



# Scholars Day 2019

## Student Presentations and Exhibitions

Monmouth College  
Huff Athletic Center, Fieldhouse

APRIL 16, 2019



1853

# Poster Presentations

2:00–4:00 P.M. Huff Athletic Center, Fieldhouse

## BIOCHEMISTRY DEPARTMENT

**Alexandria N. Tibbs** [6]

“Synthesis of Lignin Monomers”

## BIOLOGY DEPARTMENT

**Brendan G. Guenther**

**Ashley N. Long**

**Piper N. Miller**

**Jordan M. Peckham**

**Sarah A. Poirier** [34]

“Isolation and Genomic Annotation of Novel Microbacterium Phages Identification of a Putative Tail-Assembly Chaperone Translational Frameshift Sequence”

**Ashley Cuddy** [35 & 36]

“Analyzing the Effects of Deforestation on Biodiversity in Sumatra, Indonesia Using Molecular Methods”

**Abigail L. Danner** [48]

“Do Northern Cardinals Use Non-Visual Cues to Determine the Carotenoid Content of a Potential Food Source?”

**Cheyenne Jane Hacker** [47]

“Antibacterial Activity of Blueberry, Strawberry, and Spinach Extracts on the Microbial Triggers of Select Autoimmune Inflammatory Diseases”

**Alyssa J. Hale** [45]

“Occurrences of Inter-domain Horizontal Gene Transfer”

**Maria Jeleva** [46]

“The Effect of Gregarine Protozoan Parasites on Madagascar Hissing Cockroaches, *Gromphadorhina portentosa*, Treated with Metronidazole”

## CHEMISTRY DEPARTMENT

**Brandon Allen, Andrew S. Ferris** [53]

“A Comparative Study Between Simulated and Experimental Electron Paramagnetic Resonance Data”

**Rachel A. Book, Modou L. Jarju** [52]

“Analysis of a Myelin Sheath Model Membrane System with the Addition of Flavanols Found in *Ginkgo biloba*”

**Emily R. Currans** [51]

“Synthesis of 5-Bromo-benzo[b]naphtho[2,1,d]thiophene S-oxide and its ability to cause oxidative stress in cells”

**Alison E. Gustafson** [50]

“Investigating a New Approach to Nitrogen-Nitrogen Bond Synthesis”

**Jennista E. Eastman,**

**Sobhi Gheath Kazmouz** [60]

“Investigating the Effect of Multiple Interactions on the Dimerization and Oxygen Stability of the Fumarate Nitrated Reductase (FNR) Transcription Factor in *E. coli* Bacteria”

**Logan B. Hoepfner,**

**Jeffrey Ricketts-Hagen** [59]

“Salt Water Aquarium Research and Development”

**Laura Sanchez Zarco** [58]

“Recombinant Expression of Human Cytochrome P450 Enzymes”

**Seth W. Croslow,**

**Kathryn Elizabeth Saulcy** [57]

“Investigating Insulin Monomer and Hexamer Formation with Langmuir Monolayers and Brewster Angle Microscopy”

**Jacob B. McCrery** [56]

“Formation of N-N Bonds as a Tool for Synthesis and Drug Development”

**Eric J. Oliphant** [55]

“Synthesis Of Indirect Antagonists To the Thyroid Hormone Receptor”

**Zelinda A. Taylor** [54]

“Oxidation of Lignin Monomers”

## EDUCATIONAL STUDIES DEPARTMENT

“Teachers Allied with Rural Towns and Neighborhood Schools (TARTANS)”

**McKenzie R. Campbell** [9]

**Courtney E. Eklund** [10]

**Ashley E. Farris** [11]

**Aleeka C. Gentzler** [12]

**Kylee R. Payne** [24]

**Elizabeth G. Reasoner** [23]

**Nathan P. Schroeder** [22]

**Joshua P. Talley** [21]

## MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT

**Colton A. Evans** [30]

“Comparison of The Lagrange Form of the Interpolating Polynomial and Natural Cubic Splines”

**Alyssa J. Hale** [44]

“Numerical Analysis and Adaptation of the Hodgkin and Huxley Model of Neuronal Action Potential”

**Abhi Karan Singh Jouhal** [33]

“Improving Debugging of Parallel Code with Trylocks”

**Ashley Maurer** [17]

“How point addition within elliptic curve groups enhances the security of cryptocurrencies”

**Nathaniel Dalton Smolczyk** [31]

“The Plane Symmetry Groups: Modifying Symmetry Structure with Linear Transformations”

**Nathaniel Dalton Smolczyk** [32]

“Visualizing Foundational Algorithms Using Core Web Technologies”

### **PHILOSOPHY AND RELIGIOUS STUDIES DEPARTMENT**

**Julia N. Wilson** [13]

“Restorative Justice: A New Approach to Incarceration”

### **PHYSICS DEPARTMENT**

**Morgan A. Abraham** [39]

“Applications of Nuclear Agriculture: Using the N-15 Isotope as a Tracer”

**Noah J. Applegate** [38]

“Digital Agriculture: An Application of Physics in the Field”

**Bridgette C. Davey** [37]

“Replicating the Franck-Hertz Experiment”

**Colton A. Evans** [29]

“Explanation of Orbital Elements and Gauss’ Method”

**Esther S. Hubbard** [28]

“Atmospheric Neutrons”

**Peter J. Johnston** [27]

“Operation of programmable camera and its uses in physics research”

**Daniel Ramirez** [26]

“Aquatic Drone”

**Maggie Seefeldt-Swanson** [25]

“Advanced Studies of Transistors”

### **POLITICAL ECONOMY AND COMMERCE DEPARTMENT**

**Savannah Taylor Ball** [40]

“Econometric Analysis of the Effect of Higher Education on Unemployment”

**Jude Hamadeh** [41]

“The effects of Social Media Usage and Gender on Body Shaming”

**Caitlyn C. Honan** [42]

“Modeling Healthcare Costs”

**Ian S. Moles** [43]

“Modeling Net Gross Potential Rent Income With Apartments”

**Tara Linh Sturgeon** [49]

“Modeling House Prices in the Chicagoland Area”

### **POLITICAL SCIENCE DEPARTMENT**

**Jessica E. Acosta** [18]

“The Invisible Refugee: Comparing the integration process amongst refugees in Amman, Jordan”

**Mackenzi Lafferty** [8]

“The Pink Tax: The Persistence of Consumer Price Disparity”

**Zoe Meyer-Thomas** [7]

“Terrorist Attacks in Sudan and Their Impacts on Civilian Religion and Governmental Trust”

**William L. Savage** [19]

“The effects of big money in politics”

**Beatrix R. Thornton** [20]

“The Bulldozer Revolution: Lessons from Serbia Peacefully ousting Milosevic”

### **PSYCHOLOGY DEPARTMENT**

**Paige A. Gerard** [15]

“Psychiatric Patient Care In US Emergency Departments”

**Andrew Todd Hardy** [14]

“Exercise and Mood”

**Ashlyn Rose Maher** [16]

“A Replication Study: The Relationship of Narrative Tone and Depression”

### **THEATRE DEPARTMENT**

“Classical Theatre History”

**Amelia Chavez:** Isabella Andreini [1]

**Richard W. Eyre:** Sophocles [2]

**Terry L. Harris:** Kalidasa [3]

**Noah R. Harshbarger:** Christopher Marlowe [4]

**Molly C. Wintermute:** Moliere [5]

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# Oral Presentation

3:00 P.M. Huff Athletic Center, Hall of Fame Room

## GLOBAL FOOD SECURITY

“Taranga: Predicting the Future of Food Security in Senegal”

**Elizabeth C. Smith**

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## Exhibitions

2:00–4:00 P.M. Huff Athletic Center, Fieldhouse

### ART DEPARTMENT

#### Award Recipients:

Lobie Stone Fine Arts Scholarship: **Emily DeWitt** [A]

Harlow Bloom Painting Prize: **Ethan Olson** [B]

Jane Graham Most Promising Art Work Award and

Helen McClure Weiland Scholarship in the Arts: **Miranda Pasky** [C]

Helen McClure Weiland Scholarship in the Arts: **Rebecca Quick** [D]

Walterhausen Sculpture Prize: **Nia Robertson** [E]

“Ceramic Glaze Experimentation and Ceramic 3-Dimensional Printing” [TABLES 9-10]

**Ryan Dawson Olivia Howey Rebecca Quick**

### CHEMISTRY DEPARTMENT

“Immersive Experience on Andros Island, Bahamas: January Term 2019” [TABLE 1]

**Samuel M. Argubright**

**Emily E. Rein**

**Josie K. Welker**

**Rachel A. Book**

**Tara L. Sturgeon**

**Jacob E. Wenokur**

**William B. Fox**

**Zelinda A. Taylor**

“I-TASSER Protein Folding Project” [TABLES 2-4]

**Brandon Allen**

**Rachel A. Book**

**Kathryn E. Saulcy**

**Attilio J. Angellotti**

**Seth W. Croslow**

**Zelinda A. Taylor**

**Logan B. Hoepfner**

“Development of Microscope Systems for the Visualization of Langmuir Films” [TABLE 5]

**Brandon Allen**

“Investigation into flow dynamics” [TABLE 6]

**Samuel M. Argubright**

“The Modeling and Development of 3D Printable Prosthetics” [TABLE 7]

**Maxwell E. Balagna**

**William B. Fox**

### MIDWEST JOURNAL OF UNDERGRADUATE RESEARCH

**Savannah T. Ball**

**Lily M. Lindner**

**Luna Noofoory**

**Logan W. Evans**

**Ashlyn R. Maher**

**Hadley A. Smithhisler**

**Sobhi G. Kazmouz**

**Zoe Meyer-Thomas**

**Shannon M. Wilbourne**

**Gunnar S. Leaf**

**Grant E. Miller**

**Hunter L. Wollwert**