17th Annual
Celebrating Student Achievement

Program of Events
Thursday, April 11, 2019

Volume 17, Number 1
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Celebrating Student Achievement

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UNDERGRADUATE RESEARCH CONFERENCE
ANNUAL ACADEMIC AND LEADERSHIP AWARDS CEREMONY
SPECIAL EVENTS HIGHLIGHTING STUDENTS’ ACCOMPLISHMENTS
Welcome

It takes very little for me to get excited about our students’ futures — primarily because I get to see them grow from move-in day to where they are today. Bright, inquisitive, kind, reflective, mature, and authentic, they are spirited women who have a growing sense of their capabilities and strengths.

While many students enter Meredith a bit unsure of what “research” might entail — and whether they are interested in or capable of conducting it — part of the growth lessons here encourage small steps into asking and answering important questions. Perhaps they focus on the “why” of a personality trait, or the “how” of an artist’s technique, or the “when” of a plant’s pollination and what those answers may mean for our world. Or they may test methods, eager to know how a change in chemical or application or calculation might alter the outcomes of an experiment. They talk with their faculty and staff mentors, and each other, about meaning and interpretation and “what if’s” and “what nexts” — all in the spirit of learning, engaging, and making meaning.

CSA Day is the celebration of all the wonder our students bring to their studies and to their discussions and to their peers. It is an exciting time of demonstration and pursuits of truth with intelligent and well-articulated boundaries and circumstances. It is one of the very best times for them to present those truths — and also to embody them — as explorers, questioners, and truth-seekers. The day encourages the participation of everyone — so feel free to ask good questions, debate analyses, and offer your own interpretations of circumstances and findings.

Our students’ strengths and enthusiasm for learning are rarely on greater display than CSA Day as they fully display their hard work, mental acuity, and love for learning. As you join the fun, I think you will feel the same positive and energetic certainty about their futures as I do.

Enjoy!

Jo Allen, ’80, President

Acknowledgements

The commitment and dedication of Meredith students, faculty, and staff make this day of celebrating student achievement possible. Special thanks go to —

Jo Allen, ’80, President
Matthew Poslusny, Senior Vice President and Provost
Jean Jackson, ’75, Vice President for College Programs
Paul Winterhoff, Director of Undergraduate Research
Cheryl Jenkins, Director, Office of Student Leadership and Service
Isabella Rossi, Administrative Assistant for Academic Special Programs
Allison Kvasnicka, Student Assistant, Undergraduate Research Program
The Undergraduate Research Advisory Committee
Karen Jones and the Staff of Oak Leaf Catering
Department of Marketing and Graphic Designer Roberta Rose
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Sharon Picard, Administrative Assistant to the Vice President for College Programs
Meredith Events Interns: Victoria Ravenel, Jori Miller
Students of COM 316, our Room Monitors and Moderators, and all student volunteers who help make it tick!
Jim Waddelow and the Meredith Sinfonietta
Sarah Bean and the students of the Meredith Dance Program
Ali Howell, Matt Stutz, Erin Lindquist, and the Meredith Sustainability Teaching Circle
Co-Editors Sarah Kiser and Miriam Mays, the staff of the Meredith Herald
Dana Sumner, Katie Nagel, and the Office of Career Planning
The faculty mentors who have given concentration, care, and many extra hours to encourage and support today’s student presenters and performers.
# Day at a Glance

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>7:30 – 8:30 a.m.</td>
<td>Breakfast and Poster Session</td>
<td>Carlyle Campbell Library</td>
</tr>
<tr>
<td>8:30 – 10:55 a.m.</td>
<td>Teaching and Learning: Measurement, Improvement, and Inclusion</td>
<td>Kresge Auditorium</td>
</tr>
<tr>
<td>8:30 – 10:30 a.m.</td>
<td>Human Interactions: Transitions and Connections</td>
<td>Ledford 101</td>
</tr>
<tr>
<td>8:30 – 10:55 a.m.</td>
<td>Exercise: Interventions and Effects</td>
<td>SMB 162</td>
</tr>
<tr>
<td>8:30 – 10:55 a.m.</td>
<td>Plants, Animals, and Insects…Oh My!</td>
<td>SMB 118</td>
</tr>
<tr>
<td>8:30 – 11:20 a.m.</td>
<td>Studies in Literature and Meaning</td>
<td>Harris 104</td>
</tr>
<tr>
<td>8:30 – 10:40 a.m.</td>
<td>Business, Economics, and Entrepreneurship</td>
<td>Harris 214</td>
</tr>
<tr>
<td>8:30 – 11:20 a.m.</td>
<td>Women in History and Religion</td>
<td>Harris 208</td>
</tr>
<tr>
<td>8:30 – 11:20 a.m.</td>
<td>3rd Annual Office of Career Planning Senior Spotlight Event</td>
<td>SMB Atrium</td>
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<tr>
<td>9 – 11 a.m.</td>
<td>3rd Annual Office of Career Planning Senior Spotlight Event</td>
<td>SMB Atrium</td>
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<tr>
<td>11 a.m. – 1:30 p.m.</td>
<td>Dickson Foundation Community Garden Tours and Tastings</td>
<td>Community Garden behind Weatherson</td>
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<tr>
<td>11:30 a.m. – 2 p.m.</td>
<td>Lunch &amp; Dessert</td>
<td>Belk Dining Hall</td>
</tr>
<tr>
<td>11:30 a.m. – 12:15 p.m.</td>
<td>Student Achievement in Leadership Awards Ceremony and Inductions of 2019-20 Student Government Officers</td>
<td>Jones Auditorium</td>
</tr>
<tr>
<td>12 p.m.</td>
<td>Meredith Sinfonietta</td>
<td>The Belk Courtyard</td>
</tr>
<tr>
<td>12:15 – 1:15 p.m.</td>
<td>Interior Design Senior Showcase</td>
<td>Martin 242</td>
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<tr>
<td>12:30 – 1:30 p.m.</td>
<td>Sustainability Showcase</td>
<td>Carlyle Campbell Library</td>
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<tr>
<td>12:40 – 1:20 p.m.</td>
<td>Colton Reveal</td>
<td>Kresge Auditorium</td>
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<tr>
<td>1 – 1:30 p.m.</td>
<td>Alpha Sigma Lambda Induction Ceremony and Honor Cord Presentation</td>
<td>Jones Chapel and Chapel Common Room</td>
</tr>
<tr>
<td>1 – 1:30 p.m.</td>
<td>The History and Culture of Hair</td>
<td>Cate Center 1st Floor Alcove</td>
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<tr>
<td>1:15 – 1:35 p.m.</td>
<td>Improvisational Dance by the Meredith Dance Program</td>
<td>Between Harris and SMB</td>
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<tr>
<td>1:30 – 3 p.m.</td>
<td>3rd Annual Office of Career Planning Senior Spotlight Event</td>
<td>SMB Atrium</td>
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<td>1:45 – 3:20 p.m.</td>
<td>Culture, Gender, and Mental Health</td>
<td>Harris 214</td>
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<tr>
<td>1:45 – 3:45 p.m.</td>
<td>Healthcare: Relationships, Innovation, and Intervention</td>
<td>Ledford 101</td>
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<tr>
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<tr>
<td>1:45 – 3:20 p.m.</td>
<td>Exercise: Supplements and Performance</td>
<td>SMB 162</td>
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<tr>
<td>1:45 – 3:45 p.m.</td>
<td>Biological Sciences, Math, and Sustainability</td>
<td>SMB 118</td>
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<tr>
<td>1:45 – 3:30 p.m.</td>
<td>Politics and the Media</td>
<td>Harris 208</td>
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<tr>
<td>1:45 – 3:45 p.m.</td>
<td>Art and Theatre: History and Analysis</td>
<td>Kresge Auditorium</td>
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<tr>
<td>1:45 – 3:20 p.m.</td>
<td>Design, Fashion, and Families</td>
<td>Harris 104</td>
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<tr>
<td>1:45 – 3:15 p.m.</td>
<td>Musical Performances</td>
<td>Carswell Concert Hall</td>
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<tr>
<td>4 – 5 p.m.</td>
<td>Student Academic and Leadership Awards Ceremony</td>
<td>Jones Auditorium</td>
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<tr>
<td>5 – 7:30 p.m.</td>
<td>Nutrition, Health, and Human Performance Undergraduate and Graduate Student Awards and Recognition</td>
<td>Martin 113</td>
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<tr>
<td>5 – 7 p.m.</td>
<td>School of Natural and Mathematical Sciences Student Awards and Recognition</td>
<td>SMB Atrium</td>
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<tr>
<td>5:15 – 6:30 p.m.</td>
<td>Study Abroad Essay and Travel Awards Reception</td>
<td>Kresge Auditorium</td>
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<tr>
<td>5:30 – 7 p.m.</td>
<td>Phi Alpha Honor Society Induction Ceremony</td>
<td>Alumnae House</td>
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<tr>
<td>5:30 – 7 p.m.</td>
<td>Kappa Pi Art Honorary Induction Ceremony</td>
<td>The Cleo Perry Garden</td>
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<tr>
<td>5:30 – 7 p.m.</td>
<td>School of Business Honor Society Inductions and Senior Awards</td>
<td>Harris 214</td>
</tr>
<tr>
<td>5:30 – 7:30 p.m.</td>
<td>Celebrating Women of Achievement in Human Environmental Sciences</td>
<td>Jones Chapel</td>
</tr>
<tr>
<td>5:30 – 8 p.m.</td>
<td>Department of Music Student Awards and Reception</td>
<td>Carswell Concert Hall and Lobby</td>
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<tr>
<td>6 – 6:30 p.m.</td>
<td>Pi Mu Epsilon Induction Ceremony</td>
<td>SMB 162</td>
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<tr>
<td>6 – 8 p.m.</td>
<td>Psychology Department Student Awards and Recognition</td>
<td>Ledford 101</td>
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## Schedule of Events

### 7:30 – 8:30 a.m.

**POSTER PRESENTATIONS**  
Carlyle Campbell Library

<table>
<thead>
<tr>
<th>Title</th>
<th>Presenter(s)</th>
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<tr>
<td>Comparison of the Constructs of Grit and Resilience in Student Populations</td>
<td>Viktoriya Anissimova, Julia Johnson, Colleen McKeel</td>
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<tr>
<td>Do Children Prefer To Play With Gender Specific Toys?</td>
<td>Margaret Armstrong</td>
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<tr>
<td>Augmentative and Alternative Communication (AAC)</td>
<td>Alyssa Baker</td>
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<tr>
<td>Impact of Accent on Perceived Intelligence</td>
<td>Allison Benedict</td>
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<tr>
<td>Expanding Moral Community - Plants and Animals</td>
<td>Bailey Birtchet, Madison Gladwell</td>
</tr>
<tr>
<td>College Students and Self-Esteem</td>
<td>Macy Brinson</td>
</tr>
<tr>
<td>The Effect of Physical Activity on Perceived Mood in Assisted Living Residents</td>
<td>Catherine Coats</td>
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<tr>
<td>Engaging Girls in Computer Science Through Online Gameplay</td>
<td>Melanie Cusick</td>
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<tr>
<td>Use of the Sandell-Kolthoff Reaction as an Orthogonal Assay to Detect Potential NIS Inhibitors in FRTL-5 Cells: A Comparison to RAIU Results</td>
<td>DeAnna DeVane, Angela Buckalew, Tammy Stoker</td>
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<tr>
<td>Motivating Females in the Mathematics Classroom</td>
<td>Kirby Forbes</td>
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<tr>
<td>The Assessment of Emergent Bilingual Students in the Elementary Classroom</td>
<td>Kayla Hansen</td>
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<tr>
<td>Net Neutrality: An Analysis of Public Perspective and Partisanship</td>
<td>Breanna Harmon</td>
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<tr>
<td>Unmet Needs in Mental Health Treatment in the United States: Investigating the Relationship Between Access, Finances, and Insurance Coverage</td>
<td>Sarah Hemzawi, Madaly McMillan, Elizabeth Mueller</td>
</tr>
<tr>
<td>The Relationship Between Attachment Dimensions and Overall Relationship Depth of College Students</td>
<td>Morgan Hendrix</td>
</tr>
<tr>
<td>Parental Leave Policy and the Wage Gap in Local Wake County Governments</td>
<td>Madeleine Hubbard</td>
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</tbody>
</table>

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#MeredithCSA

SCHEDULE OF EVENTS      5
Predicting Resilience in Undergraduate Women
Rachel Isenberg

Oxidizing Alcohols and Sulfides Using Substituted Lodoxybenzoic Acid (IBX)
Ga Hyeon Jeong

Chemistry For All: An Outreach Goal
Kinley Jessup

The Relationship Between Undergraduate Majors and Resiliency and Stress
Julia Johnson

Characterizing Food Insecurity Among College Students Enrolled at Meredith College
Logan Joyner

Determination of Reaction Mechanisms of Olefin Insertion Catalyzed by Oxorhenium Hydride Complexes
Sarah Kincaid

Parental Leave Policies in the Service Industry in Wake County
Megan King

The Effect of Milk on the Viability of Probiotic Supplements in the Gastrointestinal Tract
Briana Landis

From Yeast to Bacteria- Cloning the Enzyme Invertase
Sophie Lindem, Kathryn Wescott, Shefali Srivastava

It’s Complicated: The Status of Gatekeeping Roles and Processes in Complex Situations
Olivia McKain, Katelyn Amstutz

The Ups and Downs of Parental Leave: Wake County Public School System
Mackenzie Mills

Parental Leave Disparities Within Tech Companies
Nour Nachet

The Relationship Between Mental Health and Occupational Therapy Training and Intervention Outcomes
Victoria Penna

Modeling of Blood and Arterial Properties within a Cerebral Aneurysm
Emily Potok

The Effects of Pre-workout Supplementation on Measures of Cognition and Athletic Performance in Female College Athletes
Brittany Preston

A Study Comparing How Autism Affects Participation Levels in Meredith College Traditions
Kaylie Prince
The Effects of Yoga on Core Strength and Appropriate Behavior in Children with Autism Spectrum Disorder and Sensory Processing Disorders
Alexandra Reyes

Discovery of Antimicrobials from Soil Samples Collected in Yazoo National Wildlife Refuge, Mississippi
Deema Sader, Sana Haseeb, Ayesha Ullah

Effectiveness of Insecticide Treated Nets in Preventing Malaria in Sub-Saharan Africa
Samantha Smith

Supplement Usage Among Meredith College Students
Demonica Stanley

Evaluating the Potential for Environmental Transmission (Mycobacterium leprae) in a Natural Armadillo (Dasypus novemcinctus) Population
Katelyn Steadman, Joshua Perch, Danielle Robison

Racial Disparities Influence Onset of Diabetes: Is It True?
Marissa Stephenson, Leah West, Hailey Taylor, Hannah Elvington

Breeches and Cross Casting in Theatre
Allie Sullivan

The Physical Effects of Unforgiveness
Regan Tart

The Effects of Product Scarcity and Exclusivity on Consumer Behavior in Women by Age Group
Hannah Jane Watkins

Identification of Saracenia Purpurea Digestive Liquid and Aromatic Attractants
Wendy Espinoza, Jessica Bunn

Effects of a Movement Intervention on Motor Skills in Children with Autism
Laura McCall Whitley

Literacy Programs for Children with Disabilities
Emily Wilkinson

Educating Meredith College Students on the Importance of Meal Planning
Kendall Williams

Stress and Resilience in Undocumented and Documented College Students
Stephanie Zavaleta
MORNING CONFERENCE SESSIONS

Teaching and Learning: Measurement, Improvement, and Inclusion
Kresge Auditorium

8:30 - 8:50 a.m.  Impact of Personal Parental Attitudes on Children's Literacy Development
Maha Issa

8:55 - 9:15 a.m.  Instructional Strategies for the Enhancement of STEM Skills in Our Classrooms
Emily Vick

9:20 – 9:40 a.m.  Teachers’ Perceptions of the Impact of Physical Activity Breaks
Alexis Tennant

9:45 - 10:05 a.m.  The Influence of Inclusive Productions and the Growing Intersection Between Art and Special Education
Catherine Glenn

10:10 - 10:30 a.m.  The Re-Training Approach on Hand-Eye Coordination of an Individual with Down Syndrome
Julia Dunshee

10:35 - 10:55 a.m.  The Effect of Test Delivery Format and Encoding Specificity on Reading Comprehension
Jessica Benson

Human Interactions: Transitions and Connections
Ledford 101

8:30 - 8:50 a.m.  Social Information Processing Theory: My Friends Are Now a Case Study
Hannah Naylor

8:55 - 9:15 a.m.  How Birth Order Impacts our Clifton Strengths Traits and College Major
Sara Neese

9:20 – 9:40 a.m.  Personality and Transition Related Stress in First-Year College Students
Ally Cefalu

9:45 - 10:05 a.m.  Investigating the Post-Graduate Emerging Adulthood Experience: A Qualitative Approach
Julia Johnson, Morgan Hendrix, Allison Kvasnicka

10:10 - 10:30 a.m.  The Impact of a Summer Symposium Experience on Adjustment and Persistence Among Diverse First-Year Students
Allison Kvasnicka

Exercise: Interventions and Effects
SMB 162

8:30 - 8:50 a.m.  The Effects of Resistance vs. Endurance Training on the Neuromuscular Activation of the Vastus Lateralis and Rectus Femoris, and Body Fat Percentage in Women Body
Ana Lucia Rodriguez-Salazar

8:55 - 9:15 a.m.  The Effects of Self-Myofascial Release vs. Static Stretching on Delayed-Onset Muscle Soreness after a Damaging Bout of Resistance Exercise on the Leg Press
Jessica Lane

9:20 - 9:40 a.m.  Using the GAD-7 Self Anxiety Test to Compare Effects of Resistance Training on Students at Risk of Anxiety
Chelsea Carre

9:45 - 10:05 a.m.  The Effects of a 3-Week Exercise in Muscular Strength Improvement for Prevention of Falls in the Geriatric Population
Zoe Stavredes

10:10 - 10:30 a.m.  The Effects of Observational Exercise on Neuromuscular Activation in Hypothenar Muscles of College Aged Females
Whitney Hamilton
10:35 - 10:55 a.m. The Effects of Structured 8-Week Physical Education Courses on Anxiety and Stress Levels in Female College Students
Allison Bartlett

Plants, Animals, and Insects...Oh My!

SMB 118

8:30 - 8:50 a.m. Environmental Factors Affect Foraging Efficiency of Leaf Cutter Ants in Costa Rica
Katelyn Steadman, Samantha Smith

8:55 - 9:15 a.m. Temperature Effects on Venus Flytrap (Dionaea Muscipula) Electrophysiology
Jasymn Scruggs

9:20 - 9:40 a.m. Magic Mushrooms: Their Evolutionary History, Chemical Synthesis, and Pharmacological Use in Mood Disorders
Haley Parsons

9:45 - 10:05 a.m. Crayfish and Their Microscopic Critters: Crayfish Symbiont Response to Invasion within the Chetco River System Southwestern Oregon
Barbara Teague

10:10 - 10:30 a.m. Insect Biodiversity in Raleigh, North Carolina – A Pecha Kucha
Marissa Cole

10:35 - 10:55 a.m. Tissue Culture of Cannabis Sativa
Megan Whitfield, Seema Hussain, Maria Mosso, Alejandra Vargas

11-11:20 a.m. Challenges with Molecular Identification of Larval Tapeworms
Erin Murray

Studies in Literature and Meaning
Harris 104

8:30 – 8:50 a.m. Flying Through Time: The Evolution of Wendy Darling and Peter Pan
Sarah Kiser

8:55 - 9:15 a.m. The Tender Wolf: Sexuality and Power in Angela Carter’s The Bloody Chamber
Alexandra Rouch

9:20 – 9:40 a.m. Humbert Humbert: Romantic Hero or Monstrous Pedophile?
Emma Hogan

9:45 – 10:05 a.m. Daisy Buchanan: A Culmination of Symbols
Whitney Pepper

10:10 - 10:30 a.m. Until Death Do Us Part: Corporeal Violence and Communal Grace in Flannery O’Connor’s “Good Country People” and “Revelation”
Abigail Ojeda

10:35 - 10:55 a.m. Louisa May Alcott’s Little Women: Bigger Accomplishments for “Little” Women
Haley Katherine Yow

11 - 11:20 a.m. “A Stiller Doom Than Mine”: A Feminist Critical Analysis of Power in Charlotte Bronte’s Jane Eyre
Caroline Diorio

Business, Economics, and Entrepreneurship
Harris 214

8:30 - 8:50 a.m. An Investigation of Consumer Spending Related to Tax Refunds
Morgan Daly

8:55 - 9:15 a.m. The Effects of Social Media in the Tourism Industry
Megan Evans

9:20 - 9:40 a.m. Black-Litterman Model Application
Mary Kolisnichenko
9:45 - 10:05 a.m.  An Analysis of the Relationship Between Economic Indicators and Opioid Related Adverse Health Outcomes in North Carolina
Medina Earth-Dowd

10:10 - 10:30 a.m.  A Demonstration of Business Development: A “Sharktank” Style Pitch
Sydney Spadaro, Anna Hughes, Christina Cowperthwait

Women in History and Religion
Harris 208

8:30 - 8:50 a.m.  “In the Name of My Fellow Sisters”: Edith Vanderbilt and the North Carolina State Fair
Morgan Johnson

8:55 - 9:15 a.m.  Newspapers and the Intersection of Religion and Government in North Carolina in 1788-1789
Dominique Bateman

9:20 - 9:40 a.m.  Gendered Safe Spaces in Post-Title IX College Education
Jennifer Mackaman

9:45 - 10:05 a.m.  Submissive and Daringly Strategic: The Sección Femenina and its Relationship to the Spanish Catholic Church during the Era of Francisco Franco
Isabelle Williams

10:10 – 10:30 a.m.  The Interfaith Movement Reflected in Pop Culture
Ellie Jones

10:35 - 10:55 a.m.  The Square: The Egyptian Revolution Through the Eyes of the Revolutionaries
Noor Elmaghrabi

11 - 11:20 a.m.  God Is On Our Side – A Pecha Kucha
Kelly Grobbelaar

AFTERNOON CONFERENCE SESSIONS AND EVENTS

The History and Culture of Hair
Cate Center 1st Floor Alcove

1 – 1:30 p.m.  The History and Culture of Hair: A Showcase Presentation
Blair Starling, Warner Little, Jennifer Garcia

Culture, Gender, and Mental Health
Harris 214

1:45 - 2:05 p.m.  Understanding Poverty by Population: A Study of Gender and Poverty Rates Across the Globe
Hannah Kicklighter

2:10 - 2:30 p.m.  Gender Inequality and Social Normality: A Qualitative Analysis of Gender in Religious Workspaces
Jenna Curia

2:35 - 2:55 p.m.  Effects of the Cultural Values of Familismo and Religiosity on the Use of Mental Health Services by Spanish Speakers
Jane Kelley

3 - 3:20 p.m.  Mental Health Outcomes of Listening to Music Among College Women
Stephanie Semaan

Healthcare: Relationships, Innovation, and Intervention
Ledford 101

1:45 - 2:05 p.m.  The Role of Identity in Patient/Healthcare Provider Relationships
Emily Berrier
2:10 - 2:30 p.m. Mental Illness and Mental Healthcare in the Autism Community  
Caroline Garrett

2:35 - 2:55 p.m. An Intervention to Reduce the Risk of Falling for Local Seniors  
Paige Lawrence

3 - 3:20 p.m. Humorous Communication: A Path To Emotional Coping Among Caregivers In Chronic Healthcare  
Victoria Ravenel

3:25 - 3:45 p.m. The Effects of Emotional Intelligence on Physician/Patient Relationships  
Warner Little

Exercise: Supplements and Performance  
SMB 162

1:45 - 2:05 p.m. Effects of Beetroot and Caffeine Supplementation on Running Time to Exhaustion  
Lindsey Garrett, Claire Beeson

2:10 - 2:30 p.m. Seasonal Changes in Body Composition in Division III Collegiate Women Lacrosse Athletes  
Kirstie King

2:35 - 2:55 p.m. The Relationship Between Anthropometric Measures and Aerobic Capacity  
Margaret Griffin

3 - 3:20 p.m. The Effects of Pre-Workout Supplementation on Measures of Cognition, Neuromuscular Activation, and Athletic Performance in Female College Athletes  
Megan Tarpey

Biological Sciences, Math, and Sustainability  
SMB 118

1:45 - 2:05 p.m. Greenhouse Gas Emissions Audit of Meredith College  
Alexis Hill, Catie Strickland, Lainey Ward, Kristen Viera

2:10 - 2:30 p.m. Evaluation of Organic Food Products: Are they Worth It?  
Lauren Hickey

2:35 - 2:55 p.m. The Inhibition of HIV-1 Protease by Punicalagin  
Taylor Keyes

3 - 3:20 p.m. Oxymatrinic Acid as a Potential HIV Protease Inhibitor  
Barbara Levengood, Taylor Keyes

3:25 - 3:45 p.m. On the Erdős Distance Problem  
Sara Talley

Politics and the Media  
Harris 208

1:45 - 2:05 p.m. Digital Blackface: How Reaction GIFs Parallel Historic Racist Media  
Miriam Mays

2:10 - 2:30 p.m. Congressional Success Among Latinos: Do We Campaign the Same?  
Jennifer Garcia

Emily Slusser

3 - 3:20 p.m. The American People’s Opinion: The President Attacking the Media  
Yessy Anorve-Basoria
Art and Theatre: History and Analysis
Kresge Auditorium

1:45 - 2:05 p.m.  
Roy Lichtenstein and Appropriation: Artist or Thief?  
Annie Poslusny

2:10 - 2:30 p.m.  
Made in the Image of all that is Sacred: Reliquaries in the Medieval Catholic Church  
Tori Burke

2:35 - 2:55 p.m.  
The Portrayal of Women with Mental Illness in Theatrical Literature: Shakespeare vs. Contemporary  
Jordan Clodfelter

3 - 3:20 p.m.  
W.R. Valentiner and the Genesis of the North Carolina Museum of Art  
Annie Poslusny

3:25 - 3:45 p.m.  
How to Picture a Dead Man: The Political Martyr in Neoclassical Art  
Tori Burke

Design, Fashion, and Families
Harris 104

1:45 - 2:05 p.m.  
ST[our]RY: Be Our Neighbor  
Tyler Pharr, Alexa Harper, Ryelle French

2:10 - 2:30 p.m.  
I Got It on Sale! Consumer Perception and Purchase Behavior Toward Discounts on Clothing  
Olivia Holway

2:35 - 2:55 p.m.  
Patching Yesterday into Tomorrow: Upcycled Fashion  
Faith Faison

3 - 3:20 p.m.  
Confirming or Conforming: Comparing the Dominant Values of Fictional Families from Television Shows to Those of Selected United States Families in the 1970s, 1990s, and 2010s  
Bethany Helm

Musical Performances
Carswell Concert Hall

1:45 – 2:35 p.m.  
Octavia!  
Brittany Hayes, Kaylee Bannon, Kathryn Cowsert

2:45 - 3:15 p.m.  
Music and The Holocaust  
Hayleigh Young

*Pecha Kucha (peh-chuh koo-chuh) is an Anglicized version of a Japanese phrase meaning “Chit-Chat”. It involves a technique of presenting grounded ideas, convictions, and experiences in a concise format – 20 images, each display for 20 seconds with the presenter providing commentary on the topic being presented. Pecha Kuchas are not “research” presentations per se, but the student does present through the authority of her knowledge and experience.
Comparison of the Constructs of Grit and Resilience in Student Populations

Viktoriya Anissimova, Julia Johnson, Colleen McKeel
Research Adviser: Professor Cynthia Edwards; Psychology

The present study from the Meredith Emerging Adulthood Longitudinal Studies (MEALS) Laboratory aims to determine if grit, ‘the perseverance and passion for long-term goals,’ and resilience, ‘the ability to bounce back or recover from stress [or adversity]’ are similar or overlapping constructs. In Study 1, the Brief Resilience Scale (Smith et al., 2008) and the 12-Item Grit Scale (Duckworth & Quinn, 2009) were distributed to high school students (N = 46) attending a residential program for talented students in the summer of 2018. The Brief Resilience Scale was distributed a total of four times during the five-week program, and the 12-Item Grit Scale was distributed only during the fourth time point (T4). The Brief Resilience Scale, consisting of eight items, was found to be highly reliable over the four time points with a Cronbach’s Alpha of .955. Inter-class correlations were conducted at T4 between the 12-Item Grit Scale and the Brief Resilience Scale, and no significant correlation was found (r = -.186). Study 2 consisted of a replication study with psychology Research Methods students (N = 27) over two time points. No significant correlation was found between grit and resilience scores at time one (r = -.283) or time two (r = -.115). Given the negative, nonsignificant correlation between the 12-Item Grit Scale and the Brief Resilience Scale, further research is needed to elucidate the relationship between the constructs of grit and resilience.

The American People’s Opinions: The Presidential Attacks on the Media

Yessy Anorve-Basoria
Research Adviser: Professor Doug Spero; Mass Communication

A visual representation and continuation of a senior thesis, the purpose of this documentary is to demonstrate the importance of American’s public opinions. The importance of having a conversation with Americans of all political backgrounds is necessary because individual opinions matter and variation of opinions creates a better understanding of how citizens are affected by different issues. A particular issue that needs to be discussed is the President of the United States’ history of attacking the media on his social media platforms and in press releases for claims of journalists reporting fake news. Through interviews, juniors and senior class students of Meredith College speak out on how they have been affected, both positively and negatively, by the President attacking the media. The type of questions addressed in the interview include political party affiliation, the eligibility to vote in 2016, plans to vote in 2020, preferred venue or platforms for receiving news, the effects the President’s view of the media has had on them, and beliefs on how inaccurate news should be handled by the White House and by the general public.

Through the process of these interviews, I expect to open up a civil discussion to understanding what goes beyond the “party line” of individuals’ political affiliations.

Do Children Prefer To Play With Gender Specific Toys?

Margaret Armstrong
Research Adviser: Professor Fain Barker; Child Development

Beginning as early as infancy, children show preference towards toys typically associated with their gender (Todd, Barry & Thommessen, 2017). This preference illustrates the beginning developments of gender specific play, which stems from children observing gender stereotypes present in their environments and learning from these expectations (Bluiett, 2018). This literature review discusses the potential impacts of gender stereotypes. The research gathered primarily reviewed children’s play interactions in a natural environment and gathered data regarding the children’s choices (Todd et al.; Wohlwed, 2011; Zosuls et. al, 2009). Findings suggest that typically developing children display preferences toward toys marketed toward their specific gender at a young age with a tendency for these preferences to increase or remain consistent as the children get older (Todd et al.). Research also suggests that children’s influences for these gendered toy preferences may stem from their parents (Freeman, 2007) and peers (Martin et. al; Wohlwed). Media usage was also found to be a large contributor, through the messages children are exposed to through movies and marketing (Auster & Mansbach, 2012; Coyne, Linder, Rasmussen, Nelson, & Birkbeck, 2016; England, Decartes & Collier-Meek, 2011). The findings from this literature review will form as a basis for the writer’s work on her undergraduate thesis.
Augmentative and Alternative Communication (AAC) Strategies
Alyssa Baker
Research Adviser: Professor Patsy Pierce; Child Development
This presentation explores scholarly research revolving around augmentative and alternative communication (AAC). The strategies used in AAC are addressed, as well as the history and theoretical background of AAC. Research supporting the current use and effectiveness of AAC is discussed. This paper includes critiques of AAC practices. The importance of this presentation is to familiarize the audience with AAC, and how helpful it is to use these devices and strategies to communicate more efficiently.

The Effects of Structured 8-Week Physical Education Courses on Anxiety and Stress Levels in Female College Students
Allison Bartlett
Research Adviser: Professor Sharon Malley; Exercise and Sports Science
Anxiety and stress are common mental health issues among the college student population. Physical activity not only has many physical health benefits, but it has also been shown to increase psychological well-being, which can provide a decrease in anxiety and stress. The purpose of this study was to examine the effects of structured 8-week physical education courses on anxiety and stress levels in female college students. Participants were 33 female college-age students, currently enrolled in an 8-week structured physical education course. Questions from the Generalized Anxiety Disorder-7 item scale and Perceived Stress Scale were used to create online pre and post assessments for both anxiety and stress. The pre-test was completed during the first week of classes and the posttest during the last week. Participants were assigned corresponding random participant numbers to maintain confidentiality and to link pre and post assessment responses. Pre and post scores for both anxiety and stress were compared using paired sample t-tests. Data analyzed at the p<0.05 level demonstrated significant decreases in stress scores, but no significant difference in anxiety was seen. These results suggest that participation in physical education courses can decrease stress levels in female college students.

Newspapers and the Intersection of Religion and Government in North Carolina in 1788-1789
Dominique Marie Bateman
Research Adviser: Professor Daniel Fountain; History
The interplay of religion and government has long been a topic of debate in United States' history. This is a consequence of recurring patterns of government regulation of religious practice and religious views impacting the creation of government policy. When scholars have examined the variety of stances on this topic in the American South during the late 1700s, they have rarely focused on North Carolina's unique position in the debate during a formative period in our country. Through analysis of multiple articles commenting on the relationship of religion and government from three period newspapers, this research examines how North Carolinians in the years 1788 and 1789 believed religion and government should interact with each other. This research highlights that, during these two years, though religion was highly valued and some North Carolinians supported the idea of public religion, many were proud of their tolerance of various religious denominations and feared abusive use of power should any particular church be legally established. Consequently, these reservations prompted many North Carolinians to oppose the creation of a state-sponsored church.

Impact of Accent on Perceived Intelligence
Allison Benedict
Research Adviser: Professor Mark O'Dekirk; Psychology
Previous research has shown that one's accent can influence one's employability. Atkins (1997), as well as many other research studies, such as Hopper (1997) and Carlson and McHenry (2006), found that when one has an accent that is heavy and different from the majority population, individuals are less likely to be hired regardless of their qualifications. The current study sets forth to determine if individuals with accents different from the majority population of the Meredith College community are less likely to be hired due to a perception of a lack of intelligence. It was hypothesized that individuals with a mid-western American, or standard American, accent would score the highest for intelligence while those with a Latino accent would be scored the lowest on perceived intelligence. This study utilized an independent groups design with participants randomly assigned to one of the three accent types. After listening to one speaker based on group assignment, participants were asked to complete a survey rating their perception of the speaker's level of intelligence. Results from a one-way independent groups ANOVA found no significant difference for accent type on perceived intelligence or likelihood of hiring. However, post hoc analyses indicated that there is a statistically significant difference (F(2, 56) = 4.605, p < .05) in the likelihood of asking for help from the individual between the confederate with a southern-American accent and all other accent types.

The Effect of Test Delivery Format and Encoding Specificity on Reading Comprehension
Jessica Benson
Research Adviser: Professor Cynthia Edwards; Psychology
Encoding-specificity refers to the relationship between how people store information and then accurately recall it. Tulvig and Thomson (1973) demonstrated how only information that has been stored can be retrieved and retrieval depends on the way the information was stored. The effect of encoding-specificity and test delivery format (electronic vs. paper) on
reading comprehension was studied in female undergraduates from two Psychology Research Methods courses (N = 31). It was hypothesized that encoding through paper would result in higher scores than encoding electronically. A demographic survey included preferred note-taking and textbook format (paper or electronic) Likert scales. Both classes were given identical reading comprehension tests, but in different encoding-testing combinations. Combinations included paper-paper, paper-electronic, electronic-electronic, and electronic-paper. The mean test score for encoding on paper was 2.53 (SD = 0.24) and the test scores for encoding electronically was 1.77 (SD = 0.24). The mean test score for encoding on paper was significantly higher than the mean test score of the test delivered electronically, F(1,31) = 5.17, p 0.05. While there was no significant difference between testing on paper versus electronically; paper testing had a higher mean score (M = 2.39, SD = 0.25) compared to the electronic mean score (M = 1.91, SD = 0.22). Significance was not found for an interaction between encoding and testing. Significant correlations were found between preference for taking paper notes and electronic-electronic scores (r = 0.75, p<0.00) and between preference for taking electronic notes and electronic-electronic scores (r = 0.60, p<0.01).

The Role of Identity in Patient/Healthcare Provider Relationships

Emily Berrier
Research Adviser: Professor Kris Macomber; Sociology

In a society stratified by social and economic hierarchies, factors such as gender, race, age, and socioeconomic status significantly shape our interactions. Through social interaction, we engage in “identity work,” which involves conforming to or resisting gender norms, ascribing to social statuses, and aligning or distancing ourselves from groups. My research centers on how identity shapes interactions between patients and healthcare providers. Specifically, I am seeking to answer the question, “How does identity impact the level of trust between college students and their healthcare providers?” As it stands, research on college students’ healthcare needs and experiences is under-developed.

To address this gap, I designed a focus group study with female college students to gather data about their experiences with the healthcare system. To determine the role that race and ethnicity may play in students’ healthcare experiences, I recruited a racially diverse sample. Data analysis from the first two focus groups reveal two key findings: 1) the college years present unique challenges for young adults, as many students start making healthcare decisions independent of their parents, and 2) gender is a salient factor when making healthcare decisions. Above all else, gender identity plays a significant role in patient comfort level, more than race and ethnicity. My research contributes to knowledge about how social institutions, such as healthcare, are structured in ways that impact our social identities. Identity work is not something people engage in solely at the micro-level. Rather, our social institutions both shape and are shaped by our social identities.

Expanding Moral Community – Plants and Animals

Bailey Birtchet, Madison Gladwell
Research Adviser: Professor Steven Benko; Interdisciplinary

The moral status of non-human animals is a subject that is highly contested amongst philosophers and the general population. The question of whether non-human animals deserve the same rights as humans and what makes them deserve such rights is at the core of this discussion. After exploring research related to non-human animal cognitive ability and social dynamics, we have concluded that they deserve moral respect and a place in our society. We came to this conclusion based on research of several non-human animals (birds and elephants) and their ability to exhibit traits and characteristics that make them worthy of moral consideration and respect. Further research into the laws concerning the rights of these specific animals helped to illustrate the differing views of society on the morality of these non-human animals. This research process has included an examination of the readings and studies from the perspectives of graphic design and pre-law students thus allowing for a culmination of findings that offer new insight through illustrative posters and informative animations that present our conclusion through an accessible medium. The interdisciplinary nature of this research has allowed for various perspectives and conclusions that stray from standard humanities-based research.

College Students and Self-Esteem

Macy Brinson
Research Adviser: Professor Stephanie Little; Exercise and Sports Science

The purpose of this study was to examine self-esteem in female student athletes. Athletes who played fall sports (n = 53), as well as non-athletes (n = 32), were asked to participate in the study. Student athlete sports groups included cross country, volleyball, tennis, and soccer. Non athletes enrolled in a PED (physical education) class on campus were also asked to participate as a self-esteem comparison score. All participants took the validated Rosenberg Self-Esteem Scale as part of a survey. The survey was administered before the student athletes practiced or before the PED classes began exercising. (Having the scale administered prior to exercising was crucial for data analysis.) Using Kruskal-Wallis Tests no significant difference was found in the self-esteem levels between athletes and non-athletes as measured by the Rosenberg scale. However, data indicated a high degree of variability in the range of scores for students athletes.
How to Picture a Dead Man: The Political Martyr in Neoclassical Art
Tori Burke
*Research Adviser: Professor Beth Mulvaney; Art History*

The art of the Neoclassical period, emerging in the 18th century and dominating the artistic practices of Britain, France, and the painters of the newly-emergent American territory, was predicated on a desire to reestablish the values of the art of classical antiquity. Looking to the Greco-Roman world as the origin of European democracy, artists sought to imbue their often politically-charged paintings of historical events and moralizing tales with a gravity that can often be formulaic and sterile. This paper examines a particular situation wherein this is not the case; Neoclassical images of the political dead can be deeply psychological, with such spiritual intensity that they seem to suggest veneration from the viewer. Through research on the visual composition of an artwork from each geographical stronghold of Neoclassicism and analysis of the discourses of Joshua Reynolds, head of the Royal Academy of Art in London and a prominent figure of the movement, this paper argues that the religiosity of these portraits of self-sacrifice was in line with Neoclassical protocol. Rather than intending to shock or disgust, these artists make use of carefully incorporated religious iconography in order to glorify life lost for the political state in a context that 18th century viewers could readily understand.

Made in the Image of all that is Sacred: Reliquaries in the Medieval Catholic Church
Tori Burke
*Research Adviser: Professor Beth Mulvaney; Art History*

Reliquaries, the ornamental containers used by the Catholic Church to protect relics of the saints, are part of a complex system of religious iconography. They take on many different appearances and forms, yet they share the same insistent desire reflect outward what they hold inside; going far beyond the for-use nature of a secular container, reliquaries often serve as a visual representation of the saint’s restored body and redeemed soul for the viewer. Sometimes the invocation of the physical body is literal, yet other times it can be more abstract. Intriguingly, many reliquaries mirror the architectural vocabulary of the churches they reside within. Looking to the studies of reliquary iconography done by the art historians Cynthia Hahn and Scott Montgomery, the writings of William Durandus on the symbology of the Catholic Church, and Tertullian’s De Carnis Resurrectione, I will explore the construction of reliquary designs as a part of the Catholic approach to navigating the gap between the physical and spiritual. With a focus on the prominent iconographic communication between relics and their churches, I will argue that reliquaries promote the physical identification of the bodies of the saints with the ‘body’ of the church, as it is often referred to within medieval Christian literature. This connection would facilitate the worshipper’s internal-ized realization of their own bodily presence, placing reliquaries as crucial intercessors in the Catholic Church’s promotion of individual salvation.

Using the GAD-7 Self Anxiety Test to Compare Effects of Resistance Training on Students at Risk of Anxiety
Chelsea Carre
*Research Adviser: Professor Sharon Malley; Natural and Physical Sciences*

Numerous studies have shown that exercise improves physical health. Emerging research is exploring the effects of exercise on mental health, especially anxiety levels. The purpose of this study was to use the GAD-7 self-anxiety test to compare the effects of resistance training on students at risk of anxiety. Twelve students, whom fit the required parameters of being sedentary and a college-aged female, were selected and strategically placed into either the control group or the experimental group to ensure equal distribution of GAD-7 scores in both groups. All participants took the screening test at the beginning and at the end of the experiment. Participants in the experimental group performed a resistance training program designed by the experimenter three times a week for four weeks, while the control group remained sedentary. The resistance training group rotated the muscle groups exercised to reduce fatigue and satiation. Having the same number of anxiety levels in each group was crucial for data analysis. The Mixed Models Analysis could not determine post-score relationship of pre-group scores and group (p=0.336 and F=1.045), or all separate (p=0.631 and F=0.249). Though the results were not significant, anxiety scores in the experimental group decreased and increased in the control group. The experimental group had a 49% decrease and the control group had a 143% increase in their anxiety levels. Therefore, resistance training showed to have a positive trending effect in decreasing the levels of anxiety.

Personality and Transition Related Stress Levels in First-Year College Students
Ally Cefalu
*Research Adviser: Professor Cynthia Edwards; Psychology*

Freshman year of college is characterized as a time of high stress and adjustment to a new chapter of life. Previous research from Besser and Zeigler-Hill (2014) found that positive personality traits such as optimism and hope were correlated with lower levels of psychological distress in college freshman. The present three-wave longitudinal study collected data from a survey given to students (N = 72) at Meredith College to determine if personality type was related to stress levels. The survey was administered in 2013 during the first month of school, again before winter break, and upon return from winter break. At T1, the survey used the Personality Descriptor Profile (Edwards & Reddy, 2006) to assess whether the students were more relationship-oriented or task-oriented. Stress levels were also recorded at
three points throughout their freshman year using a 41-question Likert style stress snapshot (Pantlin & Woolard, 2014). Consistent with Besser and Zeigler-Hill, the hypothesis was that students who are relationship-oriented will have lower levels of stress. A confirmatory factor analysis affirmed the two factor structure (Task- and Relationship- Orientation) of the Personality Descriptor Profile. T1 stress scores displayed a significant negative correlation with task orientation (r = -.391, p < .01). Ongoing analyses explore how stress scores fluctuated during the other time points. Task-oriented students may have lower stress levels due to further developed learning strategies and time management skills. Assessing stress levels of college freshman may help higher education institutions enhance how they cater to individuals during this tumultuous time in students’ lives.

The Portrayal of Women with Mental Illness in Theatrical Literature: Shakespeare vs. Contemporary

Jordan Clodfelter
Research Adviser: Professor Cathy Rodgers; Theatre

“Though this be madness, yet there is method in’t” (Hamlet). This paper will discuss how women with mental illness are portrayed in theatrical literature, with the focus on comparing the works of Shakespeare and contemporary works. Mental illness, and the representation of mental illness in the entertainment industry has become an ongoing issue surrounding the stigma of mental illness. People with mental illness are often portrayed as the worst possible case, where it leads to them just acting insane. Women have been stereotyped as being overemotional for decades, where their mental illness has either not been taken seriously, or they are described as “hysteric”. Even in today’s period, there is a stigma surrounding mental illness that is often portrayed in the media, instead of in a truthful manner, where mental illness is more than just the severest case of schizophrenia. Through better research since Shakespeare’s time, mental illness is better represented, and better understood. However, even in the speech and actions of the character with mental illness, the stigma still lives on, and we must continue to fight the stigma against mental illness.

The Effect of Physical Activity on Perceived Mood in Assisted Living Residents

Catherine Coats
Research Adviser: Professor Doreen Fairbank; Psychology

Physical activity was demonstrated to have a positive effect on seniors through a study where participants (n = 14) who were told to exercise daily scored lower on the Geriatric Depression Scale (GDS) compared to participants (n = 16) who continued normal daily activity routines. The purpose of the present study was to examine the effect of physical activity on perceived mood in residents living at an assisted living facility located in Apex, NC. This study compared the effects of physical and nonphysical activity had on the residents’ perceived mood. Participants (N = 9) were given a survey and were asked to rate happiness levels on a scale of 1-7 before and after physical activities and again after nonphysical activities. The use of repeated measures was implemented. The type of activity was the independent variable and the perceived mood was the dependent variable. The scores were compared to see the difference between the same people after different types of activities participated in on different days. Post physical activity had a higher happiness level mean than post nonphysical activity. Nine out of 11 residents’ perceived mood were higher after physical activity. These findings suggested that the more physical activity residents receive, the less likely the residents will have a negative perceived mood.

Insect Biodiversity in Raleigh, North Carolina

Marissa Cole
Research Adviser: Professor Maria Pickering; Entomology/Biology

Insects play a vital role in virtually every environment, often as pollinators, vectors, pests, or even pest control themselves. Establishing a baseline of knowledge about the biodiversity of insects in an area is important so that citizens know what insect taxa to look for in a healthy environment and monitor changes by also monitoring the presence or absence of different insect families. I am studying the general biodiversity of insects around Raleigh, North Carolina by beginning a collection of the widest possible range of insects, identifying them to at least the family level with the use of a field guide and internet research, and preserving them, by pinning or in vials, as a visual representation of local insect biodiversity. These specimens have been collected by myself from the months of February through April, placed in acetone, and preserved in the freezer prior to being pinned or placed in a vial of preservative. This Pecha Kucha presentation will focus on the diversity of the different families of insects I have found in the Raleigh area and their respective roles in the environment.

Gender Inequality and Social Normality: A Qualitative Analysis of Gender in Religious Workspaces

Jenna Curia
Research Adviser: Professor Cynthia Edwards; Psychology

The present study questioned the possibility and extent of women’s devaluation in religious-workspaces by examining women’s self-concept and identity. Previous literature on gender-role expectations and the interaction between identity and religious-workspaces indicated that women’s emotional health may be affected by tensions between gender-role expectations and maintaining religious identity within religious-workspaces. These social groups form and regulate identity and their respective roles in the environment.
Research Adviser: Professor Mary Jane Lenard; Accounting

Morgan Daly

This research is focused on exploring consumer behaviors in relation to federal tax refunds. A survey questionnaire was constructed to examine the choices made by consumers; the patterns focused on in the survey included spending vs. saving behaviors, types of purchases (luxury vs. necessity), and taxpayer confidence levels in preparation. Other information captured in the survey included demographic information such as credit score, household income, age, etc. The objective of the research is to determine if credit scores are able to predict consumer behavior, as well as gauge levels of consumer responsibility. Participants were recruited via MTurk (Amazon Mechanical Turk), in which participants self-select and complete the survey for compensation. This research used a scenario-based approach for data collection, in which consumers were instructed to respond as if they had received a $3,000 refund. A regression analysis was performed on the resulting data to determine the relationship between credit score and likelihood to spend; consumers with higher credit scores are more likely to save higher proportions of their refunds.

Use of the Sandell-Kolthoff Reaction as an Orthogonal Assay to Detect Potential NIS Inhibitors in FRTL-5 Cells: A Comparison to RAIU Results

Deanna Devane, Angela Buckalew, Tammy Stoker
Research Adviser: Professor Cynthia Edwards; Biological Sciences

The experiment examined the Sandell-Kolthoff (SK) reaction to quantify the iodide uptake via the sodium/iodide symporter (NIS) by the thyroid cell. This uptake of iodide is essential for normal thyroid hormone synthesis. At the Environmental Protection Agency (EPA) the Toxicity Assessment Division (TAD) has validated a high-throughput method for screening environmental chemicals to identify potential NIS inhibitors. Previous methods utilized a Radioactive iodine uptake (RAIU) assay to test thousands of these chemicals. Here, we provide an SK method to analyze dose response inhibition of iodide uptake, and cell viability to demonstrate the utility of a complementary non-radioactive assay in a physiologically relevant thyroid follicular cell line. This experiment is important to the EPA, as an increasing number of Americans are being diagnosed with various forms of thyroid disease (American Thyroid Association, 2018). TAD is continuing to identify chemicals that inhibit the uptake of sodium iodide and interfere with the synthesis of T3 and T4 thyroid hormones. Our goal is to provide a non-radioactive method to confirm previous results. FRTL-5 (Fischer rat thyroid cells) were used to test 10 chemicals and the results proved to be comparable to previous RAIU results. This abstract does not necessarily reflect EPA policy.

An Investigation of Consumer Spending Related to Tax Refunds

Morgan Daly
Research Adviser: Professor Mary Jane Lenard; Accounting

This research is focused on exploring consumer behaviors in relation to federal tax refunds. A survey questionnaire was constructed to examine the choices made by consumers; the patterns focused on in the survey included spending vs. saving behaviors, types of purchases (luxury vs. necessity), and taxpayer confidence levels in preparation. Other information captured in the survey included demographic information such as credit score, household income, age, etc. The objective of the research is to determine if credit scores are able to predict consumer behavior, as well as gauge levels of consumer responsibility. Participants were recruited via MTurk (Amazon Mechanical Turk), in which participants self-select and complete the survey for compensation. This research used a scenario-based approach for data collection, in which consumers were instructed to respond as if they had received a $3,000 refund. A regression analysis was performed on the resulting data to determine the relationship between credit score and likelihood to spend; consumers with higher credit scores are more likely to save higher proportions of their refunds.

“$A Stillier Doom Than Mine”: A Feminist Critical Analysis of Power in Charlotte Bronte’s Jane Eyre

Caroline Diorio
Research Adviser: Professor Robin Colby; English

In my thesis, the central question is whether or not Jane’s eventual marriage to the manipulative Mr. Rochester, a union that at first appears to contradict the feminist themes of the novel, is actually subversive when examined within the context of Jane’s overarching quest for self-determination. I begin by explaining how Jane’s childhood experiences as her abusive aunt’s ward instill a fear of being “caged in” that reverberates...
The Re-training Approaches on Hand-Eye Coordination of Individual with Down Syndrome
Julia Dunshee
Research Adviser: Professor Doreen Fairbank; Psychology
Individuals with Down Syndrome often suffer with a deficit in motor skills. The Re-training Approach has demonstrated in recent research to be successful in improving hand-eye coordination (Nadkarni, Sumi, & Ashok, 2012). The purpose of the present study was to examine the effectiveness of the Re-training Approach on the hand-eye coordination in a young child with Down syndrome. The hypothesis was that this approach will increase the hand-eye skills of the participant. The procedure included administering a pretest that tested the hand-eye skills of the participant. After determining the baseline, the participant completed a four-week program to practice and improve a separate set of skills. At the completion of the program, a statistical analysis compared the pre- and post-test scores. The initial data collected shows a strong indication that the participant’s hand-eye coordination is improving. The data from the present study can give additional support that the ‘The Re-training Approach’ is a successful intervention for individuals with Down syndrome. Future studies can use this data to test individuals of other ages, sex, and types of disabilities. An improvement of hand-eye coordination can mean an enhancement of life for many individuals with special needs.

An Analysis of the Relationship Between Economic Indicators and Opioid Related Adverse Health Outcomes in North Carolina
Medina Earth-Dowd
Research Adviser: Professor Anne York; Economics
Overdose deaths resulting from non-medical use of opioids have been rising throughout the United States for the past two decades (Centers for Disease Control and Prevention [CDC] 74). To understand the relationship between opioid related adverse health outcomes and economic conditions, multiple regression analyses were conducted to describe the associations between county level overdose and death data obtained from the NC Department of Health and Human Services, labor and economic data from the NC Department of Commerce, and county level demographic data from the NC Office of State Budget and Management. Existing research suggests there are statistically significant relationships between economic conditions and opioid related adverse health outcomes. It is valuable to explore these relationships as they pertain to counties in North Carolina because data explaining these correlational relationships may serve as a foundation for legislators to develop economic and health policy responses.

The Square: The Egyptian Revolution Through the Eyes of the Revolutionaries
Noor Elmaghrabi
Research Adviser: Professor Steven Benko; Religious Ethics
Documentaries are an important way to shine light and engage people on important issues throughout history. The documentary The Square (2013), directed and produced by Jehane Noujaim, does an exceptional job recording the events of the 2011 Egyptian revolution and its aftermath. While an alluring and captivating documentary, its politics are dangerous. The Egyptian revolution started on January 25, 2011, and the events that followed have had serious consequences. The revolution began when people took to the streets to protest against the corruption and rule of Hosni Mubarak. While a success in terms of overthrowing a tyrannical dictator, the aftermath was not so successful; the revolution led to the democratically elected Mohammed Morsi, who was later overthrown in 2013 by a quasi-revolution, quasi-coup leading to rule by an oppressive military regime under Abdel Fattah Sisi. As a genre, documentaries have a specific style and aesthetic that are meant to convey the truth to the audience and offer an insight that isn’t portrayed by media and news outlets. The Square does just that, and this presentation examines the stylistic features of neorealism in this film such as the use of non professional actors and avoidance of artifice through lighting, sound and camera angles. Using a neorealist perspective, this presentation is an analysis of how the revolution is portrayed in the documentary, and how it compares to what the media portrayed during and after the events that unfolded. The question addressed in this presentation is whether the style of filmmaking gives an accurate impression of the events, and the effect this can have on how the viewer understands what happened in 2011 and what came after.
The Effects of Social Media in the Tourism Industry
Megan Evans
Research Adviser: Professor Kelly Wilder; Business Administration
Within the past decades, consumerism has changed within the tourism industry due to rapid advances in technology. Advances including the creation of social media have influenced the way consumers intake, process, and share information. As the popularity of social media increases, so does the importance of understanding the impacts of social media on consumerism especially in the tourism industry. Social media grants consumers the opportunity to visually share their experiences with family, friends, and followers on any platform. This ability to share on social media allows users to highlight tourism experiences that might not be available to followers, creating a powerful sense of scarcity. While there are many studies that evaluate the scarcity principle regarding consumerism and products, there are few research studies that assess its relevance to experiential consumption. Through this research, the scarcity principle is adapted from product consumption and applied to experiential consumerism and its dimensions are measured with the extent of its applicability. As Millennials and Gen Zers continue to value travel, experiences, and social media sharing, experiential research focused on the effect of scarcity is both timely and necessary. Research on product consumption is applicable to experiential consumption. Consumers’ friends and family are among the people whom consumers trust the most; the best way to increase perceived value of touristic destinations is through familiar endorsements. Tourist locations can use this information to influence consumers to travel to these ideal destinations, which contributes to an increase in business for the tourism industry.

Patching Yesterday into Tomorrow: Upcycled Fashion
Faith Faison
Research Adviser: Professor Eunyoung Yang; Fashion Design
Sustainable fashion is the idea of creating garments that help better the environment (Henninger, Alevizou, & Oates, 2016). It can be executed with used materials that create new, upcycled pieces. The fashion industry has begun to shift into this movement because of the current state of our planet, which has gone through considerable abuse. The typical stages of a product’s life cycle are design and development, raw materials, processing, manufacturing, transportation, retail, consumer use, and then finally the end use (Little, 2018). The purpose of this project was to review the current fast fashion production, the growing movement of sustainable production practices and the consumer attitudes towards sustainable fashion. Both upcycling and recycling have proven to be positive alternatives for the fashion industry and consumers (Little, 2018). Upcycling is taking existing artifacts such as apparel or upholstery and turning it into something new and functional. Recycling requires used apparel goods to be reused by a new consumer (e.g. thrifting, consignment & second-hand shopping). Utilizing a sustainable fashion production model, the project began by sourcing denim and other garments at a local thrift store. By upcycling the found products, three ensembles were constructed. The collection is composed of at least 90% recycled materials. The outcome of making the collection using the sustainable production model, demonstrates the challenges of scaling this model to the larger fashion industry. Some sustainable production practices have to be altered in order to be scaled.

Identification of Saracenia Purpurea Digestive Liquid and Aromatic Attractant
Wendy Espinoza, Jessica Bunn
Research Adviser: Professor Sasha Ormond; Chemistry
The genus Saracenia is a collection of carnivorous plants that attract their prey using aromatic compounds and trap them in a reservoir of digestive liquid. The prey is then converted to nutrients that the plant uses. This project intends to investigate the plant Saracenia purpurea by analyzing the composition of the digestive liquid by developing a method for Gas Chromatography Mass Spectrometry (GCMS). First, the digestive liquid is collected, then the organic compounds are extracted with a suitable solvent, and the extract is analyzed via GCMS. Results will include the identification of the digestive liquid’s aromatic compounds related to prey attraction and capture. The types of compounds found will lead to a better understanding of the Saracenia plant and may lay a foundation for future investigation of the plant’s function and potential for applications in human health.

Motivating Females in the Mathematics Classroom
Kirby Forbes
Research Adviser: Professor Cece Toole; Mathematics Education
Students struggle in mathematics for a number of reasons, one of the most prominent reasons being lack of motivation. Motivation comes from intrinsic and extrinsic sources, and students need to experience both. A major source of extrinsic motivation comes from classroom teachers, and research shows that students tend to succeed more in the classes in which they feel most motivated by their teachers. Research also still supports a lack of female representation in all STEM fields. The purpose of this study was to identify what motivational strategies best encouraged female students to achieve in their mathematics courses and consider pursuing a career related to mathematics, and to look at how influential motivation from previous mathematics teachers was when choosing college courses and a potential career path. Research was conducted using an online survey distributed to female college students. Results revealed that high school mathematics experiences greatly influenced these students’ decisions about college mathematics and, as a general consensus, negative high school experiences with
mathematics teachers resulted in students not considering mathematics as a field to pursue in the future. Four types of motivational strategies were focused on in this study: confidence building, relevance, satisfaction, and attention focusing. Through the survey, it was shown that students were much more motivated by teachers who implemented any combination of these strategies. Overall, the study found that motivational strategies are beneficial for female students, and students who felt their previous mathematics teachers used these strategies were more likely to succeed in their mathematics courses and consider a future with mathematics.

Congressional Success Among Latinos: Do We Campaign the Same?

Jennifer Garcia
Research Adviser: Professor Whitney Ross Manzo; Political Science

As of 2016, the 115th Congress has a record high of 45 Hispanic Members, making up 8.4% of Congress. Although Hispanics have become the largest minority group in the United States, Congressional representation remains far from proportional to the Hispanic Share of the United States Population. Additionally, Hispanics are not uniform since they come from many different countries and may have very different political views. This raises the question of the potential variation of campaigning issues candidates have stressed towards the Hispanic community within the last decade. Do Hispanic candidates use similar strategies to win? Through the use of content analysis, comparisons will be drawn to answer this question along with careful examination to determine if in fact Hispanics are united politically when campaigning for congressional office. Because of the large disparity between the number of Hispanic men and women who have been elected to Congress, systematic sampling was utilized in order to select 18 Hispanic males who have served in Congress to adequately compare to the 18 Hispanic females who have served in Congress. The findings from this study found that between Hispanic men and women, Hispanic women tend to also stress more social issues in comparison to their male counterparts. Additional findings indicate that Hispanic women tend to focus on their identity as a Latina more often than their male counterparts as part of their platforms when campaigning for Congressional office because this tactic was dependent of the demographic makeup of the district in which a candidate was running for office.

Mental Illness and Mental Healthcare in the Autism Community

Caroline Garrett
Research Adviser: Professor Joy Learman; Social Work

According to the CDC, approximately 20% of the population has a mental illness, but researchers estimate that for people with autism, this number is over 50%. My honors thesis discusses commonly occurring mental illnesses amongst people with autism and seeks to answer why. Additionally, I explore special considerations for diagnosis and best practices in treatment strategies to address mental illness in those with autism. Since most treatment modalities were studied using participants without autism, modifications are needed in order to best address the mental health needs of neurodivergent people.

I compiled and analyzed journal articles and books to determine estimated rates of anxiety, trauma, stress, and obsessive-compulsive disorders; mood disorders; eating disorders; and personality disorders in people with autism compared to people without autism. Throughout each section, I differentiated characteristics of autism from symptoms of mental illnesses to prevent diagnostic overshadowing and highlight guidelines for determining clinical significance of a second diagnosis. Through published blog posts and research articles written by people with autism, I obtained first-hand perspectives and applied the social model of disability to my research. My findings from both types of sources indicated that experiences of social rejection, bullying, sensory processing issues, and difficulty adapting to transitions contribute to the development of mental illnesses amongst people with autism. From the insights of self-advocates and the successes of therapists who work with this population, I have concluded that addressing mental illness in people with autism involves an individualized, strengths-based approach that focuses on quality of life.

Effects of Beetroot and Caffeine Supplementation on Running Time to Exhaustion

Lindsey Garrett, Claire Beeson
Research Adviser: Professor Sharon Malley; Exercise and Sports Science

Developing evidence shows that Beetroot Juice and Caffeine have recently gained popularity due to possible ergogenic effects that may increase endurance performance. Due to the increasing societal popularity of dietary supplements in a variety of populations, there is a need for more research on this topic, especially in females. The purpose of this study was to examine acute consumption of Beetroot juice (BRJ) and Caffeine (CA) on running time to exhaustion (TTE) in females. Eleven recreationally active females completed a maximal oxygen consumption (VO2max) test to determine their running intensity for time to exhaustion testing. For visits 2-4, participants ingested either a liquid placebo (PL) Beetroot juice (BRJ), or Caffeine (CA) 30 minutes and 2 hours prior to completing a running TTE test at 85% of their VO2max. Results indicate when caffeine is taken 30 minutes prior and when beetroot juice is taken 2 hours prior to running time to exhaustion at 85% of their VO2max neither significantly increases running time to exhaustion. Future research could focus on timing, increased dosage, a change of population with males or untrained individuals.
The Influence of Inclusive Productions and the Growing Intersection Between Art and Special Education

Catherine Glenn  
Research Adviser: Professor Cathy Rodgers; Arts Education & Special Education

How does the intersection between arts education and special education affect students? Arts education offers numerous benefits for all students, including students in special education programs. Programs focusing on the intersection of art and special education, produce students who are academically, personally, and socially. Inclusive art departments are unifying the institution's student body, while also providing the individuals with the skills necessary to become an empathetic, productive, and successful adult in the 21st century. The Kennedy Center's VSA program (the international organization on arts and disability) has served as the leader in this inclusive movement. Observation of children who participate in these programs have shown advance performance in core subject areas, display an increased level of self-confidence, and developed a life-long appreciation for the arts. These benefits are promising and should serve as encouragement for additional program developments to form surrounding inclusive arts education.

The Relationship Between Anthropometric Measures and Aerobic Capacity

Margaret Griffin  
Research Adviser: Professor Sharon Malley; Exercise and Sports Science

Several research studies have shown a correlation between anthropometric measures and aerobic capacity. Since childhood obesity is a growing issue, research has been conducted on the relationship between obesity and fitness levels in school children. However, there has been little research on the specific relationship between anthropometric measures and aerobic capacity in college-aged individuals. Approximately two-thirds of American adults and one-third of American children and adolescents are overweight or obese. Increased anthropometric measures and decreased aerobic capacity are both risk factors of disease. This study investigated the relationship between anthropometric measurements and aerobic capacity in forty recreationally active, college-aged females. Height, weight, skinfold measurements on the triceps, suprailium, and thigh, bioelectrical impedance analysis (BIA), and waist and hip circumferences were measured at the beginning of the visit. Participants’ aerobic capacity was then assessed by the 20-meter multistage FitnessGram PACER test. A Pearson product-moment correlation found there was a significant negative correlation (p < .05) between aerobic capacity as assessed by the Fitness-Gram PACER test and weight (p=.11), age (p=.31), BIA (p=.01), BMI (p=.1), and skinfolds (p=.00). There was no significant correlation between aerobic capacity and height and waist/hip ratio. These findings support the relationship between anthropometric measures and aerobic capacity seen in many previous studies conducted with younger children. More knowledge and increased awareness on this relationship can lead to an overall better quality of life, improvement of physical fitness, and prevention of many diseases.

God Is On Our Side

Keliy Grobbelaar  
Research Adviser: Professor Margarita Suarez; Religion and Ethical Studies

My senior thesis was inspired by the community that I live in. During my last year at Meredith College, I am living in an immigrant and refugee community here in Raleigh. Most immigrants face prejudice and fear on a daily basis, the purpose of my thesis is to explore how these can be reduced.

My presentation focuses on the power of appearance and the role of interfaith in immigration. Interfaith is defined as the creating of binding narratives between diverse societies. Interfaith work encourages people of different world views to engage with one another through service projects and dialogue. The purpose of interfaith is to strengthen social cohesion and reduce the chances for identity based conflict while also allowing individuals to maintain and even deepen their own views. It is impossible to engage immigration without interfaith and interfaith without immigration. Immigration causes people of different cultural and religious backgrounds to share the same space. Therefore, if interfaith dialogue was better practiced, especially within immigration-related conflicts, I believe prejudice could be reduced.

I will explain and propose some practical ways to reduce ignorance and better prepare the future generations for engaging different cultures and religions. The first is to educate high school students on different religions. World religions is a required class in college but not in public high school. Those who graduate high school, are already citizens before they attend college, if they even do. This means that they hold the power of being an active citizen in society and yet, most have little to no knowledge about different world views. This lack of knowledge is dangerous and produces conflict, violence and misunderstanding. As a part of my thesis, I am creating a high school interfaith curriculum that I propose should be taught in high school.

The Effects of Observational Exercise on Neuromuscular Activation in Hypothenar Muscles of College Aged Females

Whitney Hamilton  
Research Adviser: Professor Edward Robinson, Health and Human Performance

It is known that increases in strength during short duration of training is the result of neural adaptation. These adaptations...
include improved synchronization of motor unit firing and the improved ability to recruit motor units to perform a task. Research has shown that strength gains during contralateral exercise resistance training of the functional limb can help to maintain strength in an immobilized limb. Experiments have even demonstrated that imagining performing an exercise prior to its performance or even utilizing a training regimen where the participants only imagines performing the exercise can result in strength gains of up to 20% in post-testing. Although the neural components of muscle contraction are known there are still many questions as to why this occurs. This research investigates differences in neural activity of the brain as measured by electroencephalogram, to determine the regions of the brain activated during a resistance training task. 40 individuals between the ages of 18-25. Subjects were randomly assigned to one of four groups to train their left hypothenar muscles — muscles of the palm of the hand — for 4 weeks, five sessions per week. One group performed repeated maximal isometric contractions. A second group imagined producing these same, effortful isometric contractions. A third group passively observed a video of another individual actively performing contractions. Electrical activity of the brain was assessed during the training sessions to determine neural activity during each exercise modality. The fourth group was formed to act as a control. Results are pending analysis.

The Assessment of Emergent Bilingual Students in the Elementary Classroom
Kayla Hansen
Research Adviser: Professor Courtney George; Education

The prevalence of English language learners, or emergent bilingual students, is a growing area within the diversity of public school students in the United States. There is an extensive body of research exploring this population of students and the challenges they experience on a daily basis during a typical school day. Researchers have specifically looked at the effects of federal education policies on emergent bilingual students as well as strategies that teachers and administrators believe to be effective when providing instruction and assessment for students whose native language is not English. In this study, the literature is summarized and reviewed regarding the assessment of emergent bilingual students in the elementary classroom. In addition, an anonymous survey was developed and sent out to K-6 teachers in order to consider their perspectives on teaching and assessing emergent bilingual learners.

Findings revealed that the recommendations provided by the surveyed teachers echoed those found in the literature. While there were limitations to this study, the findings revealed valuable implications for teachers who work with students of diverse backgrounds.

Net Neutrality: An Analysis of Public Perspective and Partisanship
Breanna Harmon
Research Adviser: Professor Whitney Ross Manzo; Political Science

This research attempts to find a connection between partisanship and public opinion on the issue of net neutrality. Net neutrality is a fairly technical policy issue that many people have not heard of, which makes it the perfect policy to gauge how partisanship effects what people will support. Other research has found that most Americans support net neutrality when given the definition, no matter their political affiliation. This research was conducted through a series of three net neutrality questions asked on the Fall 2018 Meredith Poll. The three questions were: 1) Do you know what net neutrality is? 2) Net neutrality is the idea that internet service providers should provide access to all parts of the internet equally and not charge differently based on user, content, or website. Do you support net neutrality? 3) Which political party do you think supports net neutrality? Polling results found that about half of those polled were aware of the net neutrality issue. However, when given the definition, sixty-seven percent of people surveyed through the Meredith Poll supported net neutrality. Democrats were more likely to think their party supports net neutrality if they also support it. Republicans were more likely to think their party opposes net neutrality, if they themselves opposed net neutrality. My research found that no matter the party, a majority of North Carolinians want net neutrality. Research also showed that those in urban counties or younger in age tended to know what net neutrality was at a higher rate. People like to think their values align with their political party, but that may not always be the case.

Octavia!
Brittany Hayes, Kaylee Bannon, Kathryn Cowsert
Research Adviser: Professor Kent Lyman; Music

Octavia, Meredith College’s piano ensemble, will present a lecture recital featuring the Sonata in D major for piano four hands by Wolfgang Amadeus Mozart, a two-piano four hand arrangement of Leonard Bernstein’s Symphonic Dances from West Side Story by John Musto, and a Waltz and Romance for piano six-hands by Sergei Rachmaninoff. The Mozart sonata was originally written for Mozart and his older sister Nannerl to perform for enjoyment as children. It is thus an excellent example of a primary reason for the existence of piano ensemble music: the enjoyment of the players themselves. Leonard Bernstein’s music for West Side Story broke new ground, demonstrating that truly great music could be used to great effect in the genre of musical theater. The music is frequently heard as a symphonic suite on orchestral concert programs, and Mr. Musto’s arrangement for two pianos effectively captures the spirit of the original. Rachmaninoff wrote his two pieces for piano six hands at the tender age of 17.
In these pieces we find the latent seeds of his mature style, and even a fascinating reference to his Second Piano Concerto, which would come ten years later.

Presentations by members of Octavia regarding the historical and musical significance of the listed pieces will precede the performance of each work.

**Confirming or Conforming: Comparing the Dominant Values of Fictional Families in Television Shows to Those of Selected United States Families in the 1970s, 1990s, and 2010s**

Bethany Helm  
*Research Adviser: Professor Deborah Tippett; Human Environmental Sciences*

This qualitative study examines the relationship between the values represented by television families and those held by real-life families in the decades of 1970, 1990, and 2010. Though much data exists on the dramatic growth of television consumption over the years, the field is sorely lacking in analyses of the impact television shows have on their viewers, especially within the context the family unit. This study, though small-scale, could lay a foundation for future research by providing a starting point for family scholars who wish to determine exactly how families choose the shows they watch and how the content of these shows impacts individuals, families, and communities. The goal of this study is to determine whether the shows families watch tend to reflect or shape their values, and a conclusion will be drawn from historical data on trends in family values as well as data gathered from in-person interviews with two participants from each of the three decades (1970, 1990, & 2010). Analysis of the collected data will provide insight into whether families tend toward television shows which confirm their values or tend to conform to the values they see represented by characters on television shows.

**Unmet Needs in Mental Health Treatment in the United States: Investigating the Relationship Between Access, Finances, and Insurance Coverage**

Sarah Hemzawi, Madalyn McMillan, Elizabeth Mueller  
*Research Adviser: Professor Carolina Perez-Heydrich; Public Health*

Due to large societal and individual impacts of mental illness, identifying root causes for unmet need is an essential step in addressing this issue. This study’s goal is to analyze whether insurance coverage type, or lack thereof, has a relationship with perceived unmet need for mental health treatment. Data from the 2016 National Survey on Drug Use and Health (NSDUH) was analyzed using R software to perform statistical tests to explore relationships between insurance coverage, income, and perceived unmet need. Income level and type of insurance coverage significantly impact the odds that an individual will receive the mental health treatment they need. After adjusting for confounders, lower income individuals are more likely to report perceived unmet need and are less likely to have private insurance. Those with private insurance and higher incomes have the best odds of receiving necessary mental health treatment. Irrespective of income or insurance type, cost is reported as a top reason for individuals with perceived unmet mental health treatment need. These results suggest impoverished and low-income populations will benefit most by expanding coverage of mental health treatment via Medicaid and other government assistance programs. They also indicate lowering the cost of mental health services should increase access to necessary treatment across all income brackets. With more than half of those needing mental health treatment still not receiving it, financial obstacles to mental health treatment should be addressed first to ensure those who recognize they need care can receive it in a timely and affordable fashion.

**The Relationship Between Attachment Dimensions and Overall Relationship Depth of College Students**

Morgan Hendrix  
*Research Adviser: Professor Cynthia Edwards; Psychology*

Overall depth of relationship and attachment function were measured among first-semester female college students (N = 185). Attachment figures included two collegiate friends and romantic partners. Dimensions of attachment were measured using an attachment function scale based on the work of Hazan & Shaver (1994) and Fraley & Davis (1997). Survey items measured the perceived strength of attachment within two collegiate friendships and a romantic relationship (if applicable) on a 7-point Likert scale, ranging from one (not at all true) to seven (very true). A multiple linear regression with backward elimination was calculated to predict overall depth of relationship with College Friend 1, College Friend 2 and a Romantic Partner. The present study seeks to examine the ways in which attachment components influence perceived depth of relationship among friends and romantic partners in young adulthood. The hypothesis of the present study was that questions regarding having things in common with and the ability to confide in the attachment figure would be the strongest predictors of overall depth of relationship scores. Results show having things in common with and enjoying staying-in with the attachment-figure are predictive of relational-depth. Questions regarding shared commonalities (ThingsInCommon), and enjoying staying in together (StayIn) were most consistently weighted in predicting overall depth of relationship scores. Results will be discussed in the context of the application of attachment theory to the development of social support during the early college transition.
Evaluation of Organic Food Products: Are they Worth It?

Lauren Hickey
Research Adviser: Professor Bill Landis; Nutrition, Health, and Human Performance

The organic food industry was worth $49.2 billion in 2017 (Food Business News, 2017) there is considerable debate as to the value of these products to consumers. This study examined college students’ perceptions of organic foods. A survey was developed and administered to juniors and seniors living in the campus apartments assessing their grocery shopping habits, the factors influencing their buying choices, and whether they buy organic foods, and if so, the types of products they purchase. From these data, three different processed foods were selected for sensory evaluation. These particular products were selected because students reported buying these products or foods similar to these on a regular basis in both organic and non-organic form. The 3 products (mac-n-cheese, tomato soup, and crackers) were subdivided into 3 treatments: (1) a blinded comparison between the organic vs non-organic, and the same comparison but with (2) the product label and (3) the cost of each product presented to the panelists. The results showed that in terms of overall acceptability, organic mac-n-cheese was rated higher than its non-organic counterpart (4.0 vs 3.3), organic crackers were rated higher than non-organic (4.3 vs 3.5); in contrast non-organic soup was rated higher than organic (4.2 vs 1.8). The panelists showed the cost of the product and it's label favored the non-organic brands. Cost and products’ packaging and labeling influenced overall acceptability of organic and non-organic processed foods.

Greenhouse Gas Emissions Audit of Meredith College

Alexis Hill, Catie Strickland, Kristen Viera, Lainey Ward
Research Adviser: Professor Mathew Stutz; Natural and Physical Sciences

Greenhouse gas emissions audits are important for understanding, measuring, and acting to meet environmental emissions standards. Greenhouse gas emissions professionals allow for the adherence to emissions standards that are set forth by local, state, and federal governments as well as complying with the global commitments such as those of the Paris Agreement. The goal for completing a greenhouse gas emissions audit for Meredith College is to quantify the college’s contribution of total carbon dioxide emissions. The college contributes to emissions through its energy use, transportation, and waste generation. The college’s emissions were quantified using a survey sent out to all commuting individuals to and from campus, examining study abroad travel records, and reviewing energy and waste billing records. The college’s emissions from these sources in 2017-18 totaled the equivalent of 12,156 metric tons of carbon dioxide. The results from the greenhouse gas emissions audit revealed that electricity and natural gas consumption accounts for 80 percent of Meredith College’s emissions. Whereas, the college’s commuting, air travel, and waste accounted for the remaining 20 percent of emissions. Moreover, there has been an overall decline in the college’s greenhouse gas emissions since 2008.

Humbert Humbert: Romantic Hero or Monstrous Pedophile?

Emma Hogan
Research Adviser: Professor Rebecca Duncan; English

Vladimir Nabokov’s classic novel Lolita often leaves readers with the impression of a love story. After re-reading the novel through lens of a feminist perspective and closely examining the interactions between Humbert and Dolores, one can see that this relationship is really that of a captor and his hostage. Some may ask “if this is true why do so many people remember Lolita as a story about two lovers?” This is due to the novel being told through Humbert’s perspective. Humbert purposely chooses hyper-romantic language when talking about Dolores to hide the terrible abuse he is putting her through. The fact that Humbert is a pedophile, constantly portrays himself as the victim, and admits that he is a liar, makes the story less credible and unreliable. If a narrator is unreliable that means that readers should not take what the narrator says at face value, but should look at the facts of the story instead of paying attention to gushy language. Since Lolita’s publication in 1955, it has stayed relevant in the media through artists and television using it for inspiration or referring to it. The problem with the novel remaining relevant in media is that most of these artists and television shows read the novel as a scandalous love story between a silver fox and an underage girl. What the media, and oftentimes readers, forget is that Dolores Haze is only twelve-years-old and that the relationship is not consensual. Dolores is prepubescent, meaning that she has not yet developed breasts, began menstruation, or began to grow pubic hair. Humbert even admits to readers that she will quickly grow too old for his liking. So how can this tragically, disturbing story be seen by so many as romantic and even something to envy? Manipulation of the reader is how.

I Got It on Sale! Consumer Perception and Purchase Behavior Toward Discounts on Clothing

Olivia Holway
Research Adviser: Professor Alexandra Howell; Fashion Merchandising

This study examined how price discounts affect the consumer perception of clothing quality and perception of savings during a non-holiday sale. Based on past literature, the presentation of price discounts can affect how consumers perceive the discount, and in turn, can affect the buying behavior and intentions of consumers. Multiple studies show that increased discounts correlate with a decrease in the perception of quality. A survey was distributed via the personal social media and email of the researchers. Data was collected to determine the
overall satisfaction of consumers during a non-holiday sale, whether impulse purchases were involved, the perception of quality, and the perception of savings. Participants (n=54) indicated that the price discount offered did not change their perception of the quality of the goods when they were satisfied with the purchase. The perceived amount of savings, however, decreased as the consumer's level of discretionary income decreased. These findings contradict past studies which found that price discounts did not have a significant negative effect on the participant's perception of clothing quality. This research is important to help retailers understand how to use price discounts to maintain customer satisfaction and, in turn, benefit profits and customer loyalty.

Parental Leave Policy and the Wage Gap in Local Wake County Governments

Madeleine Hubbard
Research Adviser: Professor Whitney Ross Manzo; Political Science

The first federal law regulating parental leave policy in the United States was the Family and Medical Leave Act. Under this policy, parents are granted twelve weeks of unpaid leave within a one-year period, conditional upon certain criteria being met. Since then, little change has been made to the policy. As of 2018, only 4 states have introduced additional parental leave policies for state employees. No further federal laws have been instituted. The issue of parental leave is large and encompassing, and affects both men and women in the workplace. However, studies have shown that it disproportionately affects women and particularly harms women of color. Evidence shows that the wage gap grows significantly in the period after a woman gives birth. In addition to this, parental leave can affect a woman's future career potential and decrease human capital, leading to possible discrimination against women by employers. This study examines the parental leave policy and wage gap on the county level, focusing on governments within Wake County to determine the leave policies on the local level. Five municipalities within the county are examined. The study observes the policies within each municipality, as well as the overall county policy on parental leave, through interviews with current employees of each municipality. The study finds that there is a significant wage gap in Wake County, and the lack of parental leave within the county has negative effects on women in the workplace.

Predicting Resilience in Undergraduate Women

Rachel Isenberg
Research Adviser: Professor Andrea McPherson; Psychology

According to Ann Masten, a leader in studying resilience, resilience research is aimed at understanding how individuals are able to develop positively despite varying circumstances that one might think would lead the individual to be adversely affected (Masten, 2019). Masten states that an individual’s (children’s in particular) response to negative stimuli can be explained by the interactions in that person’s system (e.g., the quality of relationship with others), including families, schools, and other sociocultural and ecological systems (2019). The present study examined the interactions between parenting styles (permissive, authoritarian, and authoritative), negative life events (NLE), and resilience. It was expected that children of permissive and authoritarian parents would report lower resilience than those of authoritative parents in the face of NLE. Participants (N = 155) were female undergraduate students and completed an online survey in which questions about parenting styles, NLE experienced, and resilience were asked. Results indicated that participants’ reports of the parenting styles they experienced were not significantly correlated with resilience (mean of 19.57, SD = 4.68). However, NLE (mean of 5.12, SD =2.28) was negatively correlated with resilience (r(153) = -.191, p < .05). These results suggest that the more NLE experienced, the lower the individual’s resilience. However, possible trends were indicated with authoritarian and resilience scores (r(153) = -.105, p = .096) and authoritative and resilience scores (r(153) = .104, p = .096), and will be further discussed.

Impact of Personal Parental Attitudes on Children's Literacy Development

Maha Issa
Research Adviser: Professor Patsy Pierce; Child Development

This presentation synthesizes the findings of various historical and current readings on personal parent attitudes towards reading and their effect on young children’s literacy development. It addresses previous experimental and study designs and results, as well as the measures previously used to gather qualitative and quantitative data from both parents and children; such designs and measures include the Parent Reading Beliefs inventory, narrative inquiry, and questionnaires. The advantages and disadvantages for various methods of research in this topic are weighed, and recommendations are made regarding improving designs, methods, and measures used for further study. The primary research questions are whether personal parent attitudes have a significant effect; and if there is an effect, to what degree can it be measured. The presentation culminates in a proposal for future research, by combining the needs to gather qualitative background information, collect quantitative data that can be generalized, and mitigate social desirability effects in the most time-effective and least costly manner.

Oxidizing Alcohols and Sulfides Using Substituted Iodoxybenzoic Acid (IBX)

Ga Hyeon Jeong
Research Adviser: Professor Walda Powell; Chemistry

Inorganic reagents, such as KMnO4 and Chromic acid, have been widely used and taught as the oxidizing reagent, but
these inorganic reagents cannot mildly oxidize alcohols to the aldehyde stage and sulfides to the sulfoxide stage but further continues to oxidize alcohols to the carboxylic acid stage and sulfides to the sulfone stage. A more effective oxidizing reagent was needed to selectively oxidize alcohols to the aldehyde stage and sulfides to sulfoxide stage, and it was hypothesized that substituted lodoxybenzoic Acid (IBX), an organic reagent, could be the wanted reagent. The general procedure for these oxidizing reactions included synthesizing substituted IBX, which will be discussed, mixing 2.0 mmol of alcohol with 1.1 equivalent of o-methyl-substituted IBX (Me-IBX) in 10.0 mL of acetone for oxidation of alcohol, and mixing 1.5 equivalent of Me-IBX with 1.0-2.0 mmol of sulfide in 10.0mL of acetone trile. Thin layer chromatography was used for analyzing each reaction, and silica-gel column chromatography was used to isolate and purify the product. Literature results showed that Me-IBX oxidized alcohols in less than 1 hour with +90% yield in most reactions at room temperature, and IBX oxidized sulfides in 20 minutes with +95% yield with the help of Tetra-ethylammonium Bromide (TEAB) as a catalyst. These literature results suggested that substituted IBX was a more effective oxidizing reagent for mildly oxidizing alcohols to the aldehyde stage and sulfides to the sulfoxide stage.

Chemistry For All: An Outreach Goal
Kinley Jessup
Research Adviser: Professor Sasha Ormond; Chemistry and Child Development

The purpose of this experiment was to expose children ranging from preschool through high school to fun, developmentally appropriate STEM activities. Research has shown that adults who do not teach STEM may not understand the significance or importance of these activities (Breiner, J. M., Harkness, S. S., Johnson, C. C., Koehler, C. M., 2012). In order to develop a more positive perception, this research study has constructed two chemistry experiments that teachers and presenters may use in order to implement age and educationally appropriate activities in a fun and exciting way. First, a series of demonstrations and activities were researched prior to choosing the two selected activities: activity 1 “Density Tower” and activity 2 “Balloon in a Jar” experiments. Each activity was adapted for grades PreK-2nd, 3rd-5th, middle school, and high school. Manuals for students as well as for teachers/presenters were created for each age group with adapted pictures and language for the corresponding grades. These activities were presented at 2018 TechnoQuest and shared with local childcare centers. At TechnoQuest, the middle and high school students were able to follow directions in the manual and answer the questions at the end of each experiment. The activities were engaging, fun, challenging, and successful.

“In the Name of My Fellow Sisters”: Edith Vanderbilt and the North Carolina State Fair
Morgan Johnson
Research Adviser: Professor Angela Robbins; History

Edith Vanderbilt is known to many as wife of George Vanderbilt and mistress of the Biltmore Estate in Asheville, North Carolina. However, her impact was much more than simply that of a housewife; she was extensively involved in public life and politics in early-20th century North Carolina. Vanderbilt took on many philanthropic efforts in the Biltmore community, such as arranging school transportation for children of the estate’s farm families and funding Biltmore Estate Industries to promote handcrafts as a means of economic independence for the local “mountaineers.” However, her most prestigious and visible role was as the first female president of the North Carolina State Fair from 1921 to 1924. Unanimously elected by the Agricultural Society, Vanderbilt’s position made her the first woman to address the North Carolina General Assembly and provided her a platform unknown to most North Carolina women who came before her. Through an analysis of archival documents relating to Vanderbilt and the State Fair, as well as secondary sources on the history of women’s activism and political involvement, her position can be used as a point of reference for women’s expanding leadership roles in early 20th-century North Carolina. Relevant primary and secondary sources show that such positions, although significant in their own right, were reserved mainly for white and elite women like Edith Vanderbilt. Vanderbilt’s presidency is significant because her position mirrors the increasingly prestigious leadership roles of upper-class women in North Carolina and the lack of intersectionality within the women’s movement of her time.

The Relationship Between Undergraduate Majors and Resiliency and Stress
Julia Johnson
Research Adviser: Professor Cynthia Edwards; Psychology

Choosing an academic major is a daunting task that college students complete at some point during their undergraduate career. This study sought to determine if there was a relationship between different undergraduate majors, stress, and resiliency. Past research in this area supports this proposal that there are distinct differences between academic majors and their resiliency to stressors (May & Casazza, 2012; Ebulum, 2016; Circo-Webb, 2000).

The hypothesis was that Education, Health, and Human Science (which includes the “soft science” disciplines of psychology and education) majors would experience less stress and higher resiliency, while Natural and Mathematical Science majors would be more stressed and less resilient. Participants (N = 177) were all female undergraduate students at Meredith College. Academic majors were divided into overarching categories: Arts and
Investigating the Post-Graduate Emerging Adulthood Experience: A Qualitative Approach
Julia Johnson, Morgan Hendrix, Allison Kvasnicka
Research Adviser: Professor Cynthia Edwards; Psychology
Experiences of recent college graduates were investigated using focus group methodology to holistically understand the complex life-stage, emerging adulthood. Current researchers answered a call for qualitative research with an aim to capture the richness and intricacies of emerging adulthood (Arnett, 2006; Schwab & Syed, 2015). Past research on emerging adulthood cites the multitude of transitions that occur, including the completion of college and entry into the workforce. These shifts, and those present in relationships and responsibilities, create a life stage characterized by both opportunity and emotional distress (Edwards, 2017).

The present qualitative study explored the current status of alumnae to identify dominant themes present within the first two post-graduate years. Data were collected through a series of five focus groups where participants (N = 15) were recent undergraduate alumnae from Meredith College. Qualitative protocol was developed based on previous research by Arnett (2006), Ryff and Keyes (1995). Non-leading discussion prompts such as "tell us about work" and "tell us about ways you care for yourself" were utilized during focus group sessions. Five dominant themes were identified within the data: finances, professional processes, stress management, college relationships, and confidence and self-advocacy. The presentation will dive deeper into the five themes to introduce and analyze emerging sub-themes. Discussion focus will aim to inform current and future institutional support efforts for emerging adults to ease them through this complex transition.

Characterizing Food Insecurity Among College Students at a Private College
Logan Joyner
Research Adviser: Professor Bill Landis; Food and Nutrition
Food insecurity (FI) is defined as "when persons do not have adequate resources to feed themselves, either nutritiously, or at all (USDA, 2013)." Multiple studies on the prevalence of food insecurity on college campuses have consistently reported a high rate of FI among college students. A hallmark study conducted at the University of Hawaii at Manoa found that 21% of students were considered food insecure with an additional 24% at risk for FI. These levels were double the average levels for the US population in 2006, and triple the average in Hawaii from 2004-2006. One recent study identified a 30.5% rate across college campuses in the southeastern U.S. (Hagedorn et al., 2019). Currently, little is known about FI at private colleges. The aim of this study was to 1) measure the prevalence of FI at a small, private college; 2) identify food coping strategies; and 3) identify behaviors associated with increased risk for FI.

Data was collected through an anonymous self-administered questionnaire via Qualtrics, and participants were recruited with a campus wide email. Data was analyzed using frequency counts and percentages among variables and logistic regression models to determine associations between different variables and FI. Correlational analyses were used to determine significant associations between correlates and coping strategies, and chi-square analyses to compare demographic variables and coping strategies among food secure and insecure students. One outcome of this project is to better understand barriers to nutritious foods and design interventions accordingly.

Investigating the Post-Graduate Emerging Adulthood Experience: A Qualitative Approach
Julia Johnson, Morgan Hendrix, Allison Kvasnicka
Research Adviser: Professor Cynthia Edwards; Psychology
Experiences of recent college graduates were investigated using focus group methodology to holistically understand the complex life-stage, emerging adulthood. Current researchers answered a call for qualitative research with an aim to capture the richness and intricacies of emerging adulthood (Arnett, 2006; Schwab & Syed, 2015). Past research on emerging adulthood cites the multitude of transitions that occur, including the completion of college and entry into the workforce. These shifts, and those present in relationships and responsibilities, create a life stage characterized by both opportunity and emotional distress (Edwards, 2017).

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The Interfaith Movement Reflected in Pop Culture
Ellie Jones
Research Adviser: Professor Steven Benko; Religion
The representation of religion on TV has always been uneven. Because broadcast TV is supposed to reach the broadest possible audience, the form that religious expression took was either a generic spirituality or an obvious Christianity. Other religions were relegated to a minor, supporting role. Shows with singular religion based plot lines have faded (Touched By An Angel) and have been replaced with shows that focus on morality instead of belief (The Good Place). In Living Biblically, Chip attempts to live out all 613 commandments in the Hebrew Bible while interacting with people of different faiths as he seeks to understand his own faith. In contrast, The Good Place breaks down the search for a truth or way of life to a point system obtained when living on earth. That point system determines people’s afterlife spent in the good or bad place. The first part of this paper defines and explores the concepts of Peak TV and addresses whether the religious belief and practice is depicted with the same intensity as other areas of culture, specifically, is religion used to define characters, or is religion being depicted in ways that intersect with other cultural concerns and issues?

Secondly, through my interest in interfaith dialogue and cooperation, I investigate how religion is depicted in this era of television through shows like Living Biblically and The Good Place. The paper concludes by discussing the concepts of religion and morality used as catalysts in popular culture.

Characterizing Food Insecurity Among College Students at a Private College
Logan Joyner
Research Adviser: Professor Bill Landis; Food and Nutrition
Food insecurity (FI) is defined as “when persons do not have adequate resources to feed themselves, either nutritiously, or at all (USDA, 2013).” Multiple studies on the prevalence of food insecurity on college campuses have consistently reported a high rate of FI among college students. A hallmark study conducted at the University of Hawaii at Manoa found that 21% of students were considered food insecure with an additional 24% at risk for FI. These levels were double the average levels for the US population in 2006, and triple the average in Hawaii from 2004-2006. One recent study identified a 30.5% rate across college campuses in the southeastern U.S. (Hagedorn et al., 2019). Currently, little is known about FI at private colleges. The aim of this study was to 1) measure the prevalence of FI at a small, private college; 2) identify food coping strategies; and 3) identify behaviors associated with increased risk for FI.

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The Inhibition of HIV-1 Protease by Punicalagin

Taylor Keyes
Research Adviser: Professor Karthik Aghoram; Biology

Human Immunodeficiency Virus (HIV) is a retrovirus that infects the CD4 T-lymphocytes in humans. These lymphocytes, a type of white blood cell, are an important component of the immune system. HIV takes over these cells and uses them to make more HIV, leaving your immune system compromised and unable to function properly. HIV/AIDS affects every population and demographic in the world. Worldwide, there are approximately 1.8 million new cases of HIV each year, bringing the current estimated total of people living with HIV to 36.7 million. Out of these 36.7 million people, only 53% are receiving some form of antiretroviral therapy. The high cost of these drugs are a major factor in their decision to go without treatment. The purpose of this research was to identify a plant compound that can inhibit HIV-1 Protease, and could potentially be used as an HIV/AIDS treatment. From literature reviews, it was determined that Punicalagin, a compound found in fruits like pomegranates, has shown great potential as an antiretroviral agent. Punicalagin is fairly inexpensive to extract, and could therefore be manufactured as a drug for much cheaper than traditional HIV drugs. To test its affects against HIV-1 protease, Punicalagin was isolated from a whole fruit extract capsule at an initial concentration of 520 µg/mL. Using an HIV-1 Protease Assay kit, the inhibitory effects of Punicalagin, at varying concentrations, will be tested and assessed based upon the results of the fluorescence readings.
Seasonal Changes in Body Composition in Division III Collegiate Women Lacrosse Athletes
Kirstie King
Research Adviser: Professor Sharon Malley; Exercise and Sports Science

Measuring body composition is generally used in both athletic and general populations to examine general health status. From in-season to post-season an athlete’s body composition will fluctuate due to the physical demands placed on the body. Ideal body composition will vary depending on the type of sport, position, and physical demands necessary for peak performance. The purpose of this study is to examine changes in body composition throughout competitive and non-competitive seasons in female collegiate lacrosse athletes at DIII. There were four visits to the Human Performance Lab throughout the year, measuring pre-season (January), in-season (March), post-season (May). This was repeated again the following year with the same athletes concluding with a final pre-season measurement. Measurements included 7 site skinfold (7SKF), bioelectrical impedance (BIA), height, weight, waist and hip circumference. A separate repeated measures ANOVA for each time point (7 measurement visits) for each variable 7SKF, BF%, weight, waist circumference, hip circumference was analyzed. There was no significant main effect for any time point for 7SKF BF% (p=0.014), BIA BF% (p=0.253), or weight (p=0.935). There was a significant main effect for time and waist circumference between post and pre-season in the second year (p=.011). Results also showed a significant main effect between hip circumference between pre and in-season the second year (p=.05). Although results were not significant for body fat percentage throughout the seasons, body fat percentage did decrease in pre, in, and post season and was higher in off season.

Parental Leave Policies in the Service Industry in Wake County
Megan King
Research Adviser: Professor Whitney Ross Manzo; Political Science

In the United States there is no universal public policy for parental leave. While there is the Family Medical Leave Act, it does not mandate paid leave, it does not cover the majority of workers, and it also does not guarantee a satisfactory duration of leave. According to the GDP per capita in 2017, 79.45% of Americans are working in service industry, most of whom are not covered by FMLA. The purpose of this study was to analyze the policies that are already in place and how they might neglect those working in the service industry. I conducted a survey of women and men (n= 53) working in service industry jobs like restaurants, salons, and retail in Wake County in order to gain an understanding of their experience with parental leave policies. Specifically, I asked them whether they think there should be a locally mandated parental leave policy and a federally mandated parental leave policy. I hypothesized that service industry workers would be in favor of both locally and federally mandated parental leave. I found, however, that 93.4% of service industry workers are in favor of locally mandated leave, while 75.5% are in favor of federally mandated leave. This finding suggests that people in Wake County do want change regarding parental leave, but prefer the change to come from the local level rather than the federal level.

Flying Through Time: The Evolution of Wendy Darling and Peter Pan
Sarah Kiser
Research Adviser: Professor Doug Spero; Mass Communication

Since J.M. Barrie created his famous duo in his hugely successful 1904 stage play Peter Pan, or the Boy Who Wouldn’t Grow Up, the fates of Wendy Darling and Peter have been intertwined, their relationship solidified in the 1911 novel Peter and Wendy that gives us the story every child knows today. Stage and film adaptations abound, each retelling the classic tale. However, a theatrical and film study shows that directors and performers have approached Peter’s and Wendy’s portrayals with distinct gendered differences through the years and taken liberties with the plot.

In my honors thesis, I take the view that Wendy Darling is a complex character in whom Barrie put a great deal of minute, realistic characterization into over the course of several editions of the script — but he also crafted her to be an ideal Victorian child so as to subvert the cult of childhood that was common around him in Victorian/Edwardian culture. My analyses of Peter Pan productions, films, novels, and episodes reveal cultural beliefs about childhood and girlhood dating back from the 1920s and how changing cultural values are reflected in portrayals of Wendy and Peter.
**Black-Litterman Model Application**

Mary Kolisnichenko  
*Research Adviser: Professor Bing Yu; Finance*

This thesis reveals the implementation of the Black-Litterman model in finance. The Black-Litterman mathematical model for portfolio allocation, developed at Goldman Sachs in 1990s, combines the main ideas of modern portfolio theory-Capital Asset Pricing model (CAPM) and the Markowitz's mean-variance optimization model - while also adding on weights for the investors’ opinions in the model for the most reasonable estimates of the expected future returns. Using the stock portfolio of the Meredith Student Investment Fund, we developed and tested the Black-Litterman model by incorporating the views on the portfolio assets’ performance, with the level of certainty expressed in the model, to the market equilibrium in terms of probability distributions. Comparing the results with the historical returns and the CAPM returns, we predict that the performance of the portfolio is heavily dependent on the strength and quality of the views incorporated in the Black-Litterman model. If the strength and quality of the opinions is high, our empirical evidence suggests the Black-Litterman model can improve overall asset management outcomes and be superior to traditional approaches.

**The Impact of a Summer Symposium Experience on Adjustment and Persistence among Diverse First-Year Students**

Allison Kvasnicka  
*Research Adviser: Cynthia Edwards; Psychology*

Colleges are seeking pre-orientation programs that create positive outcomes for first-year students. The present study provides a comparison of first-year students who attended diversity-oriented symposia prior to attending Meredith to students who did not in their responses to the First-Year Student Success Survey (FSSS) sent out by the office of Academic Retention and Success (Fall 2017 and 2018 cohorts). It was hypothesized that students who attended symposia would have higher belongingness and lower loneliness scores.

Participants who attended the diversity symposia were identified from the larger FSSS data-sets. The brief resilience-scale (Smith et al., 2008), belongingness-scale (Asher & Weeks, 2014), loneliness-scale (Asher & Weeks, 2014), and participants’ intent-to-return to Meredith were the primary foci of analysis. While not significant, results showed that lower belongingness and higher loneliness scores were associated with students who attended symposia; however, these same students report significantly higher intent-to-return for future semester(s). Data support the non-significant trend that symposia students have higher resilience scores. A secondary analysis comparing participants’ racial identity and sexual-orientation to prior scales questioned if these trends were reflected in non-symposia minorities. Trends suggest that racial and sexual orientation minorities also have lower belongingness and higher loneliness scores; however, contrary to symposia participants, non-symposia minority students tended to have lower resiliency scores than the population as a whole.

While hypotheses were not supported, data show that there may be a link between symposia and increased resilience and persistence among minority students suggesting that further exploration of such targeted intervention programs is merited.

**The Effect of Milk on the Viability of Probiotic Supplements in the Gastrointestinal Tract**

Briana Landis  
*Research Adviser: Professor Jason Andrus; Biology*

The Food and Drug Administration does not directly regulate the use of probiotic supplements. Typically, probiotic supplements provide the number of viable cells, expressed as colony forming units, or CFUs; however, this claim is not verified by any regulatory agency. Given that probiotic efficacy is linked to the number of viable cells and previous research has shown that probiotic supplements are less viable when introduced to the acidity of the gastrointestinal tract, testing of viability of probiotic supplements was conducted to determine the reliability of the labels, showing a decrease in viability. Milk is hypothesized to increase the viability of the supplements by stoichiometrically reducing the number of hydrogen ions, thereby offsetting the acidity. Data was collected by performing Viable Plate Counts (VPC’s) on the supplements comparing probiotics placed in a pure acidic solution and an acidic solution with milk. The supplement capsules were opened aseptically, diluted in MRS broth, plated on MRS plates, and allowed to grow at 37 degrees C for 24-48 hours. Plates with less than 300 colonies were counted, and CFU data calculated. By examining these results, it can be determined if milk can increase the viability of the probiotic supplements versus if they were taken without.

**The Effects of Self-Myofascial Release vs. Static Stretching on Delayed-Onset Muscle Soreness after a Damaging Bout of Resistance Exercise on the Leg Press**

Jessica Lane  
*Research Adviser: Professor Sharon Malley; Exercise and Sports Science*

**PURPOSE:** To compare the effects of foam rolling (FR) and static stretching (SS) on delayed-onset muscle soreness (DOMS) after a bout of lower extremity resistance exercise in females. **METHODS:** Thirteen resistance-trained females (Age: 21.8 ± 2.8 yrs; Height: 163.7 ± 5.4 cm; Weight: 62.9 ± 10.0 kg) participated in this study. Visit 1 included measuring baseline active and passive range of motion (ROM) in the lower body and the completion of a 1-repetition maximum (1RM) test on the leg press. For visit 2, participants completed 6 sets of repetitions to fatigue on the leg press at 85% intensity.
calculated from their 1RM. Immediately post-exercise, participants completed SS or FR. Perceived pain (PP) was recorded on a 0-10 scale pre-exercise, post-exercise, and immediately post-recovery. Visit 3 occurred 48-hours post-visit 2 and included PP and ROM measurements. Procedures for visit 4 and 2 were identical except the alternate recovery method was used. Visit 5 was identical to visit 3. RESULTS: Active left leg knee flexion significantly increased compared to baseline for SS (p=0.000). There were no other significant changes in passive or active ROM for FR or SS at 48-hours post-exercise. PP significantly decreased from post-exercise to immediately post-recovery for FR and SS (p=.001; p=.003). CONCLUSION: SS may be a more beneficial recovery method compared to FR, as it increased left leg quadricep ROM and decreased PP. Leg dominance should be recorded in further studies as this may have impacted the ROM results.

An Intervention to Reduce the Risk of Falling for Local Seniors
Paige Lawrence
Research Adviser: Professor Gwynn Morris; Psychology

Falling is the leading cause of injury in older adults, with about 27,000 older individuals dying from falls each year in the United States. To address this problem in our local community, we partnered with the Center for Volunteer Caregiving to design and deliver an intervention to reduce falling. A total of 11 student researchers visited low-income, medically fragile senior participants (N = 36) to reduce the risk of falls throughout Fall 2017 to Spring 2019. Researchers visited the participants’ homes to recommend Home Safety Modifications based on an established measure to reduce the risk of falling. Participants were visited on 2 to 3 subsequent occasions to monitor and encourage the implementation of the recommendations. A pre-test and post-test were administered on the first and last visits to assess participants’ self-reported risks for falling using an evidence-based survey. Falls risk scores were lower during the post-test (mean = 7.53, SD = 3.49) than on the post-test (mean = 7.96, SD = 3.76), indicating a reduction in fall risk due to applied intervention with a slight improvement in stability. The mean number of home safety hazards identified was 3.69 and on average 1.51 of these hazards were resolved. Factors affecting compliance with home safety modifications and barriers for repairing these will be discussed.

Oxymatrinic Acid as a Potential HIV Protease Inhibitor
Barbara Levengood, Taylor Keyes
Research Adviser: Professor Walda Powell; Chemistry/Biology

Oxymatrine is an alkaloid compound extracted from Sophora flavescent, a Chinese herb. This molecule has been shown to increase cardiac function by improving heart failure, decreasing cardiac ischemia, and preventing cardiac fibrosis in rats. Through extensive mentor research, it has been speculated to inhibit the HIV protease enzyme, making it a possible defense mechanism against HIV-AIDS. In this project, two chemical derivatives of oxymatrine and matrine compounds were synthesized that are more water soluble for drug testing. Oxymatrinic acid has been synthesized, demonstrated via NMR, and we will continue to work on purification. A related compound, oxymatrine, has previously been tested in the HIV protease assays and has shown some promise as an HIV protease inhibitor. Preliminary tests have also been conducted on matrinic acid. This current work is focused on testing the HIV protease inhibitor properties of oxymatrinic acid and matrinic acid. The results from these tests will be presented and compared to oxymatrine’s ability to inhibit HIV protease.

From Yeast to Bacteria — Cloning the Enzyme Invertase
Sophie Lindem, Kathryn Wescott, Shefali Srivastava
Research Adviser: Professor Susan Gardner; Biology

The enzyme invertase catalyzes the hydrolysis of sucrose, forming a 1:1 ratio of fructose and glucose, or invert sugar. Invertase is produced by plants and microorganisms, including Saccharomyces cerevisiae (baker’s yeast) and is used by the food, cosmetics, pharmaceutical, and paper industries. The purpose of this study is to clone and express invertase into the bacterium Escherichia coli. The gene that encodes invertase in yeast is SUC2. Genomic DNA isolated from two yeast species, S. cerevisiae and S. pombe will be used to amplify SUC2 by PCR. The PCR products will be cloned into the plasmid pGEM-T Easy. Blue-white screening will be performed to identify recombinant E. coli containing the cloning plasmid. Using the restriction enzyme EcoRI, SUC2 will be excised out of pGEM-T Easy and ligated into the expression plasmid pRSET-EMGFp. Protein expression and concentration will be assessed by SDS-PAGE and Western blotting. Once invertase is isolated using E.coli, it opens up new avenues for this enzyme to be studied or used commercially.

The Effects of Emotional Intelligence on Patient/Physician Relationships
Warner Little
Research Adviser: Professor Teresa Holder; Communication

Emotional intelligence is defined as the capacity to be aware of, and ability to respond to, emotions in themselves and other people (Cherry, M.G., Fletcher, I., O’Sullivan, H., & Dorman, T., 2014). In the medical field, emotional intelligence, or lack thereof, can affect relationships between physicians and patients. The researcher reviewed literature about emotional intelligence and communication skills in the medical workplace and its association with physician/patient relationships and quality of care. Research has shown that physician’s emotional intelligence influences their ability to deliver safe and compassionate health care, a pertinent issue in the current
health care climate (Cherry, M.G., Fletcher, I., O’Sullivan, H., & Dorman, T., 2014). The purpose of this study is to investigate the relationship between physician emotional intelligence and the quality of physician/patient relationships. A group of patients will be surveyed about their interactions with their primary physicians and report on effective and ineffective communication behaviors. This study hypothesizes that there would be a strong positive correlation between physicians’ emotional intelligence and patients’ satisfaction/comfort with their physicians. An analysis will be conducted on the results of the survey to determine the statistical significance of the data. The findings of this ongoing research will contribute to health communication literature and will have considerable implications for medical professionals and professional development. Upon completion of this study, the data collected from the survey regarding emotional intelligence levels and physician/patient relationships will be presented.

**Gendered Safe Spaces in Post-Title IX College Education**

Jennifer Mackaman  
*Research Adviser: Professor Angela Robbins; History*

With the implementation of Title IX of the Education Amendments Act of 1972, schools began to erase gender lines for their students by making schools co-educational rather than gendered and eliminating gender barriers for educational opportunities. Despite this shift away from gendered education, women continue to seek and create safe spaces like women’s centers, sororities, and women's colleges. Safe spaces are places where students can engage in dialogue on contentious topics in a respectful and sensitive environment. Through a study of historical scholarship on college education and gendered spaces like women’s centers, sororities, and specifically women’s-only schools, I examined the place and purpose of those gendered safe spaces. I answer the question: Why should sororities, women’s colleges, and women’s centers exist in a culture that seeks to eliminate gender distinctions? Through sororities and women’s colleges, women create community and support networks, defining equality differently from the ways in which Title IX defines it. While the legislature wants to eliminate distinctions between the genders, each woman who engages with a women’s center, joins a sorority, or attends a women’s college wants to feel supported and encouraged in her womanhood. These gendered safe spaces continue to exist because women want them.

**Digital Blackface: How Reaction GIFs Parallel Historic Racist Media**

Miriam Mays  
*Research Adviser: Professor Teresa Holder; Communication*

Animated images in the Graphics Interchange Format (GIFs) are of increasing use in today’s society. Forms of both mass and interpersonal communication, in popular and common culture, are frequently enhanced, if not entirely replaced, by the use of these short moving pictures to convey emotions, messages, references, reactions, and, as is hypothesized, subconscious racism. This present study begins with a mixed-methods exploration of GIF usage and individuals’ tendencies to resort to visual representations of messages instead of textual ones. In what circumstances do individuals feel comfortable using GIFs to communicate interpersonally? In what cases do individuals feel textual communication is more appropriate? These queries are evaluated via a literature review and a survey given to Meredith students about how they use GIFs, both in hypothetical situations and realistically in their lives. Additionally addressed in the survey is the main focus of the present study: the hypothesized disproportionate tendency of communicators to select GIFs portraying African-American individuals. The survey determines which types of GIFs individuals choose in different scenarios, and historical content analysis provides a basis for why those choices might be made. Research uncovers the debut and development of the “black persona” in the 19th and 20th centuries and how those stereotypes persist and pervade modern media and culture, often as unconscious microaggressions. Research and data collection are not yet complete, but steadily uncover insights that are valuable to our cultural understanding of minority representation in media and the role of emerging forms of communication in our daily lives.

**It’s Complicated: The Status of Gatekeeping Roles and Processes in Complex Situations**

Olivia McKain, Katelyn Amstutz  
*Research Adviser: Professor Joy Learman; Social Work*

Social work education is aligned with a code of ethics and standards, as well as specific social work values, set by the National Association of Social Workers (NASW). Section 3.02(C) of the code of ethics sets the standard that social work educators and field instructors must evaluate students’ professional performance; therefore, requiring them to fulfill the role of a gatekeeper in social work education. Although most social work faculty agree some student behaviors are clearly in contradiction to the profession’s values and standards, today’s social work faculty are challenged by complex situations that are not easily defined through professional standards or even explicit program policies. How social work faculty view their roles as the profession’s gatekeepers and intervene in these situations will impact how social work education effectively meets the needs of an increasingly variegated and open student body. How does a program document concerns that are not behavioral in nature, such as not maintaining social work values and ethics? What happens when social work faculty are made aware of student struggles that are significant but do not appear to affect academic or professional practice?
In an effort to gain insight into these gatekeeping questions and others, the research team is conducting an online survey of small baccalaureate social work programs to determine how faculty view their role as the social work profession’s gatekeepers, as well as the typical timelines in which they felt that they engaged in those roles.

**The Ups and Downs of Parental Leave: Wake County Public School System**

Mackenzie Mills  
*Research Adviser: Professor Whitney Ross Manzo; Political Science*

The problem of parental leave lies in the differing guidelines and policies that regulate it, creating a long-term controversy. Women in various work sectors across the board experience different situations when using a form of parental leave. Some women obtain a career where parental leave is paid and eight weeks long, while others are not paid and are offered less leave. Wake County public schools offer women six weeks of leave with an option of one year leave but unpaid. The policy is not worded to appear as gender neutral, which prompts more confusion as to whether male teachers are included under the same policy. The question the present study aims to answer is: Are Wake County public school teachers content with the current policy in place? An electronic survey was used to examine comments, questions, and concerns about parental leave policy of 25 male and female teachers working in varying grades of teaching. Results showed that many teachers are uninformed about the gender neutrality while wanting a reform of the current policy in place. Teachers expressed worry about using the policy in the future due to financial limitations, effect on their students, and the lack of time granted during leave to spend with their child.

**Challenges with Molecular Identification of Larval Tapeworms**

Erin Murray  
*Research Adviser: Professor Maria Pickering; Biology*

Tapeworms are ever present in the environment, with free-living and parasitic varieties. Parasitic tapeworms have complex life cycles that involve multiple hosts for different stages of life. Larval tapeworms lack a lot of the the morphological features that adult tapeworms have that are useful for distinguishing between species, like reproductive organs. Therefore identifying larvae using molecular techniques, i.e., DNA extraction, gene amplification using Polymerase Chain Reaction (PCR), gel electrophoresis, and DNA sequencing, can be instrumental. This research project has focused on troubleshooting and optimizing the molecular methods needed to identify these tapeworm specimens. The comparison of DNA yields using two different extraction kits (i.e., Masterpure DNA Purification Kit vs. Qiagen DNeasy Blood and Tissue Kit), and challenges encountered, particularly inconsistent results, will be addressed. Inconsistent results may be due to storing and handling difficulties at different stages of the processes, and will be explored further. Despite the obstacles encountered, some specimens were able to be identified as belonging to the tapeworm genus, Clistobothrium, which is consistent with a previously published study (Kuris et al. 2015).

**Parental Leave Disparities Within Tech Companies**

Nour Nachet  
*Research Adviser: Professor Whitney Ross Manzo; Political Science*

In 1908, women were barred from working at night, and 14 states had laws in place that restricted women from working certain jobs. Laws in the United States have come a long way in limiting explicit gender discrimination in written law. However, this doesn’t stop the stereotypes that are built within our social systems. Gender discrimination still resonates in our country which can be easily demonstrated by the analysis of lagging parental leave policies in the United States. The issue of poor parental leave policies is important because it addresses American work culture. The lenses in which we perceive the world are in favor of the male population because we have a patriarchal society in the United States. This also correlates with other important issues such as the wage gap and why there are far less women higher up in the career ladder of corporate America.

My poster will demonstrate how parental leave policies affect gender discrimination in the workplace of tech companies in the United States. Many authors conclude that tech companies across the country have very progressive paternal leave policies. They also agree that because of the change in dynamic of American work culture, the U.S. government needs to catch up with its laws. I will use interviews of employees from tech companies in Wake County to reinforce the studies of other analysts to assert that the United States government needs to act. Parental leave policies must be generous to be effective.

**Social Information Processing Theory: My Friends Are Now a Case Study**

Hannah Naylor  
*Research Adviser: Professor Teresa Holder; Communication*

Social Information Processing Theory (SIP) explains that online interpersonal communication can result in a meaningful relationship if continued over time. However, unlike face-to-face (F2F) interaction, interpersonal relationships using computer-mediated communication (CMC) develop at a slower rate as non-verbal cues are absent. SIP argues that online relationships demonstrate essentially the same relational dimensions and qualities as F2F relationships. This thesis analyzes online relationships formed in a closed Facebook group of 47 members that began as strangers but are now close friends, using Joseph Walther’s SIP Theory. Perspectives gathered from a qualitative survey revealed although
100% of group members surveyed never expected to grow close. In the survey, 95% of respondents strongly agree or agree that as a result of CMC in the context of this group, they formed close friendships with members. Also, most participants are as close, or closer, to Facebook group members than their real-life friends, they identified identical benefits with group members to those of an F2F relationship, and find self-disclosure easier within the relationships formed online. The research strongly supported Walter’s SIP Theory.

**How Birth Order Impacts our Clifton Strengths Traits and College Major**

Sara Neese  
*Research Adviser: Professor Andrea McPherson; Psychology*

For generations the Big 5 Personality Assessment has been used as the basis for measuring an individual’s consistent patterns of behavior (Ackerman, 2017). At Meredith College however, students are given a different assessment to measure personality characteristics and in particular, their strengths. The Clifton Strengths Finder Assessment (Clifton, 2001) maps out 34 strengths, subsumed under 4 broad categories. These categories, similar to traits, could likely be used to predict overall behavior. The Meredith College researcher is investigating the relationship between an individual’s birth order among siblings as it relates to their strength expression on the Clifton Strengths Finder Assessment. Additionally, with this information, the researcher is looking to see if people with similar strengths and birth orders tend to select similar majors and minors. The researcher has hypothesized that first or earlier born individuals would score higher in areas of strategic thinking and influencing, while later born children would have higher expressions of relationship building strengths. It is hypothesized that first or earlier born siblings will tend to major/minor in more data or structure driven fields such as business, mathematics, or sciences. While later and youngest born individuals will be more apt to select fields encouraging creativity and expression. Based on the 61 responses collected thus far, a pattern is observed between oldest sibling and a top Clifton Strength category of strategic thinking and influencing and major choices such as business, accounting, political science and biology. There can be no conclusions drawn yet as there is still ongoing data collection.

**Until Death Do Us Part: Corporeal Violence and Communal Grace in Flannery O’Connor’s “Good Country People” and “Revelation”**

Abby Ojeda  
*Research Adviser: Professor Laura Fine; English*

Described as hulking monstrosities, Flannery O’Connor’s grotesque protagonist women often appear to be harshly punished for their nonconformity and psychological distress, and a significant portion of feminist and psychoanalytic criticism has taken issue with this depiction. Thus, my research question asks: What is the message conveyed in the stories “Good Country People” and “Revelation” about the way violence and grace affect the female grotesque body? With an overview of O’Connor’s biography and major schools of criticism that comment on her stories, as well as a thorough understanding of multiple psychoanalytic and feminist perspectives, I first contextualize the stories. Building from Julia Kristeva’s theory of abjection, perspectives from a few key scholars, and close readings, I find that O’Connor actually champions a redemptive message about the body through the characters of Hulga and Mrs. Turpin. While psychoanalytic approaches reveal that the characters’ unconscious psychological problems are projected onto their physical bodies through the uncanny double, feminist approaches show that O’Connor presents the problematic female body with equality and dignity, as worthy of acceptance regardless of gender performance. While the characters do not explicitly accept grace by the end of the stories, O’Connor leaves both women with a burning awareness of a need for grace, suggesting radically transformed futures. Furthermore, O’Connor aggressively entreats her readers to question their own subjectivity and determine their own endings to her stories. Her message ultimately communicates that people with abject bodies can freely exist in a community of kindness and respect for one another.

**Magic Mushrooms: Their Evolutionary History, Chemical Synthesis, and Pharmacological use in Mood Disorders**

Haley Brooke Parsons  
*Research Adviser: Professor Maria Pickering; Biology*

Many mushrooms found in the genus Psilocybe produce the compound psilocybin, a hallucinogenic compound that causes changes in mood and perception (Frickle 2017). The effects of psilocybin are caused by its breakdown into psilocin and interference with the neurotransmitter serotonin when ingested (Shirota 2003). Serotonin is responsible for positive moods and psilocybin closely resembles it. Central Americans have used these mushrooms for spiritual ceremonies for centuries, but in the 1950s the mushrooms were discovered for their potential use in treating mood disorders. In the 1960s, however, the compound became popular as a recreational drug which limited the research that could be done. This literature review provides an overview of the evolutionary history of this compound, including systematic placement of the fungi producing psilocybin, analyzes chemical synthesis of the compound, and current research into the use of psilocybin to treat mood disorders. Research has shown that psilocybin evolved independently in two genera of the Agaricales family, Inocybe and Psilocybe. It is thought that compound spread via horizontal gene transfer and is used in spore dispersal and protection from mycophages. Chemical synthesis has only been discovered recently and consists of decarboxylation, 2
N-methylations, hydroxylation, and phosphorylation. Research into mood disorder treatment via psilocybin began in the 1960s but advancement has been slow due to legal issues. Recent studies show significant decreases in symptoms when psilocybin is used to treat depression, anxiety, and addiction. There is still much work to be done regarding psilocybin, but much has already been discovered.

The Relationship Between Mental Health and Occupational Therapy Training and Intervention Outcomes
Victoria Penna
Research Adviser: Professor Doreen Fairbank; Psychology

The area of mental health has been rapidly changing over the past decade, and occupational therapy training has had to progress with it. Occupational therapy can involve varying levels of education, with current practitioners having either a bachelors, masters, or doctorate degree. The present study seeks to analyze the relationship between mental health and occupational therapy training, as well as how having a mental health diagnosis affects occupational therapy intervention outcomes. The present study aims to assess occupational therapists’ educational level and preparedness for handling patients with mental health diagnoses when entering the field. The hypothesis was that the exposure to mental health issues within an educational setting will be varied along a spectrum based on how recently the therapist attended school and what type of setting the therapists was currently working in. Occupational therapists currently employed in practice in various facilities were interviewed. Results are under analysis, with the current trend showing that participants view training about mental health to be essential, rather than simply beneficial or unnecessary. Occupational therapists have stated that clients with mental health diagnoses are encountered daily, with a variety of diagnoses being seen. Surprisingly, participants have said that they have not completed continuing education courses specific to mental health. This data can be used to help better understand the clinical importance of being trained about the various aspects of mental health.

Daisy Buchanan: A Culmination of Symbols
Whitney Pepper
Research Adviser: Professor Alisa Johnson; English

F. Scott Fitzgerald’s novel The Great Gatsby is filled with characters who are flat compared to the dynamic Jay Gatsby. Why, then, has Daisy Buchanan, despite her seemingly static character when compared to Gatsby, become so interesting to Gatsby readers, viewers, and interpreters? Through the research and review of many articles discussing Daisy’s importance to Gatsby, my research has shown that Daisy is unforgettable because Fitzgerald created her to represent the American upper class, materialism, and post-war disillusionment, which is remarkable because many female characters were not written to represent such prominent issues. Daisy is the “weak, shallow creature who only loves by moments” because, the upper class, epidemic of materialism, and post-war disillusionment were all weak and shallow forces in American culture (Williams 116). Her flat character is a reflection of the lack of change in American society that Fitzgerald criticizes in the novel. Because of her importance, it is vital for us as readers to understand the flat and flighty character that is Daisy to fully understand the novel.

ST[our]RY: Be Our Neighbor
Tyler Pharr, Alexa Harper, Ryelle French
Research Adviser: Professor Alexandra Howell; Family and Consumer Sciences

Partnering with Macy’s 2,000 square foot New York retail concept shop, STORY, and the National Retail Federation, the “Student Challenge” is a yearly competition where students are tasked to create ideas that would further heighten consumer excitement in the modernization of retail. By confronting the errors of mass consumerism, we found focusing on a global community was the harmonization between satisfying the modern consumer’s desire for personalized shopping and building brand loyalty with ethical retailers.

Where convenience and low prices overshadow conscious shopping, we found the national grocery retailer, Kroger, was making strides in sustainability but lacked the personalized shopping element. Valuing diversity, integrity, environmentalism and fair trade, Kroger hopes to ensure its customer is healthy and knowledgeable about the products they buy. Focusing on a safer and greener future, a Kroger+ST[our]RY partnership would convey the importance of a global community while including the shopper in accomplishing the goal.

Conducting extensive market and consumer research, this project conceptualizes the changes of modern shopping and how STORY’s approach to experiential retail is being incorporated into storefronts across the globe. Through combing brands that prioritize customer demands, the creation of ST[our]RY worked to prove a brand can be ethical, environmentally conscious, and exciting for customers! To publicize these findings could make the fusion of ethical consumerism and sustainability a staple business practice. Founded on the principles of spotlighting global innovations to broader audiences, ST[our]RY brings you a meaningful shopping experience that goes far beyond the product.

Roy Lichtenstein and Appropriation: Artist or Thief?
Annie Poslusny
Research Adviser: Professor Beth Mulvaney; Art History

Throughout the twentieth century, a significant number of artists have explored the possibilities of appropriation, both as a means of creative expression and a method for
articulating social criticism. Contemporary artists have pushed this movement to the extreme, often by appropriating whole images, often copyrighted, and using them virtually unchanged in works only attributed to the appropriator. This paper will explore the issue of appropriation by examining the work of Roy Lichtenstein. Lichtenstein was a key figure in the Pop Art movement whose works challenge typical definitions of originality. While Lichtenstein’s work relied heavily on parody, it also relied equally on appropriated imagery. Lichtenstein’s paintings created a heated critical debate that raged in the early 1960s about whether the artist parroted his comic book sources or transformed them. Indignant critics accused Lichtenstein of copying his sources thereby undermining the difference between high art and mass culture. Through an examination of his paintings based on comic book panels of the 1960s, this paper explores the complex relationship of fine art and its source materials. Where is the line between plagiarism and art? Or copyright infringement? Ultimately, Lichtenstein’s work strikes at the very heart of the question, what is art?

W.R. Valentin and the Genesis of the North Carolina Museum of Art
Annie Poslusny
Research Adviser: Professor Beth Mulvaney; Art History

At the age of seventy-five, Valentin made the decision to abandon his plan of idyllic life in Italy to become the first director of the North Carolina Museum of Art. This paper will explore the creation of the North Carolina Museum of Art, and in particular, Valentin’s vision for the museum. Valentin was a scholar of traditional art who also understood and appreciated the art of his own time. This balance between the old and the new, the traditional and the contemporary, is how Valentin left his stamp on the North Carolina Museum of Art, as well as on the state of North Carolina. Through analysis of primary source material, I will show how Valentin shaped and guided the collection of the North Carolina Museum of Art. These fascinating documents not only show Valentin’s vision for the museum, but also all the behind the scenes bartering and bickering, squabbles with the National Gallery of Art, and complications and obstacles with the state legislature. Today, almost half a million visitors a year enjoy the North Carolina Museum of Art; its impact on the region is far-reaching, and a testament to Valentin’s vision.

Modeling of Blood and Arterial Properties within a Cerebral Aneurysm
Emily Potok
Research Adviser: Professor Bill Schmidt; Physics

An estimated one in fifty (2%) people in the United States have an unruptured cerebral aneurysm. A cerebral aneurysm is a structural weakening of an artery within the cerebral arterial network that results in arterial expansion often leading to permanent structural damage. If the cerebral aneurysm ruptures, the result is bleeding in the brain which can be fatal 40% of the time or cause permanent neurological damage 66% of the time. The ability to model the arterial characteristics of a cerebral aneurysm will give clinicians insight into the potential blood vessel failures and the urgency of a treatment plan. Arteries in the brain are governed by general physics principles including pressure, fluid flow, forces, and thermodynamics. With these principles, the physical characteristics and likely cause of a brain aneurysm can be better understood and identified. In this paper, general physics equations and principles will be applied to model the arterial location of a cerebral aneurysm. The model will consider physical changes in and around the cerebral aneurysm that could potentially lead to rupture or expansion. Based on the results, the general physics principles will be related back to real world clinical examples of a cerebral aneurysm. Numerical modeling results will be based on general physics principles and will be presented and discussed.

The Effects of Pre-workout Supplementation on Measures of Cognition and Athletic Performance in Female College Athletes
Brittany Preston
Research Adviser: Professor Edward Robinson; Health and Human Performance

High-intensity workouts have increased in popularity. This type of exercise appeals to individuals as an effective form of stimulus in a short amount of time. Another phenomenon affecting the exercise community is the growing popularity of the ubiquitous pre-exercise energy drinks, which are sold in a variety of formulas. Although caffeine is a traditional ingredient in energy drinks, recent formulations include a variety of ingredients to boost feelings of alertness and increase physical performance. The majority of studies examining this topic have either involved men or supplements containing traditional formulas, and none focus on the cognitive function surrounding an exercise event.

This study examines the effects on cognitive function after high-intensity exercise of a pre-workout energy drink containing caffeine, creatine, and branch-chain amino acids, versus a commonly available energy drink. 20 collegiate athletes were recruited. For testing, individuals were given 16 fluid ounces of either a sports specific pre-workout energy beverage(BANG), popular commercial energy drink (Rockstar Pure-Zero Silver ICE), or placebo (Fresca) one hour prior to exercise and asked to complete drinking the beverage within 30 minutes. Participants then completed three repeated 30-second Wingate cycling tests separated by four minutes each. Prior to and immediately post exercise individuals were administered two cognitive tests: a Stroop test and a modified serial seven subtraction test. All data has been collected and analysis is currently scheduled.
A Study Comparing How Autism Affects Participation Levels in Meredith College Traditions

Kaylie Prince
Research Adviser: Professor Doreen Fairbank; Psychology

According to the Autism Society of America in 2015, Autism Spectrum Disorder (ASD) is defined as a "complex developmental disability; with signs that have appeared in early childhood and affect a person's ability to communicate and interact with others. ASD is defined by a certain set of behaviors and is referred to as a "spectrum condition" that affects individuals differently and to varying degrees. The purpose of this study was to see if a diagnosis of ASD would affect an individual's participation in Meredith College's various traditions. A survey was sent to female participants (N = 10) aged 18-24 that have connections to Meredith College. The participants were split into two groups with 5 participants in each group. The first group’s participants had an ASD diagnosis and the other group contained participants without an ASD diagnosis. The results showed that the participants diagnosed with ASD had a mean of 60% participation and the participants without had a mean of 56%. The results also illustrated which traditions the participants were most likely to be attended. The results indicate that if an individual at Meredith College had a diagnosis of ASD, the participation levels in traditions was affected but in a positive way. The results demonstrate that Meredith College can be an inclusive school for individuals with and without a diagnosis of ASD.

Humorous Communication: A Path To Emotional Coping Among Caregivers In Chronic Healthcare

Victoria Ravenel
Research Adviser: Professor Teresa Holder; Communication

Humor is a complex and often misunderstood form of communication. In the health communication literature, research on humor has long shown its importance in the ability to cope with disease, stress, and burnout (Dillon, Minchoff, & Baker, 1985; Foot, 2006; McCreadie, 2014). The purpose of this study was to investigate how humor serves as an emotional coping mechanism in high stress healthcare jobs. Through a focus group interview, a team of hospice care workers discussed their uses of humor - especially dark humor - in the workplace and the role humor played in their ability to manage both day-to-day stress and long-term career burnout. Analysis of the narrative data revealed that managerial validation, a balanced team culture of compassionate professionalism, and allowing space for discussion using the unique language shared among co-workers are the most effective ways to establish a healthy, well-functioning care team. These findings emphasize the power of humor to provide an outlet for negative emotions, an opportunity to heal, teach personal coping skills, and a mechanism for interpersonal peer support that will create a resilient healthcare team.

The Effects of Yoga on Core Strength and Appropriate Behavior in Children with Autism Spectrum Disorder and Sensory Processing Disorders

Alexandra Reyes
Research Adviser: Professor Doreen Fairbank; Psychology

The effects of yoga on core strength and appropriate behavior were examined. Participants (n = 6) within the Meredith Autism Program (MAP) were led in a series of six yoga poses, focusing on core strength and balance. Participants were guided in the series of poses three times a week for a total of three weeks. Yoga is a physical activity that has been proven to help improve sensory regulation, attention span, and spatial awareness, with the interaction of such improving social skills (Radhakrishna, Nagarathna, & Nagendra, 2010). The poses were performed on a one-to-one basis in a quiet room within the MAP. Core strength of each participant was measured prior to the yoga treatment and following the completion of the treatment. Additionally, a selected behavior to decrease speculated to be rooted in lack of core strength was selected for each participant and recorded each week for the three weeks prior to treatment, as well as for the three weeks of treatment. This experiment aimed to explore the effects of yoga on core strength and behaviors to decrease thought to originate in lack of core strength. The results for core strength measurements taken prior to and after treatment were statistically significant, F (1, 5) = 12.25, p = 0.017, suggesting the yoga poses did in fact improve the core strength of the participants. The behavior to decrease data did not suggest any change in behaviors from baseline to treatment, suggesting that yoga did not have an effect on participants selected behaviors.

The Effects of Resistance vs. Endurance Training on the Neuromuscular Activation of the Vastus Lateralis and Rectus Femoris, and Body Fat Percentage in Women

Ana Lucia Rodriguez-Salazar
Research Adviser: Professor Sharon Malley; Exercise and Sports Science

Different modalities of physical activity lead to various changes in muscle structure and function in sedentary individuals. These changes can help individuals achieve their desired health and fitness goals, including body composition, through the completion of a structured exercise plan. It is known that improved muscle function during short duration of training is the result of neural adaptation. These adaptations include improved synchronization of motor unit firing and the improved ability to recruit motor units to perform a task. However, the progress of muscle adaptation during cardiovascular training and resistance training has not been explored. The purpose of this study was to compare the effects of either resistance or endurance training on total body composition and on the neuromuscular activation of the
vastus lateralis and rectus femoris. Five sedentary females were randomly assigned to a resistance (RT) or endurance (ET) training group and trained three times per week for a six-week period in their respective modality. Individuals assigned to RT performed a multiple repetition max test and ET participants a VO2 max test before and after the six-week training period. Analysis determined a nonsignificant decrease in body fat composition from pre (M±SD=21.9±9.8%) to post (M±SD=20.8±9.7%) in all participants. Paired T-test revealed no significant difference for the vastus lateralis, at either 60% (pre:M±SD=0.0667±0.0114mW; post:M±SD=0.0868±0.0298mW; p =0.445) or maximal effort (pre:M±SD=0.3527±0.1570mW; post:M±SD=0.3457±0.0900mW; p =0.920). Further analysis is underway.

The Tender Wolf: Sexuality and Power in Angela Carter’s The Bloody Chamber

Alexandra Rouch
Research Adviser: Professor Garry Walton; English

Angela Carter’s 1971 collection of reimagined fairy tales, The Bloody Chamber, has been both celebrated and criticized in academic circles for its discomforting depictions of heterosexual eroticism. While many critics lauded it as a groundbreaking feminist work, others felt it perpetuated the idea that women are only capable of a passive and submissive form of sexuality. In response, this research asks what this work of twentieth-century fiction contributes to our contemporary understanding of the relationship between sexuality and power, particularly in the era of the #MeToo movement and the rising popularity of BDSM erotica such E.L. James’ Fifty Shades of Gray. Positioned in relation to initial reviews, Carter’s biography, and later critical responses, this research examines how Carter’s collection grapples with the concepts of sadomasochism, loss of virginity, and the anxiety that can accompany nascent sexuality. Carter’s writing suggests that while women may have desires that align with traditional patriarchal power structures, they not only have the right to choose whether or not to engage in these dynamics but also have a responsibility to interrogate their own attraction to them. In all, The Bloody Chamber encourages readers to challenge their own fears and desires, recognize their own assumptions, consider alternatives, and seek what empowerment may lie in sexual dynamics between men and women as they have been culturally constructed.

Evaluating the Potential for Environmental Transmission (Mycobacterium leprae) in a Natural Armadillo (Dasypus novemcinctus) Population

Deema Sader, Sana Haseeb, Ayesha Ullah
Research Adviser: Professor Susan Gardner; Biology

Antimicrobial resistance (AMR) is rapidly becoming a global health threat. This is largely due to the inappropriate use of antibiotics. Today, simple infections that were once treatable with antibiotics can become life-threatening as a result of antibiotic resistant strains of bacteria. Pharmaceutical companies are no longer invested in developing antimicrobials. We are interested in helping to find a solution to the AMR problem by searching for antimicrobial-producing bacteria found in soil. A majority of the antibiotics currently in use were originally isolated from soil bacteria or fungi. Using soil samples taken from the Yazoo National Wildlife Refuge in Mississippi, we have isolated bacteria for study and characterization. In addition to Gram staining and biochemical testing to help identify bacterial isolates, we performed Kirby-Bauer disk diffusion susceptibility tests to assess antibiotic resistance. Bacterial isolates were also tested for antimicrobial production against ESKAPE pathogens. Genomic DNA was isolated and PCRs were performed using 16S rDNA primers. Purified PCR products were sequenced and bacteria identified.

Temperature Effects on Venus Flytrap (Dionaea muscipula) Electrophysiology

Jasmyn Scruggs
Research Adviser: Professor Karthik Aghoram; Biology

Venus flytraps (Dionaea muscipula) are one of the few species of plants with a noticeable physical movement based on stimulus. Plant electrophysiology is rarely studied compared to animals; so, measuring ion flow bridges a gap between known animal action potentials and the equivalent plant ion flow. The scope of this experiment is to investigate how temperature can affect action potential duration in Venus flytraps. An action potential is simply a change in voltage due to an external stimulation. The instrument used to measure changes in voltages is called a Spikerbox. The Venus flytraps were subject to different temperature conditions including lab environment (20.0°C), fridge incubation (12.8°C), greenhouse conditions (27.4°C), a warm water bath (40°C), and an ice bath (0.0°C). The external stimulus was the same in every run, simply touching only one trigger hair with a toothpick. The data was analyzed using student T-test and an ANOVA. The results of the experiment showed that as ambient temperature was increased, the duration of action potentials decreased. In other words, the Venus flytrap was recognizing the external stimulus quicker at higher temperatures. However, a major challenge with higher temperatures was finding a temperature that did not denature the enzymes or membrane proteins of the plant. In the future, it would be interesting to investigate how different pharmaceuticals or plant growth hormones would affect action potential duration in plants.

Mental Health Outcomes of Listening to Music Among College Women

Stephanie Semaan
Research Adviser: Professor Andrea McPherson; Psychology

College students face a variety of factors influencing mental
health; levels of stress and overall mood often fluctuate based on these experiences (Pisarczyk, 2018; Bartel, 2013). This study examines how listening to music could influence mental health, and more specifically, stress and mood. It was expected that when listeners self-select their music, the reported levels of stress and affect would subsequently be positively influenced. Participants completed an online survey in which questions about music listening habits (created by researcher), stress (Perceived Stress Scale; PSS), and mood (modified version of the Positive and Negative Affect Schedule; PANAS) were included. Given the scope of the current study, mood was only measured by items indicating positive affect. Data collection is ongoing; however, surveys have been completed by 110 participants. A preliminary one-way analysis of variance (ANOVA) test of 55 participants was conducted. Out of 55 participants, 30 preferred self-selected music, five participants preferred forced choice music, and 20 participants preferred hybrid (i.e., a combination of self-selected and forced). For the self-selected group the PSS score (m=21.7, SD=8.1) demonstrated moderate stress while the PANAS score (m=31.06 SD=5.7) suggested a moderate level of positive affect. The hybrid group PSS levels (m=24.8, SD=6.0) also demonstrated moderate stress while the PANAS score (m=30.5, SD=7.1) suggested a higher level of positive affect. The forced group PSS score demonstrated moderate stress (m=23.8, SD=6.3) while the PANAS score suggests a higher level of positive affect (m=30, SD=3.1). Based on the preliminary analyses, no statistical significance between groups was revealed.

Is the Party of the “Old, White Men” Dead? A Study on Republican Women Running for Office

Emily Slusser
Research Adviser: Professor Whitney Ross Manzo; Political Science

As Schreiber (2008) has explained, a fundamental tension in American politics regards whether descriptive or substantive representation of women is more important. More women ran for office in 2018 than ever before, but most of them were Democrats (Caygle 2018). Therefore, I became interested in Republican women, and whether they feel adequately represented both in American politics and within their own party. The two primary research questions were as follows: First, what is it like to run as a conservative woman? Are voters- or, worse, party officials- confused by these seemingly disparate identities? Second, how have conservative women’s campaigns changed after the election of Donald Trump? Are they emphasizing the same issues, or have their messages changed in response to the heavily polarized national climate? To answer the research questions, interviews were conducted with eight North Carolina Republican women running in the 2018 general elections. They were asked about whether they believe their chances of winning would be greater or worse if they changed their party, and whether they encountered voters with pre-existing assumptions about them simply because they identified as Republican women. I found that Republican women experience a unique set of barriers when it comes to campaigning, including struggling to fundraise and harmful assumptions from voters. This indicates that we may continue to see fewer Republican women running for office in the future.

Effectiveness of Insecticide Treated Nets in Preventing Malaria in Sub-Saharan Africa

Samantha Smith
Research Adviser: Professor Carolina Perez-Heydrich; Biostatistics

Malaria is a mosquito-borne disease that is especially problematic in sub-Saharan Africa in young children. A common intervention for malaria is the use of insecticide treated bed nets (ITNs), which act as a barrier against mosquitoes while a person is asleep. The purpose of this project is to evaluate the indirect and direct protection conferred by community-level use of ITNs on occurrence of malaria in children under the age of five. We will evaluate whether ITN use protects the users themselves, direct protection, and members of the community that do not engage in ITN use, also known as indirect protection. This work primarily involves a series of data manipulation steps and statistical analyses, and builds off of work conducted by previous undergraduate research students. Briefly, publically-available datasets from the Demographic and Health Surveys program were obtained from 9 sub-Saharan countries that met inclusion criteria for this study. Preliminary analyses identified confounding effects of household socioeconomic status, maternal education, and urbanity. For each country, the direct and indirect effects of anti-malarial interventions were estimated using inverse probability weighted estimators. Overall, no significant protective effect of either community-level or individual-level ITN use was detected. In some countries, the probability of malaria infection increased as neighborhood ITN use increased. Further diagnostics on IPW estimators and alternative statistical methods for evaluating the protective efficacy of community-level ITN use are currently underway.

A Demonstration of Business Development: A “Sharktank” Style Pitch

Sydney Spadaro, Anna Hughes, Christina Cowperthwait
Research Adviser: Professor Nathan Woolard; Business/Entrepreneurship

The process of developing a written business plan is an innovative platform and brings discipline to a creative vision (Morris, 2016). The U.S. Small Business Administration suggests that the process to plan, launch, manage, and grow a business requires careful planning, combining market research and competitive analysis to create something of value that people
want (www.sba.gov). The entrepreneurial process of discovery requires careful consideration and research of market demand, market size, saturation and opportunity, economic output, demographic and socioeconomic tendencies to suggest business opportunities and limitations. This presentation intends to illustrate that process of discovery in a fun and unique setting where two groups will pitch their business plans. Student presenters developed the written business plan across three semesters of entrepreneurship courses utilizing the U.S. SBA framework for business development. Student presenters will provide an interactive presentation to the audience while using three Meredith faculty members to serve as “Sharks” and ask difficult questions throughout, similar to the popular television show “Shark Tank.”

**Supplement Usage Among Meredith College Students**

Demonica Stanley  
*Research Adviser: Professor Edward Robinson; Social and Behavioral Science*

It has been estimated that supplementation is currently a $122 billion-dollar industry and is projected to become a $224 billion-dollar industry by the year 2024. The FDA reports that there are more than 55,000 different types of supplements currently available and more are brought to market each year. The purpose of this study is to determine what types of supplements the students at Meredith College are consuming. Also, for what purpose, and where are the sources of the information students seek for information about supplementation. A survey was developed via Google Forms and distributed to students at Meredith College using, social media, word to mouth, and email. The survey was developed to solicit information from students about supplement type, lifestyle choices, source of information, as well as, fitness and athletic status. Out of 100 respondents, 42% take supplements. Of the students who reported taking supplements for weight loss 62% had body mass index below 25 which is not considered overweight. The highest used supplement among students was protein. More than half of the individuals who reported no supplementation use subsequently reported the regular use of multivitamins, caffeinated beverages, or protein bars. 51% of the students reported that they did not seek eternal information when deciding to use a supplement. Relying instead on only what they knew or what they believed about the supplements. This implies that Meredith College students lack proper knowledge about the use and effects of supplements they are taking.

**History & Culture of Hair**

Blair Starling, Warner Little, Jennifer Garcia  
*Research Adviser: Professor Angela Robbins; History*

This Showcase, based on a spring 2019 colloquium course, examines the role of hair in the development of communities, societies, and culture. Within the broad categories of work/class, gender/sex, display/ornamentation, and health/sexuality we focus particularly on the connections between hair practices (face, body, head) and identity. In order to understand the relationship of hair to identity and investigate the regulation of hair as a performance of both power and appropriation, we have examined hair practices throughout history as well as across socio-historical and global contexts.

Each student has composed her own hair story and created a hair self-portrait as means of exploring her own relationship to her hair, what her hair means to her identity, and other themes covered in class. Each week, groups of students inspire their classmates to reflect on and discuss the week’s reading assignments by sharing related pieces of literature, art, music, media, or current events they find through independent research. Students are also conducting research with the goal of creating a World Hair Project in which they explore a global hair practice not covered in class.

For our CSA Showcase, students will share both their individual hair stories and self-portraits and offer selections from their collaborative presentations for class. We will engage the audience by asking them questions about what their own hair means to their identity and we will share what we have learned about what hair communicates about cultural identity and issues such as gender, race, class, religion, and power.

**The Effects of a 3-Week Exercise in Muscular Strength Improvement for Prevention of Falls in the Geriatric Population**

Zoe Stavredes  
*Research Adviser: Professor Melinda Campbell; Exercise and Sports Science*

The Center for Disease Control (CDC) states that one third of adults over the age of 65 fall at least once a year. A prevention goal is to improve or maintain muscular strength to avoid chances of crippling falls. In this study, the Berg-Balance Test for assessing the performance of functional tasks was used in assessing an at-risk older population. Participants (N=19) were visited 4 times by 11 college trained student researchers over 16 weeks. A prescription of balance and strength exercises was given to participants with instructions to complete the exercises twice daily for 3-weeks. Balance was assessed before and after the exercise intervention using a 7-item, 5-point scale (0-4 with 4 being the highest level of balance). Initially, combining scores from the seven items, participants had a mean balance score of 23.9 (SD =5.09). Although their balance did not significantly improve after the intervention (M=24.21, SD= 4.1), participants often qualitatively reported feeling like they were less likely to fall. This presentation will discuss ways to improve the intervention for future participants.
Environmental Factors Affect Foraging Efficiency of Leaf Cutter Ants in Costa Rica
Katelyn Steadman, Samantha Smith
Research Adviser: Professor Carolina Perez-Heydrich; Biological Sciences

Leaf-cutter ants serve as keystone species that affect and advance diversity, productivity, and nutrient flow in tropical habitats. Field work was conducted in Costa Rica between May and June 2017 to investigate the role of environmental factors on biomass transport by leaf-cutter ants. Thirty leaf-cutter ant trails were identified along hiking paths throughout La Selva Biological Station, and measures corresponding to foraging efficiency (i.e. speed of biomass transport, average mass of forage transported, trail workforce composition, and biomass transport rate) were documented, along with potential environmental determinants of foraging efficiency (e.g. time of day, precipitation, canopy cover, proximity to forage source and colony). Multiple linear regression models indicated that time of day was significantly associated with workforce composition, weight of forage transported, speed of transport, and biomass transport rate. Precipitation was associated with workforce composition, weight of forage transported, and biomass transport rate. Substrate type was associated with speed of transport and biomass transport rate. Forage source proximity was associated with workforce composition, while proximity to colony was associated with weight of transported forage. Biomass transport rate was also associated with canopy cover. This study characterizes key features of the foraging ecology of leaf-cutter ants, and demonstrates how foraging efficiency is affected by environmental factors.

Evaluating the Potential for Environmental Transmission (Mycobacterium leprae) in a Natural Armadillo (Dasypus novemcinctus) Population
Katelyn Steadman, Joshua Perch, Danielle Robison
Research Adviser: Professor Susan Gardner; Biological Sciences

Mycobacterium leprae, the causative agent of leprosy, is known to infect only two species of animals aside from humans, one of which is the nine-banded armadillo (Dasypus novemcinctus). This relationship has been studied under laboratory conditions extensively to better understand leprosy transmission mechanisms and patterns of infection. However, there is still much to be discovered on these aspects in wild populations. The objective of this study is to determine whether soil can serve as a reservoir for M. leprae outside of armadillo hosts. Soil samples were taken from Yazoo National Wildlife Refuge in Mississippi where a population of M. leprae-exposed nine-banded armadillos is known to reside. Soil samples were processed using genomic DNA isolation and PCR to screen for M. leprae and other microbes in the soil. The current results show that M. leprae has been found in armadillo burrow soil samples. Further results could provide new insights regarding the transmission mechanisms of M. leprae.

Racial Disparities Influence Onset of Diabetes: Is It True?
Marissa Stephenson, Leah West, Hannah Elvington, Hailey Taylor
Research Adviser: Professor Carolina Perez-Heydrich; Biostatistics

Previous research has demonstrated racial disparities in physical activity and self-care behaviors. The purpose of this study was to identify whether such disparities existed with respect to dietary intake and diabetes status. A series of chi-square tests, t-tests, and ANOVAs were conducted using data from the National Health and Nutrition Examination Survey 2015-2016. Tests compared total intake of sugar, sodium, fat, and foods/beverages, along with self-reported weight among racial subgroups and between individuals with and without self-reported diabetes. Total intake of sugar, sodium, fat, and foods/beverages did not significantly differ across racial subgroups; however, self-reported weight did significantly differ across groups (F4,6152=115.69, p=2.2e-16). Odds of diabetes were highest among Hispanic individuals relative to Non-Hispanic white individuals (OR=1.45; 95% CI: 1.05-1.99). Overall, these results failed to detect racial disparities in dietary intake, but identified disparities in weight and diabetes status.

Breeches and Cross Casting in Theatre
Allie Sullivan
Research Adviser: Professor Cathy Rodgers; Theatre

The understanding of breeches, or pants, roles in theatre has been around since Shakespeare’s time, but now there is a new trend of cross-gender casting. Breeches have been instrumental in the development of theatre and what is possible for women in theatre. Sometimes, in order for a role to be played well, it has to be done by a woman — even if it is a part written for a man. Women, like, Julie Andrews and Michelle Terry have recently taken part of the movement of playing males or male roles. This paper will explore the origins of breeches roles and their effect on the current modern theatre, and how this has given women more opportunities to thrive in professional theatre.

On the Erdős Distance Problem
Sara Talley
Research Adviser: Professor Phillip Andreae; Mathematics

The Erdős distance problem involves many interesting aspects of geometry, combinatorics, analysis, and algebra. The problem asks: given a finite set of n points in the plane, what is the sharp lower bound for the number of distinct distances between pairs of points in the set? We explore the current status of this problem and its generalizations to higher dimensional spaces and to vector spaces over finite fields. Erdős gave an induction argument for a lower bound in dimension d, and Moser improved that lower bound. We study the dependence of the constants in their lower bounds on the dimension d.
The Effects of Pre-workout Supplementation on Measures of Neuromuscular Activation in Female College Athletes

Megan Tarpey
Research Adviser: Professor Edward Robinson; Exercise and Sports Science

Both high intensity workouts and pre-workout supplementation have increased in popularity. The appeal of this type of exercise for individual's is to provide an effective form of stimulus in a shorter amount of time. Another phenomenon affecting the exercise community is the growing popularity of pre-exercise energy drinks which often contain a variety of ergogenic supplements. Most energy drinks usually contain caffeine, recent formulations have sought to include additional ingredients to boost the feeling of alertness and increase the physical performance effects from these beverages. Several studies have attempted to determine the effects energy drinks containing caffeine. Recently, supplementation companies have begun to market pre-workout supplementation in the form of energy drinks. To date, the majority of studies examining this topic have either involved men or only supplements containing traditional energy drink formulas, and none have sought to evaluate the effects of pre-workout supplementation on the neural activation of muscle during an exercise event. The purpose of this study is to examine the effect of a pre-workout energy drink supplement containing caffeine, creatine, and branch-chain amino acids versus a popular commonly available energy drink containing only caffeine on neuromuscular activation during a high intensity athletic event. Methods: Eleven female students performed a repeated Wingate test three times each with different supplementation. Electromyography (iWorx B3G, Dover, NH) was measured for the vastus lateralis and rectus femoris. Results: Neuromuscular activation for each respective muscle during the repeated Wingate tests is currently undergoing analysis.

The Physical Effects of Unforgiveness

Regan Tart
Research Adviser: Professor Teresa Holder; Communication

The idea or action to forgive someone can be extremely difficult. Many people are not sure what forgiveness truly is. Traumatic incidents are happening all the time to friends, family, and strangers around the world. At least 90% of people will experience a need during their lives to forgive someone whose actions or words have created personal harm whether that be perceived to actual harm (Kilpatrick, 2013). While the subject of forgiveness can be controversial, research has shown that the inability to forgive a transgressor leads to negative consequences of wellness, specifically health (Hanscom, 2012). Therefore, understanding and implementing forgiveness is vital for overall wellness. When emotions become uncomfortable to someone there can be a masking or suppressing behavior to try and cover up the emotions. The purpose of this study is to investigate the choice of unforgiveness and overall wellness. Adults enrolled in a community-based forgiveness class will be surveyed about unresolved conflict in their life and then self-report about physical and emotional stress related symptoms. The project incorporates the use of the McGill Pain Questionnaire and the Forgiveness Self-Efficacy Scale to investigate the role of conflict and stress related symptoms. Findings of this study will contribute to the literature on communication, forgiveness, and physical well being.

Crayfish and their Microscopic Critters: Crayfish Symbiont Response to Invasion within the Chetco River System Southwestern Oregon

Barbara Teague
Research Adviser: Professor Maria Pickering; Biology

Crayfish are known hosts for two groups of obligate ectosymbionts, branchiobdellidan worms and entocytherid ostracods. In the Chetco River System of southwestern Oregon the native Signal Crayfish (Pacifastacus leniusculus) is being replaced by the introduced Ringed Crayfish (Faxonius neglectus). Specimens of both species were collected in 2018 by my advisor, Dr. Bronwyn Williams, and Patricia Weaver from the NC Museum of Natural Sciences. In this study, we examined specimens of crayfish from the native range of P. leniusculus to gain insight into host-symbiont response to invasion. We hypothesize three possible scenarios: full community replacement, where the introduced F. neglectus and its non-native symbionts completely replace P. leniusculus and its native symbionts; partial replacement, where F. neglectus replaces P. leniusculus and picks up the native’s symbionts, or; host replacement with symbiont extirpation, where F. neglectus replaces P. leniusculus with no symbiont transfer. Results of this study will show the extent of host-symbiont replacement within the Chetco River system, which can then be used as a baseline for future studies.

Teachers’ Perceptions of the Impact of Physical Activity Breaks

Alexis Tennant
Research Adviser: Professor Tisha Duncan; Social Sciences/Child Development

Teachers have the responsibility of increasing test scores while ensuring students retain information and develop skills as productive members of their communities. There is no doubt this can be a daunting task. Implementing physical activity breaks can lead to higher test scores, increased time-on-task, and better student physical health (Schmidt, Benzing, and Kamer, 2016, p. 2; Goh, Hannon, Webster, Podlong, and Newton, 2016, p. 715; Jez and Wassmer, 2015, p. 300). The perceptions
of physical activity breaks of eight third through fifth grade teachers were analyzed using a mixed methods survey and qualitative data analysis. Survey responses indicated that recurring barriers to implementing physical activity breaks included: knowledge of how to implement breaks; insufficient time during the school day; and concerns with interrupting instructional teaching. All eight participants were aware of the benefit of physical activity breaks, but have not been made aware of research behind this strategy. These teachers also have not received training on how to properly implement physical activity breaks. There is a strategy that exists to help increase test scores while improving the overall health of students, but teachers have not received enough support to feel confident with implementation. These findings can be strengthened by completing the research with a larger, more diverse population. These preliminary findings confirm that teachers need support in the form of training and resources in order to better meet the academic and physical needs of students.

**Instructional Strategies for the Enhancement of STEM Skills in Our Classrooms**

*Emily Vick*

*Research Adviser: Professor Cece Toole; Education*

Individuals interested in entering STEM careers need a specific set of skills in preparation: "(ill-defined) Problem-solving skills; Social communication skills; Technology and engineering skills; System skills; and Time, resource, and knowledge management skills" (Jang, 2016, pg. 292). When implementing a variety of instructional strategies, teachers have the opportunity to strengthen these skills in their students and therefore prepare them for STEM-focused postsecondary education or careers after graduating from high school. This research focuses on the instructional strategies being implemented in core classes that enhance the skills necessary for careers in STEM fields. Observations in freshman STEM Academy core classes (English 1, Math 2, World History, and Biology) at a large high school have identified how teachers provide opportunities in the classroom for students to enhance life-long STEM skills. Observing multiple subjects of core classes allowed for a variety of instructional strategies to be noted. The purpose for this study is to observe instructional strategies that teachers implement in a core classroom that allow students to use and enhance skills needed in STEM careers. The information from this study will be used to help the researcher, a future mathematics teacher, implement instructional strategies that provide opportunities for students to enhance STEM skills.

**The Effects of Product Scarcity and Exclusivity on Consumer Behavior in Women by Age Group**

*Hannah Jane Watkins*

*Research Adviser: Professor Nathan Woolard; Business Administration*

The scarcity principle has been vastly researched in the fields of psychological and environmental science, economics, and marketing, and has been found to be a key influencer in consumer behavior. Previous research suggests that product scarcity and exclusivity may affect consumer decisions and attitudes. This thesis expands what has been found in previously conducted research by exploring if product scarcity and exclusivity affects consumer decisions and attitudes differently for women above and below the age of 30. Factors of influence that will be explored include price and perceived value, availability types, credibility and trust, and messaging. To identify how these factors influence consumer behavior, the researcher administered a survey regarding the effects of scarcity in purchasing experiences. The survey was designed by the researcher to gather information about factors influencing consumer purchasing decisions to test whether there is a difference in the way women of different age groups are affected by scarcity and exclusivity. Anticipated findings will give further insight to help determine the scarcity tactics that are most beneficial and detrimental to businesses in order to help them more successfully appeal to their target consumers in the future.

**Tissue Culture of Cannabis sativa**

*Megan Whitfield, Seema Hussain, Maria Mosso, Alejandra Vargas*

*Research Adviser: Professor Robert Reid; Biology*

In 2016, it became legal in the state of North Carolina to grow industrial hemp, Cannabis sativa. Cannabis also produces CBD (cannabidiol), another cannabinoid used in the manufacture of household items and cosmetics, and in medicine to treat anxiety, cognition, movement disorders, and pain. Buds from female (but not male) plants are used for CBD extraction. Cultivation of female plants, derived by asexual propagation of high CBD-producing mother plants (that have less than 0.3% of the psychoactive compound tetrahydrocannabinol, THC), could increase the amount of CBD produced in the field. Superior plants to be used as mother plants can be identified from testing records (of both THC and CBD) required by the North Carolina Department of Agriculture. A single bud can produce many plants in tissue culture, compared to just a single plant as in standard propagation techniques. Thus, a single mother plant with superior qualities could produce through tissue culture a much larger number of plants for use in agriculture. Buds will be excised from Cannabis sativa plants, surface sterilized and placed onto various media to promote multiplication of the large number of plants from single buds. Cultures can be subcultured indefinitely as a continuing source of plants. These plants can then be rooted, hardened off back to a non-sterile environment, and planted by conventional means. Vegetative propagation through tissue culture would be a valuable method of producing large numbers of superior plants for agricultural use.
Effects of a Movement Intervention on Motor Skills in Children With Autism

Laura Whitley
Research Adviser: Professor Cynthia Edwards; Psychology

Dancing has been shown to improve motor development in children (Cosma, Dragomir, Dumitru, Lica, and Ghetu, 2016). The purpose of the present study is to examine the effects of a modified dance, pilates, and yoga program on motor skills in children with autism. The sample consisted of (N= 4) children, both male and female, ages 3-5, recruited from the Meredith Autism Program. The intervention is lasting four weeks, consisting of two sessions per week, each lasting 10 minutes per session. During each session, the researcher will have the participant follow exercises such as squats, planks, jump on a trampoline, hop on one foot, balance on one foot, v-sit, arm circles backward, arm circles forward, downward dog, and squeeze a stress ball for each hand. The researcher hypothesizes that independence in walking on the balance beam and climbing the rock wall will increase, distance thrown will increase, and percentage caught will increase. The researcher took baseline data on independence walking on a balance beam and climbing a rock wall, distance thrown when throwing a ball, and percentage caught when catching a ball out of five tries. At this time, data collection is ongoing, but baseline has shown that three of the four participants needed full assistance walking on the balance beam and climbing on the rock wall, participants didn’t catch any balls, and the mean distance thrown was three feet. When all data have been collected, the researcher hopes to find significance in independence, distance thrown, and percentage caught.

Literacy Programs for Children with Disabilities: An Exploratory Study

Emily Wilkinson
Research Adviser: Professor Patsy Pierce; Social and Behavioral Science / Education

This presentation analyzes implementation methods and the effectiveness of literacy programs used to teach children of varying ages and severity of disabilities. The presentation compiles information gathered from (1) observations of specific literacy programs, (2) scholarly research articles focused on the history of the programs according to Gillingham and Stillman (1968), and (3), the effectiveness of the programs based on the findings of previous research according to Greene (2018). Recommendations for appropriate future research to examine the effectiveness and disadvantages of different literacy implementation strategies are also discussed. The information gathered and reviewed in the presentation will be helpful to current and future practitioners and researchers regarding developing literacy abilities in children with disabilities.

Submissive and Daringly Strategic: The Sección Femenina and its Relationship to the Spanish Catholic Church during the Era of Francisco Franco

Isabelle Williams
Research Adviser: Professor Jonathan Wade; History

This investigation dealt with Spanish women’s political involvement during the fascist, dictatorial regime of General Francisco Franco, or the “Falangist” regime. Franco led a conservative regime intertwined with the Spanish-Catholic Church in which women were subjugated to patriarchal policies and social norms in virtually all aspects of Spanish society. During this regime there existed a female branch of the Falange called the Sección Femenina (SF), meaning “Female Section,” often referred to as the female army of the Falange. Many scholars treat this organization as an appendage of the Falange, merely reinforcing the patriarchal views of its existing sociopolitical climate. At the same time, other scholars depict the SF as a radical, shameless change-agent without truly reflecting or embracing any of the values of National-Catholicism. The aim of this research was to reveal the more nuanced identity of the SF in its nearly four-decade balancing of submission to and subversion of the Falange. In particular, the focus of this research was the SF’s involvement with the Spanish-Catholic Church and how the women of the organization embraced the Church as a platform of social advances, defining the ever-complex identity of the all-female group. Findings were reached through a combination of primary, secondary, and tertiary sources, more than half of which are written in Spanish. There are two versions of this work: the original which was written in Spanish, and the second which is an English translation.

Evaluating Meredith College Students on the Importance of Meal Planning

Kendall Williams
Research Adviser: Professor Rachel Findley; Food and Nutrition

Meal planning, as it is used in this study, can be defined as creating a menu before going to the grocery store, and either preparing the meals before the day you planned to have the meal or partially preparing the meal in order to reduce time spent preparing the meal on the day it is made. Meal planning involves a conscious decision and brief background knowledge on healthy eating choices and behavior. Meal planning is relevant to all populations because when one is taught how to effectively meal plan, the individual is more conscious of their food choices, which ideally will lead to healthy eating behaviors. In order to make an effective change on behavior and perception of nutrition on health and wellness, it is important to first obtain a brief nutrition education. The purpose of this research is for participants to gain a greater perspective on the effect of health eating on their personal health and wellness goals. The target population is 20 undergraduate and graduate college students,
Music and The Holocaust

Hayleigh Young
Research Adviser: Professor Jeanie Wozencraft Ornellas; Music

In school, I was inspired by the study of the Holocaust and how it affected the Jewish people. As a music major being able to take my love of history and connected it to my major was fascinating. In my study, I chose three composers, and researched their experiences in the concentration camps and how that affected their musicianship. I looked at the locations of three camps that were involved in the Holocaust and how music was used in the camps. I used my knowledge of the composers’ experiences in the camps to study a piece from each composer and compared the musical techniques, instrumentation, and emotion of the piece. I found the music that these composers created in the concentration camps was limited in its instrumentation due to the conditions in the camps, which in turn affected the instruments the composers used for their pieces. Viktor Ulman’s “Der Kaiser von Atlantis oder Die Tod-Verweigerung”, Gideon Klein’s string trio, and Olivier Messiaen’s “Quartor por la fin du temps” are just a few of the composers I will be discussing. Music was not only used as a military tactic but as a path of happiness for the prisoners. Through this study, I got to explore two topics that I have always enjoyed. I feel that this study gives insight into some of the more obscure details of the Holocaust that are useful to know. This study also was a way to cross the bridge of two disciplines of history and music.

Louisa May Alcott’s Little Women: Bigger Accomplishments for “Little” Women

Haley Katherine Yow
Research Adviser: Professor Robin Colby; English

I used Louisa May Alcott’s title of her most popular work, Little Women, to form my research question: what in the eyes of the author makes women “little”? I explored different avenues of womanhood through the lives of the March sisters. I used historical and biographical information to find connections between Alcott’s family and her characters. Feminist critic Rachel Brownstein believes that “young women like to read about heroines in fiction so as to rehearse possible lives and to imagine a woman’s life as important — because they want to be attractive and powerful and significant, someone whose life is worth writing about, whose world revolves around her and makes being the way she is make sense” (Becoming a Heroine xxiv). I found that Alcott uses the characters of Meg, Amy, Jo, and Beth to look at how women’s choices determine their agency and prominence. I concluded that Meg represents conventional feminine choices as she marries and welcomes children. Amy struggles to balance her roles of artist and wife, and Beth remains in the back corner of the novel, finally succumbing to illness and death. In contrast, I observed that Jo’s choice to focus on her writing rather than marry was key to her success in the literary world and that Jo’s choices lead her to a larger life of agency. Ultimately, I find that Alcott’s Little Women has resonated in the hearts of young women trying to find their identities.

Stress and Resilience in Undocumented and Documented College Students

Stephanie Zavaleta
Research Adviser: Professor Mark O’Dekirk; Psychology

Deferred Action for Childhood Arrivals (DACA) was an executive order that provided undocumented young adults who entered the United States at a young age with a temporary work authorization and the opportunity to go to college; however, for many, college is still out of their reach because financial aid is not available to offset the high cost of college. Fear of deportation and college costs are significant stressors in DACA students (Raymond-Flesch, Siemons, Pourat, Jacobs, & Brindis, 2014). This study focused on stress and resilience in undocumented and documented college students. The quasi-independent variable investigated was the United States legal status of the participants. The dependent variables were the measures of stress and resilience in these groups. The study consisted of 86 participants who were given a survey which was adapted from the Meredith Emerging Adulthood Longitudinal Survey (Mann, 2017). The hypothesis was that stress would be higher in undocumented college students, but so would their resilience compared to documented college students. The results were not in the direction of the hypothesis. The only significant difference showed undocumented students were more likely to attribute the policies of the current political administration as impacting their school performance, $F(3.82) = 15.83, p = .001$, compared to the documented students.
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2. Visitors, Faculty and Staff — Monday to Friday, 7 a.m. - 4 p.m.
3. Ledford Staff Parking
4. Accessible Parking for SMB and Ledford
5. The Oaks Parking
6. Visitors, Commuter Students, Faculty and Staff — Monday to Friday, 7 a.m. - 4 p.m.
7. Commuter Students
8. Students, Faculty and Staff
9. Visitors, Faculty and Staff — Monday to Friday, 7 a.m. - 4 p.m.
10. Visitors, Commuter Students, Faculty and Staff
11. Faculty and Staff — Monday to Friday, 7 a.m. - 4 p.m.
12. Resident Students, Faculty and Staff
13. Faculty and Staff
14. Resident Students
15. Resident Students
16. Resident Students (parking on both sides of street)
17. Commuter Students
18. Visitors, Faculty and Staff
19. Athletic Field Parking

June 2018
128 YEARS, 2,000 STUDENTS, 22,000 GRADUATES, ALL GOING STRONG. Chartered in 1891, Meredith College opened with just over 200 women. Today, Meredith is one of the nation’s largest independent private women’s colleges. Our student body has grown to nearly 2,000 and includes men at the graduate level in business, education, and nutrition; post-baccalaureate certificates in pre-health and business; a paralegal program, and more. Meredith challenges students to explore their interests, expand their skills, and build on their strengths. Our graduates go on to use their intellect and abilities to make a positive impact on the world. U.S. News, The Princeton Review and Forbes.com have all included Meredith in their “Best Colleges” lists. At 128 years and counting, Meredith College is still going strong.