Dr. Jay Boland

The ETSU Undergraduate Research Symposium honors Dr. Jay Boland who began his career at ETSU in 1991 as a visiting assistant professor. In 1996 he was promoted to assistant professor and, in the same year, received the Distinguished Faculty Award for Excellence in Training and the College of Arts and Sciences Teaching Award.

A mathematician at heart, Jay not only taught several courses in mathematics at ETSU and elsewhere but published multiple works in advanced mathematics. Jay was also a strong supporter of undergraduate research. In addition to advising University Honors Scholars and Midway Honors Scholars, Jay mentored numerous undergraduate and graduate students in mathematics.

Our Gratitude

Many thanks to the Boland family for their continued support and endowed gift to The ETSU Undergraduate Research Symposium, dedicated to the memory of Dr. Jay Boland.

Changing Lives

As with other areas of the Honors College, innovation remains a major characteristic of the progress made in ETSU Undergraduate Research (e.g., donor funding for summer research fellowships; creation of and continual updates to a unique Research Discovery Work Study; faculty scholarship and national involvement in the area of undergraduate research). The resources and research available to students contribute a great deal to their success as undergraduates. You can make a difference by creating a challenging learning environment in the life of a student by supporting Undergraduate Research at ETSU.

Visit www.etsu.edu/give or contact Kelly Cisney, Director of Development University Programs at 423-439-4743 cisneyk@etsu.edu

Thank you for your support!

ETSU is an AA/EEO employer. ETSU-361-17 .3M

2019 Boland Undergraduate Research Symposium

Showcasing Student Research & Creative Activities

Friday, March 29, 2019
Millennium Centre, Johnson City
8:00 a.m. - 5:00 p.m.

Sponsored by:

ETSU Honors College
ETSU Office of Research & Sponsored Programs
Dr. Jay Boland Honors Endowment
ETSU Ronald E. McNair Program
Notes:
The ETSU Honors College welcomes you to the 2019 Boland Undergraduate Research Symposium

The Symposium is dedicated to the memory of Dr. Jay Boland, Director of the ETSU University Honors Scholars Program from 2002-2006. The ETSU Undergraduate Student Research Symposium is an event in which ETSU undergraduate students can present their research in an informal, non-competitive environment. The Symposium includes oral presentations in various discipline-themed sessions. Performance artists (music; reading; theater) are particularly encouraged to participate. Visual artists may display their work in the Millennium Centre lobby. ETSU Undergraduate students are encouraged to participate in the Symposium by presenting their research for work-in-progress projects or completed projects. By participating in this event, students will be able to exchange ideas with peers and gather valuable feedback. The Symposium has experienced a steadily increasing number of participants and increasing diversity of disciplines represented. The first Symposium had only 25 participants but has since grown to over 90 participants, with noteworthy discipline expansion into the performing arts and an enhanced role for display artists.

Presentation Sessions

Arts and Humanities
Performance Arts
Science and Technology
Social Sciences
Student Artworks

ETSU Steering Committee

Students:

Faculty & Staff:
Jennifer Adler, Assistant Director, Roan Scholars Leadership Program
Deanna Bryant, Office Coordinator, Honors College
Dr. Dinah DeFord, Academic Coordinator, McNair Program
Stephen Fox, Information Research Technician, Honors College
Dr. Michelle Hurley, Assistant Director, McNair Program
Dr. Richard Ignace, Director, Undergraduate Research, Honors College
Susan Kellogg, Marketing Manager, Honors College
Kionne King, Secretary, Honors College
Dr. Karen Kornweibel, Director, University & Midway Programs, Honors College
Dr. Scott Koterbay, Director, Fine & Performing Arts Program, Honors College
Karla Leybold, Recruitment & Assessment Manager, Honors College
Dr. Judy Slagle, Dean, Honors College
Dr. Mick Whitelaw, Director, Honors-In-Discipline Program, Honors College
Sponsors

Dr. Jay Boland Honors Endowment

The Boland Symposium is supported by a memorial endowment from the family of Dr. James “Jay” Boland, past director of the University Honors Programs. The symposium provides ETSU undergraduate students the opportunity to display their abilities and present the results of their research projects to peers, professors and friends to gain valuable feedback.

The Boland Honors Endowment is a lasting tribute to Dr. Jay Boland and makes a significant impact on students experiential learning; helping to inspire, encourage, and create excellence today and for generations to come.

The ETSU Honors College

The Honors College at ETSU plays many roles, provides many services, and supports faculty and students alike across all disciplines at ETSU. Research is a central component of an Honors experience at ETSU. The Honors College ensures that undergraduates can work with university faculty on cutting-edge research. The Honors College recognizes experiential learning, the value of unique field courses, exchange programs, internships, student activities and service opportunities that make the world a classroom. With a variety of funding sources, knowledgeable advisors and expertise across all fields of study, the Honors College is committed to supporting our students as they pursue—and achieve—their individual passions and dreams.

The Office of Research and Sponsored Programs Administration (ORSPA)

ORSPA assists members of the ETSU community in securing and managing external funding for their research, creative, instructional, and service activities. ORSPA is responsible for ensuring that ETSU proposals, sponsored agreements and other research-related agreements conform to sponsor guidelines and are compliant with all federal, state, and ETSU policies and regulations.

Education and training in areas including finding funding opportunities, grant writing, proposal development, and general sponsored programs administration are available to faculty, staff, and students through workshops, guest lectureships, and one-on-one consultation.

Ronald E. McNair Post-Baccalaureate Achievement Program

Named in honor of Ronald E. McNair, an African-American astronaut killed in the Challenger Space Shuttle explosion in 1986, this program is one of the United States Department of Education’s special initiatives known as TRIO that serve and assist disadvantaged students in their educational endeavors.

The goal of the McNair program is to increase the attainment of graduate degrees, particularly PhDs by students from underrepresented segments of society such as students who are from low-income and first generation backgrounds or students who are ethnic minorities and underrepresented in graduate programs. This program prepares participants for doctoral studies through involvement in research and other scholarly activities.
Greta Trogen, Senior  
ACS Chemistry: Jonathan Peterson  
Circulating Oligomeric State and Circadian Rhythm Regulation of CTRP3  
CTRP3 plays a key role in metabolism and inflammation but its protective mechanisms in the body are unknown. This study analyzes the circulating oligomeric state and circadian regulation of CTRP3 to elucidate its role in preventing disease.

Charles Waldroff, Senior  
Biology: Joseph Bidwell  
Geomorphological Stream Ecology Frameworks and How They Are useful, But Fail to Provide an Accurate Prediction of Stream Macroinvertebrate Populations  
The River Continuum Concept (RCC) conceptually describes invertebrate community composition in streams. We evaluated the applicability of the RCC to streams in Appalachia and found it fails to account for local effects on invertebrate occurrence.

Tyler Wicks, Senior  
Biology: Joseph Bidwell  
Species Distribution Models and Site Survey Comparisons for the Northern Gray-Cheeked Salamander (Plethodon Montanus) at Two Appalachian Mountain Sites  
Habitat models for P. montanus were created and compared with field surveys. Distributions at Roan Mountain were inconsistent with the model’s predictions indicating the organism could be selecting sub-optimal habitat or the model needs adjustment.

Nathan Wolf, Senior  
Mathematics: Ariel Cintron-Arias  
Mathematical Demographic Models in the Context of College Enrollment  
We formulate stage-structured models with underlying age-structured models in the context of students attending a student completing an undergraduate degree. We will then rank the model parameters according to their influence in the model output.
Strangers in a Strange Land: A Study of the Religious and Cultural Identity Formation of the Kindertransport Children

In 1938-9, around 10,000 Jewish children went to Great Britain on the Kindertransports from three Nazi-occupied countries. This research explores how certain individuals from this program developed their Jewish identity away from their communities.

BMI, Perceived Physical Ability and School Engagement in Elementary School Children

Students, grades 3-5, completed instruments assessing perceived physical ability and school engagement. No significant relationships were found or differences noted for categories of BMI. The culture and focus of the school may explain this.

The Chelation of Metal Ions by the Siderophore Vicibactin

Vicibactin is a small, iron-binding molecule, produced by Rhizobium leguminosarum. This study involves vicibactin's ability to bind other metal ions besides iron, which may have implications for toxic metal waste cleanup.

Musical Theatre Song Performance

Will be singing a selection of musical theatre works.

Beyond the Castle: An Analysis of the Strategic Implications of Disney+

In the fall of 2019, Disney will launch a new branded streaming service, Disney+. This research will examine and analyze the marketing strategies and managerial implications for Disney+ as well as conditions that may affect the platform's success.

Identity: An Expression of Life Through Dance

Object Poetry: Critical and Creative Perspectives

The Voiceless Condition of Women in Kettle Bottom

Necessity Rather Than Influence: The Use of Satirical Elements by Dante Alighieri and Geoffrey Chaucer as a Result of the Social Conditions during the Middle Ages
<table>
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<tr>
<th>Time</th>
<th>Student/Presentation Title</th>
<th>Department</th>
<th>Advisor</th>
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<tbody>
<tr>
<td>8:05 am</td>
<td>Michaela Daniels</td>
<td>Business Management</td>
<td>Charles Gorman</td>
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<td>Regulatory Focus Within the Generational</td>
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<td>Hal Hughes</td>
<td>Communication Studies</td>
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<td>Names and the Process of Identity:</td>
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<td>An Autoethnographic Approach to Becoming</td>
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<td>Someone Else</td>
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<td>8:55 am</td>
<td>Lauren Smith</td>
<td>Communication Studies</td>
<td>Andrew Herrmann</td>
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<td>Trauma, Identity and Equestrianism</td>
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<td>Elizabeth Mathis</td>
<td>Economics</td>
<td>Doug Dotterweich</td>
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<td>Poverty in Argentina</td>
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<td>9:45 am</td>
<td>Seth Manning</td>
<td>Political Science/Public Health</td>
<td>Andrew Battista</td>
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<td>Factionalism in the Democratic Party 1936-</td>
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<td>10:20 am</td>
<td>Daisy Hernandez</td>
<td>Psychology</td>
<td>Ginette Blackhart</td>
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<td>Let's get Personal:</td>
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<td>Self-Disclosure in Online Environments</td>
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<td>Gabriel Simerly</td>
<td>Psychology</td>
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<td>Effects of Self-Care on Undergraduate</td>
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<td>Stress</td>
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<td>11:00 am</td>
<td>Madison Evans</td>
<td>Theatre</td>
<td>Patrick Cronin</td>
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<td>All-Female Hamlet</td>
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<td>11:35 am</td>
<td>James Maines</td>
<td>Theatre and English</td>
<td>Herb Parker</td>
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<td>My Journey as an Actor: From the States to</td>
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<td>8:05 am</td>
<td>Morgan Labelle</td>
<td>Nutrition</td>
<td>Cara Harker</td>
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<td>Wave: A Dance Composition and Performance</td>
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<td>8:30 am</td>
<td>Erin Teaster</td>
<td>Theatre</td>
<td>Melissa Shafer</td>
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<td>Stage Management 101 and 102</td>
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<td>8:55 am</td>
<td>Tyler Wicks</td>
<td>Biology</td>
<td>Joseph Bidwell</td>
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<td>Species Distribution Models and Site Survey Comparisons for The Northern Gray-Cheeked Salamander (Plethodon Montanus) at Two Appalachian Mountain Sites</td>
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<td>9:10 am</td>
<td>Emily Hammes</td>
<td>Mathematics</td>
<td>Anant Godbole</td>
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<td>Unification of Pythagorean Triple Schema</td>
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<td>9:35 am</td>
<td>Alex Day</td>
<td>Biology &amp; ACS Chemistry</td>
<td>Catherine McCusker</td>
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<td>Photochemical Reactions with Zinc Dipyrren Photosensitizers</td>
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<td>10:05 am</td>
<td>Shuaib Siddiqui</td>
<td>Health Sciences</td>
<td>Ranjan Chakraborty</td>
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<td>Identification of Iron-related Genes in Rhizobia leguminosarum ATCC 14479 Genome through the use of In-silico Analysis</td>
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<td>Josh Stinnett</td>
<td>Health Sciences</td>
<td>Ranjan Chakraborty</td>
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<td>The Chelation of Metal Ions by the Siderophore Vicibactin</td>
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<td>Westley Ongtengco</td>
<td>Health Sciences</td>
<td>Gregory Ordway</td>
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<td>Modeling the White Matter Pathology of Major Depressive Disorder Using Rats Exposed to Social Defeat and Chronic Unpredictable Stress</td>
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<td>11:20 am</td>
<td>Ahmed Elgazzar</td>
<td>Health Sciences</td>
<td>Allan Forsman</td>
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<td>The Effects of Simulated Spaceflight Conditions on the Myometrium of the Mouse Uterus</td>
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<td>Saul Garcia</td>
<td>Biochemistry</td>
<td>Aleksey Vasiliev</td>
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<td>Supercacid Catalysts of Aromatic Alkylation</td>
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*Natlania Paul, Senior  
ACS Chemistry: Michael Kruppa  
Isolation and Analysis of an Inhibitor of Neisseria Gonorrhoeae  
There is an emerging threat of Neisseria gonorrhoeae strains that are resistant to all antibiotics. In this study we describe the isolation and partial characterization of a potential inhibitor secreted by the opportunistic fungus, Candida albicans.

Amelia Pearson, Senior  
Biology: Lee Vampolsky  
Diurnal Variation in the Thermal Tolerance of Locally Adapted Genotypes of Daphnia Magna  
The discovery that melatonin follows a daily cycle of synthesis in Daphnia begs the question: could melatonin be implicated in thermal tolerance variation? Experiments performed show that thermal tolerance follows a similar diurnal cycle as melatonin.

Shawn Quilliams, Junior  
Art & Design: Christian Reiben  
In The Holler  
My work deals with leaving my Appalachian hometown in hopes of finding a more accepting community of individuals and my experiences getting there. I see the world through a queer lens, so I am trying to depict my gay Appalachian experience. I use figures, nature imagery, and sometimes supernatural elements in my work to convey this theme.

Mykala Reynolds, Senior  
Communication Studies: Andrew Herrmann  
Miracle of Life My Ass: A Study of Gender and Pregnancy Discourse in Wynonna Earp  
This presentation explores the discourse surrounding gender and pregnancy and their portrayals in media, then applies those findings to perform an analysis of the critically acclaimed Syfy television series Wynonna Earp.

Aimee Robinson, Senior  
English: Robert Sawyer  
Feminist Shakespeare and Gender Bending: From the Globe to the Golden Globes  
In Shakespeare's plays, some female characters, such as Viola and Portia, cross-dress as men and can be viewed as feminist characters. The influence of these characters can be seen in 90s and early 2000s TV shows and films as a feminist trope.

Amber Rookstool, Senior  
English: Mark Baumgartner  
Magical Realism and Fairy-Tale Genre: An Analysis of Fairy-Tale Archetypes and Metaphors in Aimee Bender's Short Stories  
Aimee Bender creates a new realm of literary magical realism using fairy-tale archetypes and metaphors. I explore the historical development of magical realism and define the term by fairy-tale characteristics in two of her short fiction collections.
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<tr>
<td>8:05 am</td>
<td>Noah Lyons Synthesis of 1,2,4-Oxadiazolidin-5-one Derivatives as</td>
<td>Chemistry</td>
<td>Abbas Shilabin</td>
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<td>Potential β-lactamase Inhibitors</td>
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<td>8:20 am</td>
<td>Jessa Murphy Anti-Neoplastic Activity of Structurally Similar Flavonoids on Human Colon and Pancreatic Cancer Cells</td>
<td>*ACS Chemistry and Biology</td>
<td>Victoria Palau</td>
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<td>8:45 am</td>
<td>Charles Waldroff Geomorphological Stream Ecology Frameworks and How They Are Useful, But Fail to Provide an Accurate Prediction of Stream Macroinvertebrate Populations</td>
<td>Biology</td>
<td>Joseph Bidwell</td>
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<td>9:10 am</td>
<td>Ryan Burgess Confocal microscopic visualization of eGFP-tagged Tomato SABP2</td>
<td>Biology</td>
<td>Dhirendra Kumar</td>
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<td>9:35 am</td>
<td>Baylea Davenport Characterization of an SABP2 interacting protein: SIP355</td>
<td>Biology</td>
<td>Dhirendra Kumar</td>
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<td>9:50 am</td>
<td>Steven Dirmeyer Cellar Spider Rhythmicity</td>
<td>Biology</td>
<td>Thomas Jones</td>
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**Break**

10:20 am | Amber Hanson Influence of hydric condition on skeletal development in a turtle (Red-eared Slider, Trachemys scripta) | Biology | Rebecca Pyles |

**Session:**

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<tr>
<td>10:45 am</td>
<td>Laura Moffatt Histological observations of the chorioallantoic membrane of the turtle, Trachemys scripta elegans</td>
<td>Biology</td>
<td>James Stewart</td>
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<td>11:10 am</td>
<td>Cheril Patel Understanding Variation in Heterospecific Pollen Transfer Effects Among Species: The Effect of Donor and Recipient Species</td>
<td>Biology</td>
<td>Gerardo Arceo-Gomez</td>
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<td>11:35 pm</td>
<td>Amelia Pearson Diurnal variation in the thermal tolerance of locally adapted genotypes of Daphnia magna</td>
<td>Biology</td>
<td>Lev Yampolsky</td>
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*American Chemical Society*
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<tr>
<td>1:30 pm</td>
<td>Robert Gunnin</td>
<td>Geosciences</td>
<td>Blaine Schubert</td>
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<td><em>A new genus of desmognathan salamander (Plethodontidae) from the early Pliocene Gray Fossil Site of Northeast Tennessee</em></td>
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<td>1:45 pm</td>
<td>Natania Paul <em>ACS Chemistry</em></td>
<td>Michael Kruppa</td>
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<td>Isolation and Analysis of an Inhibitor of Neisseria gonorrhoeae</td>
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<td>2:10 pm</td>
<td>Pearl McCuistion</td>
<td>Biology</td>
<td>Cerrone Foster</td>
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<td>The Role of the ATM gene in Cardiovascular Myopathy</td>
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<td>2:25 pm</td>
<td>Harper Baldwin</td>
<td>Chemistry</td>
<td>Catherine McCusker</td>
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<td>The Synthesis and Characterization of Chromium(III) Sensitizers for Oxidative Photochemistry</td>
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<td>2:50 pm</td>
<td>Tristan Onek</td>
<td>Computing</td>
<td>Brian Bennett</td>
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<td>A Recommender System Model for Social Matching Problems</td>
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<td>3:05 pm - 3:10 pm</td>
<td><strong>Break</strong></td>
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<td>3:10 pm</td>
<td>Elizabeth Brackins</td>
<td>Accountancy</td>
<td>Michelle Freeman</td>
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<td>A Study of The Effectiveness of Ethics Instruction to Accounting Students at East Tennessee State University</td>
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<td>3:35 pm</td>
<td>Sanjeev Das</td>
<td>Health Sciences</td>
<td>Dhirendra Kumar</td>
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<td>Subcellular Localization of Tobacco SABP2 under Normal and Stress Conditions</td>
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<td>4:00 pm</td>
<td>Dylan Foster</td>
<td>Health Sciences</td>
<td>Sean Fox</td>
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<td>Developing a C. elegans Co-infection Model for Assessing Bacterial-Fungal Interactions</td>
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<td>4:25 pm</td>
<td>Seth Jewett</td>
<td>Health Sciences</td>
<td>Sean Fox</td>
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<td>Characterizing a novel compound from Klebsiella that inhibits other bacterial members of the highly drug-resistant Enterobacteriaceae family</td>
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<td>Greta Trogen <em>ACS Chemistry</em></td>
<td>Jonathan Peterson</td>
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<td>Circulating Oligomeric State and Circadian Rhythm Regulation of CTRP3</td>
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*American Chemical Society*
Noah Lyons, Junior  
Chemistry: Abbas Shilabin  
**Synthesis of 1,2,4-Oxadiazolidin-5-one Derivatives as Potential β-λactamase Inhibitors**  
The synthesis of 1,2,4-oxadiazolidin-5-ones is this lab’s attempt to create a novel inhibitor of β-lactamase enzymes. The compounds are synthesized by using nitrones and isocyanate. The inhibitory activity was measured via an enzyme kinetics assay.

James Maines, Senior  
Theatre and English: Herb Parker  
**My Journey as an Actor: From the States to Abroad**  
This thesis will focus on my journey as an actor. From when I transitioned out of the military, studying at ETSU, my time and experiences while studying and learning acting abroad, and culminate with my thoughts and goals for my future.

Seth Manning, Junior  
Political Science/Public Health: Andrew Battista  
** Factionalism in the Democratic Party 1936-1964**  
This thesis aims to explain how the Northern liberal faction came to defeat the Southern conservatives in the Democratic Party through a multi-faceted approach examining organizations, strategy, and arenas of competition of each faction.

Elizabeth Mathis, Senior  
Economics: Doug Dotterweich  
**Poverty in Argentina**  
The topic of this paper is poverty in Argentina and determining what policies can be put in place to help influence the poverty rate through targeting of variables, such as the unemployment rate, that relate to the findings in this research.

Sarah Mawhinney, Junior  
English: Scott Honeycutt  
**Mountaintop Removal's Appalachian Consequences: Correlating Environmental and Community Effects Between Young Adult Fiction and Appalachia**  
Mountaintop removal (MTR) occurs in Appalachia as a means to extract coal. By examining three young adult novels that feature MTR, readers discover how each novel accurately reflects the real environmental and community effects of coal mining.

Pearl McCuistion, Junior  
Biology: Cerrone Foster  
**The Role of the ATM gene in Cardiovascular Myopathy**  
Diabetes is now listed as a risk factor for heart disease. Mutations in the ATM gene predispose individuals to insulin resistance and heart disease. We investigated changes in cardiac structure and function in diabetic mice missing the ATM gene.

Robert McMahan, Senior  
Art & Design: Kelly Porter  
**Positive Gaming**  
This work is about the positive capabilities of video games. Showing positive facts and illustrations to show the viewer how positive video games can be for them.
Room 130 Afternoon Session
Social Sciences

<table>
<thead>
<tr>
<th>Time</th>
<th>Student/Presentation Title</th>
<th>Department</th>
<th>Advisor</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Kayla Heineken</td>
<td>Child Psychology</td>
<td>Diana Morelen</td>
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<td></td>
<td>Mindfulness and Religiosity/Spirituality as Protective Factors for Internalizing Symptoms Associated with Adverse Childhood Experiences</td>
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<td>1:55 pm</td>
<td>Zachary Hughes</td>
<td>Communication Studies</td>
<td>Kelly Dorgan</td>
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<td>Exploring Perceptions of Leadership Created Through Communication: A Qualitative Study about Generation 2 College Students</td>
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<td>Stephanie Alu</td>
<td>Health Science</td>
<td>Julia Dodd</td>
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<td>Self-Rated Health, Healthcare Satisfaction, Healthcare Adherence, and Medical Mistrust: The Moderating Role of Rurality</td>
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<td>Coercive and Deceptive Predictors of Sexual Risk: The Moderating Role of Self-esteem</td>
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<td>3:10 pm</td>
<td>Kaelyn Bishop</td>
<td>Psychology</td>
<td>Andrea Clements</td>
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<td>Trauma-Informed Care: Implementation Efforts in Northeast Tennessee</td>
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<td>3:35 pm - 3:45 pm</td>
<td>Break</td>
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<td>3:45 pm</td>
<td>Candice Seymour</td>
<td>Clinical Psychology</td>
<td>Kelly Moore</td>
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<td>Affect intensity, drug motivations, and polysubstance use</td>
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<td>4:00 pm</td>
<td>Mariacristina Canini</td>
<td>Psychology</td>
<td>Eric Sellers</td>
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<td>Investigating the EEG Error-Related Negativity in College Students with ADHD, Anxiety, and Depression</td>
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<td>4:15 pm</td>
<td>Caroline Drury</td>
<td>Anthropology</td>
<td>Melissa Schrift</td>
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<td>The Function of Internet Memes in Helping EMS Personnel Cope with Stress and Burnout</td>
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<td>4:30 pm</td>
<td>Caroline Millsaps, Caylee King</td>
<td>Communication Studies</td>
<td>Kelly Dorgan</td>
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<td>A Literature Review: How Understanding the Definition, Symptoms, and Risk Factors of Miscarriage Can Normalize This Phenomenon</td>
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<td>4:45 pm</td>
<td>Abigail Daugherty, Brianna Steffey</td>
<td>Physical Education-Exercise Science</td>
<td>Brandi Eveland-Sayers</td>
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<td>BMI, Perceived Physical ability and School Engagement in Elementary School Children</td>
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Seth Jewett, Junior
Health Sciences: Sean Fox
Characterizing a Novel Compound from Klebsiella that Inhibits Other Bacterial Members of the Highly Drug-Resistant Enterobacteriaceae Family
Antibiotic resistance and limited new antibiotics pose crucial obstacles for human health. Our laboratory has detected a bacterially-secreted protein with antimicrobial properties that requires characterization for potential health use.

Bethany Jewett, Senior
Mathematics: Michele-Jagner
Investigation of Optimal Dosing Strategies for Ertapenem Using Mathematical Modeling
Previous research suggests that the efficacy of Ertapenem, a carbapenem antibiotic administered intravenously, is related to a patient’s distribution of fat. Using mathematical modeling, we propose optimal dosing strategies for varying BMIs.

Lea Karnes, Senior
Exercise Science: Cara Harker
Purgatory
I am presenting my solo work from my Dance Composition class this semester. The piece is about being stuck in one place and wanting to get out but not being able to until you’ve paid your dues.

Nikole Kerns, Senior
Computer Science: Michael Garrett
Finding the Intrinsic Value of Algorithmic Thinking and its Effect on the Expectancy for Success in General Academic Achievement Task for Middle-School
The literature shows that increased ability in computational thinking correlates with significant educational outcomes. This study hypothesizes, given this experience of thinking, students would be more likely to find intrinsic value in academics.

Caylee King, Senior
Communication Studies: Kelly Dorgan
A Literature Review: How Understanding the Definition, Symptoms, and Risk Factors of Miscarriage Can Normalize This Phenomenon
In Fall, 2018, a team of students conducted a systematic review of existing literature to identify major symptoms and risk factors associated with miscarriages with the goal of designing, developing and implementing an online health intervention.

Morgan Labelle, Senior
Nutrition: Cara Harker
Wave: A Dance Composition and Performance
An exploratory dance performance comparing the concept of a wave to personal life experiences and self discovery. Just as wind, friction, and the sun all work together to create powerful waves; the joy and pain we experience develop who we are.

Bryan Lumb, Junior
Media & Communications: Cara Harker
Footlight Improv
The Footlight Improv group is a subsection of the Patchwork Players who focus on teaching and performing improv games for entertainment and to continue learning the craft of improvisation.
### Room 120 Afternoon Session

**Arts & Humanities**

<table>
<thead>
<tr>
<th>Time</th>
<th>Student/Presentation Title</th>
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<tr>
<td>1:30 pm</td>
<td><strong>Julie Hartung</strong></td>
<td>Anthropology and Comm. Studies</td>
<td>Laughton Messmer</td>
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<td><em>Speech is Power: The Importance of Parliamentary Debate</em></td>
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<td>1:45 pm</td>
<td><strong>Heidi Armstrong</strong></td>
<td>Communication Studies</td>
<td>Wesley Buerkle</td>
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<td><em>Guilt and Redemption: A Burkean Analysis of Body Positive Rhetoric</em></td>
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<td><strong>Gracyn Brandon</strong></td>
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<td><strong>Max Faust, Heidi Armstrong</strong></td>
<td>Communication Studies</td>
<td>Wesley Buerkle</td>
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<td><em>Perpetuating Shame. Period.</em></td>
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<tr>
<td>2:30 pm</td>
<td><strong>Clarissa Nunez, Jessica Barron</strong></td>
<td>Communication Studies</td>
<td>Wesley Buerkle</td>
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<td><em>Objectification of Women in the Hip Hop Industry</em></td>
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<td>2:45 pm</td>
<td><strong>Mykala Reynolds</strong></td>
<td>Communication Studies</td>
<td>Andrew Herrmann</td>
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<td><em>“Miracle of Life My Ass”: A Study of Gender and Pregnancy Discourse in Wynonna Earp</em></td>
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<td>3:15 pm</td>
<td><strong>Jessica Dunker</strong></td>
<td>English</td>
<td>Phyllis Thompson</td>
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<td><em>Juicy Blame and Margaret Atwood: Feminism, Female Bodies, and the Social Implications of Gender Identity</em></td>
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<td>3:40 pm</td>
<td><strong>Claire Alfonso</strong></td>
<td>English</td>
<td>Martha Michieka</td>
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<td><em>Power of Religious Signage in the Southern Appalachian Linguistic Landscape</em></td>
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<td>4:15 pm</td>
<td><strong>Aimee Robinson</strong></td>
<td>English</td>
<td>Robert Sawyer</td>
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<td><em>Feminist Shakespeare and Gender Believing: From the Globe to the Golden Globes</em></td>
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<td>4:45 pm</td>
<td><strong>Tyler Hicks</strong></td>
<td>Graphic Design</td>
<td>Kelly Porter</td>
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<td><em>Digital Detox - Screen Time Reduction App</em></td>
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**Break**

3:10 pm - 3:15 pm
Claire Alfonso, Sophomore  
ROOM 120/3:40 pm  
English: Martha Michieka  
Power of Religious Signage in the Southern Appalachian Linguistic Landscape  
With photos of signs from the Southern Appalachian area, this paper presents the language methods of the religious signage and the powers that it takes on in the role of shaping our personal and general experiences within society.

Julianna Alley, Senior  
AUD 137B/3:30 pm  
Psychology: Gerald Deehan  
Conditioned Flavor Cues Associated with Alcohol-Drinking During Adolescence/Early Adulthood  
Affect Cue-Induced Alcohol-Seeking Later in Adulthood.  
This study examined the association of flavor cues paired with alcohol (EtOH) in adolescence on cue-induced EtOH-seeking in adulthood. The data suggest the associations formed during adolescence may contribute to EtOH-seeking behavior later in life.

Stephanie Alu, Senior  
ROOM 130/2:20 pm  
Health Science: Julia Dodd  
Self-Rated Health, Healthcare Satisfaction, Healthcare Adherence, and Medical Mistrust: The Moderating Role of Rurality  
This study examines the moderating effect of rurality on three factors of healthcare. Self-rated health is a significant predictor of healthcare satisfaction and healthcare adherence, but not medical mistrust. Rurality is a nonsignificant moderator.

Heidi Armstrong, Senior  
ROOM 120/1:45 pm  
Communication Studies: Wesley Buerkle  
Guilt and Redemption: A Burkean Analysis of Body Positive Rhetoric  
With diet culture, photoshop, and cosmetic surgery, it is no surprise that women have body issues. Using Burkean’s redemptive analysis, I explore how four body activists share their journeys of shame and learn to love their bodies despite it all.

Heidi Armstrong, Senior  
ROOM 120/2:15 pm  
Communication Studies: Wesley Buerkle  
Perpetuating Shame. Period.  
Learn about how tampon ads perpetuate the shame of women’s bodies in a fun video. Then we’ll address how we made our academic research on the topic into a more accessible format. After all, what’s the point of research if no one ever sees it?

Saul Garcia, Sophomore  
ROOM 130/11:45 pm  
Biochemistry: Aleksy Vasilev  
Superacidic Catalysts of Aromatic Alkylation  
Superacidic mesoporous catalysts with covalently embedded phosphotungstic acid were synthesized by sol-gel method. The most active catalyst demonstrated better performance in the synthesis of linear alkylbenzenes than zeolites.

Robert Gunnin, Sophomore  
AUD 137A/1:30 pm  
Geosciences: Blaine Schubert  
A New Genus of Desmognathus Salamander (Plethodontidae) from the Early Pliocene Gray Fossil Site of Northeast Tennessee  
We describe salamander fossils from the Gray Fossil Site to a new genus and species that belongs to the group containing dusky salamanders. The fossil is similar to a living genus and reveals a more complex evolutionary history for dusky salamanders.

Lia Hall, Senior  
AUD 137A/10:15 am  
English: Thomas Holmes  
Object Poetry: Critical and Creative Perspectives  
Simply stated, the term object poetry seems self-explanatory, but object poems break down into three categories: concrete, personal story, and group object poems. By making these distinctions, we can observe the different qualities of each.

Emily Hammes, Senior  
ROOM 120/8:45 am  
Mathematics: Anant Godbole  
Unification of Pythagorean Triple Schema  
Euclid’s Method of finding Pythagorean triples is a commonly accepted technique. This study focuses on other methods behind finding Pythagorean triples. Specifically, we discover if other ways of finding triples are special cases of Euclid’s Method.

Amber Hanson, Senior  
ROOM 120/10:20 am  
Biology: Rebecca Pyles  
Influence of Hydric Condition on Skeletal Development in a Turtle (Red-Eared Slider, Trachemys Scripta)  
Water is an important factor influencing calcium availability during embryonic development in egg-laying reptiles. This study experimentally tested how water condition affects skeletal development, as observed in hatching turtles.

Julie Hartung, Sophomore  
ROOM 120/1:30 pm  
Anthropology and Communication Studies: Laughton Messmer  
Speech is Power: The Importance of Parliamentary Debate  
This presentation is about the parliamentary style of debate, from its format, key terms, and common practices to the importance of informed, respectful debate in developing speaking skills, furthering knowledge, and gaining understanding.
This thesis uncovers a summary of the feminist movement and how authors Judy Blume and Margaret Atwood contribute to feminism through their advocacy for girls and women’s rights.

Ahmed Elgazzar, Senior
Health Sciences: Allan Forsman
The Effects of Simulated Spaceflight Conditions on the Myometrium of the Mouse Uterus
In order to investigate the effects of spaceflight on the female reproductive system, uterine smooth muscle, or the myometrium, was analyzed in female mice after exposure to a simulated spaceflight environment.

Madisen Evans, Senior
Theatre: Patrick Cronin
All-Female Hamlet
Analyzing gender and stereotypes through a semester of work as a female Hamlet. Performance of Hamlet’s first monologue, with talk back to follow.

Jeremy Fahn
MILLENIUM LOBBY
Rainforest on Franklin
Laser cut paper. Rainforest on franklin is a conceptual take on a mini golf course in the downtown area of Johnson City. It includes brand identity and advertising, and was designed to solve the tri-cities’ lack of acceptable mini golf courses.

Max Faust, Junior
Communication Studies: Wesley Buerkle
Perpetuating Shame. Period.
Learn about how tampon ads perpetuate the shame of women’s bodies in a fun video. Then we’ll address how we made our academic research on the topic into a more accessible format. After all, what’s the point of research if no one ever sees it?

Dylan Foster, Senior
Health Sciences: Sean Fox
Developing a C. elegans Co-infection Model for Assessing Bacterial-Fungal Interactions
The Candida genus causes infections in humans and other species, and we have attempted to show that non-pathogenic Alcaligenes species can be used to improve the survival rate of C. elegans nematodes through the usage of co-infection liquid assays.

Grace Fulghum, Senior
Theatre: Cara Harker
After You Get What You Want You Don’t Want It
A vocal performance, originally presented in From the Sublime to the Ridiculous at the New Orleans Fringe Festival.

Emily Assenmacher, English
English: David Jones
Understanding Women’s Domestic Space in White-Trash Gothic: An In-Depth Analysis of William Faulkner’s “Sanctuary” and Dorothy Allison’s “Bastard Out of Carolina.”
This presentation offers an in-depth analysis of the “white-trash” Southern Gothic genre by recognizing the Gothic archetype of patriarchal violence and class boundaries over women’s bodies and domestic space.

Harper Baldwin, Senior
Chemistry: Catherine McCuskey
The Synthesis and Characterization of Chromium(III) Sensitizers for Oxidative Photochemistry
My research focuses on the synthesis and analysis of novel photosensitizers that can be used in oxidative photochemical reactions. A light absorbing ligand is synthesized and attached to a novel chromium compound.

Grace Ballard, Senior
Biology: Cara Harker
Trainwreck
This is a dance duet choreographed in our Dance Composition Class this Spring, exploring the themes of struggle and survival that we experience. It is also a testament to how we lean on others in times of self-doubt and insecurity.

Morgan Barker, Senior
Psychology: Julia Dodd
Coercive and Deceptive Predictors of Sexual Risk: The Moderating Role of Self-esteem
This study examined experiences of sexual risk coercion and deception as predictors of sexual risk behaviors. Sexual infidelity and fear of condom request significantly predicted number of sexual partners.

Jessica Barron, Junior
Communication Studies: Wesley Buerkle
Objectification of Women in the Hip Hop Industry
The hip hop industry often portrays women of color objectively in music videos. With a radical feminist approach of Fantasy Theme analysis, we analyzed three music videos aiming to highlight the ways in which women of color are depicted.

Malikai Bass, Junior
Human Services: Scott Honeycutt
Boys Like Me: Neurodivergence in the Young Adult Novel
Books shape our definition of the world; including, how we conceive, others, and even ourselves. This study explores the representation of neurodivergent characters within young adult novels through the lens of neurodiversity.

Kaelyn Bishop, Senior
Psychology: Andrea Clements
Trauma-Informed Care: Implementation Efforts in Northeast Tennessee
Despite the prevalence of trauma and its association with poor life outcomes, it is not being acknowledged by many organizations. We examined service providers’ knowledge and the usage of trauma informed care by service provider type of organization.
Helpless

Helpless is a body of work that shows abuses and trauma through the use of mythological creatures in an illustrated narrative, based around the theory of disassociative disorder and helping victims better understand and process their trauma.

Elizabeth Brackins, Senior
Accountancy: Michelle Freeman
A Study of the Effectiveness of Ethics Instruction to Accounting Students at East Tennessee State University
The purpose of this project is to analyze the effectiveness of the ethics instruction at East Tennessee State University through the analysis of surveys conducted in undergraduate and graduate accounting classes.

Levi Bradford, Junior
Theatre: Cara Harker
Footlight Improv
The Footlight Improv group is a subsection of the Patchwork Players who focus on teaching and performing improv games for entertainment and to continue learning the craft of improvisation.

Gracyn Brandon, Senior
Communication Studies: Kelly Dorgan
From Communication Major to Communication Practitioner: Lessons from an In-Field Experience
I will be taking a reflexive approach to exploring my transition from “student” role to communication “professional” during my Spring 2019 internship at Northeast Tennessee Regional Economic Partnership.

Ryan Burgess, Senior
Biology: Dhirendra Kumar
Confocal Microscopic Visualization of Egfp-Tagged Tomato Sabp2
Confocal microscopic visualization of EGFP-tagged Tomato SABP2 (salicylic acid binding protein 2) protein transiently expressed in Nicotiana benthamiana leaves to determine the localization of expression in the cell.

Mariacristina Canini, Senior
Psychology: Eric Sellers
Investigating the EEG Error-Related Negativity in College Students with ADHD, Anxiety, and Depression
The effect of anxiety, depression, and ADHD on ERN amplitude was investigated. The ERN amplitude for error responses was significantly higher than for correct responses. Error responses produced a large P300 component of the event-related potential.

Kendra Carter, Senior
English: Joshua Reid
Necessity Rather than Influence: The Use of Satirical Elements by Dante Alighieri and Geoffrey Chaucer as a Result of the Social Conditions during the Middle Ages
My thesis compares the modes of satire utilized by Dante in the Divine Comedy and Chaucer in the Canterbury Tales, and considers the direct and indirect historical and religious influencers which impacted each author’s satirical style.

Rachel Crabtree, Senior
Exercise Science: Cara Harker
Identity: An Expression of Life Through Dance
Identity: An Expression of Life through Dance is a creative thesis that describes my journey of self-discovery. I, alongside Carsen Whitlock, Grace Ballard, and Kate Trabalka, performed Identity on the evening of November 16th, 2018.

Michaela Daniels, Senior
Business Management: Charles Gorman
Regulatory Focus Within the Generational Cohorts
The topic of this paper is an examination of differences in regulatory focus between generational cohorts.

Sanjeev Das, Senior
Health Sciences: Dhirendra Kumar
Subcellular Localization of Tobacco SABP2 under Normal and Stress Conditions
Confocal microscopic studies were performed to determine the subcellular localization of eGFP-tagged recombinant tobacco SABP2 in Nicotiana benthamiana leaves under biotic stress.

Abigail Daugherty, Senior
Psychology: Brandi Eveland-Sayers
BMI, Perceived Physical ability and School Engagement in Elementary School Children
Students, grades 3-5, completed instruments assessing perceived physical ability and school engagement. No significant relationships were found or differences noted for categories of BMI. The culture and focus of the school may explain this.

Baylea Davenport, Senior
Biology: Dhirendra Kumar
Characterization of an SABP2 interacting protein: SIP355
An interacting protein of SABP2 (salicylic acid binding protein 2) has been found to play a role in drought resistance. Further characterization and subcellular localization were done to investigate this protein’s function.

Alex Day, Senior
Biology and Chemistry: Catherine McCusker
Photochemical Reactions with Zinc Dipyrrin Photosensitizers
CO2 reduction photocatalysis is a promising method for dealing with the rising levels of atmospheric CO2. In this presentation, the speaker discusses photochemical reactions of zinc dyes developed by the McCusker research group.

Steven Dirmeyer, Senior
Biology: Thomas Jones
Cellar Spider Rhythmicity
Circadian rhythms are endogenous patterns of behavior corresponding with the 24-hour day. We confirmed that cellar spiders have the same rhythms in webs as in tubes.