CREATE @ STATE
A Symposium of Research, Scholarship & Creativity
Welcome to the eighth celebration of Create@State: A Symposium of Research, Scholarship & Creativity, showcasing the quality works of our students from across all of our university’s colleges and disciplines. This venue provides an opportunity for undergraduate and graduate students to present original work to stakeholders and the community in a professional setting. The theme for Create@State 2018 is focused around the STEAM initiative to highlight integration of STEM (Science, Technology, Engineering and Math) with Art + Design. We are excited to welcome Edwin Faughn, our distinguished keynote, as he presents to campus and the community the intersection of art, design and science. I am proud of the intellect, creativity and innovation taking place at Arkansas State University. This event is a testament to the rich cocurricular learning experiences that are provided by our outstanding faculty mentors. I hope you will participate in as many of the events over the three days as possible.

Best regards,

Andrew Sustich, Ph.D.
Associate Vice Chancellor for Research

Student Research Ambassadors 2017-2018
Ashley Schulz
Genevieve Quenum
Nathan Baggett
QianQian Yu

Brett Hale
Anna Mears
Kristian Watson
Neha Verma

Olivia Smith
Parker Knapp
Courtney Cox
Guy Van

Cameron Duke

Student Research Advisory Committee 2017-2018
Katerina Hill
Hilary Schloemer
Tina Teague
Zahid Hossain
Virginia Rolland
David Saarnio
Susan Motts
Mark Foster
Katherine Baker
Claire Abernathy
Deborah Chappel Traylor
Sarah Scott
Chi Young Song

Neil Griffin College of Business
Neil Griffin College of Business
College of Agriculture, Engineering & Technology
College of Agriculture, Engineering & Technology
College of Sciences & Mathematics
College of Education & Behavioral Sciences
College of Nursing & Health Professions
College of Nursing & Health Professions
College of Liberal Arts and Communication
College of Liberal Arts and Communication
College of Liberal Arts and Communication
College of Liberal Arts and Communication

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**Schedule**

**April 16, 2018**

- **8:30 a.m. - Noon**
  - Fowler Center
  - Showcase of the Arts – Music, Theater & Visual Arts

- **9:00 a.m. - 11:00 a.m.**
  - Riceland Hall
  - Creative Musical Performances

- **11:00 a.m. - Noon**
  - Simpson Theatre
  - Creative Theatrical Performances

- **11:00 a.m. - Noon**
  - Bradbury Art Museum Hallway Exhibit & Conference Area
  - Creative Visual Performances

- **Noon**
  - Special collaborative performance: Tableau Vivant

**April 17, 2018**

- **8:30 a.m. - 10:15 a.m.**
  - Reng Student Union, 3rd Floor
  - Concurrent Oral Sessions
    - College of Nursing & Health Professions
    - College of Education & Behavioral Sciences
      - Including Psychology, Education & Sports Management
    - College of Liberal Arts & Communication
      - Including Humanities & Arts

- **10:30 a.m.**
  - Campus tours with Advancement

- **10:30 a.m. - 11:45 a.m.**
  - Reng Student Union, 3rd Floor
  - Poster Session
    - College of Nursing & Health Professions
    - College of Education & Behavioral Sciences
    - College of Liberal Arts & Communication (Humanities & Arts)

- **11:45 a.m. - 12:15 p.m.**
  - Reng Student Union, Alumni Lounge
  - Networking Lunch
Schedule

12:15 p.m. - 1:15 p.m.
Reng Student Union, Auditorium
STEAM Keynote
Edwin Faughn, Rainwater Observatory in French Camp, Mississippi

1:30 p.m. - 3:30 p.m.
Reng Student Union, 3rd Floor
Concurrent Oral Sessions
College of Agriculture & Technology
  Including Agriculture, Technology & Engineering
College of Sciences & Mathematics
College of Liberal Arts & Communication
  Including Communications and Media

3:30 p.m.
Campus tours with Advancement

3:30 p.m. - 4:45 p.m.
Reng Student Union, 3rd Floor
Poster Sessions
College of Agriculture & Technology
  Including Agriculture, Technology & Engineering
College of Sciences & Mathematics
College of Liberal Arts & Communication
  Including Communications and Media

5:30 p.m.
Cooper Alumni Center
Networking & Reception for Create@State Judges & Invited Guests
(RSVP to Jessica Blackburn, jkscott@AState.edu)

8:00 a.m. - 8:30 a.m.
Reng Student Union, 3rd Floor
Student Entrepreneurship Welcome
Amy Hopper: Winrock International
Max Dynerman: InfoReady
Kevin Dietz & Paula Estrada de Martin: Baker, Donelson, Bearman, Caldwell & Berkowitz, PC

8:30 a.m. - 10:15 a.m.
Reng Student Union, 3rd Floor
Concurrent Oral Sessions
  Neil Griffin College of Business
    Including Business Elevator Pitch & Sales Pitch

11:00 a.m.
Reng Student Union, Vaughn Student Lounge & Auditorium
Reception and Create@State Awards

Create@State 2018 is finally here, and we would like to acknowledge the collaborative efforts of the administrators, faculty, staff and students across campus who have made this event possible. This event marks a record year of student presentations and performances, including 130+ oral and creative presentations and 90 poster presentations, made by more than 270 A-State undergraduate and graduate students. The event has grown this year to an impressive three-day event across two venues, Fowler Center and the Reng Student Union, showcasing students’ research, scholarly and creative works from all six colleges. We want to thank Dr. Summer Deprow, the Assessment Office and the Program-Level Assessment Committee for the generous assessment grant we received to pilot the curricular assessment model for Create@State, marking a first in assessment tools for student research events.

We also must recognize the commitment of the student research advisory committee, made up of faculty across each of the colleges, who collaborated with the Research and Technology Transfer Office to conduct the co-curricular assessment of student learning outcomes of students who have participated in the activities of abstract composition and presentation skills. This symposium is designed to be both a showcase and a learning experience in a professional setting for students to enhance their skills of creative and critical thinking and communication across diverse audiences, and we are constantly looking at ways to grow impact for these learning experiences.

We sincerely thank and welcome the 80+ judges, made up of alumni, industry, community and foundations who invest their time and resources in growing opportunities for student experiences reflected in the presentations this week at Create@State. Your engagement with our students and faculty make extraordinary experiences possible for our university.

This year also marks the first in endowed Create@State student awards! We want to thank InfoReady for their generous endowment of two student awards to be presented Wednesday at the Awards Ceremony. We also want to thank Baker, Donelson, Bearman, Caldwell & Berkowitz, PC, for their in-kind awards to be presented for student entrepreneurship. Named awards are important for our students as they gain recognition while preparing for their career, and we express our full gratitude for those who have made this possible.

As this event is a culmination of collaborative efforts across campus, we want to sincerely thank the Student Research and Philanthropy Councils, the Learning Commons, Career Services, Assessment, Creative Services, faculty mentors and the deans and chairs of each of the colleges for working with our Offices of Research & Technology Transfer and Advancement. Also, a big thank you to the individuals who donated to the Back the Pack campaign, and the generous sponsorships from the Student Government Association & the College of Nursing and Health Professions to carry out this event.

Sincerely,
Emily Devereux, Executive Director, Research Development
Jessica Blackburn, Director of Foundation Relations & Corporate Engagement
Keynote Speaker
Edwin Faughn - Artist Statement and Bio

“For many years the universe has been a strong motivating interest in my life. Whether I look out across a lovely green field, study the remains of a fossilized life form or peer into the vast expanse of the heavens, I am amazed by such incredible beauty and elegant design. As an artist and lecturer, much of my greatest pleasure has come from marveling at such magnificent, awe-inspiring handiwork and sharing it with others as faithfully as my growing knowledge, skills and imagination will allow.”

Edwin Faughn is an artist and lecturer specializing in space sciences and has presented hundreds of programs to diverse audiences including, but not limited to, universities, museums, schools, churches, civic groups, scouts and various other organizations. His original artwork has been featured in and on the covers of leading international space science magazines, exhibitions and planetarium productions. A few of his credits include but are not limited to Scientific American, Science News, Astronomy, Sky and Telescope, the late Carl Sagan’s Planetary Society magazine-The Planetary Report, Federal Express World Headquarters, Crew Training International, IAAA World Tour Exhibition: The Artist’s Universe and the world premiere of Titanic: The Exhibition.

Faughn is currently the director of Rainwater Observatory in French Camp, Mississippi, which is one of the largest public observatories in the southeastern United States, and also served nearly 20 years as the art director for the Sharpe Planetarium of the Pink Palace Family Museums in Memphis, Tennessee. His work has also been featured on the main KEPLER website of NASA’s Ames Research Center. More of his work can be seen at EdwinFaughn.com.
Oral Presentations

April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF NURSING & HEALTH PROFESSIONS, MOCKINGBIRD ROOM

8:30 a.m. Lauren Gottes*
The Perceived Effects of Peer Tutoring on Nursing Students

8:45 a.m. David Holmquist*
The Effect of Photobiomodulation Therapy on Adult Human Fibroblast Cells

9:00 a.m. Sandricka Bowen**
Behavioral Changes in Freshman Students

9:15 a.m. Jessica Camp**
Quality Improvement Interventions to Improve Adult-Gerontology Clinical Nurse Specialist Student Competencies

9:30 a.m. Tammy Hawkins**
Increasing Health Care Providers’ Awareness of Health Literacy to Promote Advanced Care Planning

9:45 a.m. Rhonda Hill**
Which co-morbidities aligned with FIM scores contribute to readmission rates?

April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF EDUCATION & BEHAVIORAL SCIENCES - SPORTS MANAGEMENT
PINE TREE ROOM

8:30 a.m. Sean Sanders**
Means to improve soccer in the United States

8:45 a.m. Julie Gauguery**
The Economic Impact of European Mega-Sporting Events On The Hosting Cities/Regions

9:00 a.m. Harmanvir Singh**
Measuring the growth of Indian Premium League (IPL) through the years

9:15 a.m. Levi Itamar**
ESPE 6133 Sport Finance & Budgeting

9:30 a.m. Kara Deshazo**
Athletic Departments and Ticket Prices

April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF EDUCATION & BEHAVIORAL SCIENCES - PSYCHOLOGY
ST. FRANCIS RIVER ROOM

8:30 a.m. Cecily Brock*
Affordable versus For-Profit Clinics: Cultural Adaptation towards Hispanic Patients

8:45 a.m. Emily Moran*
Lecture Note Taking Methods for Students with ADHD-like Symptoms

9:00 a.m. Madalyn Crittenden*
Shelby Daniele*
"Oh, did you say something?": Mindfulness and phubbing in college students

9:15 a.m. Sarah Halil* Amy Tipton*
Effect of Therapy Dogs in Courtroom on Witness Stress Levels

9:30 a.m. Elisha Doane* Kaitlyn Hale* Sierra Mitchell* Kashmoney Pride*
Reaction to “Pranking”: Perceptions of Practical Jokes as a Function of Relationship

April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF EDUCATION & BEHAVIORAL SCIENCES - PSYCHOLOGY
CACHE RIVER ROOM

8:30 a.m. Anthony Adkins* Worthie Springers* Tristan Sweatt*
Achievers and Leavers

8:45 a.m. Kennedy Capps* Ashley Chandler* Kerri Kramer*
Endangered Red Wolves: Traveling Suitcase for Educators

9:00 a.m. Olivia Hitchcock**

9:15 a.m. Jalisa Damron**
Jury Trials & Inappropriate Student-Teacher Relationships

9:30 a.m. Stephen Berry**
Together, They are Troy and Chase: Who Supports Demonetization of Gay Content on YouTube?

April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF LIBERAL ARTS & COMMUNICATION - UNDERGRADUATE HUMANITIES & ARTS
ARKANSAS RIVER ROOM

8:30 a.m. Warren Baxter*
Composing Electroacoustic Music

8:45 a.m. Jeremiah Page*
Making Walking Bass Lines from Someone Not Qualified to Talk about Anything Related to Walking

9:00 a.m. Nathanael Grimes*
Death, Delay, and Debate: The Failure of the Eads Ship-Railway

9:15 a.m. Joseph Brown*
Washington’s Spies: The Culpep Spy Ring and the Mystery of Agent 355

9:30 a.m. Bryan Carmer*
Treasure Island and the Origins of the Swashbuckling Pirate
April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF LIBERAL ARTS & COMMUNICATION - UNDERGRADUATE HUMANITIES
WHITE RIVER ROOM

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>Stephanie Wyatt*</td>
<td>An Autoethnography Of A Female Gamer</td>
</tr>
<tr>
<td>8:45</td>
<td>Wesley Sanders*</td>
<td>Harry Potter and the Resulting Trauma: Presentation of an Original Essay Regarding the Mental and Emotional Damages in Harry Potter</td>
</tr>
<tr>
<td>9:00</td>
<td>Sara Helms*</td>
<td>The Inescapable Angel Stereotype in Victorian Literature</td>
</tr>
<tr>
<td>9:15</td>
<td>Claire Rowland*</td>
<td>The Mentality of Slavery: Cultural Assimilation in Octavia Butler’s Kindred</td>
</tr>
<tr>
<td>9:30</td>
<td>Gracie Hicks*</td>
<td>Chavallion House Project: Hogwarts’ School Website</td>
</tr>
</tbody>
</table>

April 17th, 8:30 a.m. - 10:15 a.m.
COLLEGE OF LIBERAL ARTS & COMMUNICATION - GRADUATE HUMANITIES
BLACK RIVER ROOM

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>8:30</td>
<td>Talena Ramnath**</td>
<td>How Harry’s Relationship with Voldemort Exhibits the Gothic Doppelgänger Convention</td>
</tr>
<tr>
<td>8:45</td>
<td>Kayla Fonseca**</td>
<td>Secondary Characters finding Agency through Trauma within the Harry Potter Series</td>
</tr>
<tr>
<td>9:00</td>
<td>Samuel Jackson**</td>
<td>The Noble Savage: Parallels of Native American Subjugation in Harry Potter Centaurs</td>
</tr>
<tr>
<td>9:15</td>
<td>Kayla Davis**</td>
<td>Harry Potter and Death: A Complicated Relationship</td>
</tr>
<tr>
<td>9:30</td>
<td>Edward Hartshore**</td>
<td>Preserving Historic Cemeteries: Melding Principles and Practicality</td>
</tr>
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</table>

Poster Presentations
April 17th, 10:30 a.m. - 11:45 a.m.
COLLEGE OF NURSING & HEALTH PROFESSIONS
COLLEGE OF EDUCATION & BEHAVIORAL SCIENCES
NEIL GRiffin COLLEGE OF BUSINESS
COLLEGE OF LIBERAL ARTS & COMMUNICATION (HUMANITIES & ARTS)
CENTENNIAL HALL

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leah Young**</td>
<td>A local clinic’s use of low-dose computed tomography for lung cancer screening</td>
</tr>
<tr>
<td>2</td>
<td>Lauren Smith**</td>
<td>A Local Clinic’s Adherence to JNC 8 Guidelines on Medication Therapy for Treating Hypertension</td>
</tr>
<tr>
<td>3</td>
<td>Jennifer Arnold**</td>
<td>A local medical clinic’s rate of funduscopic exam vs the recommended annual exam</td>
</tr>
<tr>
<td>4</td>
<td>Brandy Anderson**</td>
<td>A retrospective chart review of compliance with prevention of cardiovascular complications in at risk patients according to HEDIS guidelines</td>
</tr>
<tr>
<td>5</td>
<td>Angel Hamill**</td>
<td>A retrospective chart review of obesity diagnosis in the primary care setting</td>
</tr>
<tr>
<td>6</td>
<td>Charles Gotthard**</td>
<td>A Retrospective Chart Review to Assess Percentage of Pediatric Asthma with Allergy Testing on File</td>
</tr>
<tr>
<td>7</td>
<td>Lindsey Gee**</td>
<td>Are ACEI or ARBS, in accordance with ADA guidelines, being prescribed for hypertension treatment in type II diabetics?</td>
</tr>
<tr>
<td>8</td>
<td>Courtney Chamberlain**</td>
<td>Are healthcare providers following JNC 8 guidelines on lifestyle modifications for hypertension?</td>
</tr>
<tr>
<td>9</td>
<td>Molly Dresbach**</td>
<td>Are hypertensive patients over the age of 60 years old treated in accordance with JNC 8 guidelines?</td>
</tr>
<tr>
<td>10</td>
<td>Allison Gragg**</td>
<td>Are lifestyle modifications prescribed for a diagnosis of pre-hypertension?</td>
</tr>
<tr>
<td>11</td>
<td>Heather Dito**</td>
<td>Are males age 30 to 59 diagnosed with hypertension, receiving JNC 8 recommended treatments, achieving blood pressures of less than 140/90?</td>
</tr>
<tr>
<td>12</td>
<td>Jessica Armstrong**</td>
<td>Are primary care providers discussing diet, exercise, and weight loss with patients who have a BMI ≥ 30kg/m²?</td>
</tr>
<tr>
<td>13</td>
<td>Barbara Coble**</td>
<td>Cigarette Smoking and the Eighth Joint National Committee Guidelines</td>
</tr>
<tr>
<td>14</td>
<td>Jessica Ayevco**</td>
<td>Describing the Potential Effects of Educational Offerings on the Organ Donor Registry</td>
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<td>Author</td>
<td>Program</td>
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<tr>
<td>15</td>
<td>Carla Kibbe**</td>
<td>CONHP</td>
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<tr>
<td>16</td>
<td>Pooja Ghai**</td>
<td>CONHP</td>
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<tr>
<td>17</td>
<td>Laryssa Blunt**</td>
<td>CONHP</td>
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<tr>
<td>18</td>
<td>Yolanda Davis**</td>
<td>CONHP</td>
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<td>19</td>
<td>Lindsey Johnson**</td>
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<td>Jennifer Cripps**</td>
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<td>21</td>
<td>Andrew Smith**</td>
<td>CONHP</td>
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<td>22</td>
<td>Jennifer Calas**</td>
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<td>Kikanva Osith**</td>
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<td>Whitney Bradford**</td>
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<td>25</td>
<td>Julie Keefe**</td>
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<td>26</td>
<td>Dana Childress**</td>
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<td>27</td>
<td>Timothy Bass**</td>
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<tr>
<td>28</td>
<td>Emma Miller*</td>
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<td>29</td>
<td>Madison Alfred*</td>
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<tr>
<td>30</td>
<td>Autumn Forrest*</td>
<td>CONHP</td>
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<tr>
<td>31</td>
<td>Sara Saucedo* Jennifer Taylor*</td>
<td>CONHP</td>
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<td>32</td>
<td>Perri Wright*</td>
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<td>Sarah Eason*</td>
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<td>34</td>
<td>Hannah Aldridge*</td>
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<td>35</td>
<td>Mikaela Lucy*</td>
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<tr>
<td>36</td>
<td>Victoria Wautulok*</td>
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<tr>
<td>37</td>
<td>Sarah Roddy*</td>
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<td>38</td>
<td>Haley Shofner*</td>
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<tr>
<td>39</td>
<td>Summer Nash*</td>
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<tr>
<td>40</td>
<td>David Holmquist*</td>
<td>CONHP</td>
</tr>
<tr>
<td>41</td>
<td>Jordan Maynard*</td>
<td>CONHP</td>
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<tr>
<td>42</td>
<td>Samantha Overby**</td>
<td>COEBS</td>
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<tr>
<td>43</td>
<td>Khalil Bratton**</td>
<td>COEBS</td>
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<tr>
<td>44</td>
<td>Brian Cook**</td>
<td>COEBS</td>
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<tr>
<td>45</td>
<td>Lauren Dubar*</td>
<td>COEBS</td>
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<tr>
<td>46</td>
<td>Britanny Dubose* Mckenzie Griffin* Ashley Hurst*</td>
<td>COEBS</td>
</tr>
<tr>
<td>47</td>
<td>Faith Allen*</td>
<td>COEBS</td>
</tr>
<tr>
<td>48</td>
<td>Kyle Madden*</td>
<td>COEBS</td>
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<tr>
<td>49</td>
<td>Marva Burgess* Koli Lands*</td>
<td>COEBS</td>
</tr>
<tr>
<td>50</td>
<td>VankeVia Garner*</td>
<td>COEBS</td>
</tr>
<tr>
<td>51</td>
<td>Rebecca Brittingham* Chukwuemaka Ota* Jarod Roberts*</td>
<td>COEBS</td>
</tr>
</tbody>
</table>
### Oral Presentations

#### April 17th, 1:30 p.m. - 3:15 p.m.

**COLLEGE OF AGRICULTURE, ENGINEERING & TECHNOLOGY**

**MOCKINGBIRD ROOM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Sumon Roy**</td>
<td>Applications of Nanotechnology to Predict the Moisture Sensitivity of Asphalt Binders</td>
</tr>
<tr>
<td>1:45 p.m.</td>
<td>Collin Weatherly**</td>
<td>Automatic Robotic Assembly Prototype Design and Fabrication</td>
</tr>
<tr>
<td>2:00 p.m.</td>
<td>Christopher Jones**</td>
<td>Credit Card Skimmer Protection</td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>MdSabel Nazim**</td>
<td>Particle Motion Simulator in 3D: A MATLAB Program</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td>Hunter Wood**</td>
<td>Soil exchangeable in retention at Various Soil Depths in NE Arkansas Cotton</td>
</tr>
</tbody>
</table>

#### April 17th, 1:30 p.m. - 3:15 p.m.

**COLLEGE OF SCIENCES & MATHEMATICS**

**CACHE RIVER ROOM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Harold Jack Laws*</td>
<td>Synthesis, antibacterial, and cytotoxicity studies of pyrazole-derived compounds</td>
</tr>
<tr>
<td>1:45 p.m.</td>
<td>Faith Allen**</td>
<td>Dissecting the role of adhesion kinase FAK in mediating CAPI regulation of ERK and breast cancer cell functions</td>
</tr>
<tr>
<td>2:00 p.m.</td>
<td>Mohammad Fazle Azim**</td>
<td>Genetic Transformation of Muscadine Grape to Produce Arachidin-2: A Bioactive Stilbenoid with Multiple Benefits for Human Health</td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>Robert Vernocy**</td>
<td>Next Site Selection of Eastern Wild Turkey (Melanogaster gallopavo silvestris) in a Shortleaf Pine-Bluestem Grass Ecosystem in Western Arkansas.</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td>Irene Sanchez Gonzalez**</td>
<td>Quantitative Freshwater Mussel (Bivalvia: Unionida) Surveys In The Lower Strawberry River</td>
</tr>
</tbody>
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#### April 17th, 1:30 p.m. - 3:15 p.m.

**COLLEGE OF SCIENCES & MATHEMATICS**

**ST. FRANCIS RIVER ROOM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
</tr>
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<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Jesse Brown*</td>
<td>Adsorption of Volatile Organic Compounds on the Surface of Aerosol Salts</td>
</tr>
<tr>
<td>1:45 p.m.</td>
<td>Sara Brown*</td>
<td>Extraction of Estradiol from Plasma using Low Hazard and Low Cost Organic Solvents</td>
</tr>
<tr>
<td>2:00 p.m.</td>
<td>Jon Mize*</td>
<td>Optical Homodyne: Computer Generated Data and Results</td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>Patrick Tribbett**</td>
<td>Optimizing LA-LEAF for Trace-Element Detection</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td>Kristiana Watson*</td>
<td>Removal of an Endocrine Disruptor by Clay-like Oxides</td>
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<tr>
<td>2:45 p.m.</td>
<td>Audrey Kirk*</td>
<td>Simulation Study for Some Multiple Testing Procedures Based on Covering Principle</td>
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<tr>
<td>3:00 p.m.</td>
<td>Zachary Rail*</td>
<td>Thermoviscoelastic Rod And Nonlinear Timoshenko Beam System With Dynamic Contact</td>
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<tr>
<td>3:15 p.m.</td>
<td>Samantha McKnight*</td>
<td>Mangrove Systems as Nurseries for Caribbean Coral Reef Fishes</td>
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<tr>
<td>3:30 p.m.</td>
<td>John Davis*</td>
<td>Optical Homodyne: Introduction and Mathematical Analysis</td>
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<tr>
<td>3:45 p.m.</td>
<td>Katelyn Watson*</td>
<td>Optical Homodyne: Experimental Design and Results</td>
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#### April 17th, 1:30 p.m. - 3:15 p.m.

**COLLEGE OF LIBERAL ARTS & COMMUNICATION - GRADUATE COMMUNICATION/MEDIA**

**PINE TREE ROOM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Chelsea Hays**</td>
<td>How Universities Handle Sexual Assault and Harassment Cases: A Victim’s Perspective</td>
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<tr>
<td>1:45 p.m.</td>
<td>Jonathan Thibault**</td>
<td>Self-disclosure in Digital Media</td>
</tr>
<tr>
<td>2:00 p.m.</td>
<td>Musaed Alshammari**</td>
<td>Social Media’s Role in Promoting Volunteerism and Charitable Work in Kuwaiti Society</td>
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</table>
### April 17th, 1:30 p.m. - 3:15 p.m.
**COLLEGE OF LIBERAL ARTS & COMMUNICATION - UNDERGRADUATE COMMUNICATION/MEDIA**
**ARKANSAS RIVER ROOM**

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<tr>
<th>Time</th>
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<th>Title</th>
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<tr>
<td>1:30 p.m.</td>
<td>Christian Canizales*</td>
<td>A gendered analysis of the second 2016 Presidential Debate: Muted Group Theory</td>
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<tr>
<td>1:45 p.m.</td>
<td>Madison Hart*</td>
<td>A Look at the First Female Nominee</td>
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<tr>
<td>2:00 p.m.</td>
<td>Amber Blade*</td>
<td>Feminism, The Working Woman</td>
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<td>2:15 p.m.</td>
<td>Tanjela Robinson*</td>
<td>Is there really love in hip hop?</td>
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<tr>
<td>2:30 p.m.</td>
<td>Jamie Shaw*</td>
<td>Analysis of The Crown</td>
</tr>
<tr>
<td>2:45 p.m.</td>
<td>Christopher Kjellaug*</td>
<td>Death Becomes Her: A View of Gender Enhancement</td>
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### April 17th, 1:30 p.m. - 3:15 p.m.
**COLLEGE OF LIBERAL ARTS & COMMUNICATION - UNDERGRADUATE COMMUNICATION/MEDIA**
**WHITE RIVER ROOM**

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<tr>
<td>1:30 p.m.</td>
<td>Lamarcus Cole*</td>
<td>Forms of Feminism in Hidden Figures</td>
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<tr>
<td>1:45 p.m.</td>
<td>Levi Crawford*</td>
<td>Gender stereotypes in television shows</td>
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<td>2:00 p.m.</td>
<td>Ryoko Uchida*</td>
<td>Gendered women and men in fashion magazines</td>
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<tr>
<td>2:15 p.m.</td>
<td>Mikka Rolle*</td>
<td>What happened to Monday Standpoint Theory?</td>
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<tr>
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<td>Kyron Henderson*</td>
<td>Liberty for All</td>
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<td>2:45 p.m.</td>
<td>Logan Wescott*</td>
<td>Naked Hustle</td>
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### April 17th, 1:30 p.m. - 3:15 p.m.
**COLLEGE OF LIBERAL ARTS & COMMUNICATION - UNDERGRADUATE COMMUNICATION/MEDIA**
**BLACK RIVER ROOM**

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<tr>
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<td>Mckenzie Garrett*</td>
<td>Parking Issues/Solutions at Arkansas State University</td>
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<td>1:45 p.m.</td>
<td>Kaylianne Weber*</td>
<td>Standpoint Theory as it applies to “The Total Woman”</td>
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<tr>
<td>2:00 p.m.</td>
<td>Clark Ferguson*</td>
<td>The Difference in Rules and Acceptable Behavior at Sorority Houses compared to Fraternity Houses</td>
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### Poster Presentations

### April 17th, 3:30 p.m. - 4:45 p.m.
**COLLEGE OF AGRICULTURE, ENGINEERING & TECHNOLOGY**
**COLLEGE OF SCIENCES & MATHEMATICS**
**CENTENNIAL HALL**

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<tr>
<th>Poster Number</th>
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<tbody>
<tr>
<td>55</td>
<td>Sumon Roy**</td>
<td>Characterization of Asphalt Binder Resistance to Moisture Damage using the Microscopy Technique</td>
</tr>
<tr>
<td>56</td>
<td>Mohammad Hassan**</td>
<td>Characterization of Paving Asphalt Binders-a Chemistry Perspective</td>
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<tr>
<td>57</td>
<td>Pruthviraj Pola**</td>
<td>Comparison of Soybean Vegetation Coverage and Crop Response to Different Cover Crop Treatments based on Aerial Images</td>
</tr>
<tr>
<td>58</td>
<td>Neha Verma**</td>
<td>Genetic modification of Switchgrass cell wall for improved biomass processability</td>
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<tr>
<td>59</td>
<td>Kazi Tamizidul Islam**</td>
<td>Performance Evaluation of Silica Fume (SF) Modified Concrete</td>
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<td>60</td>
<td>MdSaber Nazim**</td>
<td>Scattered magnetic field in multiple Rayleigh particles systems</td>
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<tr>
<td>61</td>
<td>MdAriful Hasan**</td>
<td>System-Reliability Concepts in Bridge Pier Design: Inclusion of Scour and Soil Variability Effects</td>
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<tr>
<td>62</td>
<td>Shailaja Vemula**</td>
<td>UAS-Based Remote Sensing for Weed Identification and Cover Crop Termination Determination</td>
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<td>63</td>
<td>MMTariq Morshed**</td>
<td>Viscosity Temperature Susceptibility Analysis for Nanoclay-Modified Asphalt Binders</td>
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<td>64</td>
<td>Amber Booth*</td>
<td>Agrobacterium tumefaciens in vacuum infiltration of Zea mays for transient expression</td>
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<td>65</td>
<td>Brandon Cole*</td>
<td>Baja Racer - Drivetrain Design for Transfer of Functional Power</td>
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<td>66</td>
<td>Christopher Jones*</td>
<td>Credit Card Skimmer Protection</td>
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<tr>
<td>67</td>
<td>Haylee Campbell*</td>
<td>COATENG</td>
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<td>68</td>
<td>Emma Martin**</td>
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<td>69</td>
<td>Abbas Karouni**</td>
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<tr>
<td>70</td>
<td>Cristofer Calvo**</td>
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<td>Dylan DeRouen**</td>
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<td>Chineche Aniemena*</td>
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<td>88</td>
<td>Kei Ohgo*</td>
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<td>89</td>
<td>Jennifer Bryant*</td>
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**Oral Presentations**

April 18th, 8:30 a.m. - 10:15 a.m.
NEIL GRIFFIN COLLEGE OF BUSINESS - SALES PITCH

AUDITORIUM

<table>
<thead>
<tr>
<th>Presenter</th>
<th>Email Address</th>
</tr>
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<tbody>
<tr>
<td>Tori Bell</td>
<td><a href="mailto:tori.bell@smail.AState.edu">tori.bell@smail.AState.edu</a></td>
</tr>
<tr>
<td>Matthew Strack</td>
<td><a href="mailto:matthew.starck@smail.AState.edu">matthew.starck@smail.AState.edu</a></td>
</tr>
<tr>
<td>Shelby O’Brien</td>
<td><a href="mailto:shelby.obrien@smail.AState.edu">shelby.obrien@smail.AState.edu</a></td>
</tr>
<tr>
<td>Hayden Henderson</td>
<td><a href="mailto:hayden.hendo@smail.AState.edu">hayden.hendo@smail.AState.edu</a></td>
</tr>
<tr>
<td>Kiel Causey</td>
<td><a href="mailto:kiel.causey@smail.AState.edu">kiel.causey@smail.AState.edu</a></td>
</tr>
<tr>
<td>Jordan Sheets</td>
<td><a href="mailto:jordan.sheets@smail.AState.edu">jordan.sheets@smail.AState.edu</a></td>
</tr>
<tr>
<td>Payton Sledge</td>
<td><a href="mailto:Payton.sledge@smail.AState.edu">Payton.sledge@smail.AState.edu</a></td>
</tr>
<tr>
<td>Liz Burris</td>
<td><a href="mailto:elisabet.bussis@smail.AState.edu">elisabet.bussis@smail.AState.edu</a></td>
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<tr>
<td>Jenny Keller</td>
<td><a href="mailto:jkeller@AState.edu">jkeller@AState.edu</a></td>
</tr>
<tr>
<td>Kayla Priddy</td>
<td><a href="mailto:kayla.priddy@smail.AState.edu">kayla.priddy@smail.AState.edu</a></td>
</tr>
<tr>
<td>Madison Riley</td>
<td><a href="mailto:Madison.riley1@smail.AState.edu">Madison.riley1@smail.AState.edu</a></td>
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April 18th, 8:30 a.m. - 10:15 a.m.
NEIL GRIFFIN COLLEGE OF BUSINESS - BUSINESS ELEVATOR PITCH
ARKANSAS RIVER ROOM

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<td>Adam Aldhanki</td>
<td><a href="mailto:adam.aldhanki@smail.AState.edu">adam.aldhanki@smail.AState.edu</a></td>
<td>Farming Crickets, the Future of Food</td>
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<tr>
<td>Alicia Dyer</td>
<td><a href="mailto:alicia.dyer@smail.AState.edu">alicia.dyer@smail.AState.edu</a></td>
<td>Wine About It</td>
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<td>Mods for Rods: Customize your Ride</td>
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<td>Devon Newton</td>
<td><a href="mailto:devon.newton@smail.AState.edu">devon.newton@smail.AState.edu</a></td>
<td>New &amp; Improved Blackboard</td>
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<td>Ervin Torres Meza</td>
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<td>&quot;Desire&quot; Upscale Dessert Bar</td>
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<td>Hunter McQueen</td>
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<td>VoiceGate: Background Noise Filter for Smartphones</td>
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<td>Jake Hickman</td>
<td><a href="mailto:jake.hickman@smail.AState.edu">jake.hickman@smail.AState.edu</a></td>
<td>Delivery/Storage/Pickup Solutions</td>
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April 18th, 8:30 a.m. - 10:15 a.m.
NEIL GRIFFIN COLLEGE OF BUSINESS - BUSINESS ELEVATOR PITCH
BLACK RIVER ROOM

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<td>John Carlile</td>
<td><a href="mailto:johnatha.carlile@smail.AState.edu">johnatha.carlile@smail.AState.edu</a></td>
<td>Cell Phone Lockdown</td>
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<tr>
<td>Jordan Kasza</td>
<td><a href="mailto:jordan.kasza@smail.AState.edu">jordan.kasza@smail.AState.edu</a></td>
<td>Gas Station Remodeling</td>
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<tr>
<td>Joshua Goldsmith</td>
<td><a href="mailto:joshua.goldsmith@smail.AState.edu">joshua.goldsmith@smail.AState.edu</a></td>
<td>Future of Rugby Mouth Guards</td>
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<td>Kirk Kalson</td>
<td><a href="mailto:kirk.kalson@smail.AState.edu">kirk.kalson@smail.AState.edu</a></td>
<td>Bath Accessories Technologies</td>
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<tr>
<td>Leslie Rogers</td>
<td><a href="mailto:leslie.rogers@smail.AState.edu">leslie.rogers@smail.AState.edu</a></td>
<td>Just In Case Laptop Case</td>
</tr>
<tr>
<td>Mallory Long</td>
<td><a href="mailto:mallory.long@smail.AState.edu">mallory.long@smail.AState.edu</a></td>
<td>‘The Buzzed Cut’</td>
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April 18th, 8:30 a.m. - 10:15 a.m.
NEIL GRIFFIN COLLEGE OF BUSINESS - BUSINESS ELEVATOR PITCH
WHITE RIVER ROOM

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<td>Meng-Fan (Jackson) Wu</td>
<td><a href="mailto:mengfan.wu@smail.AState.edu">mengfan.wu@smail.AState.edu</a></td>
<td>Screaming- a new way to enjoy movies</td>
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<tr>
<td>Miranda Keys</td>
<td><a href="mailto:miranda.keys@smail.AState.edu">miranda.keys@smail.AState.edu</a></td>
<td>Rollin’ in the Dough</td>
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<td>Nathan Bailey</td>
<td><a href="mailto:Nathan.bailey@smail.AState.edu">Nathan.bailey@smail.AState.edu</a></td>
<td>Dam-Right Company LLC. Fight floods the Dam-Right Way</td>
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<tr>
<td>Nicholas Mero</td>
<td><a href="mailto:Nicholas.mero@smail.AState.edu">Nicholas.mero@smail.AState.edu</a></td>
<td>100% Plant-Based Biodegradable Grocery Bags</td>
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<tr>
<td>Peyton Roe</td>
<td><a href="mailto:peyton.roe@smail.AState.edu">peyton.roe@smail.AState.edu</a></td>
<td>Smart Study App</td>
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Oral Presentations
April 18th, 8:30 a.m. - 10:15 a.m.
NEIL GRIFFIN COLLEGE OF BUSINESS - BUSINESS ELEVATOR PITCH
WHITE RIVER ROOM

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<td>Rylee Lewis</td>
<td><a href="mailto:rylee.lewis@smail.AState.edu">rylee.lewis@smail.AState.edu</a></td>
<td>Yesterday’s Dollars, Today’s Investments</td>
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<td>Sadie Johnson</td>
<td><a href="mailto:sadie.johnson@smail.AState.edu">sadie.johnson@smail.AState.edu</a></td>
<td>Immerse: Get Involved</td>
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<td>Skylar Staub</td>
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<td>LockItUp: A Solution to Keeping Property Secured</td>
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<td>Thomas Hills</td>
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<td>Tristan Tippett</td>
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<td>Solar energy</td>
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<td>Tromiyah Jacobs</td>
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<td>CLC campus life connected</td>
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<td>Tyler Clement</td>
<td><a href="mailto:tyler.clement@smail.AState.edu">tyler.clement@smail.AState.edu</a></td>
<td>Innovative break light solutions</td>
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<td>Weston Wagner</td>
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<td>Game Processing in NEA</td>
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<td>William Crowley</td>
<td><a href="mailto:william.crowley@smail.AState.edu">william.crowley@smail.AState.edu</a></td>
<td>Apache: A New POS System That Offers Many Other Benefits To Your Business</td>
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SPECTRAL MUSIC: A CREATIVE PERSPECTIVE ON LISTENING AND AURAL ANALYSIS
Connor Scroggins - Undergraduate
connor.scroggins@smail.AState.edu

Spectral music is the study of timbre and its basis in harmonic relationships. This paradigm of composition is named after “spectral analysis,” the study of harmonics, or overtones, present in a single sounded pitch. Except for a pure sine wave, a sounding pitch is comprised of many overtones that are mathematically related to the sounded frequency. These rational relationships to the “fundamental frequency” produce resonances that we perceive not individually but rather as a composite sound, shaping the timbre of the sounded pitch. Furthermore, spectral composition involves the use of “inharmonic” frequencies that do not rationally relate to the fundamental frequency, serving to artificially affect the composite resonance and tone. Spectral music challenges us to listen to music with a significant focus on timbre. This contrasts with conventional styles of composition. Normally, motifs create structure, and timbre is a secondary musical detail that serves the motifs; however, in spectral music, timbre is the primary concern, with motivic ideas and structure developing from timbre itself. This sort of listening gives us a new perspective with which to listen and study music of the past and serves as a gateway to refine our creation of music of the future.

Mentor: Timothy Crist, tcrist@AState.edu

MIRAGE
Tye Crawford - Undergraduate
tyecrawford@smail.AState.edu

As humanity begins to advance our understanding of science, we look back on our past innovations and look to see how far we’ve come. From the wheel to the iPad, we have improved upon everything by looking at the defective problems we had. In this piece, I explore the nostalgia of our past and recreate some of the things we remember, either with happiness of simpler times, or from frustration of defective equipment we put into them. This piece is an original sound scape created to revisit some of the feelings my generation had as kids in an atmospheric way. I took recordings of various noises in my house, put pitches in, and chopped up the whole recording to replicate the sound of glitching software.

Mentor: Timothy Crist, tcrist@AState.edu

EVERYONE HAS THEIR OWN SONG
Callie Clark - Undergraduate
callie.clark@smail.AState.edu

There exists a correlation between music and human personality. The attributes of a person including their personality, behaviors, appearance, actions and language form an impression that provokes musical imagery. There is a fluid connection that can be learned between the human experience and the artistic experience. When new human connections are made, those points of contact contain expressive content that may be translated into musical material and meaningful artistic designs. This presentation will involve examples of how human engagement inspires the formation musical content in my original music composition and the nature of the resulting musical argument. Everyone has a theme song, different and unique.

Mentor: Timothy Crist, tcrist@AState.edu
Mentor: Derek Jenkins, djenkins@AState.edu

THE SONGS OF BEN MOORE: A CREATIVE APPROACH TO ENGAGING THE MODERN AUDIENCE
Crystal Kachevas - Undergraduate
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Today, the words “opera” and “recital” have a negative connotation that goes hand-in-hand with the words “outdated” and “boring.” In response, composers like Ben Moore are starting to take a creative approach to engaging the modern audience with music that is written specifically for them. My PowerPoint presentation over Moore’s musical process accompanied by musical examples encompasses not only the analytical aspects of Ben Moore’s music but the issue regarding the modern audience’s feelings toward operatic and recital repertoire. I will present his use of tempo, meter, key and text painting to portray a certain mood to his audiences. My research explores the concept of performers connecting to an audience through a hybrid of composing that allows all to enjoy the beauty of operatic and recital repertoire despite their musical background or lack thereof.

Mentor: Marika Kyriakos, mkyriakos@AState.edu
“CATCHING SHADOWS” BY IVAN TREVINO

Joan of Arkansas

The intent of this creative thesis is to explore the process by which music is transformed from an idea into a fully edited recording which an audience

April 16th, 11:00 a.m. – Noon

Mentor: Timothy Crist, tcrist@AState.edu
Mentor: Tara Schwab, tschwab@AState.edu
Mentor: Kenneth Carroll, kdcarroll@AState.edu
Mentor: Timothy Bohn, tbohn@AState.edu

Satie’s influence on compositional thought

Joana Moquin - Undergraduate
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Erik Satie’s musical influence has inspired many composers. His music is unique in its use of registral and textural space, minimalist tendencies, presence of short, fragmented musical ideas, and a curious playfulness and theater that provokes imagery. Perhaps most fascinating about Satie is that his music inspired the work of artists across genres of music including rock, progressive rock, and psychedelic music, but also

FROM PAPER TO DISK: THE MUSIC MAKING PROCESS

Janet Holt - Undergraduate
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The intent of this creative thesis is to explore the process by which music is transformed from an idea into a fully edited recording which an audience can enjoy. This presentation will showcase three distinct pieces that vary in compositional technique and style. Each piece will be recorded from a score that includes a discussion about the creative process behind each piece. Each piece began as a simple motif, or musical idea, and was developed into a full musical score. One piece is in Latin style and brings the audience to a place of improvisation, where the performers that are involved in the recording process will

David Norris - Undergraduate
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- Undergraduate

Jonathan Norris - Undergraduate
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Samantha Holt - Undergraduate
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- Graduate

Samantha Holt - Undergraduate
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- Undergraduate

Catherine Sullivan, csullivan@AState.edu

- Undergraduate

Madeline Jennings, madeline.jennings@AState.edu

- Undergraduate

Lauren Bunting - Undergraduate
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- Undergraduate

Autumn Harris - Undergraduate
autumn.harris@AState.edu

- Undergraduate

Megan Weaver - Undergraduate
megan.weaver@AState.edu

- Undergraduate

Kiera Crenshaw - Undergraduate
kiera.crenshaw@AState.edu

The bulk of us are coveting trash and giving it value. The theme of “disposability” was set to a 24-hour deadline and the finished result was an installation piece of a cereal box hanging from the ceiling and pouring onto the floor. Initially we had a more abstract idea and eventually after plentiful discussion and integration of ideas, it was decided to bring into the piece an image of a cereal box. The cereal box functions as a symbol to the audience that is

- Undergraduate

David Persell - Undergraduate
david.persell@AState.edu

As a team of four students, we were tasked with the challenge of creating a piece from trash within a 24-hour time limit. The idea of this event was to provide a reflection on the world we live in and the way we consume. Trash is something that is frequently handled as a commodity. The work is a reflection of our society’s approach to trash and its disposal.

- Undergraduate

Samantha Holt - Undergraduate
samantha.holt@AState.edu

- Undergraduate

Hannah Cummins - Undergraduate
hannah.cummins@AState.edu

How can stories be told through movement? These are questions I sought to answer through directing this performance of Kristina Halvorson’s 10-minute play, 100 Women. Rehearsals focused on improvisational movement through techniques such as Gabrielle Roth’s 5 Rhythms as well as Tina Landau and Anna Deavere Smith’s method acting techniques which allowed the actors to connect to their bodies and use them to express meaning and emotion. These physical explorations helped the actors find movement and patterns to help bring Halvorson’s story to fruition on stage. Through extensive research and discussion of the script, we decided to break down stage pictures and guided actors through choosing tactics and objectives to tell this story in the clearest way possible. While set in the contemporary world, the story is product of women’s history and women’s ever-changing place in society.

The performance, feminist in nature, asks the question, “What is the value of female friendships and what are the dangers of limiting our relationships to an ‘idealistic’ way?”

- Undergraduate

David Norris - Undergraduate
jonathan.norris@AState.edu

People allow themselves to become trapped in society; their lives become stagnant and unchanging until the life they have built becomes a prison. Joan of Arkansas is a 10-minute play that explores this idea and presents it to us in the form of two college students studying for final exams. The two are studying Joan of Arc and Oscar Wilde respectively, and while the white bird is present, distracting the pair from their studies. The artistic structure is accurately portraying these historical figures through the college students, and accurately presenting the bird as a metaphor of their lives and struggles. Joan of Arkansas takes two relatable students, one of whom falls from Arkansas, and uses these familiar figures to show us how we can

Joan of Arkansas

April 16th, 11:00 a.m. – Noon

Creative Theatrical Performances, Simpson Theatre

100 WOMEN

Hannah Cummins - Undergraduate
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April 17th, 8:30 a.m. – 10:15 a.m.
College of Nursing & Health Professions, Mockingbird Room

THE PERCEIVED EFFECTS OF PEER TUTORING ON NURSING STUDENTS
Lauren Gote - Undergraduate
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Aim: To explore the effects of being a nursing student peer tutor. Background: Evidence shows that there are benefits for student tutoring by a peer, including development of collaborative skills, teaching skills, and evaluative judgment. However, the benefits of being a nursing peer tutor have not been explored. Methods: A qualitative study was performed using semi-structured interviews. The sample consisted of three nurses who were peer tutor instructors while they were nursing students. Data were collected over a 10-week period. Results: Qualitative data analysis was conducted using content analysis by the principal investigator. The three global themes of professional competence, personal competence, and social effects were identified. Within these three themes, seven subthemes emerged. The subthemes included enhanced confidence in knowledge and skill, refinement of leadership skills, educational and emotional satisfaction, added stress, time consumption, and enhanced bonding with peers. Conclusion: The findings of this study have the potential to influence more schools of nursing to adopt peer-assisted learning programs. Post-graduate benefits to being a peer tutor may encourage more students to participate and motivate them to dedicate more energy to tutoring. The perceived effects of peer tutoring on nursing students continue to evolve and warrants further research.

Mentor: Krista Snellgrove, ksnellgrove@AState.edu

THE EFFECT OF PHOTOBIMOODULETHERAPY ON ADULT HUMAN FIBROBLAST CELLS
David Holquist - Undergraduate
david.holquist@AState.edu

Fibroblast cells play a key role in skin wound healing. Various techniques including photobiomodulation therapy (PBMT) have been used to facilitate this process. In vivo, PBMT carries many advantages and seems to be a promising method for wound healing; however, the standard protocol of PBMT has not been clearly established due to the inconsistency of study results. We hypothesize that different conditions of PBMT may have different effects on fibroblast cell proliferation. Different wavelengths of PBMT including 840nm red light, 635nm infrared light, and 444nm blue light are delivered to cultured human fibroblast cells at different irradiance levels of 1J/cm2, 3J/cm2, 5J/cm2, 10J/cm2, and 7J/cm2. Cells without any light treatment are used as the control. Cell proliferation, oxidative stress levels, and collagen levels are measured following light treatments. Our results indicate that oxidative stress and collagen levels will correspondingly decrease as well as PBMT treated groups. In conclusion, low doses of PBMT may adversely prevent wound healing in certain conditions. Extended research is needed to further explore the optimum condition of PBMT to enhance wound healing.

Mentor: Junlin Zhang, jzhang@AState.edu

BEHAVIORAL CHANGES IN FRESHMAN STUDENTS
Sandricka Bowen - Graduate
sandricka.bowen@AState.edu

Introduction: Arkansas consistently ranks among the nation’s top three most unhealthy states with high obesity levels, low physical activity rates and tobacco use. A-State has an opportunity to implement positive behavioral changes for freshman students transitioning from adolescence into adulthood. The purpose of this study is to determine current health behaviors in A-State freshman. Methods: An electronic survey on healthy behaviors was developed and piloted in Spring 2017. The final survey was sent to 1,424 freshmen enrolled in First Year Experience class in Fall 2017. Results: The return rate was 23 percent (329/1,424) for the Healthy Behaviors questionnaire. Results indicated that majority of freshmen sate processed foods, drink sugar-sweetened beverages and do not meet the minimum weekly physical activity requirements. The major reason for not exercising was that they “don’t have time”. And, especially blue PBMT significantly prevent cell proliferation compared to the control. We anticipate that the oxidative stress and collagen levels will correspondingly decrease as well as PBMT treated groups. In conclusion, low doses of PBMT may adversely prevent wound healing in certain conditions. Extended research is needed to further explore the optimum condition of PBMT to enhance wound healing.

Mentor: Junlin Zhang, jzhang@AState.edu

QUALITY IMPROVEMENT INTERVENTIONS TO IMPROVE ADULT-GERONTOLOGY CLINICAL NURSE SPECIALIST STUDENT COMPETENCIES
Jessica Camp - Graduate
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The Advanced Practice Registered Nurse (APRN) Consensus Model established guidelines in 2008 for states to determine APRN practice through licensing, accreditation, certification and education (LACE). The Master of Science Nursing (MSN) Adult-Gerontology Clinical Nurse Specialist (AG-CNS) education program is the culmination of this competency-based curriculum. Competencies are used to ensure mastery of content in MSN APRN programs of study. A pilot study was conducted, and it confirmed that there were deficits in the knowledge of some competencies and confusion in the role of the MSNAGCNS by students, preceptors and practicing CNS providers. The purpose of this research project is to improve Adult-Gerontology Clinical Nurse Specialist competencies designed to meet the APRN Consensus Model into the CNS program specialty. National certification rates, end-of-course evaluations, scores from the simulation based case study, student surveys, preceptor feedback and an employer satisfaction survey will be analyzed for this descriptive study. Data collection is ongoing with analysis pending. Program gaps are discussed and student learning is measured by performance on end-of-course exams, program competency exam and the certification pass rate for this specialty.

Mentor: Debbie Shelton, dshelton@AState.edu

INCREASING HEALTH CARE PROVIDERS’ AWARENESS OF HEALTH LITERACY TO PROMOTE ADVANCE CARE PLANNING
Tammy Hawkins - Graduate
tammy.hawkins@AState.edu

Only 30-50 percent of Americans have advance directives despite the passage of the Patient Self-Determination Act of 1991. Futility and unwanted care occur at the end of life. The purpose of this project is to examine implementation of an advance care plan visit using health literacy interventions. This will increase advance care plan discussions and completion rates of advance directives/advance care plans. A quasi-experimental design pilot study was conducted in 2017 consisted of 21 participants from an internal medicine clinic in Northeast Arkansas. A sample t-test comparing pre-test scores and post-test scores revealed statistically significant improvement in scores. A process for advance care plan visits plans to be incorporated into the internal medicine clinic. Interventions addressing health literacy from the AHRQ Toolkit will be incorporated into advance care plan visits. A quasi-experimental design with convenience sampling of Medicare beneficiaries ages 65 and older will be used. Completion rates of advance directives before and after the intervention will also be analyzed using the t-test. Increasing advance care plan discussions will lead to increased directive completion rates promoting patient-centered care, less aggressive and futile treatment with fewer deaths in the acute care setting, and decreased healthcare costs.

Mentor: Debbie Shelton, dshelton@AState.edu

WHICH CO-MORBIDITIES ALIGNED WITH FIM SCORES CONTRIBUTE TO READMISSION RATES?
Rhonda Hill - Graduate
rhonda.hill@AState.edu

Readmission rates to acute care during inpatient rehabilitation stays are frequent and expensive. Readmissions cost individual rehabilitation facilities thousands of dollars each year and are reported to cost Medicare over $7 billion annually. HealthSouth Rehabilitation Hospital of Jonesboro reports approximately 200 readmissions to acute care yearly. Preventing one acute care transfer monthly will save HealthSouth approximately $150,000 yearly. Decreasing readmissions by 50 percent has the potential to save the facility $1.2 million annually. The contributing factors of readmission are not known because they may be at higher risk. Few studies examining this phenomenon have been conducted. The purpose of this study is to determine if patients with certain functional independence measure (FIM) scores and a diagnosis of diabetes, chronic kidney disease, hypertension or heart failure have a higher probability of acute care readmission. A retrospective chart review of all readmissions from 2016 to May 2017 was performed to determine if a correlation between FIM scores, comorbidities and readmissions exist. Data has been collected and analysis is underway. Determining which co-morbidities and FIM scores are linked with readmissions will allow rehabilitation facilities to develop protocols for screening patients who can endure a more productive, cost-effective rehabilitation.

Mentor: David LaVetter, lavetter@AState.edu

MEANS TO IMPROVE SOCCER IN THE UNITED STATES
Sean Sanders - Graduate
ssanders08@AState.edu

The United States men's national soccer team failing to qualify for the 2018 FIFA World Cup was one of the lowest moments in the country's underwhelming men's soccer history. The 2-1 loss at Trinidad and Tobago calls for drastic changes and improvements if the country wants to be relevant in the international soccer community. Research so far indicates that improving the quality of American club leagues will lead to improving the national team. While leagues like Major League Soccer try to improve, players should be exported to better leagues so they can return to the national team. And if Americans are willing to pay for it through tax dollars, a national soccer center should be built to recruit and train the country's best soccer players. Other means will be explored through the perspective or sport finance.

Mentor: David LaVetter, lavetter@AState.edu

THE ECONOMIC IMPACT OF EUROPEAN MEGA-SPORTING EVENTS ON THE HOSTING CITIES/REGIONS
Julie Gaugery - Graduate
julie.gaugery@AState.edu

This paper will provide information about the economic impact of a city for hosting mega sports events using the analysis of events in European cities. The paper will discuss the revenue and the cost of the mega-sport as well as the long-term economic impact of the event, and will analyze the economic growth of the city based on the mega-sport event hosted. The paper will focus on three main mega-sporting events which will be analyzed: The tennis tournament “Rolland-Garros” in Paris, the 2012 Olympic games in London, and the 2014 Ryder Cup in Pertshire, Scotland. This paper contributes to the research of host cities’ economic growth through mega events and help cities in bidding for hosting a future sport event.

Mentor: David LaVetter, lavetter@AState.edu

MEASURING THE GROWTH OF INDIAN PREMIUM LEAGUE (IPL) THROUGH THE YEARS
Harmansingh Singh - Graduate
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This paper will measure the economic growth of IPL through the years since it started 10 years ago, it will focus on how the lucrative cricket league has impacted the economy of the host country i.e. India. It will focus on the value of the different teams involved, their growth and how it impacts their respective states. To give a general view this season (2018), IPL renewed its media right and bids were placed by social media giants such as Facebook and Twitter and telecom companies such as Airtel and Reliance. The bid was taken by Star India for an amount of $2.3 billion, which is an estimated increase of 25 percent.

Mentor: David LaVetter, lavetter@AState.edu
April 17th, 8:30 a.m. – 10:15 a.m.
College of Education & Behavioral Sciences – Psychology, St. Francis River Room

ESPE 6133 SPORT FINANCE & BUDGETING
Itamar Levi - Graduate
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The Effect of Mega Sport Events on the Hosting Cities/Countries. The following paper will explore the economic effects on cities that hosted a mega sport event such as a World Cup or Olympic games. To do so, the paper will analyze three major mega sport events that took place in the past 20 years. The mega sport events were chosen for the paper are: The London 2012 Summer Olympics, 2010 FIFA South Africa and the 2014 Sochi Olympics. The paper reveals the financial changes that the hosting city/country experienced before, during and after the mega sport event took place. In addition, the paper will discover if the mega event had a negative or positive impact on the local economy and businesses. For better understanding of the financial changes that took place during hosting places, the paper will compare different revenues and losses which happened during the events.

Mentor: David LaVetter, lavetter@AState.edu

ATHLETIC DEPARTMENTS AND TICKET PRICES
Kara Deshazo - Graduate
deshazo@AState.edu

University athletic departments throughout the nation all have different aspects that make their athletic programs unique. This article takes a look into the understanding how these athletic departments determine the price of tickets to their sporting events. The only consistency between any athletic department stems from the selling of tickets. Ticket prices can be outrageously high for some events while affordable for others, but the question is why? Why do athletic departments decide to raise their ticket prices to their athletic events? “Prices change daily based on factors such as team performance, individual player performance, ticket prices in the secondary market, and weather” (Farris, Drayer, & Shapiro, 2012) When a team is performing well the departments will raise the prices. Other factors that affect ticket price pricing are opponents, donations, the type of event, the target audience, and other factors from previous seasons. When athletic departments fluctuate these prices, it can take a toll on sales. “Of course, more frequent price adjustments may lead to either unforeseen consequences such as consumer confusion or perceptions of price unfairness.” (Shapiro, Shaipin, & Lee, 2012) This presentation will give a greater understanding of how ticket prices are determined and how society views these changes.

Mentor: David LaVetter, lavetter@AState.edu

AFFORDABLE VERSUS FOR-PROFIT CLINICS: CULTURAL ADAPTATION TOWARDS HISPANIC PATIENTS
Cecily Brock - Undergraduate
cecy.brock@AState.edu

The surge of the Hispanic population in the Delta region has outpaced the resources needed to adapt to cultural and lingual barriers in the healthcare field. Part of cultural adaptation is accommodating for these barriers. It was predicted the amount of cultural adaptation would be significantly higher in affordable than for-profit clinics. A sample of all the family healthcare clinics in the Delta Region were selected by mail. Questionnaires focusing on accommodations, interpreter/bilingual staff availability, Spanish fluency, and general attitude towards Hispanic patients. After each section of the survey was totaled, the scores of the for-profit and affordable clinics were compared using an independent sample T-Test. Affordable clinics had a greater amount of accommodations, but not a significant difference in the other sections. This research can provide different insights on how to educate clinics about the different accommodations they can provide for their Hispanic patients. If affordable clinics were given more funding to hire bilingual staff or interpreters, they might have a higher cultural adaptation. This is important, because per the literature, Hispanic patients are more likely to go to affordable clinics.

Mentor: Karen Yanowitz, kyanowit@AState.edu

LECTURE NOTE TAKING METHODS FOR STUDENTS WITH ADHD-LIKE SYMPTOMS
Emily Moran - Undergraduate
emily.moran@AState.edu

College students spend more than 80 percent of class time listening to lectures. This study will help to determine the best method for taking notes for students with and without ADHD-like symptoms. Participants will be organized into two note taking groups (transcription and organizing), and then watch a thought provoking TED talk while taking notes in the instructed manner. The participants will then take two tests, a free recall test and an open response test. They will then answer a questionnaire which will evaluate their ADHD-like symptoms. By comparing their success on the tests with their note-taking method as well as their range of ADHD symptoms, results will show the effect that note-taking method has on test success based on the type of test. This information will have a multitude of benefits for students, both with and without ADHD symptoms.

Mentor: Karen Yanowitz, kyanowit@AState.edu

“OH, DID YOU SAY SOMETHING?”, MINDFULNESS AND PHUBBING IN COLLEGE STUDENTS
Shelby Daniele - Undergraduate
shelby.daniele@AState.edu

Are you getting the most out of your social interactions? By increasing our level of mindfulness and decreasing how often we partake in phubbing, we are able to observe a negative correlation between mindfulness and phubbing, as well as notice that students more commonly describe themselves as being mindful than they report engaging in phubbing.

Mentor: Irima Khramtsova, ikhramtsova@AState.edu

EFFECT OF THERAPY DOGS IN COURTROOM ON WITNESS STRESS LEVELS
Sarah Hall - Undergraduate
sarah.hall@mail@AState.edu

Amy Tipton - Undergraduate
amy.tipton@mail@AState.edu

Testifying in court can be stressful for individuals of all ages. The combination of being in a novel situation, being on record, and being questioned are just some of the reasons why it can be stressful. To reduce this stress, therapy dogs have been utilized in the courtroom setting. The current study examines whether the presence of a therapy dog in the courtroom significantly decreases witnesses’ anxiety (measured by heart rate). In the study, 32 Arkansas State University students participated in a mock trial in which they had to give testimony regarding a crime. Participants first watched a video of the accused stealing an iPad. After watching the video, they had to identify the perpetrator and give testimony in court. During testimony, a therapy dog was brought in before questioning. As a control, some participants were given a glass of water before questioning instead of the dog. As predicted, results showed that participants’ heart rate increased when brought into the courtroom, but dropped significantly lower when the dog appeared in comparison to the water condition. These results indicate that therapy dogs are a useful mechanism to help reduce stress in individuals testifying in court.

Mentor: Christopher Peters, cpeters@AState.edu

REACTION TO “PRANKING”: PERCEPTIONS OF PRACTICAL JOKES AS A FUNCTION OF RELATIONSHIP
Kaitlyn Halle - Undergraduate
kaitlyn.halle@mail@AState.edu
Kashmone Pyride - Undergraduate
Kashmone.Pride@mail@AState.edu

Pranking is a popular activity; however little research has examined perceptions of pranking. The goal of this research was to examine participants’ perceptions of a pranking situation and how gender and relationship impacted the perceptions. Participants received a scenario and were asked a variety of questions to assess their perceptions of the event, using a Likert-type scale (5 = strongly agree). Paired comparisons revealed that participants (80 percent female, 70 percent white) more strongly agreed that the situation described was an example of pranking (M = 4.0) compared to bullying (M = 3.0), p < .001. Participants tended to believe that the target would feel positive emotions (using the PANAS-X inventory of emotional states, M = 1.9) when friends with the perpetrator compared to when they did not know each other (M = 1.4), p < .05. Participants were more likely to agree the perpetrator did the action to get attention from the target when they were friends (M = 3.7) compared to when they did not know each other (M = 2.9), p < .05. No significant differences were found as a function of gender for any measures. Results revealed that the relationship status impacted participants’ perceptions of a pranking situation.

Mentor: Karen Yanowitz, kyanowit@AState.edu
March 17, 8:30 a.m. – 10:15 a.m. 
College of Liberal Arts & Communication – Undergraduate Humanities & Arts, Arkansas River Room

MAKING WALKING BASS LINES FROM SOMEONE NOT QUALIFIED TO TALK ABOUT ANYTHING RELATED TO WALKING
Jeremiah Page - Undergraduate
jeremiah.page@AState.edu

Making walking bass lines from someone not qualified to talk about anything related to walking

A walking bass line is an industry term to describe the rhythmic consistency of jazz bass lines. This presentation will describe the decision making involved in improving effective, supportive and interesting walking bass lines.

Mentor: Timothy Crot, tcrot@AState.edu

DEATH, DELAY, AND DEBATE: THE FAILURE OF THE EADS SHIP-RAILWAY
Nathanael Grimes - Undergraduate
nathanael.grimes@AState.edu

In 1880, American engineer James Eads proposed a grand, trans-isthmian plan. Instead of the Panama Canal, inaugurated in 1914, Eads proposed an overland route that included a ship-railway. The Eads system would stretch a thousand miles across the isthmus of Tehuantepec in Mexico. This scheme was seriously considered as an alternative to the Canal by the United States government during the late 19th century, but ultimately failed. So, the question is, why did it fail? One reason many have suggested is related to the potential obstacles posed by the project. In this presentation, we will explore the role of the ship-railway in the context of the broader debate over the Panama Canal. Our focus will be on the implications of the ship-railway for the future of trans-isthmian trade.

Mentor: Justin Castro, jcastro@AState.edu
WASHINGTON’S SPIES: THE CULPER SPY RING AND THE MYSTERY OF AGENT 355

Joseph Brown - Undergraduate
joseph.brown2@smail.AState.edu

Few are aware of the civilian led Culper Spy Ring that helped George Washington during the Revolutionary War. Many of the members of this spy ring have been identified over time. However, there is still some speculation over the female identity of Agent 355. By creating a digital story map, original scholarly research and interactive media, this project introduces the Culper Spy Ring. Taking the user on an interactive journey, they learn how members of the spy ring delivered intelligence on the British military to General Washington, and identifies the women scholars today believe to be Agent 355. As a future social science educator, I have expanded my pedagogical knowledge and increased my knowledge of scholarly research through the process of creating this story map. I have come to believe that this digital tool could be beneficial during classroom instruction. Using a digital story map allows students to view how different people, places and events interact both geographically and historically. By using this tool during instruction, it could increase student’s success and enjoyment while learning further interest in history or the humanities.

Mentor: Andrea Davis, andavis@AState.edu

TREASURE ISLAND AND THE ORIGINS OF THE SWASHBUCKLING PIRATE

Bryan Carmer - Undergraduate
bryan.carmer@smail.AState.edu

Robert Louis Stevenson’s 1883 work, Treasure Island, is a story of a journey told to Captain Smollett by a group of pirates. The swashbuckling attitude of Stevenson’s pirates resonate with the population at large. This, in turn, propelled his novel to popularity, giving his images of pirates and peg-legs a fertile environment in which to take root. The novel’s success ultimately cemented it as a children’s classic, ensuring that this image became a staple through time. Moreover, the popularity of this image was cemented in the mid-20th and early 21st centuries when Walt Disney Studios adapted the novel to film. This video draws on the work of scholars like Bradley Deane and Natalie McManus to analyze these images. It shows where our culture’s stereotypical images of pirates came from, and how latent ideas of masculinity have helped to keep this image alive up to the present day.

Mentor: Andrea Davis, andavis@AState.edu

HARRY POTTER AND THE RESULTING TRAUMA: PRESENTATION OF AN ORIGINAL ESSAY REGARDING THE MENTAL AND EMOTIONAL DAMAGES IN HARRY POTTER.

Wesley Sanders - Undergraduate
wesley.sanders@smail.AState.edu

Harry Potter and the Resulting Trauma is an analytical essay attempting to illustrate a connection between specific traumatic events in J.K. Rowling’s Harry Potter series and the effects such experiences have on the characters which experience them, and furthermore, how the author uses these characters to develop her social commentary. Beyond the content of the essay, the purpose of the presentation is to convey the original analysis and thus provide more complex readings of character motivation through a medical lens. While this was originally purely analysis based, I have expanded to provide professional insights to specific situations for a comparison with the textual characters. The findings should prove that the characters examined have personality traits which were directly influenced by trauma(s) in their lives be it psychological or emotional. Ultimately, this analysis will provide a unique way to interact with the essays and encourage further scholarship regarding character development and social commentary.

Mentor: Catherine Calloway, ccalloway@AState.edu

SECONDARY CHARACTERS FINDING AGENCY THROUGH TRAUMA WITHIN THE HARRY POTTER SERIES

Kaya Fonseca - Graduate
kaya.fonseca@smail.AState.edu

Unlike the majority of essays written on the “Harry Potter” series this essay focuses exclusively on Petunia Dursley, Severus Snape, and Neville Longbottom as characters who are affected by several traumas. This is different from the majority of essays written on the series. This essay analyzes the role of trauma on these characters and their development and how the author uses their traumatic experiences to shape their development. This essay analyzes the role of trauma on these characters and their development and how the author uses their traumatic experiences to shape their development. Neville Longbottom in particular has been ignored in most essays, however, his trauma is used to develop his character and push him from being a supportive but somewhat shy character to becoming a hero in the final books. This essay analyzes the role of trauma on these characters and their development and how the author uses their traumatic experiences to shape their development.

Mentor: Catherine Calloway, ccalloway@AState.edu

THE INESCAPABLE ANGEL STEREOTYPE IN VICTORIAN LITERATURE

Sara Halis - Undergraduate
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In no other period of time have characters of roles played an important part in Victorian literature. Men played the role of the breadwinner, sent out to face the corrupt world, while women, passive and weak, stayed at home, watching the kids, cleaning the house, doing their best to be perfect in every way and to create a stress-free environment for their children to come home to after their long day. This stereotype of women is widely known as the “angel in the house,” referring to the idea that women should not only stay at home, but be silent, pure, and beautiful, like an angel. This stereotype has been around for many years, but it remained largely intact even well into the more feminine periods of the Victorian era. I address the stereotype by analyzing characters by Oliver Twist by Charles Dickens and Lady Audley’s Secret by Mary Elizabeth Braddon. While many critics argue that these characters are presented in a feminist light because of their descent, I argue that the way in which both authors excise the actions of their female characters and rein them in makes them the perfect woman only delineates the stereotype.

Mentor: Kate Krueger, kkrueger@AState.edu

THE MENTALITY OF SLAVERY: CULTURAL ASSIMILATION IN OCTAVIA BUTLER’S KINDRED

Claire Rowland - Undergraduate
claire.rowland@smail.AState.edu

In Octavia’s novel, Kindred, the black American protagonist, Dana, time travels from the 20th century into the antebellum South. This uncontrollable intrusion into slave-holding Maryland forces Dana to comply with the cultural norms as it begins to diminish her dignity. She must fight to maintain her identity and freedom, and gradually seeks her own future. The study of this novel contributes to the larger tenet of examining the nature of slavery, touching the reader directly. This paper discusses Dana’s efforts not for mere survival. She is committed to exposing the culture of the time, and those aspects consume her, resulting in becoming assimilated into a preset racial role. I explore the notion that the story of the American slave isn’t new. Butler structures the stereotype of the slave, both in her works, and through these instances, a submissive slave who seemingly cannot stop her degradation. Kindred forms a foundation by directing attention to instances where the antebellum South takes away from Dana’s overall dignity, confidence and self-worth. Through examination of counterarguments and textual evidence, this work will argue that Dana’s behaviors are not purely due to self-preservation, but ultimately a result of her immersion into the culture that begins to define her.

Mentor: Kate Krueger, kkrueger@AState.edu

April 17th, 8:30 a.m. - 10:15 a.m.
College of Liberal Arts & Communication - Undergraduate Humanities, White River Room

AN AUTOETHNOGRAPHY OF A FEMALE GAMER

Stephanie Wyatt - Undergraduate
stephanie.wyatt@smail.AState.edu

The majority of online gamers are male. Women gamers experience negativity while playing video games either online or offline, not every female finds herself in this situation. This autoethnography shows my memories of experiencing video games for the first time and explains that while there are some cases of negativity towards females in the gaming community, they are usually rare occurrences. I will explain the many studies of female gamers and the results that had been reported. And in using both academic and personal perspectives, my goal is to show how not every online experience is a bad one for females.

Mentor: Janellie Collins, jcollins@AState.edu

“CHAVALLION HOUSE PROJECT: HOGWARTS’ SCHOOL WEBSITE”

Wesley Sanders - Undergraduate
wesley.sanders@AState.edu

Gracie Hicks - Undergraduate
gracie.hicks@AState.edu

Talena Ramnath - Graduate
talena.ramnath@AState.edu

Walt Disney Studios adapted the novel to film. This video draws on the work of scholars like Bradley Deane and Natalie McManus to clarify these ideas. This autoethnography shows my memories of experiencing video games for the first time and explains that while there are some cases of negativity towards females in the gaming community, they are usually rare occurrences. I will explain the many studies of female gamers and the results that had been reported. And in using both academic and personal perspectives, my goal is to show how not every online experience is a bad one for females.

Mentor: Janellie Collins, jcollins@AState.edu

SECONDARY CHARACTERS FINDING AGENCY THROUGH TRAUMA WITHIN THE HARRY POTTER SERIES

Kaya Fonseca - Graduate
kaya.fonseca@AState.edu

Unlike the majority of essays written on the “Harry Potter” series this essay focuses exclusively on Petunia Dursley, Severus Snape, and Neville Longbottom as characters who are affected by several traumas. This is different from the majority of essays written on the series. This essay analyzes the role of trauma on these characters and their development and how the author uses their traumatic experiences to shape their development. The main trio—Harry, Ron and Hermione—was an advantageous experience because I now have a better understanding of how Harry’s trauma nearly always results in becoming assimilated into a preset racial role  . Butler contrasts the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new. He explores the notion that the story of the American slave isn’t new.
HARRY POTTER AND DEATH: A COMPLICATED RELATIONSHIP
Kayla Davis - Graduate
kydal.devil@gmail.com
AState.edu
In this paper, I discuss the concept of death as it is portrayed in the popular fantasy series of "Harry Potter," focusing primarily on how author J. K. Rowling uses the passing of her characters as power to not only display the complex relationship it has with the "real world."
Mentor: Catherine Calloway, catherine@AState.edu

PRESERVING HISTORIC CEMETERIES: MELDING PRINCIPLES AND PRACTICABILITY
Edward Harthorn - Graduate
edward.harthorn@gmail.com
AState.edu
Cemeteries are places that everyone has connections to, yet few know how to properly take care of. From cleaning gravestones to more extensive efforts, well-meaning, yet inexperienced actions can cause irreversible harm. I begin my presentation by briefly introducing some of the proper procedures of cemetery preservation in lymen terms and the most reputable resources for learning more. During the core of my presentation, however, I branch out into case studies of real-world scenarios I have dealt with where a solution is not so clear-cut: vandalized stones thrown in a heap in the middle of a field, a replacement headstone unintentionally featuring the wrong name, a historic iron fence that will be bulldozed unless moved to a nearby cemetery, and more. In both the predictable and the unpredictable, I emphasize the underlying philosophy of these approaches remaining the same: use gentle and reversible treatments, prioritize original materials over replacements when possible, and documenting changes carefully. I draw on my experience preserving two Northeast Arkansas cemeteries as well as investigating cemeteries throughout Minnesota, writing a cemetery restoration handbook, and taking graduate-level coursework in historic preservation.
Mentor: Edward Sato, easato@AState.edu

April 17th, 1:30 p.m. - 3:15 p.m.
College of Agriculture, Engineering & Technology – Mockingbird Room
APPLICATIONS OF NANOTECHNOLOGY TO PREDICT THE MOISTURE SENSITIVITY OF ASPHALT BINDER
Sumon Roy - Graduate
sumon.roy@msstate.edu
Stripping or moisture related damage is a complex mechanism, which may attribute asphalt pavement’s distresses and reduce its durability. Currently, most of the popular methods for assessing moisture susceptibility in the United States focus on macro-level tests results that neither provide the true pictures of this process nor explain its mechanisms explicitly. Eventually, the use of advanced technologies in predicting moisture damage of asphalt concrete is perceived as a promising solution.
Mentor: Zahid Hossain, mhossain@AState.edu

April 17th, 1:30 p.m. - 3:15 p.m.
College of Science, Engineering and Technology – Agriculture Building
AUTOMATIC ROBOTIC ASSEMBLY PROTOTYPE DESIGN AND FABRICATION
Collin Weathersby - Undergraduate
collin.weathersby@msstate.edu
Automation plays a crucial part in manufacturing due to their precision and reliability. The Ginsu Brands Manufacturing facility proposed designing a new automation system to assemble a range of their knives. The Engineering Senior Design team took the project and have spent the 2017-2018 school year designing and fabricating a system that will meet production requirements. The team initially started with twelve designs, of which six knife assembly designs were selected for further evaluation. The top four were selected based on the criteria selection. These four were researched in detail by the group members. A weight was assigned using feedback from the Ginsu personnel on the most to least important criteria. Based on the criteria and feedback, the final design was selected. The primary design process was performed using the solid modeling software, Solidworks, with the insight of Ginsu personnel and the team advisor, Dr. Haran. The final prototype is being fabricated through metal framing and 3-D printing. The final prototype will be presented and include testing of materials, calculations, details pertaining to the design, and recommendations for operation and cost.
Mentor: Shivam Haran, sharan@AState.edu

CREDIT CARD SKIMMER PROTECTION
Christopher Jones - Undergraduate
christop.jones16@msstate.edu
Technological advancements have had a substantial impact on the financial sector. Personal information is being transmitted over open servers through multiple protocols left to their own devices. The need for secure and convenient methods to protect the public from cyberattacks. Credit fraud is one of the most pressing forms of cybercrime committed in the world. Skimming is a type of credit fraud involving the use of an electronic device to read consumer’s information at gas stations and ATMs. Cyber criminals use this information to gain access to accounts and personal information. There are currently no standard guidelines for addressing cybercrimes which has led to an increased number of attacks on the public. Government programs have been established to support the country’s ability to address these challenges. The goal of this design is to be used to protect people from fraudulent activities. The design is aimed to deter credit card fraud. The design intends to utilize Bluetooth for data transfer from a user’s personal payment terminal and should be handy as a wallet. The testing and fabrication phase to optimize the overall design will adhere to all cyber physical system laws and regulations.
Mentor: Shubhalaxmi Kher, shikher@AState.edu

PARTICLE MOTION SIMULATOR IN 3-D: A MATLAB PROGRAM
MdSaber Nazir - Graduate
msaber.nazir@msstate.edu
Particle motions in the dimension of few microns can be extremely complicated because of the inter-particle interactions. Simulating such a motion using a computer program is of paramount importance in different applications such as physics, colloidal chemistry, printing industry and biology. A 3-D particle motion simulator has been designed which incorporates the movement of powder, sand, soil grains etc. Their over-complicated algorithms quite often pose a demand for higher processing power. Based on these facts, we have implemented a 3-D particle motion simulator based on the DEM. However, our motion simulator is best suited for studying electrostatic interactions among the particles with good agreement with theoretical observation and with less processing power.
Mentor: Brandon Kemp, bkemp@AState.edu

SOIL EXCHANGEABLE N RETENTION AT VARIOUS SOIL DEPTHS IN NE ARKANSAS COTTON
Hunter Wood - Graduate
hunter.wood@gmail.com
Improvements in nitrogen fertilizer management efficiency in agricultural systems are more likely if farmers have a better understanding of the effects of tillage and fertilizer practices on the spatial and temporal variations of soil exchangeable nitrogen in the soil profile. In a 2017 field study with cotton (Gossypium hirsutum L.) in Northeast Arkansas, N variability in the soil was compared with different furrow tillage (conventional and conservation plow) and fertilizer treatments (broadcast urea and side dress UAN). The research was designed as a 2*2 factorial randomized complete block with three replicates. Cultivar ST4946 was planted 16 May in a Dundee silt loam; plots were 12 rows wide and 162 m long. Fertilizer was applied 36 days after planting at a rate of 101 kg N ha-1. Soil samples collected at four depths (0-15, 15-30, 30-60, and 60-90 cm) through the season and analyzed for concentrations of NH4, NO3, and NO2. Results indicate that N fertilizer source influenced the concentrations and type of N found throughout the soil profile, but tillage had little effect. Higher concentrations of NH4-N and NO3-N were typically found in early season in the shallower depths, while NO2-N was more concentrated at lower depths.
Mentor: Avneet Advont-Borde, advont-borde@AState.edu
Mentor: Tine Teague, Agriculture and Technology Studies, teague@AState.edu
Mentor: Michelle Reba, USDA - ARS, mreba@AState.edu

April 17th, 1:30 p.m. - 3:15 p.m.
College of Sciences – Graduate, St. Francis River Room
SYNTHESIS, ANTIBACTERIAL, AND CYTOTOXICITY STUDIES OF PYRAZOLE-DERIVED COMPOUNDS
Harold Jacobs, Low - Undergraduate
harold.jacobs@msstate.edu
The recent reports indicate that more than 2 million people are infected each year with antibiotic-resistant infections, and at least 23,000 people die as a result of these infections in the United States alone. ESKEPA (Enterococcus fecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, and Enterobacter spp.) cause 80 percent of nosocomial infections in the United States. They are of special concern because multi-drug resistance among them can cause life-threatening nosocomial infections. It is difficult to treat them using currently available agents to treat Gram-negative bacterial infections due to the complex nature of bacterial cell walls and outer membrane preventing drug entry, efflux pumps keeping the drug from reaching high intracellular concentrations, defensive enzymes such as -lactamases destroying antibiotics and creating a race and complex carbohydrate networks that create a protein envelope which is not easily broken by many existing antibiotics. Pyrazole-derived compounds have exhibited analgesic anti-inflammatory, anticonvulsant, antidepressant, antimicrobial, anti-mycobacterial, anti-tumor and antiviral activities. The research, which I have done in the last three semesters, consists of three stages: organic synthesis of approximately 45-50 pyrazole-derived compounds, antibacterial testing of these compounds against the ESKEPA bacteria, and cytotoxicity studies of these compounds against human embryonic kidney (HEK 293) cells.
Mentor: Mohamed Alam, malam@AState.edu
Mentor: Dave Gilmore, dgilmore@AState.edu

DISTECTING THE ROLE OF ADHESION KINASE FAK IN MEDIATING CAP1 REGULATION OF ERK AND BREAST CANCER CELL FUNCTIONS
MdRokib Hasan - Graduate
mrdrobishah@msstate.edu
Joshua Gray - Undergraduate
joshuagray@msstate.edu
Faith Allen - Undergraduate
faithallen@msstate.edu
We recently identified a novel role for the actin-regulating protein CAP1 (Cyclase-Associated Protein 1) in controlling both the invasiveness and proliferation of breast cancer cells through ERK (External signal-Regulated Kinase). However, CAP1 as a cytoskeletal protein is unlikely to regulate ERK directly; unravelling the signaling molecules that may link CAP1 to ERK will provide mechanistic insights into normal cell functions of CAP1 as well as its roles in cancer. We reported that FAK (Focal Adhesion Kinase) physically interacts with CAP1, and knockdown of CAP1 in Hela cells reduces the proliferation of breast cancer cells through ERK. Here, we are using a combination of approaches including RNA silencing of FAK, as well as inhibition of its kinase activity using chemical inhibitors, to determine if these manipulations rescue the elevated ERK activity and enhanced proliferation and invasiveness in metastatic breast cancer cells caused by CAP1 knockdown. Our preliminary results suggest that FAK likely indeed mediates CAP1 regulation of ERK.
Mentor: Shuai Zhao, gzhao@AState.edu
As the world population increases and wild caught fisheries decline, aquaculture offers an important sustainable solution addressing this global challenge. The activity of CFIL-22 through expression of antimicrobials and tissue repair markers has been studied in various contexts. Quantitative freshwater mussel (Bivalvia: Unionida) surveys in the Lower Strawberry River provide valuable ecological data. The study area is diverse and supports high mussel diversity, but threats to mussel assemblages are already observable. Decreased water quality and sedimentation and flooding events can directly affect mussel population in the Strawberry River.

RECOMBINANT PRODUCTION AND BIOACTIVITY OF CATFISH INTERLEUKIN-22 AS A NATURAL IMMUNE STIMULANT FOR IMPROVED AQUACULTURE FISH HEALTH

Lana Elkins - Graduate
lana.elkins@AState.edu

As a natural immune stimulant for improved aquaculture fish health, recombinant catfish IL-22 (cfIL-22) was expressed using the Agro-mediated transient tobacco production system and purified for establishing its bioactivity.

EXTRACTION OF ESTRADIOL FROM PLASMA USING LOW HAZARD AND LOW COST ORGANIC SOLVENTS

Sara Brown - Undergraduate
sara.brown@AState.edu

From analyzing the reproductive fitness of viviparous snakes to diagnosing human diseases, estradiol quantification is a common and important analytical application across diverse research disciplines. Before accurate measurement, estradiol must be extracted from the plasma matrix. There are several approaches to extracting estradiol from plasma, however, few are simultaneously low-hazard and low-cost. The common practices include chromatographic methods such as high-performance liquid chromatography (HPLC) and liquid-liquid extractions. Although HPLC is a sensitive and low-hazard technique, it requires experience with the equipment and can be costly. In comparison, extractions using ether are cost-effective but involve using hazardous ether solvents. This project aimed to optimize liquid-liquid estradiol extraction using various nonconcentrated solvents of the non-endogenous organic solvents iso-octane and ethyl acetate. The results of each extraction were validated using an enzyme immunoassay. The optimal concentration of iso-octane and ethyl acetate was determined by comparing nonspecific binding, parallelism, and spike recoveries. Information gathered during this project provides a protocol for liquid-liquid estradiol extraction from plasma that is both low-hazard and low-cost.

EXTRACTION OF ESTRADIOL FROM PLASMA USING LOW HAZARD AND LOW COST ORGANIC SOLVENTS

Sara Brown - Undergraduate
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OPTICAL HOMODYNE: COMPUTER GENERATED DATA AND RESULTS
Jon Mize - Undergraduate jonathan.mize@gmail.com

Optical homodyne is the process of splitting a laser in two such that we can simulate optical heterodyne with one laser. For many experiments to work, they require the process of tunable lasers, and in some cases, this isn’t possible. With the help of Wolfram Mathematica, we created data to simulate our optical homodyne research and determine the effect that temporally delaying one of the beams can have on the system. After creating two Gaussians, delaying one, then summing them together, we simulated the effect of overlapping two beams that we had observed experimentally. This allowed us to determine the amount of noise we can accept and the effect that this delay has on the usable data. By adding noise to the summing of our Gaussian curves with a random vector with a standard deviation of 1 multiplied by a noise factor, we determined the maximum detectable phase drift for that signal-to-noise ratio. Delaying one of the simulated beams also changes how much data is usable, as the higher the delay, the larger the decrease in the unshifted, original result. This simulation allows us to determine the threshold of noise we can allow, observe the behavior of the manipulated Gaussian curve data, and shows us how to expect from delaying the second part of the beam experimentally.

Mentor: J Bruce Johnson, bjohnson@AState.edu

OPTIMIZING LA-LEAF FOR TRACE-ELEMENT DETECTION
Patrick Tribbett - Undergraduate

Laser Ablation - Laser-Excited Atomic Fluorescence (LA-LEAF) enables rapid trace-level detection of arsenic in a steel matrix. This technique creates a transient ablation plasma and introduces a line-narrowed ArF excimer resonant with the arsenic absorption line at 193.76 nm to induce fluorescence at 234.93 nm. Due to the technique’s speed and lack of sample preparation, LA-LEAF may be applicable for detection of the 0.01-2 ppm of arsenic in rice (10x higher in the bran). This research examined arsenic controlling the limit of detection (LOD) of arsenic in steel; the matrix was chosen as a proxy for rice bran due to its spectral complexity analogous to organic matrices. Preliminary results suggest potential improvements to the LOD of arsenic in steel through manipulation of inter-laser delay, plasma atmosphere, excitation energy, and temporal and spatial position of the ArF excimer. Additional work is being conducted to develop a standardized technique for quantifying arsenic in a variety of matrices, which has implications in other plasma spectroscopy applications limited by matrix interference. Future work will include explorations of different plasma geometries, a more detailed analysis of organic matrices, and additional applications and analyte candidates for line-narrowed ArF resonant excitation.

Mentor: Jonathan Merten, jmerten@AState.edu

REMOVAL OF AN ENDOPROTEIN DISRUPTOR BY CLAY-LIKE OXIDES
Kristiana Watson - Undergraduate

One of the results of global climate change is the decrease of water supply, and due to various causes there are contaminants present in this water supply. The contaminant studied was 4-n-nonylphenol (4-NP), an endocrine disruptor that causes infertility and birth defects in aquatic life and humans. The adsorption of the emerging arsenic in steel through manipulation of inter-laser delay, plasma atmosphere, excitation energy, and temporal and spatial position of the ArF excimer. Arsenic in steel is known to be important to know the coherence of a laser, but this requires a difficult technique. The optical homodyne technique compares a pulse from one source to that of another. This technique is generally possible due to the lack of a stable, tunable reference laser. The optical homodyne technique, however, is more practical to measure the coherence of a pulsed laser. This involves splitting a single pulse into two identical pulses, temporally delaying one, and overlapping them, resulting in some observable beat frequency. Both techniques are similar mathematically, with two notable differences: in optical homodyne, both pulses have the same source, thus an important reduction can be made; waveform analysis by a Fourier transform is unfavorable, as the desired signal overlaps with the data at lower frequencies.

Mentor: Zachary Rail, zrail@AState.edu

SPEXTROMICHELLEOSCOSCROD AND NONLINEAR TIMOSHENKO BEAM SYSTEM WITH DYNAMIC CONTACT
Zachary Rail - Undergraduate

In this work, we consider mathematical and numerical approaches to modeling a rod-beam system. The rod-beam system is motivated by microelectromechanical systems (MEMS). One end of the beam is clamped and another end is joined to a thin, vertical, thermoelastic rod. The beam moves transversely and the rod moves longitudinally. When the top of the rod touches a rigid obstacle, Squire’s contact conditions and Barber’s heat exchange condition are applied. The beam model combines a Kirchhoff type equation with the Timoshenko beam theory. The motion of the jointed rod and beam is described by four partial differential equations and several boundary conditions and complementarity conditions. We employ time-discretizations on a time interval and finite element methods over the spatial domain to propose the fully discrete numerical schemes. In order to compute each time step’s numerical approximation satisfying a nonlinear system in the discrete case, we use the Newton-Raphson method, where the Jacobian matrix is assembled.

Mentor: Jeongho Ahn, jahn@AState.edu

MANGROVE SYSTEMS AS NURSERIES FOR CARIBBEAN CORAL REEF FISHES
Samantha Richter - McKnight - Undergraduate

Samantha.richter@AState.edu

Corals support high fish diversity and show great ecological and economic value. Recent work indicates that high coral reef fish biodiversity is affected by both availability of shoreline mangrove forests prop roots as nurseries for juveniles, and by levels of water quality variables. These are watersheds that drain to the mangrove forests, but not on Caribbean reefs. The hypothesis tested was that Caribbean reefs are more affected by proximities to mangroves and 2 water quality variables. Surveys of fish populations on St John (USVI) were conducted at mangrove sites, “near reefs” (2 km distant from mangroves), and “far reef” sites (>5 km distant) and used to determine similarity, biodiversity, species richness, fish size, and density. Water quality variables (dissolved oxygen, pH, temperature, salinity, phosphate, nitrate) were tested at these same survey sites. Species richness in the far sites was found to be higher than the mangrove sites and more juveniles were found on mangrove sites than reef sites. Also, water temperature affected species richness and percent juveniles, while phosphate levels affected fish density, juvenile number and species richness. These results support the mangroves as coral reef nurseries hypothesis but suggest additional influences on fish populations on Caribbean coral reefs.

Mentor: Rich Gripko, rgripko@AState.edu

OPTICAL HOMODYNE: INTRODUCTION AND MATHEMATICAL ANALYSIS
John Davis - Undergraduate

This project was to add to the advanced laser technology in the world. It can be important to know the coherence of a laser, but this requires a difficult technique. The optical homodyne technique compares a pulse from one source to that of another. This technique is generally possible due to the lack of a stable, tunable reference laser. The optical homodyne technique, however, is more practical to measure the coherence of a pulsed laser. This involves splitting a single pulse into two identical pulses, temporally delaying one, and overlapping them, resulting in some observable beat frequency. Both techniques are similar mathematically, with two notable differences: in optical homodyne, both pulses have the same source, thus an important reduction can be made; waveform analysis by a Fourier transform is unfavorable, as the desired signal overlaps with the data at lower frequencies.

Mentor: J Bruce Johnson, bjohnson@AState.edu

OPTICAL HOMODYNE: EXPERIMENTAL DESIGN AND RESULTS
Katelyn Watson - Undergraduate

Katelyn.Watson@AState.edu

Coherent lasers are used in many research techniques, and knowledge of the coherence of the lasers used is critical to knowing the accuracy of the techniques which require them. The optical homodyne (OH) technique is used to determine the coherence of a pulsed laser. The presented OH technique provides a method for researchers to test their laser’s coherence without the need for a separate stable reference laser which is required when using the more established heterodyne technique. Our research determined that factors such as air fluctuations and trigger jitter heavily affected the acquisition of data, and as a result, the design of the experimental setup was reconfigured to remove or minimize these errors. We applied this technique to two second Nd:VAD laser machines, which produced homodyne results which were then compared with data from the heterodyne technique to determine the accuracy and sensitivity of our technique.

Mentor: Jeffrey Johnson, Chemistry and Physics, bjohnson@AState.edu

HOW UNIVERSITIES HANDLE SEXUAL ASSAULT AND HARASSMENT CASES: A VICTIM’S PERSPECTIVE
Chelsea Hayes - Graduate

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This qualitative study looked into how universities handled sexual assault and harassment cases reported to them. It also examined how the victims of these cases felt they were handled. This current research examined three research questions – 1. How do universities handle sexual assault, and are harassment cases handled differently? 2. What are the procedures for handling a sexual assault or sexual harassment case in college? 3. How do students perceive these procedures? The study was conducted in 10 states and included 47 university campuses. The results were then compared with data from the heterodyne technique to determine the accuracy and sensitivity of our technique.

Mentor: Gilbert Fowler, gfowler@AState.edu

April 17th, 1:30 p.m. – 3:15 p.m.
College of Liberal Arts & Communication – Graduate Communication/Media, Pine Tree Room
Traditionally, it was uncommon for women to become police officers. According to the National Center for Women and Policing, women make up 13 percent of the police force in the U.S. Today, many women are dominating the police workforce, even out-excelling most men. The movie “Zootopia” states the oppression of a minority group by the “superior” group. I will take the message of this theory to analyze the instances in the presidential debate when Donald Trump interrupts, speaks over, or physically distracts Hillary Clinton. Data for this analysis will be collected from the cited YouTube video link, as well as the transcript feature on the video. This information is important to a research community as it provides insight as to how Donald Trump potentially had some advantages in the primary and general elections. Advantages such as the intimidation factor and negative self-disclosure factors with the scholarly articles which will be found in the methodology section of this research. A personal altercation we see playing out on the screen along with a large amount of smaller things that give us an idea of who these people are. Knowing this should make us self-disclose the question “why?” to understand the issue behind it. The show portrays this in England in a manner of depicted in a male-dominated world. Through my analysis of “The Crown,” I will hopefully identify the relations that the show and the history of Queen Elizabeth II have with such theories as the muted group theory and the standpoint theory. I will analyze a specific episode, which portrays real-life events of the royal family, as well as researching on the royal hierarchy from the 1920s. I will first analyze one episodes that portray the beginning of Queen Elizabeth’s reign, and where she and Prince Philip start to find it hard to communicate. From this, I will discover common themes that can be found throughout the series. These themes include male-domination, doubt, and silent opinions. I will then research more and show how these occurrences impact the Queen and the gender roles of the NS’s.

April 17th, 1:30 p.m. – 3:15 p.m.
College of Liberal Arts & Communication – Undergraduate Communication/Media, Arkansas River Room

This visionary trio crossed all gender and racial lines and inspired generations. The movie demonstrated many forms of gender communication that we can use in our everyday life. As a writer, I have seen how the story of the movie affected me in my personal life. I have used my own experiences to write about the theme of gender enhancement and how it can be used to help women achieve their goals. The film also portrays the struggle a young woman endured in a male-dominated world. The show portrays this in England in a manner of depicted in a male-dominated world. Through my analysis of Queen Elizabeth’s reign, and where she and Prince Philip start to find it hard to communicate. From this, I will discover common themes that can be found throughout the series. These themes include male-domination, doubt, and silent opinions. I will then research more and show how these occurrences impact the Queen and the gender roles of the NS’s.

April 17th, 1:30 p.m. – 3:15 p.m.
College of Liberal Arts & Communication – Undergraduate Communication/Media, White River Room

In the biography movie, Hidden Figures by Margot Lee Shetterly, Taraji P. Henson, Octavia Spencer, and Janelle Monae play as Katherine Jonson, Dorothy Vaughan, and Mary Johnson; three brilliant African American women working for NASA who helped launch into orbit astronaut John Glenn. This visionary trio crossed all gender and racial lines and inspired generations. The movie demonstrated many forms of gender communication that we can use in our everyday life. As a writer, I have seen how the story of the movie affected me in my personal life. I have used my own experiences to write about the theme of gender enhancement and how it can be used to help women achieve their goals. The film also portrays the struggle a young woman endured in a male-dominated world. The show portrays this in England in a manner of depicted in a male-dominated world. Through my analysis of Queen Elizabeth’s reign, and where she and Prince Philip start to find it hard to communicate. From this, I will discover common themes that can be found throughout the series. These themes include male-domination, doubt, and silent opinions. I will then research more and show how these occurrences impact the Queen and the gender roles of the NS’s.
Liberty for All

Andy, this is my business, it's nothing to do with you. Go down stairs and do what you do best, patrol the couch in your underwear.

Mentor: Sarah Scott, sscott@AState.edu

GENDERED WOMEN AND MEN IN FASHION MAGAZINES

Levi Crawford - Undergraduate
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and arrangements of society they live by. By examining the psychology of children involved in multiple births we can verify that family position truly is associated with identity and multiple births based on an ethnographic approach that can offer understanding for these individuals and the ideas expected of women and men and what is not desirable of them. There are many researches focusing on the gendered images in fashion magazines, and the standpoint theory used in this paper is the Mutated Group theory; this is a critical theory concerned with power and how it is used against people. I review current cultural expectations and adaptations of women’s rights being depicted, as well as traditional beliefs that have contributed to women being view as inferior. This paper encourages the support of implementing change and the enhanced women of equal gain. 

Mentor: Sarah Scott, sscott@AState.edu

WHAT HAPPENED TO MONDAY STANDPOINT THEORY?

Mikka Rolle - Undergraduate
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Standpoint Theory. The purpose of this research is to study the role of the standpoint theory within the framework of the movie, “What Happened to Monday.” A film that is centered around seven identical sibling girls that later grow into women. The world they live in forbids a family to have more than two children, and they are people they live one life as one person or in order to create seven people. They all become the outsiders within. The standpoint theory is the most applicable theory through which it examines a grouped power & knowledge associated with identity and multiple births based on an ethnographic approach that can offer understanding for these individuals and the ideas and arrangements they live by. By examining the psychology of children involved in multiple births we can verify that family position truly affects intelligence and personality.  

Mentor: Sarah Scott, sscott@AState.edu

"LIBERTY FOR ALL"

Kyrone Henderson - Undergraduate
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The “Let Girls Learn Initiative” speech, presented by Michelle Obama is impactful and centered on why fighting for women’s rights is important. During her speech, Obama stated, “These issues aren’t settled, these freedoms that we take for granted aren’t in stone.” These culturally accepted rules/norms are discussed and the ways that change has not occurred in some aspects of society. The research findings, as well as other documentary sources, the paper will examine the nature of current events and efforts to impact the change that Obama and another theorist is fighting for. The title theory used in this paper is the Mutated Group theory; this is a critical theory concerned with power and how it is used against people. I review current cultural expectations and adaptations of women’s rights being depicted, as well as traditional beliefs that have contributed to women being view as inferior. This paper encourages the support of implementing change and the enhanced women of equal gain. 

Mentor: Sarah Scott, sscott@AState.edu

NAKED HUSTLE

Logan Wescott - Undergraduate
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In the song Naked Hustle artist Twelve‘len is speaking to and about the life of a stripper. This critical analysis will analyze the issues arising around a female stripper. The lyrics of the song are a clear reality for some women in today’s society. I will analyze why there is a status quo around this career path. Usually strippers are single mothers or younger women with no kids, but in this song there is a twist to the so-called stripper norm. I am making a connection to the song from the standpoint theory, from how people view this and the reason why they view it the way they do.

Mentor: Sarah Scott, sscott@AState.edu

Aleksey Uchida - Undergraduate
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GENDER STEREOTYPES IN TELEVISION SHOWS.

Levi Crawford - Undergraduate
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This is a quote from Nancy Botwin, the lead character who breaks societies expectations of a woman in every episode of the show “Weeds.” What’s a newly widowed suburban housewife and mom of two supposed to do? Nancy Botwin would answer “Whatever the hell it takes.” “Weeds” has comedy and drama to attract the mass consumer but I plan to go beyond the surface level and analyze Nancy Botwin and Andy’s character and how they both again common expectations of gender roles. Furthermore, I plan to focus on the Mutated Group theory and how Nancy and Andy are going against the theory and reinforcing theism by Nancy being a strong-willed, independent, and successful family provider while Andy is staying home watching the children, cooking, and cleaning. I’ll use quotes and scenarios from the show along with articles by the Mutated Group theorist to illustrate the vital role of mass media entertainment to advance feminism and equality.

Mentor: Sarah Scott, sscott@AState.edu

PARKING ISSUES/SOLUTIONS AT ARKANSAS STATE UNIVERSITY

Mckenzie Garrett - Undergraduate
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Parking at Arkansas State University’s campus has been an ongoing issue for many years, but never is the issue that is addressed. The primary issues are lack of sidewalks, pedestrian crosswalks, commuter spaces, and even faculty/staff spaces, especially in cases of hazardous weather conditions. The purpose of this campaign is to propose the idea of adding a shuttle/bus service to utilize the currently unused campus parking lots that are 15 minutes away from the center of 300,000 pa. A quantitative study was conducted in November 8, 2017 – November 10, 2017, indicating that more than half of the students were unsatisfied with parking. One of the key goals in this study is to evaluate the opinions of students who attend Arkansas State University on parking issues and innovate a cost-effective way to make parking on campus easier and more accessible.

The study showed that 78 percent of commuter lots were to find there were a shuttle/bus service to and from the center of campus. Having an alternative solution to the parking issues will benefit the university by attracting prospective students as well as the current students, faculty and staff.

Mentor: Mytelsee Hill, mhill@arkansasstate.edu

STANDPOINT THEORY AS IT APPLIES TO “THE TOTAL WOMAN”

Kayliann Weber - Undergraduate
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Huge strides have been made to achieve equality for all genders since 1973. In this year, Marabel Morgan published a self-help book entitled “The Total Woman” which discusses the role a woman should fulfill in her husband, such as what she should wear, to the schedule of her day. The movie “What Happened to Monday” proposes the idea of adding a shuttle/bus service to and from the center of campus. Having an alternative solution to the parking issues will benefit the university by attracting prospective students as well as the current students, faculty and staff.

Mentor: Sarah Scott, sscott@AState.edu

THE DIFFERENCE IN RULES AND ACCEPTABLE BEHAVIOR AT SORORITY HOUSES COMPARED TO FRATERNITY HOUSES

Clark Ferguson - Undergraduate
clark.ferguson@AState.edu

I plan to conduct research to find the difference between the rules that are in place and the acceptable behavior that is tolerated in and around fraternity and sorority houses. The difference in the two is astounding. I will be conducting a rhetorical analysis by using my own personal experiences from being a member of a fraternity for the last three years and retrieve a list of roles that are in place from various sororities on campus. When doing this research, I am bringing to light that the vast difference is damaging to the view of Greek Life. I plan to find the reasons behind why the rules and behavior at fraternity houses are held to such a lower standard than that of sorority houses. With this research, I hope we can have a better understanding of this difference. I believe this research could lead to solutions that would cut down on the behavior that sheds such a negative light on Greek Life.

Mentor: Sarah Scott, sscott@AState.edu

USING THE STANDPOINT THEORY TO SHOW HOW MEN ARE MUTED IN “SEVEN BRIDES FOR SEVEN BROTHERS”

Jacey McKinley - Undergraduate
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In the 1954 musical Seven Brides for Seven Brothers, six men that are depicted as rugged and grotesque are trained to properly court a woman and ultimately obtain a wife. With the sexist notion that a man must act a certain way to get a girl and must get married, the musical was in tune with the times in the 1950’s, but a release of a similar musical would be outdated in the 21st century. Standpoint Theory is a communication theory that classifies communication as a product of our experiences, class, nation, race, gender, and the way we live our life. By using the Standpoint Theory, we can look at how our different perspectives, standings, and life-experiences are mirrored or neglected in film. Seven Brides for Seven Brothers looks at a woman’s perspective to focus on how men act without a feminine figure and how a man should act, giving the film a very one-sided perspective and essentially muting the standpoint of the man. The findings of this analysis are still underway.

Mentor: Sarah Scott, sscott@AState.edu

SITUATION OF THE MUTED GROUP THEORY

Coulton Lee - Undergraduate
coulton.lee@AState.edu

Canadian Minister Justin Trudeau came under fire on Tuesday for interrupting a woman to tell her to use the word “peoplekind” instead of “mankind.” The word “mankind” developed from the Old English word “man” which primarily describes an adult human male, but as time went on this word was used to describe humanity as a whole. Even though Justin Trudeau was trying to help remove what some people say is a feminist term, he still contradicted himself by telling a woman to use the term. This paper will use the Standpoint theory to explain this situation. I am going to use this theory to show how Mr. Trudeau demonstrates stereotypical male dominance. Shirley Ardener developed the muted group theory in 1975 and it states that women and men with patriarchal, capitalist societies tend to form two distinct circles of experience and that the women’s circle tends to be more muted by the men.

Mentor: Sarah Scott, sscott@AState.edu
WHAT IS WRONG WITH OUR MUSIC TODAY
Shania McGee - Undergraduate
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In the society that we live in today, it is just seen as part of the “norm” or culture to hear disturbingly derogatory slurs and blatant disrespect toward both gender binaries. I cannot begin to describe the countless song hooks, off the top of my head, that refer to women as “b*tches” or “sluts” and many times, names way worse than that. Even though this may have been highlighted more so in “today’s” rap and hip-hop culture, it is all throughout the music industry. There are songs and entire albums dedicated to “what the woman is supposed to do” and how the woman should “act” as if a woman’s complete existence is to sit and “look pretty” for her husband. Then she must exude some type of submissive behavior and do what he wants her to do, to keep him happy. The most disgusting part is that women actually feed into this mess, sometimes just because it may possess a catchy beat. If she did not give consent, that means no. This is only small portion of what is truly wrong with the music that we allow ourselves to listen to and absorb today.

Mentor: Sarah Scott, sscott@AState.edu

Sales Pitch & Business Elevator Pitch
April 18th, 8:30 a.m. – 10:15 a.m.
Neil Griffin College of Business, Sales Pitch, Auditorium

Sell me this “pen”!
Sell me this pen is a sales competition designed for Create@State. It is a competition that is designed to have sales students think critically and creatively, improvise and tap into their emotional intelligence and improvisation and sales skills. This competition will begin with students being asked to sell an object they draw out of a bowl. It will be a random object on a random class day. Students will have no prior knowledge to this assignment so they will have to just think on their feet and sell an object. This will become their benchmark for the training. After this initial period, they will work on the skills needed to be able to sell any object listed. Their final test for this competition will be during the Create@State event in April. They will be tasked with pulling a random item out of a grab bag and selling that item to the judges. They will have to focus on the item and have knowledge of it as well as understand how to sell it to a particular customer.

Advisor for this competition: Dr. Katie Hill

Students involved:
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P:01
A LOCAL CLINIC’S USE OF LOW-DOSE COMPUTED TOMOGRAPHY FOR LUNG CANCER SCREENING
Leah Young - Graduate
leah.young@mail.AState.edu
Lung cancer remains the leading cause of cancer death both worldwide, and in the United States (World Health Organization, 2017). Recommendations for lung cancer screening have evolved over the decades. In 2013, the United States Preventive Services Task Force recommended an annual low-dose computed tomography scan of the chest for at risk patients. After the screening recommendations update, both private insurance companies and the Centers for Medicare and Medicaid Services began mandated coverage for the computed tomography scan in early 2015. Despite this, studies have shown that the recommended screening process is underutilized. The purpose of this study is to see if local providers are using low-dose computed tomography scans for lung cancer screenings. This study will be conducted using a retrospective chart review of screenings ordered by a set of local providers in Northeast Arkansas. This research will determine if providers have updated their care practices since the publication of screening recommendations. Data collection and data analysis for this research is pending.

P:02
A LOCAL CLINIC’S ADHERENCE TO JNC 8 GUIDELINES ON MEDICATION THERAPY FOR TREATING HYPERTENSION
Jennifer Arnold - Graduate
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Hypertension is a major risk factor for renal failure, stroke, heart failure and coronary artery disease (Hernandez-Vila, 2019). Although various pharmacological treatments are available to treat hypertension, the number of patients with uncontrolled blood pressure is estimated to be 35.8 million (Scordo & Pickett, 2015). The purpose of this study is to review rates of adherence to the JNC 8 guideline recommendations for initiation of pharmacological therapy for hypertension from December 1, 2015 to January 1, 2019. Through a retrospective chart review, this descriptive study will examine a randomized sample of patients who have a diagnosis of hypertension. Identified data will include demographics, diagnoses, blood pressure readings and medications prescribed. Results are pending at this time. This research will assist in providing more aware of JNC guidelines and that their patients are on a medication that follows best practice.

P:03
A LOCAL MEDICAL CLINIC’S RATE OF FUNDOSCOPIC EXAM VS THE RECOMMENDED ANNUAL EXAM
Lauren Smith - Graduate
lauren.smith@mail.AState.edu
Fundoscopy is a major risk factor for renal failure, stroke, heart failure and coronary artery disease (Hernandez-Vila, 2019). Although various pharmacological treatments are available to treat hypertension, the number of patients with uncontrolled blood pressure is estimated to be 35.8 million (Scordo & Pickett, 2015). The purpose of this study is to review rates of adherence to the JNC 8 guideline recommendations for initiation of pharmacological therapy for hypertension from December 1, 2015 to January 1, 2019. Through a retrospective chart review, this descriptive study will examine a randomized sample of patients who have a diagnosis of hypertension. Identified data will include demographics, diagnoses, blood pressure readings and medications prescribed. Results are pending at this time. This research will assist in providing more aware of JNC guidelines and that their patients are on a medication that follows best practice.

P:04
A RETROSPECTIVE CHART REVIEW OF COMPLIANCE WITH PREVENTION OF CARDIOVASCULAR COMPLICATIONS IN AT-RISK PATIENTS ACCORDING TO HEDIS GUIDELINES
Brandy Anderson - Graduate
brandy.anderson@mail.AState.edu
Prevention of cardiovascular complications in at-risk patients is imperative. Studies have shown that starting a low dose aspirin regimen in at-risk patients decreases risk for blood clots, stroke and heart attack. “Women 56–79 years of age with at least two risk factors for cardiovascular disease; Men 46–55 years of age with at least one risk factor for cardiovascular disease; Men 66–79 years of age, regardless of risk factors, should be started on low dose aspirin therapy.” (www.ncqa.org, 2018) Risk factors for cardiovascular disease include: diabetes, hyperlipidemia and hypertension. Utilizing retrospective chart data was collected from January 1, 2015 to October 1, 2017. The data was analyzed to determine compliance with current guidelines on aspirin prescribing to reduce cardiovascular events associated with diabetes, hyperlipidemia and hypertension. Data analysis showed non-compliance with aspirin prescribing per HEDIS guidelines. This information indicates that providers need increased teaching and knowledge about current guidelines. By not prescribing aspirin therapy in accordance to HEDIS guidelines, providers are putting patients at increased risk for blood clots, stroke and heart attack.

P:05
A RETROSPECTIVE CHART REVIEW OF OBESEITY DIAGNOSIS IN THE PRIMARY CARE SETTING
Angela Hamill - Graduate
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The obesity epidemic is negatively impacting the overall health of the American population and the economy—costing America billions of dollars per year. Primary care providers are on the front lines to combat this epidemic, but provider compliance is unclear. This was a retrospective, observational chart review that evaluated the presence of obesity (BMI of 30.0 or greater) diagnosis/treatment in primary care. This study contained a sample of 203 charts of obese patients, from a cohort of 433 patient charts in a small, primary care clinic in rural Northeast Arkansas. Every patient presenting in this clinic is assessed for obesity. Of the total 423 patients seen, 47.9 percent are obese—which is higher than the national average, and only 22.6 percent of obese patients received an obesity diagnosis. Of that 22.6 percent, less than half received treatment, and only five percent of the patients who received treatment were male. Primary care providers are not adequately addressing, diagnosing and treating obesity. Primary care providers are the center pillar to defeat the obesity epidemic; therefore it is imperative that primary care providers are compliant with counseling, treating and referral standards.

P:06
A RETROSPECTIVE CHART REVIEW TO ASSESS PERCENTAGE OF PEDIATRIC ASTHMATICS WITH ALLERGY TESTING ON FILE
Charles Gerhard - Graduate
charlesgerhard46@mail.AState.edu
Asthma is a common chronic childhood disorder affecting six million children. Allergy skin testing is highly recommended to reduce or eliminate exposure to asthma triggers. Diagnosing and treating known key triggers can help to reduce the number of asthma exacerbations experienced by pediatric patients. Treatment with pharmacological agents also reduces the need for medications and hospitalizations thereby increasing the quality of life for the child. A retrospective chart review of 45 charts from a group of small clinics in rural Northeast Arkansas will be performed to determine if allergy testing has been recommended or performed per National Heart, Lung, and Blood Institute guidelines for pediatric patients who have a diagnosis of asthma, ICD codes 493.00, 493.90 and 493.92. The purpose of this study is to determine if adherence to guidelines for pediatric asthma and allergy testing are conducted in this regional area. Data collection is ongoing with analysis pending. Northeast Arkansas has a high incidence of asthma due to its agricultural environment. Adhering to guidelines for allergy testing for children with a diagnosis of asthma has the potential to decrease health care cost through reduced asthma exacerbations, medications and hospitalizations for children living in Arkansas.

P:07
ARE ACE OR ARBs, IN ACCORDANCE WITH ADA GUIDELINES, BEING PRESCRIBED FOR HYPERTENSION TREATMENT IN TYPE II DIABETICS?
Lindsey Gpee - Graduate
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Among patients with diabetes, the incidence of hypertension increases over time from five percent at 10 years, 33 percent at 20 years, and 70 percent with a diagnosis of diabetes (Fraser & D’Amico, 2017). The recommended first-line treatment for hypertension in diabetic patients, according to the American Diabetes Association (ADA), is an angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker at the maximum tolerated dose” (Jenkins, 2017, p.4). The purpose of this study is to evaluate rates of adherence with ADA guidelines in using ACEIs and ARBs for diabetic hypertension management. Through an retrospective chart review of 201 charts from a clinic identified on October 1, 2014 to October 1, 2017 in a rural health setting in Northeast Arkansas, the medical records of patients age 20-70 diagnosed with diabetes and hypertension will be examined. This information will be used for quality improvement measures to meet guideline goals and best practice recommendations. Implications for clinical care will be discussed.

P:08
ARE HEALTHCARE PROVIDERS FOLLOWING JNC 8 GUIDELINES ON LIFESTYLE MODIFICATIONS FOR HYPERTENSION?
Courtney Chamberlain - Graduate
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According to the U. S Department of Health and Human Services, there are approximately 50 million individuals affected in the United States with Hypertension and 1 billion worldwide. The purpose of this study is to determine if healthcare providers are educating patients, over the age of 18, diagnosed with hypertension on at least two different lifestyle modifications according to the JNC 8 guidelines. Lifestyle modifications according to JNC guidelines include: smoking cessation, blood glucose control, lipid control, moderate alcohol consumption, DASH diet, physical activity, weight and sodium reduction. According to research, there has been a 30 percent decrease in hypertension in patients since starting the JNC guidelines. This research study will be conducted using a retrospective chart review reviewed a rural health clinic in Rector, Arkansas. This research study will help indicate that there is a lack of education on lifestyle modifications to patients diagnosed with hypertension and show that providing education may be more beneficial for the patient’s health. It has been shown that lifestyle modifications benefit those with hypertension by decreasing further complications, promoting a healthier lifestyle, lower blood pressure, and increasing the effectiveness of anti-hypertension medications. The data collection is ongoing and the data analysis is pending.

Mentor: Mark Foster, smfoster@AState.edu
This project will utilize a quantitative retrospective chart review from January 2016 to January 2017 for patients who presented with elevated blood pressure. The purpose of this study is to determine if lifestyle modification education was given to help reduce the risk of developing the diagnosis of hypertension. Data collection is ongoing with analysis pending. Preventing and controlling hypertension is critical to improving quality of care for patients, improving health outcomes, and decreasing overall healthcare expenditures.

Mentor: Mark Foster, smfoster@AState.edu

P:10 ARE LIFESTYLE MODIFICATIONS PRESCRIBED FOR A DIAGNOSIS OF PRE-HYPERTENSION?

According to the Centers for Disease Control and Prevention (CDC) as of November 13, 2017, approximately 75 million adults in the United States have been diagnosed with hypertension. Hypertension can lead to heart failure, kidney failure, heart attack and strokes. Pre-hypertension is defined as a blood pressure reading of systolic pressure ranging between 120-139 mm Hg and diastolic pressure ranging between 80-89 mm Hg. Evidence supports that as many as 50 million people in the United States are affected. The first step in the management of hypertension according to the current JNC-8 (Joint National Committee) guidelines when treating and managing hypertension in adult patients over the age of 60 years old that do not have a diagnosis of diabetes mellitus or chronic kidney disease in a small rural health clinic in Northeast Arkansas. A retrospective chart audit will be conducted from existing medical records from February 1, 2017 through February 1, 2018 at a rural health clinic in Northeast Arkansas. At this time data collection is ongoing and analysis is pending. The results of this research study will indicate the adherence rate of one rural health clinic to the JNC 8 hypertension guidelines for management. Information obtained will also be shared with the practice site to assist them in their efforts for quality improvement.

Mentor: Patricia Cunningham, pcunningham@AState.edu

P:11 ARE MALES AGE 30 TO 59 DIAGNOSED WITH HYPERTENSION, RECEIVING JNC-8 RECOMMENDED TREATMENTS, ACHIEVING BLOOD PRESSURES OF LESS THAN 140/90?

Hypertension is present in approximately one of every three adults in the United States. Hypertension is the most common condition seen in primary care and one of the more complications if left untreated. As the prevalence of hypertension has grown, guidelines have been developed by the Eighth Joint National Committee (JNC-8) that allow providers to effectively manage patients with hypertension. These guidelines allow choosing patient-specific pharmacological therapy based on age, race and co-morbidities. The purpose of this study is to evaluate adult males with hypertension, age 30 to 59, who are receiving JNC 8 recommended treatments attained blood pressures less than 140/90. A comparative chart review was performed to audit 40 charts that met inclusion criteria during the time frame of January 1, 2016 through October 31, 2017 to determine if lifestyle modification education was given to help reduce the risk of developing the diagnosis of hypertension. Data collection is ongoing with analysis pending. Preventing and controlling hypertension is critical to improving quality of care for patients, improving health outcomes, and reducing overall healthcare expenditures.

Mentor: Debbie Shelton, dshelton@AState.edu

P:12 ARE PRIMARY CARE PROVIDERS DISCUSSING DIET, EXERCISE, AND WEIGHT LOSS WITH PATIENTS WHO HAVE A BMI > 30KG/M2?

Cardiovascular diseases are one of the top diagnoses within the United States. Twenty percent of the population of the United States, approximately 50 million people, have been diagnosed with hypertension. Hypertension can lead to heart failure, kidney failure, heart attack and strokes. Pre-hypertension is defined as a blood pressure reading of systolic pressure ranging between 120-139 mm Hg and diastolic pressure ranging between 80-89 mm Hg. Evidence supports that 50 million people in the United States are affected. The first step in the management of hypertension according to the current JNC-8 (Joint National Committee) guidelines when treating and managing hypertension in adult patients over the age of 60 years old that do not have a diagnosis of diabetes mellitus or chronic kidney disease in a small rural health clinic in Northeast Arkansas. A retrospective chart audit will be conducted from existing medical records from February 1, 2017 through February 1, 2018 at a rural health clinic in Northeast Arkansas. At this time data collection is ongoing and analysis is pending. The results of this research study will indicate the adherence rate of one rural health clinic to the JNC 8 hypertension guidelines for management. Information obtained will also be shared with the practice site to assist them in their efforts for quality improvement.

Mentor: Patricia Cunningham, pcunningham@AState.edu

P:13 CIGARETTE SMOKING AND THE EIGHTH JOINT NATIONAL COMMITTEE GUIDELINES

Jessica Ayecok - Graduate
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There are currently 117,000 people on the national organ waiting list. A new name is added every ten minutes, and approximately 21 people pass away every day as a result of a medical condition needing an organ transplant. To further raise awareness of organ donation, efforts have become implemented to include organ donor family members and organ recipients became involved, a retrospective chart review was performed to audit 40 charts that met inclusion criteria during the time frame of January 1, 2016 through November 2017. Evidence of cessation was documented in the charts. Data collection is ongoing with analysis pending. To determine the effect of the public education on the organ donor registry in Central Arkansas since donor family members and organ recipients became involved, a retrospective chart review was performed to audit 40 charts that met inclusion criteria during the time frame of January 1, 2016 through November 2017. Data collection is ongoing with analysis pending. The primary care provider's focus is evidence-based practice; further research in this area, it will open an avenue for the role of occupational therapy profession in assisted living facilities.

Mentor: Patricia Cunningham, pcunningham@AState.edu

Mentor: Amanda Mohler, amohler@AState.edu

P:14 DESCRIBING THE POTENTIAL EFFECTS OF EDUCATIONAL OFFERINGS ON THE ORGAN DONOR REGISTRY

Jessica Ayecok - Graduate
december.cobb@AState.edu

Cigarette smoking is the leading cause of disease and death worldwide. Cigarette smoking is an avoidable factor that contributes significantly to the development of cardiovascular diseases. The first step in the management of hypertension according to the current JNC-8 (Joint National Committee) guidelines is to control to healthy lifestyle changes. The purpose of this study is to investigate smoking cessation education provided to smokers diagnosed with hypertension in a rural healthcare clinic in Northeast Arkansas. A retrospective chart review will include a convenience sample of 100 medical charts. Inclusion criteria are patients aged 40-50 years diagnosed with hypertension that currently smoke cigarettes. Data collection is currently ongoing and includes reviewing records from January 2017 through November 2017. Evidence of cessation education will be measured by documentation of CPT (current procedural terminology) codes. Research results will be shared with the healthcare facilities and the possible use of interventions for patients who are at risk. These findings will contribute to the advancement of evidence-based practice and the development of guidelines for future studies.

Mentor: Patricia Cunningham, pcunningham@AState.edu

Mentor: Amanda Mohler, amohler@AState.edu

P:15 DIABETES SELF-MANAGEMENT EDUCATION REFERRAL RATE IN A LOCAL FAMILY PRACTICE VERSUS THE NATIONAL AVERAGE

Carla Kibbe - Graduate
carla.kibbe@AState.edu

Type 2 diabetes mellitus (T2DM) has grown to affect 29.1 million Americans. Hospital charges associated with T2DM with complications has increased to $135 million in Arkansas alone. The American Diabetes Association (ADA) supports Diabetes Self-Management Education (DSME) as a proven method to assist patients manage diabetes on their own. Healthy People 2020 states only 56.8 percent of adults with T2DM report their health has significantly improved since diagnosis. The purpose of this study is to compare the percentage of patients (age 18-60 years old) who were newly diagnosed with T2DM and were referred to DSME in a North Central Arkansas clinic to the national average of 56.8 percent. This study will be conducted using a retrospective chart review of 50 patient records. Data collection and analysis is pending at this time. Once concluded, this study has the potential to further validate previous research and to assist professionals with care planning for those with T2DM. In the end, the goal is to lessen complications and costs associated with T2DM for our patients.

Mentor: Mark Foster, smfoster@AState.edu

P:16 EFFECT OF ENRICHED TAI CHI EXERCISE PROGRAM ON QUALITY OF LIFE OF OLDER ADULTS RESIDING IN THE ASSISTED LIVING FACILITY.

Pooja Gai - Graduate
poopagai@AState.edu

Elderly people residing in assisted living facilities experience increased morbidity and mortality related to chronic diseases, such as diabetes mellitus and osteoarthritis, and quality of life is significantly impaired for those who live in assisted living facilities in Central Arkansas. This study aimed to test the effects of an enriched tai chi exercise program in improving quality of life in frail elders living in an assisted living facility. We will use a quasi-experimental prospective design. A convenience sample of 12 elderly residents of an assisted living facility will be divided into an enriched tai chi exercise and control group. The outcome measures, 36-Item Short Form Survey and the Beck depression scale, will be used at baseline, at the fourth and eighth week of the exercise program. The intervention group will receive an enriched tai chi exercise program, we hypothesize participants’ quality of life will improve significantly (p < .05). In addition, intervention group participants will have better results on all outcome indicators than those of control group participants. With further research in this area, it will open an avenue for the role of occupational therapy profession in assisted living facilities.

Mentor: Amanda Mohler, amohler@AState.edu
Humans papilloma virus is the most commonly sexually transmitted infection in the U.S. and is responsible for cancer over six million individuals annually. Infections related to HPV are associated with high-risk cancers of the genital region. HPV is estimated to be the catalyst cause of over 300,000 cervical cancer-related deaths worldwide. In 2014, the U.S. Food and Drug Administration (FDA) approved Gardasil 9 as a three-dose vaccine to protect male and female patients from nine strains of HPV, thereby providing protection against HPV infection and associated diseases. In 2016, the FDA approved a two-dose HPV vaccine to hopefully improve HPV vaccination completion rates. The purpose of this study will evaluate the effectiveness of Gardasil 9 in reducing the number of individuals infected at a local family practice clinic in Hot Springs, Arkansas before and after the 2016 update for two-dose scheduling. A retrospective chart audit will be used to compare HPV vaccination completion rates before and after the 2016 update. Data collection is ongoing with analysis pending. Consistent awareness and appeals from healthcare providers to eligible patients will be necessary to increase vaccination rates. Decreasing the prevalence of HPV reduces the number of cancer-related diagnoses and deaths.

Mentor: Debbie Shelton, dshelton@AState.edu

P:18 EVIDENCE-BASED TREATMENT CHOICES: INITIAL MODALITIES PRESCRIBED IN NEWLY DIAGNOSED DMT2 PATIENTS WITH HBA1C <7.5%

Yolanda Davis - Graduate yolanda.davis@AState.edu

The U.S. prevalence of Diabetes Mellitus Type 2 (DMT2) has doubled within 3 decades and accounts for 90 percent of all diabetes cases. As a leading cause of death, DMT2 ranks seventh nationally and fourth in Arkansas. The burden of DMT2 is grossly higher in underserved states. DMT2-related illnesses related and deaths are significantly lower with early diagnosis and consistent treatment/management. First-line (tier one) American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD) therapy guidelines involve three steps, lifestyle modification plus one nonpharmacologic biguanide with or without the addition of a second oral anti-diabetic and/or insulin, and intensive insulin therapy. The purpose of this study is to assess the prescriptive frequency of tier one antidiabetic therapies for DMT2 diagnoses in the primary care setting in northeast Arkansas. A retrospective chart audit of 90 convenience sample charts dating January 2015 to November 2017 will be examined. Demographic data will also be analyzed. The clinical guidelines set forth by the ADA and EASD can prove beneficial for patients in preventing long-term complications of DMT2, decreasing healthcare cost and improving the quality of life for patients living with DMT2.

Mentor: Debbie Shelton, dshelton@AState.edu

Data collection and analysis are pending.

Mentor: Patrick Cunningham, pcunningham@AState.edu

P:19 HEALTHCARE PROVIDERS AND THE USE OF NONPHARMACOLOGIC WEIGHT REDUCTION METHODS IN PATIENTS AGE 65 OR OLDER.

Lindsey Johnson - Graduate lindsay.johnson3@AState.edu

Obesity, defined as body mass index (BMI) of 30kg/m2 or greater, places people at higher risk for health conditions including stroke, high blood pressure, heart disease and diabetes (American Heart Association, 2016). Currently, the majority of the world’s population live in countries where “obesity and overweight kill more people than underweight” (World Health Organization, 2016). Current clinical guidelines recommend that patients adhere to nonpharmacologic weight reduction programs for at least six months before initiating pharmacotherapy (Domino, Baldor, Golding, and Stephens, 2011). The purpose of this study is to determine if healthcare providers at a rural health clinic in Arkansas offered nonpharmacologic weight reduction strategies to obese patients. If healthcare providers adhere to current guidelines for the management of obesity, patients may experience an overall improvement in their weight and BMI. A retrospective chart analysis will be conducted using the following inclusion criteria: age 65 years or older, BMI of 30kg/m2 or greater, and visit dates between January 2017 through June 2017. A randomized sample of 30 records will be reviewed.

Mentor: Debbie Shelton, dshelton@AState.edu

Data collection and analysis are pending.

Mentor: Patrick Cunningham, pcunningham@AState.edu

P:20 IS SPIROMETRY BEING USED IN DIAGNOSING COPD?

Jennifer Crisp - Graduate jennifer.crisp@AState.edu

Chronic obstructive pulmonary disease (COPD) will be the third leading cause of death worldwide by 2020. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) recommends spirometry be performed for accurate diagnosis of COPD. Current research supports under-utilization of spirometry in formulating a diagnosis of COPD. Utilization national rates of spirometry remain low, with 37.68 percent of patients undergoing spirometry before diagnosis of COPD in 2015. The purpose of this study is to determine spirometry utilization in making the affirmative diagnosis of COPD. A retrospective chart review was performed to audit 40 charts of patients evaluated with COPD during the time frame of January 1, 2016 through October 31, 2017 to determine if spirometry was used to formulate the diagnosis of COPD, ICD J44.9. Data collection is ongoing, with analysis pending. Prevention and treatment of COPD can only occur when a correct diagnosis is made. Standardization of diagnosis, thereby leading to more precise treatment, can improve health outcomes for populations at risk for COPD in the geographical Delta region.

Mentor: Debbie Shelton, dshelton@AState.edu

P:21 METFORMIN AS INITIAL PHARMACOTHERAPY IN PRE-DIABETES A1C LEVELS BETWEEN 5.7 PERCENT AND 6.4 PERCENT: A QUANTITATIVE APPROACH.

Andrew Smith - Graduate andrew.smith@AState.edu

Diabetes mellitus Type 2 (T2DM) affects 18.8 million people annually with another 7 million persons undiagnosed. A diagnosis of T2DM is made when an individual’s hemoglobin A1C (HbA1C) is >6.5 percent on two or more occasions. Metformin, a Biguanide pharmaceutical agent, is first-line treatment for T2DM along with oral diabetics and lifestyle changes. Metformin effects weight loss, a contributing factor to T2DM, and the body’s insulin resistance status. A diagnosis of prediabetes occurs when the HbA1C ranges between 5.7 percent - 6.4 percent. Evidence suggests the treatment of prediabetes with Metformin may prolong or retard T2DM from occurring through improved insulin resistance and weight loss. The purpose of this study is to evaluate the use of Metformin in patients diagnosed with prediabetes HbA1C between 5.7 percent - 6.4 percent being treated with Metformin. A retrospective chart audit of 50-50 charts of patients being seen in a rural health clinic from January 1, 2016 – December 31, 2016 will be performed. Data collection is ongoing with analysis pending. Demographic data of age, gender, ethnicity, body mass index and health co-morbidities will be examined to determine the effectiveness of weight loss factors for T2DM. Preventing the diagnosis of T2DM and advancing the health of patients with prediabetes is a goal of Healthy People 2020.

Mentor: Debbie Shelton, dshelton@AState.edu

P:22 MOVING UPSTREAM: THE PREDIABETES SCREENING OF INDIVIDUALS DIAGNOSED WITH HYPTERTENSION, OBESITY, OR DYSLIPIDEMIA IN A NORTHEAST ARKANSAS PRIMARY CARE CLINIC

Jennifer Calas - Graduate jennifer.calas@AState.edu

Worldwide, diabetes mellitus Type 2 diabetes mellitus, it is of paramount importance that healthcare systems focus more on prevention. Of the citizens in the United States with prediabetes, an estimated 80 percent are unaware of this health hazard. It is a far better plan to screen our fellow citizens during the phase of prediabetes so they have the chance to enact lifestyle change and avoid suffering the complications of Type 2 diabetes mellitus. The purpose of this research study was to investigate whether or not patients with hypertension, obesity and dyslipidemia were screened for abnormal glucose levels, and if so, whether a hemoglobin A1C ordered and drawn for those with an abnormal glucose result. Seventy-five patients were randomly selected from a clinic in Northeast Arkansas; 25 diagnosed with obesity, 25 diagnosed with hypertension, and 25 diagnosed with elevated cholesterol. The patients were asked if they had been screened for prediabetes. Data analysis is under way at this time and interpretation is pending. It is hoped that study results will provide guidance on whether more attention should be devoted to prediabetes screening in the future.

Mentor: Debbie Shelton, dshelton@AState.edu

P:23 OPIOIDS TREATMENT REGIMEN VERSUS MARIJUANA FOR THE MANAGEMENT OF CANCER PAIN IN CANCER PATIENTS

Kikanwa Osih - Graduate kikanwa.osih@AState.edu

With increased prevalence of cancer in the United States and globally, there is an increase in the discussion of best treatment and management options for cancer patients. Pain is one of the most frequent and worrisome symptoms for patients. Pain intensity increases with disease progression. Pain affects all dimensions of patient’s lives including the ability to achieve normal day to day activities. Different medications are used for cancer pain management. Evidence suggests medical marijuana reduces chronic or neuropathic pain in advanced cancer patients. Many advocates of medical marijuana have argued marijuana is a “miracle drug” and benefits exceed available analgesics/opioids treatment options. The purpose of this study is to work with oncology/ hematology patients who report persistent pain and are receiving opioid therapy self-report the use of marijuana for pain management. This study will be conducted using a retrospective chart review of patients at a large urban cancer treatment center. Data collection is ongoing with analysis pending. With an increasing number of jurisdictions permitting the legal use of marijuana for patients for medicinal use, it is imperative that oncology/hematology clinicians discuss and understand all pain treatment options. Controlling the symptom of pain will improve the quality of life for cancer patients.

Mentor: Debbie Shelton, dshelton@AState.edu

P:24 PRESCRIBER ADHERENCE TO ALLERGIC RHINITIS TREATMENT GUIDELINES

Whitney Bradford - Graduate whitney.bowry@AState.edu

Allergies are the sixth-leading cause of chronic illness in the United States affecting more than 50 million people and costing an excess of $18 billion annually. Recent clinical guidelines for the treatment of allergic rhinitis strongly recommend the use of intranasal steroids and oral second-generation antihistamines as first-line treatment. Although strongly recommended, in a 2016 national study, it was found that intranasal steroids and oral non-sedating antihistamines were not prescribed in the majority of allergic rhinitis cases. The purpose of this study is to compare the percentage of patients diagnosed with allergic rhinitis who were prescribed an intranasal steroid and or oral antihistamines. A retrospective chart audit was performed to evaluate 40 charts of patients with allergy, ICD J46, 50 years and older compared to the 2015 national average of 27.8 percent. A retrospective chart review was performed to audit 40 charts of patients evaluated with COPD during the time frame of January 1, 2016 through October 31, 2017 to determine if spirometry was used to formulate the diagnosis of COPD, ICD J44.9. Data collection is ongoing, with analysis pending. Prevention and treatment of COPD can only occur when a correct diagnosis is made. Standardization of diagnosis, thereby leading to more precise treatment, can improve health outcomes for populations at risk for COPD in the geographical Delta region.

Mentor: Debbie Shelton, dshelton@AState.edu

Data collection and analysis are pending.

Mentor: Patrick Cunningham, pcunningham@AState.edu
The purpose of this investigation was to examine the best evidenced-based teaching methods for a novice golfer to learn a new motor skill, putting. Results from this review are shared with the collection site for utilization in quality improvement.

Mentor: Mark Foster, smfoster@AState.edu

Eighth Joint National Committee (JNC 8) in 2014 provided guidelines for treatment of hypertension to maintain blood pressure (BP) of <140/<90 mmHg for persons 18-60 years of age. Early detection of hypertension and intervention management can decrease lifetime risk of death, decrease health care costs and improve patient outcomes. This quality study was performed to evaluate a local primary care practice, if the provider adheres to JNC 8 suggested guidelines. A descriptive study with inclusion criteria of individuals aged 18-60 years old with a hypertension diagnosis was performed using a report system through a currently implemented electronic health record. Data was gathered from 53 charts. Five age groups were classified with evaluation of medications prescribed identified with JNC 8 drug strategy A, B, and C; JNC 8 BP target goal and instructions on dietary approaches to stop hypertension (DASH). Findings revealed 75 percent of residents received medication to meet BP target goal and 65 percent were instructed on DASH. This data along with provider adherence of guidelines can be effective in managing hypertension to reduce risks associated with mortality.

Mentor: Mark Foster, smfoster@AState.edu

PROVIDER ADHERENCE TO NATIONAL STATIN THERAPY GUIDELINES.

High-intensity statin use is considered a preventative measure for patients diagnosed with hypercholesterolemia. The use of Atorvastatin (Lipitor) 40-80 mg or Rosuvastatin (Crestor) 20-40 mg can prevent cardiovascular disease, which is the leading cause of death globally. The purpose of this study is to determine whether patients with low-density lipoprotein (LDL) >190 mg/dl are being treated with a high-intensity statin per evidenced based guidelines. The information that was gathered reflects that LDL’s >190 is more prevalent in males or females, and whether a high-intensity statin was necessitating the instructor and learner to both understand all factors. Lastly, when learning a new motor skill, it is important that the entire learning process be specific to the individual to maximize learning. Results from this investigation may be used specifically for golf coaches to improve their teaching methods of putting to novice athletes. Furthermore, professionals in other fields may use these findings to develop their coaching methods.

Mentor: Brian Church, bchurch@AState.edu

AN ANALYSIS OF EFFECTIVE TEACHING METHODS OF A FINE MOTOR SKILL: GOLF PUTTING

The purpose of this investigation was to examine the best evidenced-based teaching methods for a novice golfer to learn a new motor skill, putting. Electronic databases were used to locate research regarding motor learning of putting. Synthesis of the best research-based practices was completed. An analysis of the characteristics of putting was presented including learning styles, types of feedback, stages of learning, and types of practice.

P:25 PROVIDER ADHERENCE TO GUIDELINES FOR PRESCRIBING TOPICAL CORTICOSTEROID IN PEDIATRIC ATOPIC DERMATITIS

P:26 PROVIDER ADHERENCE TO JNC 8 GUIDELINES FOR THE TREATMENT OF PATIENTS 18 TO 60 YEARS OF AGE

P:27 PROVIDER ADHERENCE TO NATIONAL STATIN THERAPY GUIDELINES.

P:28 AN ANALYSIS OF EFFECTIVE TEACHING METHODS OF A FINE MOTOR SKILL: GOLF PUTTING

P:29 FOOD INNOVATION THROUGH THE USE OF A FOCUS GROUP

P:30 FOOD INNOVATION THROUGH THE USE OF FOCUS GROUPS

P:31 INTERPROFESSIONAL MANAGEMENT OF CLIENTS WITH CHRONIC MUSCULOSKELETAL PAIN: THE USE OF A PLANT-BASED DIET TO AFFECT PAIN AND FUNCTIONAL STATUS

P:32 LOW LEVEL LIGHT THERAPY AND PHOTODYNAMIC THERAPY AS POTENTIAL INHIBITORS OF SERRATIA MARCESCENS

P:33 LOW LEVEL LIGHT THERAPY AND PHOTODYNAMIC THERAPY AS POTENTIAL INHIBITORS OF SERRATIA MARCESCENS

P:34 LOW LEVEL LIGHT THERAPY AND PHOTODYNAMIC THERAPY AS POTENTIAL INHIBITORS OF SERRATIA MARCESCENS

P:35 LOW LEVEL LIGHT THERAPY AND PHOTODYNAMIC THERAPY AS POTENTIAL INHIBITORS OF SERRATIA MARCESCENS

P:36 LOW LEVEL LIGHT THERAPY AND PHOTODYNAMIC THERAPY AS POTENTIAL INHIBITORS OF SERRATIA MARCESCENS
contains buckwheat, an ancient grain, as well as other nutritious grains like oats and kamut. This product was tested by a focus group to evaluate the appearance, smell, taste and overall score using the hedonic scale and then modified based on the evaluation results. Berry Blast provides a 1 cup serving of fruit along with Greek yogurt packed with protein, skim milk and water. This smoothie is designed for an easily accessible, inexpensive way to help college students on-the-go reach their daily fruit intake goal. MyPlate recommends 2 cups servings of fruit per day for boys ages 4-18 and men and women ages 19-30, and 1½ cups serving per day for girls ages 4-18. The Berry Blast smoothie provides approximately one-half of the recommended daily intake of fruit for college students, while giving the satisfaction of a sweet frozen treat.

Mentor: Susan Motts, smotts@AState.edu

P:33

PRODUCT DEVELOPMENT THROUGH USE OF A FOCUS GROUP
Sarah Eason - Undergraduate

Bite Size: 12-ounce smoothie loaded with vitamins and protein designed for college students as a healthy alternative snack that not only provides great nutritional value but is tasteful and delicious. The Berry Blast smoothie will be evaluated by a focus group on flavor, texture, appearance, smell, taste and overall score using the hedonic scale and then modified based on the evaluation results. Berry Blast provides a 1 cup serving of fruit along with Greek yogurt packed with protein, skim milk and water. This smoothie is designed for an easily accessible, inexpensive way to help college students on-the-go reach their daily fruit intake goal. MyPlate recommends 2 cups servings of fruit per day for boys ages 4-18 and men and women ages 19-30, and 1½ cups serving per day for girls ages 4-18. The Berry Blast smoothie provides approximately one-half of the recommended daily intake of fruit for college students, while giving the satisfaction of a sweet frozen treat.

Mentor: Susan Motts, smotts@AState.edu

P:34

PRODUCT DEVELOPMENT OF FRUIT AND VEGETABLE SMOOTHIES THROUGH THE USE OF A FOCUS GROUP
Hannah Aldridge - Undergraduate

My study is aimed to compare the visual appeal of smoothies to college students. Both smoothies possess the same ingredients but one includes spinach and the other does not. The recommended daily values of fruits for college students is 2-2½ cups and 2-3 cups of vegetables. One smoothie that I will be testing contains buckwheat, an ancient grain, while the other contains buckwheat and one serving of vegetable. This comparison will be significant because the two smoothies I will be presenting both possess many health benefits and can fulfill part of their daily needs for fruits and vegetables. Including fruits and vegetables in a person’s diet is vital to their health and maintenance of body functions. Eating fruits and vegetables may reduce the risk for heart disease, including heart attack and stroke. It also aids in the prevention of cancer and other chronic diseases. Both fruits and vegetables contain a significant number of vitamins and minerals that aid in the body’s functions. Some of these are folate, Vitamin A, Vitamin C, fiber, and potassium.

Mentor: Susan Motts, smotts@AState.edu

P:35

PRODUCT DEVELOPMENT THROUGH THE USE OF A FOCUS GROUP ON CRUNCHY CRUNCH CRANOLA
Mikaela Lucy - Undergraduate

Buckwheat can now be found all over the world, including the United States. Its ability to withstand poor soil and its quick growing rate has led to Buckwheat now being found all over the world, including the United States. Its ability to withstand poor soil and its quick growing rate has led to Buckwheat can be found all over the world. Buckwheat served as the main source of energy for the Incan civilization in the mountains of Bolivia, Chile, and Peru. Buckwheat is a very nutritious grain that is higher in calcium, phosphorus, magnesium, potassium, iron, copper, manganese and zinc than most other grains. Buckwheat serves as a great source of energy for the Incan civilization in the mountains of Bolivia, Chile, and Peru. Buckwheat is a very nutritious grain that is higher in calcium, phosphorus, magnesium, potassium, iron, copper, manganese and zinc than most other grains. Buckwheat is a very nutritious grain that is higher in calcium, phosphorus, magnesium, potassium, iron, copper, manganese and zinc than most other grains.

Mentor: Susan Motts, smotts@AState.edu

P:36

PRODUCT DEVELOPMENT THROUGH THE USE OF FOCUS GROUPS FOR POWERCAKES
Victoria Wantuk - Undergraduate

PowerCakes are a flavored, gluten-free, dairy-free, fruit, protein-packed pancake product. Most grocery stores do not sell flavored options of frozen, gluten-free pancakes. PowerCakes offers this option, which will allow it to stand out from the others. Gluten-free products are developed for those with either celiac disease or those with gluten intolerance. Celiac disease is usually accompanied by an intolerance to lactose. This is why PowerCakes are also dairy-free. The protein is added to make the pancake a complete meal. The pancakes will contain carbohydrates, fat and protein. PowerCakes will serve as a quick, ready-made breakfast option for the intended consumer audience. The gluten-free grain used is quinoa. Quinoa was chosen for its health benefits and also because it is a well-known grain. A primary complaint of gluten-free products in the market is the texture. This product should accomplish the goal of a better-quality gluten-free product. The product will be tested in a focus group at Arkansas State University. Feedback from the focus group will be used to better the quality of the PowerCakes. PowerCakes is to provide a quality breakfast for those with gluten intolerances or celiac disease.

Mentor: Susan Motts, smotts@AState.edu

P:37

PRODUCT DEVELOPMENT THROUGH USE OF A FOCUS GROUP
Sarah Reddy - Undergraduate

Granola serves as a nutrient rich breakfast item that provides energy and flavor while satisfying the need for whole grains in the diet. Crunchy Crunch Granola contains buckwheat, an ancient grain, as well as other nutritious grains like oats and kamut. This product was tested by a focus group to evaluate the texture, appearance and overall quality. Modifications were made on the basis of the feedback from the focus group. Buckwheat is a pseudo-cereal that contributed to the diet. This nutty-flavored ancient grain originated from the Balkan area of Europe around 4,000 B.C. Buckwheat can now be found all over the world, including the United States. Its ability to withstand poor soil and its quick growing rate has led to many farmers planting the grain during the resting period in order to maintain field conditions. Buckwheat has been made popular in various products including honey, pancakes, waffles, cereals, crackers, kasha and breakfast cereals. The diversity of buckwheat has led to the grain being widely available in many cultures all over the world.

Mentor: Susan Motts, smotts@AState.edu

P:38

PRODUCT DEVELOPMENT THROUGH USE OF FOCUS GROUP
Haley Shoffner - Undergraduate

Berry Blast provides a 1 cup serving of fruit along with Greek yogurt packed with protein, skim milk and water. This smoothie is designed for an easily accessible, inexpensive way to help college students on-the-go reach their daily fruit intake goal. MyPlate recommends 2 cups servings of fruit per day for boys ages 4-18 and men and women ages 19-30, and 1½ cups serving per day for girls ages 4-18. The Berry Blast smoothie provides approximately one-half of the recommended daily intake of fruit for college students, while giving the satisfaction of a sweet frozen treat.

Mentor: Susan Motts, smotts@AState.edu

P:39

PRODUCT DEVELOPMENT WITH FOCUS GROUP ON QUINOA BREAKFAST BAR
Summer Nash - Undergraduate

The Quinoa Breakfast Bar will include two variations of the bar to discover which one the focus group likes best. Quinoa was chosen as the ancient grain since it has become more popular in the past few years. Most individuals will know what quinoa is and may have tried it before. Most quinoa bars are gluten-free, also dairy-free. This product was tested by a focus group to evaluate the texture, appearance and overall quality. Modifications were made on the basis of the feedback from the focus group. Buckwheat is a pseudo-cereal that contributed to the diet. This nutty-flavored ancient grain originated from the Balkan area of Europe around 4,000 B.C. Buckwheat can now be found all over the world, including the United States. Its ability to withstand poor soil and its quick growing rate has led to many farmers planting the grain during the resting period in order to maintain field conditions. Buckwheat has been made popular in various products including honey, pancakes, waffles, cereals, crackers, kasha and breakfast cereals. The diversity of buckwheat has led to the grain being widely available in many cultures all over the world.

Mentor: Susan Motts, smotts@AState.edu

P:40

THE EFFECT OF PHOTOBIOMODULATION THERAPY ON ADULT HUMAN FIBROBLAST CELLS
David Holenquist - Undergraduate

Fibroblast cells play a key role in skin wound healing. Various techniques including photobiomodulation therapy (PBMT) have been used to facilitate such process in vivo. As a non-invasive method, PBMT carries many advantages and seems to be a promising method for wound healing; however, the potential for PBMT to improve fibroblast cell proliferation has not been clearly established due to the inconsistence of study results. We hypothesize that different conditions of PBMT may have different effects on fibroblast cell proliferation. Different wavelengths of PBMT including 850nm red light, 625nm infrared light, and 464nm blue light are delivered to cultured human fibroblast cells at different fluences including 1J/cm2, 3J/cm2, 5J/cm2, 7J/cm2, and 9J/cm2. Cells without any light treatment are used as the control. Cell proliferation, oxidative stress levels and collagen levels are measured following light treatments. Our results indicate that red, infrared, and especially blue PBMT significantly prevent cell proliferation compared to the control. We anticipate that the oxidative stress and collagen levels will correspondingly decrease as well in PBMT treated groups. In conclusion, low doses of PBMT may prevent wound healing in certain conditions. Extended research is needed to further explore the optimize condition of PBMT to enhance wound healing.

Mentor: Junlin Zhang, jzhang@AState.edu

P:41

THE MRI EXAM: DOES IT BENEFIT THE MRI CAREER FIELD POSITIVELY?
Jenny Maynard - Undergraduate

Magnetic Resonance Imaging (MRI) is a form of electromagnetic imaging that excites protons in the human body in order to create very detailed scans. Since MRI uses electromagnetic fields (which possess very strong magnetic fields), there are serious safety concerns associated with this field of study. The MRI Safety (Magnetic Resonance Safety Officer) is a designated employee to supervise all safety aspects of the MRI department. This is a very new field for the medical imaging community and has recently gained its own registry that someone must pass in order to be considered for this position. My research project has consisted of a literature review of the history of MRI and all of the potential benefits it could bring to a hospital or individual.

Mentor: Cheryl DuBose, cdubose@AState.edu

P:42

FINANCIAL INSIGHT AND ECONOMIC IMPACT OF PROFESSIONAL SPORT FACILITIES AND STADIAS
Samantha Overly - Graduate

In the past two decades there has been a large push to construct new, and renovate existing facilities in the professional sport industry. This mass change of infrastructure has helped in developing new ways of financing these endeavors, and continues to evolve the fiscal side of professional sports. As a result, teams and franchises have raised substantial capital for new facility construction. The purpose of this research is to delve deep into the rationale behind professional sport financing of stadia and facilities, along with the economic impact they have on developing in metropolitan areas. In previous research that will be used as the main source of data, critical debates have taken place on the financial benefits of sport facilities, their benefits and detriments to cities economically, and whether millions of dollars’ worth of subsidies can be justified at the end of the day.

Mentor: David LaVetter, lavetter@AState.edu

P:43
Mentor: Wayne Wilkinson, wwilkinson@AState.edu
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56 57
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CRAZY IN LOVE OR JUST CRAZY? LIMERENCE AND PSYCHOLOGICAL MALADJUSTMENT

aspects of limerence with indicators of psychological maladjustment. A sample of 205 United States residents (56.5 percent female) recruited through
altogether. Not only does participation in interscholastic sports foster positive relations and civic pride within a community, athletic participation itself
helps instill values that translate into better academic performance. At budget cuts continue, the costs associated with interscholastic sports have been
on a steady rise which leaves participants, parents, and sport administrators with inevitable funding issues. Whether it is due to reduced budget
allocations for sport administrators or the increased burden on participants and parents to pay higher participation fees, the immediate need for adequate
funding has increased. This research helps benefit my academic career because it gives me an opportunity to explore complex issues in sport finance that
will help aid in my development as a future sport administrator. As sport participation numbers continue to rise at the interscholastic level, participants,
parents and sport administrators must adapt to their surroundings and learn how to navigate in an environment that lacks adequate funding.

P:44 THE FINANCIAL IMPACT OF ALCOHOL SALES ON COLLEGIATE CAMPUSES
Brian Cook - Graduate
brian.cook@AState.edu

My presentation will focus on the positive and negative effects of selling alcohol on collegiate campuses during sporting events. This topic is
sensitive because most collegiate campuses consist of undergraduate students, but with barriers and strict rules enforced – we’ll be able to keep it out of
students’ hands. Most athletic administrators are seeing a decline in not only revenue but participant attendance at games. That decline in
revenue leads to a huge impact on what the department can and can’t do for the remainder of the financial year which limits them in certain areas. My
hypothesis states that the sale of alcohol will increase revenue, attendance and all aspects of game experience that one should get while attending
collegiate games. In disbelief, selling alcohol will come with downsides. As part of my presentation I will gear solely towards the negative impact it has as it
will be sure to stay biased. Universities such as Memphis, Troy, Louisiana-Lafayette and South Alabama all have seen major revenue growth since
beginning to sell alcohol during sporting events, why can’t we.

Mentor: David LaVetter, lavetter@AState.edu

P:45 CRAZY IN LOVE OR JUST CRAZY? LIMERENCE AND PSYCHOLOGICAL MALADJUSTMENT
Lauren Dubar - Undergraduate
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According to Tennen (1999) limerence is a form of attraction characterized by fear of rejection, intrusive thoughts, and emotional contagion; however,
it is a form of attraction that is commonly experienced. In contrast, Wakin and Vo (2008) viewed the cognitive and affective processes associated with
limerent states to be distinct from more common forms of love and representative of maladjustment comparable to obsessive compulsive disorder,
depression and other mental illnesses. Due to these conflicting views and the lack of empirical evidence, the present study explored the association of different
aspects of limerence with indicators of psychological maladjustment. A sample of 205 United States residents (56.5 percent female) recruited through
Amazon’s MTurk completed an online survey consisting of scales measuring limerence, social anxiety, obsessive beliefs, worry, depression and other
mental health issues. Results suggest that limerence is in fact associated with indicators of psychological maladjustment, however, Tennen’s definition of limerence is similarly supported.

Mentor: Wayne Wilkinson, wkwilkinson@AState.edu

P:46 FIELD TESTING OF ACTIVITIES FOR A DIGITIZED INTERACTIVE NEUROSCIENCE LAB MANUAL
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In 1998 the National Association for Biology Teachers published Neuroscience Laboratory and Classroom Activities Manual, a highly praised and
utilized resource for advanced high school and undergraduate neuroscience courses. Despite changes in technology and neuroscience education,
more than 20 years have passed without an updated version of this manual. Our project’s goal involves creating a modern, digitized neuroscience lab manual that is also
interactive. We began the project by canvassing numerous hands-on activities from various educational resources, selecting two (“Rewiring the Brain” and “Dictionary Fatigue”) that lent themselves well to field testing at the A-State Expo. Through naturalistic observation of participants (N=25), the activities were assessed for interest to participants, feasibility, and educational
outcomes. Observations suggest participants were interested in the activities, asked questions relevant to the neuroscience topics, activities were
appropriate for mixed ages and abilities, but may require some adaptation for group settings. Revision of these activities is underway and serve as
the starting components of the digitized interactive neuroscience lab manual. Though classroom testing is needed, we expect the use of this future
manual to help undergraduate neuroscience courses engaging for students and lab activities more practical for instructors.

Mentor: Amy Pearce, apeck@AState.edu

P:47 IS THERE A CATCH, COACH? PERCEPTIONS AND EFFECTS OF SEXUAL ASSAULT CLAIMS IN ATHLETIC PROGRAMS
Faith Allen - Graduate
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A major reality of collegiate athletics is the increased prevalence when choosing to publicly expose a sexual assault perpetrator within their own athletic program. Prior
research has defined sexual harassment within sport, but has failed to explore gender differences and other factors that may play significant roles.
The purpose of this study is to reveal factors that affect perceptions of athletes who chose to come forward with an accusation. Participants will be
presented with scenarios of sexual assault accusations in which accusers vary in status and sex. Scenarios involving the workplace will be included to
compare differences between accusations within athletics and the workplace, as athletic relationships are more common. Participants will then be
asked to complete a survey consisting of Likert scales to determine the extent to which they believe the subjects portrayed in the scenarios are being
honest and their opinions about the effects that these accusations may have. We believe that the sex and status of the accuser will affect perceptions of
different consequences. This study may also benefit recommendations to be made as to how athletes can be protected while reporting inappropriate
experiences with those in higher positions, as well as decrease the number of unreported sexual assault cases.

Mentor: Karen Yanowitz, kyanowitz@AState.edu

P:48 SELF-MYOFASCIAL RELEASE VS. STATIC STRETCHING: THE EFFECTS ON HAMSTRING RANGE OF MOTION
Miles Madden - Undergraduate
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In 1996 the National Association for Biology Teachers published Neuroscience Laboratory and Classroom Activities Manual, a highly praised and
utilized resource for advanced high school and undergraduate neuroscience courses. Despite changes in technology and neuroscience education,
more than 20 years have passed without an updated version of this manual. Our project’s goal involves creating a modern, digitized neuroscience lab manual that is also
interactive. We began the project by canvassing numerous hands-on activities from various educational resources, selecting two (“Rewiring the Brain” and “Dictionary Fatigue”) that lent themselves well to field testing at the A-State Expo. Through naturalistic observation of participants (N=25), the activities were assessed for interest to participants, feasibility, and educational
outcomes. Observations suggest participants were interested in the activities, asked questions relevant to the neuroscience topics, activities were
appropriate for mixed ages and abilities, but may require some adaptation for group settings. Revision of these activities is underway and serve as
the starting components of the digitized interactive neuroscience lab manual. Though classroom testing is needed, we expect the use of this future
manual to help undergraduate neuroscience courses engaging for students and lab activities more practical for instructors.

Mentor: Amy Pearce, apeck@AState.edu

P:49 SNOOPING: INTRUSIVE BEHAVIORS AND CHEATING IN ROMANTIC RELATIONSHIPS
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The main aim of the research is to understand the methods that 18-22-year-old college students use to prevent alcohol use disorders. This study will
focus on college drinkers use to maintain recovery. College students will be administered a survey that will question their prior alcohol history, extracurricular
activities, and drinking prevention. Results will determine which methods are the most effective for college students, and if effective for college students.

Mentor: Sharon Davis, sharon.davis@AState.edu

P:50 STRATEGY STRATEGIES AMONG COLLEGE STUDENTS
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The purpose of this research was to compare the effects of self-myofascial release (SMR) and static stretching (SS) on hamstring range of motion. Twenty
participants attended two testing sessions where hamstring range of motion (ROM) was measured before and after either SS or SMR. Data were
analyzed using a mixed design repeated measures ANOVA. The results indicated there was an overall effect of stretching on hamstring ROM (p<.05)
but there was no interaction for type of warm-up (p=.219). These results demonstrated that a warm-up was effective in increasing ROM, although
the type of warm-up did not produce significantly different results. Active people who engage in pre-exercise warm-up can expect SMR to be as
effective as SS for increasing ROM.

Mentor: Brian Church, bchurch@AState.edu

P:51 THE IMPACT OF REINFORCEMENT CONTINGENCY ON INTERRESPONSE TIME VARIABILITY IN RATS
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The main aim of the research is to understand the methods that 18-22-year-old college students use to prevent alcohol use disorders. This study will
focus on college drinkers use to maintain recovery. College students will be administered a survey that will question their prior alcohol history, extracurricular
activities, and drinking prevention. Results will determine which methods are the most effective for college students, and if effective for college students.

Mentor: John Tenux, jtenux@AState.edu

Variability is a dimension of responding that can be operantly reinforced. While reinforced variability in location and topography have received
attention in the literature, only one study to our knowledge has addressed temporal variability in responding. To this end, we exposed five female Wistar
rats to a series of contingencies in which they were required to vary interresponse times between lever presses in order to obtain reinforcement. The
results support the notion that reinforcement can control variability in the timing of operant responding. The results of this study lend to the largely
unexplored area of response variability in timing.

Mentor: Kristin Biondolillo, kbiondolillo@AState.edu

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Mentor: Brian Church, bchurch@AState.edu
P:52

THE ROLE OF SELF-CONTROL IN THE DAYDREAMING PROCESS

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Self-control has been shown to play a significant role in the daydreaming process. It is hypothesized that individuals with higher self-control may be less prone to daydreaming than those with lower self-control. This study compared self-control levels between daydreamers and non-daydreamers to determine the relationship between these two variables.

P:53

CHARACTERIZATION OF ASPHALT BINDER RESISTANCE TO MOISTURE DAMAGE USING THE MICROSCOPY TECHNIQUE

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Atomic Force Microscopy (AFM)-based protocols were followed to observe the moisture effects on asphalt binders. Selected performance grade (PG) binders from two different sources (Source 1 and Source 2) were evaluated in the laboratory. The AFM test results revealed that surfaces of the binders were deformed significantly due to the action of water. Surface roughness values of the unmodified PG 64-22 binders from Source 1 and Source 2 were reduced by nearly 71 percent and 24 percent, respectively. It was also observed that polyphosphoric acid-modified PG 70-22 binder showed a considerable reduction in roughness values, whereas it was increased by approximately 17 percent for Source 2 binder. This data indicates that moisture resistance of asphalt binders can be improved through acid modification.
When electromagnetic waves interact with a particle or a system of particles, the waves are scattered. If the size of the particle is much smaller than the incident electromagnetic wavelength, then such a scattering phenomenon is called Rayleigh scattering. These types of scattering phenomenon have been well investigated and quite a good number of publications are present in the literature. However, much of the research effort has been dedicated to the study of the scattered electromagnetic field. In this work, we have investigated the scattered magnetic fields in different types of Rayleigh single particles (i.e., metallic, active, dielectric) and multiple particle systems comprised of these particles.

**Mentor:** Brandon Kemp, bkpell@AState.edu

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**SYSTEM-RELIABILITY CONCEPTS IN BRIDGE PIER DESIGN: INCLUSION OF SCOUR AND SOIL VARIABILITY EFFECTS**

MdAriful Hasan - Graduate

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Scouring around bridge piers is one of the main concerns for new bridge foundation design. Analyzing scouring problems is also important for the assessment of an existing bridge foundation. The system-reliability-based approach is an advanced method for considering the effect of variability of different governing parameters on a foundation system. In this study, a widely used finite difference-based pier design method is adopted to predict the performance of laterally loaded single piers. For assessment of reliability, un-drained shear strength and density of surrounding soils are considered as a random field. In addition, variability of scour depths around a pier is considered in the analysis based on a widely-used approach named the Scour Rate In Cohesive Soil–Erosion Function Apparatus (SRI-COS-EFA) method. Finally, the Monte Carlo simulation is performed to estimate the system reliability. The analysis shows that the consideration of spatial variability of soils and the inclusion of random scour depths have significant influence on the probability of system failure. In addition, the adopted approach can easily quantify the reliability and simplify system reliability calculation procedure for pier design. The approach can help practitioners to use more integrated reliability-based methods in pier design and risk analysis.

**Mentor:** Zain Hassain, mhasain@AState.edu

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**UAS-BASED REMOTE SENSING FOR WEED IDENTIFICATION AND COVER CROP TERMINATION DETERMINATION**

Shailaja Vemula - Graduate

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Weeds are very problematic plants in crop production systems and their management is uneconomical. Planting cover crops helps in weed suppression and helps in improving soil health in crop fields. Nevertheless, the timeframe for cover crop termination plays an important role in weed suppression. Employing manual weed surveillance in the crop field to determine the appropriate time for cover crop termination is laborious and time consuming. Utilizing remote sensing can however ease this effort. Therefore, the objective was to demonstrate this utility by using remote sensing to estimate the growth stages of cover crop (cereal rye) and at different termination times at different growth stages of cover crop (cereal rye). Termination was done at tillering, stem elongation, booting and milk stages. An unmanned aerial system deployed with an RGB camera was used to acquire aerial imagery of cover crop integrated soybean plots for estimating percentage coverage of weeds and vegetative cover development of the crop. Optimum cover crop termination time was determined through image processing and analysis based on weeds, vegetative coverage of grass crop and crop yield. The results identify the best-case scenario for integrating cover crop in soybean production for weed control.

**Mentor:** Peter Larti, plarti@AState.edu

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**VISCOITY TEMPERATURE SUSCEPTIBILITY ANALYSIS FOR NANOCLAY-MODIFIED ASPHALT BINDERS**

MMTarq Morshed - Graduate

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Viscosity temperature susceptibility (VTS) is an important factor to characterize dynamic modulus (E* in hot mix asphalt (HMA)). Three different test methods, namely, rotational viscometer (RV), dynamic shear rheometer (DSR), and penetration test were used to evaluate A (regression intercept) and VTS parameters of neat and nanoclay-modified asphalt binders. Three types of commercial nanoclay, namely, Cloisite 10A, Cloisite 11B and Cloisite 15A, were mixed at different proportions (1, 2 and 3 percent, by the weight of the base binder) with neat binder. The RV, DSR, and penetration test were conducted at different temperatures ranging from 135°C to 180°C, from 81°C to 82°C, and from 25°C to 135°C, respectively. The values of the A-VTS parameters were found significantly different from one technique to the other. However, a general trend of the absolute value of VTS of neat binder was higher than that of a nanoclay-modified binder, irrespective of the test method. Therefore, the nanoclay-modified binders are expected to be less temperature susceptible than the neat binder. As a result, the E* values of the modified binders are expected to be higher at low frequencies or at high temperatures. This research leads to the use of an alternative polymer instead of expensive polymers.

**Mentor:** Zain Hassain, mhasain@AState.edu

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**GABROBACTERIUM TUNEFACTICENS IN VACUUM INFILTRATION OF ZEA MAYS FOR TRANSIENT EXPRESSION**

Amber Booth - Undergraduate

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Moving genes into corn plants to improve their agricultural performance is a long and difficult process. Therefore, it is desirable to have a faster process to test those genes in a temporary fashion. We have developed a method, for “transient” gene testing in corn leaves. Gabробacterium tunefaciens has been a helpful tool for transient and stable transformation of select species, including Zea mays. This study uses vacuum infiltration methods standardized for tobacco to transform corn leaves. Strain EHA105 was successful for gene transfer to corn leaves for transient expression. Factors such as cell concentration, temperature of incubation, time of incubation, and surface area have been standardized for vacuum infiltration.

b-Glucuronidase (GUS) is a reporter gene used in this study to verify the success of the vacuum infiltration. Two genotypes of corn were tested: HI II, a cross between A1B parents, and B73 an inbred variety. Whole young plants were used for infiltration without selection. Thus, leaf strips from older plants were used after the surface treated with carborundum. This treatment helped to obtain presence of foreign protein in cut leaves with treatment process. This method of transiently transforming Zea mays should allow for future stable transformations.

**Mentor:** Elizabeth Hood, ehood@AState.edu

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**CREDIT CARD SKIMMER PROTECTION**

Christopher Jones - Undergraduate

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Technological advancements have made a substantial impact on the financial sector. Personal information is being transmitted over open servers on multiple platforms leading to an increased need for secure and convenient methods to protect the public from cyberattacks. Credit fraud is one of the most prominent types of crime committed in the world. Skimming is a type of credit fraud involving the use of an electronic device to read consumer’s information at gas stations and ATMs. Cyber criminals use this information to gain access to accounts and personal information. There are currently no standard guidelines for addressing cybercrimes which has led to an increased number of attacks on the public. Government programs have been introduced to help PID holders and support the country’s ability to address these challenges. The goal of this project is to create a functionality that can be used to protect people from fraudulent activities. The design is aimed to deter credit card fraud. The design intends to utilize Bluetooth as a data transfer from a user’s personal device to another payment terminal and should be handy as a wallet. The testing and fabrication phase to optimize the overall design will adhere to all cyber physical system regulations.

**Mentor:** Shubhamali Kher, Electrical Engineering, shker@AState.edu

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**VALIDATION OF INSET CONTROL TERMINATION TIMING IN ARKANSAS COTTON**

Hayles Campbell - Undergraduate

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University recommendations for termination of insect pest control in late season cotton are based on maturity of the last economically significant boll (fruit) population. Cotton bolls have reduced susceptibility to damage from feeding by tarnished plant bugs (Lygus lineolaris) and Bollworms (Helicoverpa spp). However, 2010 to 2013 Delta Region to 2015 Delta Region, respectively, after flowering. Farmers sometimes make automatic insecticide applications in late season to ensure that all pest risks are eliminated. A study was conducted in 2017 in a 40-acre commercial cotton field in Poinsett County to compare use of integrated pest management (IPM) practices using scouting and plant monitoring compared to the practice of automatic insecticide application. The experiment had two treatments, replicated six times: 1) automatic insecticide spray and 2) untreated check. Plants were 100 ft. wide and extended the length of the field. Pest numbers were monitored weekly before and after spray termination. Overall, past densities and boll damage was low, and there were no significant differences between treatments in cotton yield or fiber quality. The late season application was unnecessary. Unwarranted pesticide use for crop protection may affect environment sustainability and farm profitability negatively. Use of IPM would be more beneficial than automatic sprays.

**Mentor:** Tiva Grey Teague, tteague@AState.edu

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**SCATTERED MAGNETIC FIELD IN MULTIPLE RAYLEIGH PARTICLES SYSTEMS**

Mdsaber Nazies - Graduate

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When electromagnetic waves interact with multiple particulate or a system of particles, the waves are scattered. If the size of the particle(s) is much smaller than the incident electromagnetic wavelength, then such a scattering phenomenon is called Rayleigh scattering. These types of scattering phenomenon have been well investigated and quite a good number of publications are present in the literature. However, much of the research effort has been dedicated to the study of the scattered electromagnetic field. In this work, we have investigated the scattered magnetic fields in different types of Rayleigh single particles (i.e., metallic, active, dielectric) and multiple particle systems comprised of these particles.

**Mentor:** Brandon Kemp, bkpell@AState.edu
Toxicity tests were performed to evaluate the vitality of each site. Differences in measured variables will be compared between upstream and downstream sampling sites. Agricultural ditches are important tools for managing water quality because their ability to settle sediment and sequester nutrients from field runoff. Aquatic vegetation is an important characteristic of these ditches that influences sediment and nutrient values. This study investigated the effectiveness of aquatic vegetation at filtering contaminants from surrounding agricultural landscape. Ten sites within two separate ditch systems in northeast Arkansas were measured weekly for three years to determine upstream and downstream sediment and nutrient loading. Bed and bank vegetation cover was assessed at each site and plants were identified. Water chemistry, turbidity, chlorophyll a, animal surveys and Whole Effluent Toxicity tests were performed to evaluate the vitality of each site. Differences in measured variables will be compared between upstream and downstream sampling sites.

HPLC PROFILING OF PRENYLATED STILBENOIDS IN DIVERSE CULTIVARS OF PEANUT

Abba Karouni - Graduate
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Prenylated stilbenoids are inducible defense compounds found in peanut that have potential applications in human health as anticancer, antiviral and anti-aging agents. There have been advances in the biosynthesis of these compounds, hairy roots cultures are ideal biological systems because they reproduce the biosynthetic potential of the parental plant. To this end, three commercial cultivars of peanut, i.e. Hull, Andru II and Georgia Green, were co-treated with four elicitors in order to induce the biosynthesis of stilbenoids. The latter were extracted from the culture medium with ethyl acetate after 96, 144 and 192 hours of elicitation and then analyzed via reverse-phase high-performance liquid chromatography (HPLC). All cultivars of peanut showed the presence of the non-prenylated stilbenediester resveratrol and prenylated stilbenoids (arachidin-1, arachidin-2, arachidin-3, arachidin-5 and arachidin-5 derivative). Arachidin-1 and arachidin-3 where the most abundant prenylated stilbenoids and the highest levels were found in cultivar Hull plants. Hairy root cultures were higher in cultivar Andru II. Prenylated stilbenoids observed among the distinct peanut cultivars will be useful to select particular hairy root lines for production of specific types of bioactive prenylated stilbenoids.

MONITORING WATER QUALITY AT SITES IN THE BAYOU DEVIEW, AR

Amber Ruby - Graduate
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Watersheds play an integral role in transporting sediments and toxins to larger bodies of water. Anthropogenic activities have increased the levels of nutrients and toxins degrading freshwater lentic systems. The objective of this study was to assess impairments as a consequence of agricultural modification and non-point source pollution. Bayou DeVieview, Arkansas has been listed as impaired by the United States Environmental Protection Agency for increased sedimentation and runoff. As a major tributary of the Cache River, the Bayou DeVieview River is contributing to the hypoxic effect in the Gulf of Mexico. Arguably, surrounding land use has the largest negative impact on increased sedimentation and nutrients within channel- altered stream systems and the Bayou DeVieview Watershed were collected from October 2016 through November 2017. Data recorded depict a large variation of total suspended solids and turbidity values, suggesting that each site is contributing different levels of total suspended solids to the Cache River and ultimately the Hypoxic zone in the Gulf of Mexico. Employing consistent monitoring and assessment of the sediment levels and impairments of the Bayou DeVieview will determine the necessity of best management practices to reduce contributions to the hypoxic zone in the Gulf of Mexico.

Menting: Jennifer Bouldin, jbbouldin@AState.edu

ASSESSING MITIGATIVE PROPERTIES OF VEGETATION IN NORTHEAST ARKANSAS AGRICULTURAL DITCHES USING BIOTIC AND ABIOTIC MEASURES

Emma Marlin - Graduate
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Agricultural ditches are important tools for managing water quality because their ability to settle sediment and sequester nutrients from field runoff. Aquatic vegetation is an important characteristic of these ditches that influences sediment and nutrient values. This study investigated the effectiveness of aquatic vegetation at filtering contaminants from surrounding agricultural landscape. Ten sites within two separate ditch systems in northeast Arkansas were measured weekly for three years to determine upstream and downstream sediment and nutrient loading. Bed and bank vegetation cover was assessed at each site and plants were identified. Water chemistry, turbidity, chlorophyll a, animal surveys and Whole Effluent Toxicity tests were performed to evaluate the vitality of each site. Differences in measured variables will be compared between upstream and downstream sampling sites.
DOES FREQUENTLY VISITING A BLUEBIRD NEST INCREASE PREDATION RISK?

Grape produces resveratrol, a compound which has shown several biological effects with potential applications in human health. However, one major limitation of resveratrol’s use in humans is its low bioavailability due to its rapid metabolism. Interestingly, the peanut plant can produce arachid-2, a derivative of resveratrol which is prenylated. Prenylation provides metabolic stability to arachid-2 and therefore this compound is potentially more bioavailable than resveratrol. We identified the peanut prenyltransferase gene responsible for the prenylation of resveratrol to produce arachid-2. To this end, the ultimate goal of this study is to develop transgenic mussel grape plants with the peanut prenyltransferase gene in order to produce arachid-2. Towards this goal, our first objective was to develop a micropropagation method for mussel grape plants. Plants of two cultivars of mussel grape were initially established and then used to initiate shoot cultures in vitro using a medium containing benzylaminopurine. Rooting of the shoots was achieved in medium containing indole butyric acid. Parallelly, we tested the effect of the shoot induction and rooting media on infected and uninfected shoots. Our results show that, with certain design changes to the brush head, significant noise reduction could be obtained along with lower vibration levels. Details will be discussed and presented along with the results, conclusions and recommendations.

Mentor: Shivan Haran, sharan@AState.edu

OPTIMIZING THE EXTRACTION PROCESS OF BIO-ACTIVE COMPOUNDS IN HAIRY ROOT CULTURES OF PEANUT

Various research projects in synthetic chemistry have shown that organohalide and organometallic hydrocarbons can be paired using metal-catalyzed reactions. The expansion of methods and materials used in these reactions has been the effort of many in the field of synthetic chemistry and play a role in pharmaceutical research. Typically, boron, silicon and tin are used in the synthesis, boron being the most utilized because of its low toxicity and ease of reaction. However, less work has been done on these metals or metalloids to oxidatively form biaryl, a common group found in medications. In this project, an aryl boronic acid with a myriad of substitutions were coupled with a silane compound. In the reaction, oxygen acted as the terminal oxidant instead of a carbon-halogen bond, which produced a variety of biaryl compounds with moderate to good yields. Liquid-liquid extraction was used to remove unwanted byproducts as well as the solvent used for the reaction. Column chromatography and sublimation were used isolate the desired products. Nuclear magnetic resonance and gas chromatography spectra were used to analyze and determine the presence and approximate amounts of products. Further research will consist of increasing yields and further exploration of the limits of the reaction.

Mentor: John Herbsteger, jherbsteg@AState.edu
PSYCHOGRAPHIC ANALYSES SUGGEST CRYPTIC DIVERSITY WITHIN THE BLUNTNODER DARTER, ETHEOSTOMA CHLOROSOMA
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Previous morphological studies of the Bluntnodter Darter (Ethostoma chlorosoma) revealed little variation among populations across the Gulf Coastal Plain. Although some western populations (e.g., Colorado River, Texas) showed significant divergence from other populations, there was little support for taxonomic recognition of these populations. In this study, we sampled E. chlorosoma from 12 river drainages across the southeastern United States to examine patterns of phylegetic structuring among populations throughout its distribution range. A total of 16 individuals were sequenced for the mtDNA cytchrome b gene and six nuclear DNA loci. Phylogeographic reconstructions were conducted with DNA sequence data using the program MrBayes (Bayesian inference of phylogeny). As part of a larger study to evaluate phylegetic patterns of Gulf Coastal Plain fishes, we also used these data to evaluate the Mississippian and Tombigbee river discontinuity hypotheses. These hypotheses are based on repeatable patterns of genetic structuring across the Mississippian and Tombigbee River divides for select fish species. However, it is not clear whether these patterns are also repeatable for E. chlorosoma. Preliminary analyses of mtDNA revealed a similar east-west divergence among populations of E. chlorosoma, but phylegetic breaks do not fully coincide with mtDNA-based patterns of divergence. The deep divergence among eastern and western clades of E. chlorosoma suggests previously unrecognized cryptic diversity within the species, but increased sampling across the distribution will need to be incorporated into this framework in order to fully understand the unique phylegetic pattern across the Gulf Coastal Plain for E. chlorosoma.

Mentor: Brook Fruker, bfruker@AState.edu

REMOVAL OF AN ENDOCRINE DISRUPTOR BY CLAY-LIKE OXIDES
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One of the results of global climate change is the decrease of water supply, and due to various causes, there are contaminants present in this water supply. The purpose of this study was to develop a method to remove contaminants from the water. The contaminant studied in this experiment was 4-n-nonylphenol (4-NP), an endocrine disruptor that causes infertility and birth defects in aquatic life and humans. The adsorption of the emerging contaminant 4-NP onto the surface of hematite and goethite was studied using a spectroscopic instrument known as Attenuated Total Reflectance-Fourier Transform Infrared. Little is known about the interaction of these iron oxides and 4-NP, so this study gave a thorough observation of the adsorption capacity of oxides. The adsorption characteristics were used to test the feasibility of using iron minerals to naturally remove this persistent emerging contaminant from polluted waters. The adsorption kinetics for hematite and goethite showed that equilibrium was reached with the fastest kinetics to saturation achieved on hematite. Adsorption studies showed that Langmuir model best fits the data with the highest “removal capability” as calculated from adsorption studies, observed with goethite with a calculated 4-NP maximum adsorption that was three times more than hematite. When the pH was varied, uptake of NP increased up to the pKa of 4-NP was reached, and adsorption decreased. The next steps in our research will be to analyze other orbiters to see how they compare to iron oxides.

Mentor: Hashim Ali, hail@AState.edu

ROLES FOR FAK AND C-ABL IN MEDIATING CAP1 REGULATION OF ERK AND THE INVASIVENESS AND PROLIFERATION OF BREAST CANCER CELLS
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We recently reported that knockdown of the actin-regulating protein CAP1 (Cyclase-Associated Protein 1) led to elevated activity of ERK (External Signal-Regulated Kinase), and enhanced invasiveness and proliferation in metastatic breast cancer cells. CAP1 is unlikely to regulate ERK directly as a cytoskeletal protein, and thus other signaling molecules likely mediate CAP1 signals to regulate ERK. Signal-Regulated Kinase), and enhanced invasiveness and proliferation in metastatic breast cancer cells. CAP1 is unlikely to regulate ERK directly as a cytoskeletal protein, and thus other signaling molecules likely mediate CAP1 signals to regulate ERK. Both FAK and C-Abi have been reported to interact with CAP1 physically and functionally, at least in certain cell systems, and both are reported to regulate ERK. To test our hypothesis, we are using combined approaches including RNAi silencing of FAK and C-Abi, as well as inhibiting their kinase activities with chemical inhibitors, to determine whether these manipulations rescue the elevated ERK activity and enhanced proliferation and invasiveness of cancer cells derived from CAP1 knockdown. Our primary results indicate towards FAK’s involvement. Findings from these studies may ultimately lead to the development of these kinases as a therapeutic target for suppressing the uncontrolled proliferation and the invasive cycle of breast cancer cells.

Mentor: Guozhi Zhou, gzhou@AState.edu

SYNTHESIS OF NEW DIHYDROPYRIMIDINONES AND THEIR TESTING WITH THE ESKAPE PATHOGENS
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Rare trees are invaluable for the ecological niches they fill, supporting ecosystems and having potential economic and medicinal values. The bigleaf magnolia, Magnolia macrophylla, is no exception. This aptly named magnolia is a spectacular understory tree that has leaves up to 1 m long and 0.5 m wide, unlike anything else found in Arkansas! With only one wild population documented west of the Mississippi River, this population is in danger of being lost. Although voucher specimens exist, the location of this tree remains a mystery. The specimen labels contain errors in counties and coordinates that make it unclear if all known Arkansas specimens have come from a single population or multiple populations in Northeast Arkansas. The mission of this research project is to identify these locations, conduct a thorough search of last-known possible locations to determine if there are living trees in these populations, and to categorize habitat metrics to aid in searching for unknown populations. Located trees will be documented and records shared with the Arkansas Natural Heritage Commission for further study and preservation of the native genotypes. Failure to locate any of these species in this area could result in an ecological restoration project for this species.

Mentor: Travis Marisco, tmarisco@AState.edu

STANDARDIZATION OF PHOTOSYNTHETIC EFFICIENCY MEASUREMENTS IN RICE USING A MULTISPEQ INSTRUMENT
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Photosynthesis is an important process needed by plants to function and grow. Plant photosynthetic rates are limited by abiotic factors e.g. heat stress, and biotic factors e.g. fungi and pest infestation. Poor photosynthetic rates result in low crop yield and quality, namely rice chalkiness and unfilled grains. The goal of this work was to optimize a protocol for measuring photosynthetic efficiency in rice (Oryza sativa var. Nipponbare) using a newly developed handheld device called MultiSPEQ synchronized to the PhotosynQ web portal. This low-cost tool was developed by the Kramer Group at Michigan State University and proven to produce similar results than those obtained with equipment that is 50 times more expensive. However, there are no published protocols to use this tool in rice. We predicted that leaves with high chlorophyll content, and measurements taken during the day would lead to the best photosynthetic efficiency for these plants. Our results showed that measurements taken in the mid portion of the flag leaf during the highest daylight point showed optimum photosynthetic efficiency parameters (e.g. efficiency of photosystem 2, non-photochemical quenching and linear electron flow for rice plants at the vegetative stage. This standardized protocol will be used in the near future by a group of undergraduate students to characterize the phenotype of a rice diversity panel growing in the field as part of the activities of the Wheat and Rice Center for Heat Resilience (WRCR, www.wrcr.org), a research consortium funded by the EPSScR Doctor 2 program of the National Science Foundation.

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