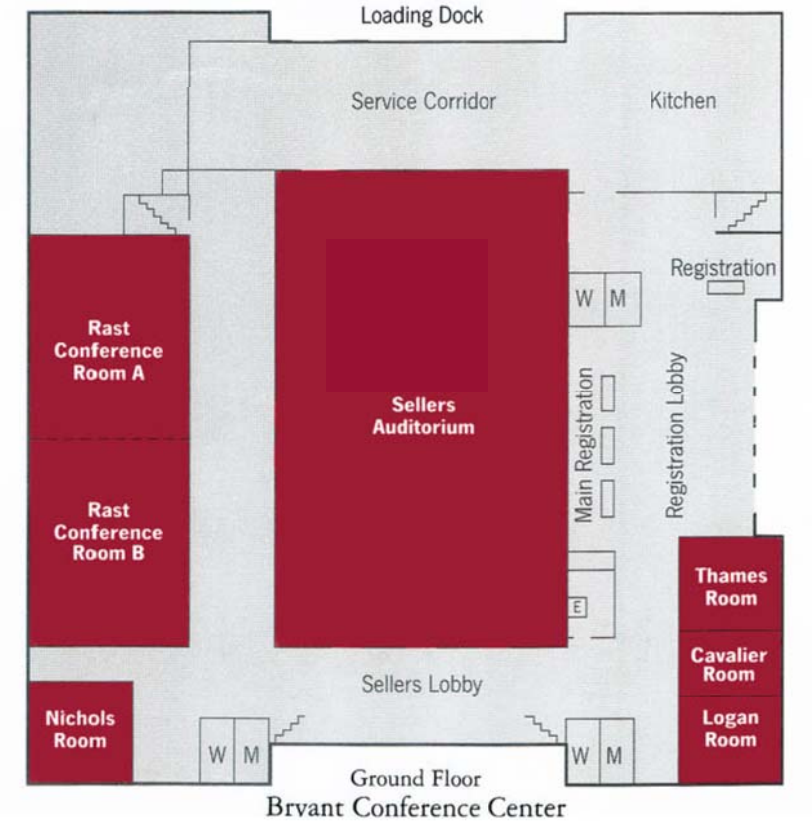
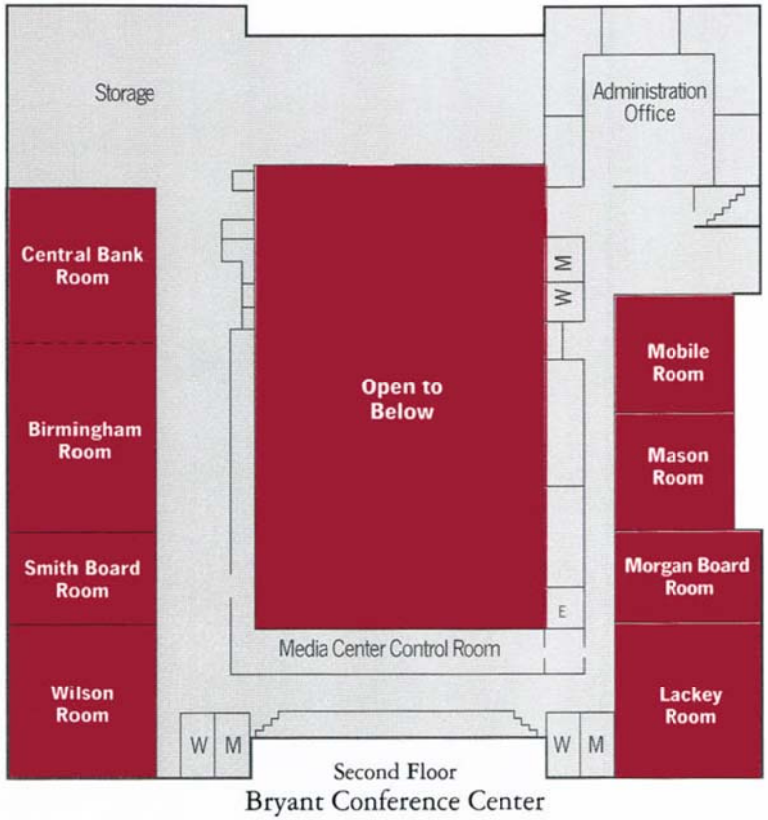


Brvant Conference Center



Bryant Conference Center

INSERTS

Social Sciences Oral Presentation Group 1

Rast A

3:40
Xavier Neal-Burgin, New College, Honors College
Faculty Mentor: Catherine Roach, New College
Portrait of the Storm: How The Documentary Was Made

Natural Sciences and Mathematics Oral Presentation Group 1

Central Bank Room

3:20
Caitlin McClusky, Geological Sciences, Honors College
Faculty Mentor: Julia Cherry, Biological Sciences
Hazards in Appalachian Headwaters: An exploration of study, mitigation, and regulation of mountaintop removal valley fill operations and their proven impacts on freshwater systems

Social Sciences Oral Presentation Group 2

Rast B

3:40
Elyse Peters, New College, Honors College
Faculty Mentor: Andrew Dewar, New College
Redefining Soul Food

COLLEGE OF COMMUNICATION AND INFORMATION SCIENCES

Poster Presentations

5BB
Morgan Casavant, Advertising/Public Relations, Honors College
Tess Tarrillion, Communicative Disorders
Faculty Mentor: Teresa Golson, Advertising/Public Relations
Quality vs. Convenience: How Camera Grade Affects the Quality of Photos

COLLEGE OF HUMAN ENVIRONMENTAL SCIENCES

Poster Presentations

39BB
D'Amber Chambers, Health Sciences
Faculty Mentor: Lori Turner, Health Sciences
Roles and Responsibilities of Physicians, Physician Assistants, and Nurse Practitioners

ABSTRACTS

COLLEGE OF ARTS & SCIENCES

Stephen Snider, Psychology
Faculty Mentor: Dr. Martin Sellbom, Psychology
Relations Between Narcissistic Personality Disorder and Proposed Trait Domains for the DSM-5
Narcissism has been a documented phenomenon for centuries. In its extreme forms, it is considered a personality disorder. As significant changes to the conception and diagnosis of personality disorders are being proposed for the DSM-5, establishing construct validity for this diagnosis is essential. The current study sought to assess relations between measures of narcissistic personality disorder and measures of the personality traits that will be included in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders.

John Powers, Biological Sciences, Honors College, Computer Based Honors Program
Faculty Mentor: Matthew Jenny, Science and Mathematics, Biological Sciences
Development of a Web-Based Transcriptomic Database for Marine and Aquatic Organisms
We are developing a publicly interactive transcriptomic database for our projects in fresh and marine invertebrate research. The database will involve our genomic/transcriptomic research projects with two marine organisms (sea anemone and oyster). These projects analyze the impact of the 2010 Gulf of Mexico oil spill. In addition, the database will involve a genomic/transcriptomic research project working toward the conservation of endangered freshwater mussel species endemic to Alabama rivers. Lastly, we will develop a bioinformatics toolkit including Selective GO Analysis and gene browsing. We aim to obtain a greater efficiency within our own research as well as promote scientific collaboration.

COLLEGE OF COMMUNICATION & INFORMATION SCIENCES

Amber Parker, Advertising/Public Relations
Faculty Mentor: Teri Henley, Advertising/Public Relations
LessThanUThink Campaign: Alcohol Expectancy Research and Results
This research project was centered around the LessThanUThink campaign. The goal of the venture was to assess the relationship between alcohol expectancies and college drinking

before and after the anti-binge drinking campaignâ€™s two week implementation. This year the campaign that started at the University of Alabama expanded to include 5 other universities in the state of Alabama, with that transition research also expanded to cover three other schools. The goal of this presentation is to explain the process and explore the findings.

CULVERHOUSE COLLEGE OF COMMERCE & BUSINESS ADMINISTRATION

Corey Whaley, Economics, Finance & Legal Studies
Mark Lail, Economics, Finance & Legal Studies
Matt Newton, Information Systems, Statistics & Management Science
Alyssa Yoon, Management & Marketing
Andrea Olson, Information Systems, Statistics & Management Science
Faculty Mentor: David Heggem, CBHP

Pride of Tuscaloosa

Today's world presents a loss of private donations and grants for many non-profits around the United States. The focus is being turned to corporate sponsorship programs for these non-profits to continue to function at the level they have become accustomed to. Pride of Tuscaloosa and Drug Free Tuscaloosa have faced this burden as the economy dwindles, that being said a corporate sponsorship program is vital. Through our research and working closely with Pride of Tuscaloosa we have begun the complex and vital process of developing a corporate sponsorship program. This program is developed to assist Pride of Tuscaloosa with identifying, maintaining, and fostering corporate sponsorships. We have worked to develop the programs for Pride of Tuscaloosa that are needed for keeping track of all corporate sponsorships such as dates received, amounts received, and when payments are due along with the links to the contracts.