

# EURēCA 2017 Event

## 2017 Event Results

The 21st Exhibition of Undergraduate Research and Creative Achievement (EURēCA) took place April 17-21, 2017 in Hodges Library. Students from across the university entered their undergraduate research, senior design projects, clinical projects, and creative achievements for judging. Over 450 students presented 333 projects. 99 projects received recognition at the EURēCA Awards night.

Each undergraduate college selects and awards their top students. College awards ranged from first place to honorable mention. The top students in each area received ORE Gold, Silver, and Bronze Awards for Undergraduate Research funded by the Office of Research and Engagement. These awards are presented across research areas and highlight the best of the best in undergraduate research and creative achievement on our campus. In nine categories, students were awarded 17 gold, 15 silver and 10 bronze awards. These Awards of Excellence provide prizes in the following amounts: \$300 for gold awards, \$200 for silver awards, and \$100 for bronze awards.

Four additional university-wide awards were presented.

This was the first year of the Discovery Living and Learning Community, a partnership with the UT Libraries and Housing. Students at any level are welcome in the community, with this year's group consisting of mostly freshmen and sophomores. The LLC has a unique awards category for those students who chose to present at EURēCA. **Madison Petermann, Codi Drake, Tyler Newsom, Sierra Swanson** and **Camron Midgette** received the Discovery LLC Undergraduate Research Award certificate and prize.

The UT Chapter of Sigma Xi presented three awards to undergraduate researchers who showed professional promise in research. These awards included a one-year Associate Membership to Sigma Xi. The awards went to **Jeremiah Holt** in the Life Sciences category, **Lauren Finney** in the Physical Sciences and Engineering category, and **Jessica Layton** in the category of Agricultural Sciences and Natural Resources.

Phi Kappa Phi, the nation's oldest, largest, and most selective honor society for all academic disciplines, presented awards to three of the top EURēCA entries. Award winners were the team of **Rachel Elbon** and **Adam Smith** from the College of Architecture and Design, **Tory Frankel** from the College of Education, Health, and Human Sciences, and **Adaya Troyer** from the College of Nursing. The William Franklin Harris III Undergraduate Research Award is named for a former Vice Chancellor of Research and highlights a student for innovation and excellence in research. The winner of the William Franklin Harris III Undergraduate Award for 2017 was **Louis Varriano** from the College of Arts & Sciences.

**17 Gold ORE Undergraduate Research Excellence Awards**

| <b>Student Name</b>                                        | <b>Project Title</b>                                                                      | <b>Faculty Mentor</b> | <b>Category</b>                                      |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------|
| Rachel Christiane Elbon, Adam Jesse Smith                  | Urban Quarter Organics                                                                    | Stevens, Kevin        | College of Architecture and Design                   |
| Erika Rene Knowles                                         | Tolstoy, Shklovsky, and the Image of Creativity in Nabokov                                | Blackwell, Stephen    | College of Arts and Sciences- Humanities             |
| Charles Earles                                             | Rural Kenyans' views on healthcare, nutrition, and foreign medical providers              | Baldwin, Debora       | College of Arts and Sciences- Social Sciences        |
| Katie Danielle Scott                                       | HPV Vaccination Receptivity: How Provider Messaging Influences Patient Receptivity        | Violanti, Michelle    | College of Communication and Information             |
| Tory Danielle Frankel                                      | Effects of Zyflamend Treatment on Adipogenesis                                            | Bettaieb, Ahmed       | College of Education, Health, and Human Sciences     |
| Sarah Ann Mihealsick, Molly Ann Faust, Samuel James Deford | Strategies of Vaccination Promotion Methods in School-Aged Children                       | Thompson, Kathleen    | College of Nursing- Evidence Based Practice Projects |
| Adaya Alexandra Troyer                                     | Preschool Children: What they know about asthma and how they learn                        | Wyatt, Tami           | College of Nursing- Research Studies                 |
| Lauren Scott Mohler                                        | Impact of New Policy Requirement on Individuals in the Intellectually Disabled Population | Choi, Sunha           | College of Social Work                               |
| Taylor Leighann King                                       | reINVENT the Way You Think About Recycling                                                | Gras, David Michael   | Haslam College of Business-Business Plan             |

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|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------|
| Elizabeth R Schofield                   | Target Marketing: the Generational Differences                                                                                            | Schumann, David         | Haslam College of Business-Research Studies            |
| Alex Ring<br>Gray, Wesley<br>James Fowl | Interactive Learning: The Sounds of “Bonne Chance”                                                                                        | Staples, Carolyn        | School of Art, College of Arts & Sciences              |
| Jeremiah Ray Holt                       | Genetic and molecular characterization of Arabidopsis thaliana eukaryotic initiation factor (eIF)2 <sup>±</sup>                           | Vonarnim, Albrecht      | College of Arts & Sciences – Cell & Molecular Biology  |
| Emily Jean Miller                       | TMM as a GPI-Anchored Protein in Stomatal Formation                                                                                       | Shpak, Elena            | College of Arts & Sciences – Cell & Molecular Biology  |
| Jessica Slade Layton                    | Bigger targets are easier to hit: facile chloroplast genome transformation in Nicotiana tabacum cv. Petit Havana with giant chloroplasts. | Frazier-Douglas, Taylor | College of Agricultural Sciences and Natural Resources |
| James Michael Ghawaly                   | Design of a Subcritical Fast Neutron Source for UTNE                                                                                      | Hines, Wes              | Tickle College of Engineering                          |
| Lauren Ashley Finney                    | Tungsten Deposition Analysis Using Inductively Coupled Plasma Mass Spectrometry                                                           | Donovan, David          | Tickle College of Engineering                          |
| Zachary Reid Bingham, Matthew T Herald  | Trajectory Distortions Associated with Positron Emission Particle Tracking                                                                | Ruggles, Arthur         | Tickle College of Engineering                          |

### 15 Silver ORE Undergraduate Research Excellence Awards

| Student Name                                                                 | Project Title                           | Faculty Mentor | Category                           |
|------------------------------------------------------------------------------|-----------------------------------------|----------------|------------------------------------|
| Graham Colton<br>Taylor, Joshua<br>Alexander<br>Murray, Casey<br>David Myers | TVA Headquarters: Poetics of Constraint | Rose, James    | College of Architecture and Design |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------|
| Gretchen Lorena Roberts, Carly Ann Chwat, Peter Lawrence Ignacio, Victoria Gail Vanmaaren, Stephanie Kride Daniels, Madeline Birch Auge, Janet Elaine Schwartz-Micheaux | Influence of College Pen Pal Program on Fourth Grade Writing Attitudes                    | McCurdy, Merilee   | College of Arts and Sciences-Humanities             |
| Johanna Grace Lohman                                                                                                                                                    | The Role of Statistics in Infant Word Learning                                            | Hay, Jessica       | College of Arts and Sciences- Social Sciences       |
| Brenna Brigid O'Malley                                                                                                                                                  | Soluble epoxide hydrolase inhibitor t-TUCB promotes brown adipogenesis                    | Zhao, Ling         | College of Education, Health, and Human Sciences    |
| Briana Kymari McIntyre, Savannah Camille Clay, Valeria Sanabria-Sugarman                                                                                                | Yoga and its Impact on Stress and Anxiety                                                 | Thompson, Kathleen | College of Nursing-Evidence Based Practice Projects |
| Emeri Kaitlin Allan                                                                                                                                                     | Assessing the impact of animal-assisted interventions on patients in the clinical setting | Elliott, Lizanne   | College of Nursing-Research Studies                 |
| Abagail Morgan Booher                                                                                                                                                   | Substance Abuse in Rural Communities and its Connection to The Child Welfare System       | Choi, Sunha        | College of Social Work                              |
| Abigail Mary Rozanski                                                                                                                                                   | Corporate Political Activity, CEO Hubris, and Earnings Management                         | Chyz, James        | Haslam College of Business                          |
| Laurel Kathryn Tyree                                                                                                                                                    | The Impact of The White Helmets In Syria                                                  | Staples, Carolyn   | Haslam College of Business                          |

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|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------|
| Abigail Amina Edwards                                                          | Evidence for the priming effect in single strains and simplified communities of estuarine bacteria                                            | Buchan, Alison      | College of Arts and Sciences- Ecology & Evolutionary Biology |
| Madeline M Davis                                                               | Intracellular Transport: The Role of Class XI Myosins in Organelle Movement and Root Hair Growth in <i>Arabidopsis thaliana</i>               | Nebenfuehr, Andreas | College of Arts and Sciences- Cell & Molecular Biology       |
| Lynsey D. Jones                                                                | BG-4, a novel bioactive peptide from <i>Momordica charantia</i> , inhibits lipopolysaccharide-induced inflammation in THP-1 human macrophages | Dia, Vermont        | College of Agricultural Sciences and Natural Resources       |
| Justin Robert Kilmarx                                                          | Object Manipulation in a Brain-Machine Interface Robotic Platform                                                                             | Zhao, Xiaopeng      | Tickle College of Engineering                                |
| Jesse Ashby Johnson                                                            | Discovery of New Ternary Compounds and Scintillators of the A4BX6 Family                                                                      | Melcher, Chuck      | Tickle College of Engineering                                |
| Jake Allen Childs, Jarrod Kenderick Nachtrab, Austin Conley, Jason S. Seinfeld | A Drill Guide Stabilization System for Acromioclavicular Reconstruction Surgery                                                               | Reinbolt, Jeff      | Tickle College of Engineering                                |

**10 Bronze ORE Undergraduate Research Excellence Awards**

| <b>Student Name</b>                                                                   | <b>Project Title</b>                                                                              | <b>Faculty Mentor</b>    | <b>Category</b>                                             |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------|
| Makenna Breann Wood                                                                   | The Oasis                                                                                         | Teston, Liz              | College of Architecture and Design                          |
| Amanda Leigh Letsinger, Madalyn Leigh Burke, Jessie Lynn O'Rear, Rachel Lauren Newton | Transmission of Infection associated with Healthcare Providers Stethoscopes                       | Thompson, Kathleen       | College of Nursing-Evidence Based Practice Projects         |
| Whitney Lynn Stone                                                                    | Recreated Culturally Acceptable Advance Directive for Persons Experiencing Homelessness           | Mixer, Sandy             | College of Nursing - Research Studies                       |
| Denise Elizabeth Harris                                                               | Factors that Influence Job Satisfaction for Child Welfare Case Workers                            | Choi, Sunha              | College of Social Work                                      |
| Laura Elizabeth Hirt                                                                  | Does Increased Globalization Improve Citizens Quality of Life?                                    | Holladay, James          | Haslam College of Business                                  |
| Taylor Elizabeth Tieche                                                               | GIS Accuracy Assessment of Forested Wetland Predictive Model for TVA                              | Li, Yingkui              | College of Arts & Sciences – Ecology & Evolutionary Biology |
| David Byrne Moore, Jerry Clint Shannon                                                | Then and Now : Long-Term Land Use Change Impact Bobwhites                                         | Washington-Allen, Robert | College of Arts & Sciences – Ecology & Evolutionary Biology |
| Luke Thomas Martin                                                                    | Evaluation of foldable tractor roll-over protective structures (ROPS) clearance                   | Ayers, Paul              | College of Agricultural Sciences and Natural Resources      |
| Jacob Edward Cooper                                                                   | Structural stability of REE-PO4 (REE=Sm,Tb) under static pressure and swift heavy ion irradiation | Lang, Maik               | Tickle College of Engineering                               |
| Joshua James Gurka                                                                    | Characterization of Surrogate Alloys for Special Nuclear Material Forensic Applications           | Auxier II, John          | Tickle College of Engineering                               |







## Discovery LLC Awards



| Student Name      | Project Title                                                                                                              | Faculty Mentor      | Category                                   |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------|
| Camron Middgette  | Using an open field to measure the effects of choline on adolescent stress                                                 | Kalynn, Schulz      | Discovery LLC Undergraduate Research Award |
| Sierra Swanson    | Observing Ant Grooming and Allogrooming Behaviors                                                                          | Kwit, Charles       | Discovery LLC Undergraduate Research Award |
| Madison Petermann | Choline Association with Adolescent Stress in Rodents                                                                      | Schulz, Kalynn      | Discovery LLC Undergraduate Research Award |
| Codi Drake        | The development of physical structural dynamic models                                                                      | Wierschem, Nicholas | Discovery LLC Undergraduate Research Award |
| Tyler Newsom      | Characterization of Void Distribution in hand layup Composite Patches using Automated Processing of Microstructure Imaging | TerMaath, Stephanie | Discovery LLC Undergraduate Research Award |

## College Winners

### College of Agricultural and Natural Resources



| Student Name                                                                             | Project Title                                                                    | Faculty Mentor         | Place             |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------|-------------------|
| Garrett Thomas<br>Froula, David<br>Brice Gilliam,<br>Madison Rhett<br>Brummitt           | The EZ-Lift: A Mechanical<br>Lift-Assist for Rollover<br>Protection Structures   | Ayers, Paul            | Honorable Mention |
| Andrew Whitaker,<br>Jacob Eric Parker,<br>Rachael Anne<br>Beaver, Andrew<br>Wilson Lynch | Design of a Mobile<br>Biochar Unit for<br>On-site Conversion of<br>Waste Biomass | Abdoulmoumine,<br>Nour | Honorable Mention |

## College of Architecture and Design



| Student Name                          | Project Title                                                                               | Faculty Mentor         | Place       |
|---------------------------------------|---------------------------------------------------------------------------------------------|------------------------|-------------|
| Margaret Ellen<br>Marie House         | Identity of Scatter                                                                         | Stuth, Tricia          | Honor Award |
| Michael Steven<br>Lidwin, Rachel List | Investigating Terracotta<br>Cladding – An Analysis of<br>the Bechtler Museum’s<br>Enclosure | Goeritz,<br>Hansjoerg  | Honor Award |
| Elizabeth Ott                         | Vessels of Relief                                                                           | Moir-Mcclean,<br>Tracy | Honor Award |

## College of Arts & Sciences



| Student Name                                                           | Project Title                                                                                              | Faculty Mentor  | Place                          |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------|
| Ashley Victoria Campbell                                               | Effects of Social Status on Responses to Social Defeat Stress in Female Syrian Hamsters                    | Cooper, Matthew | First Place-Neuroscience       |
| Emily Southida Kounlavong, Taylor Payne, Katherine West, Roxanne Puleo | Surface Enhanced Raman Spectroscopic Detection of Neurotransmitters                                        | Sharma, Bhavya  | First Place-Neuroscience       |
| Amanda Lynn Maxie                                                      | Choline as a Mitigating Factor of Stress Induced Spatial Memory Decline in the Developing Adolescent Brain | Schulz, Kalynn  | First Place-Neuroscience       |
| Kimberly Summer Bress                                                  | Stress and Social Dominance: Cellular Mechanisms in the Ventral Hippocampus                                | Cooper, Matthew | Honorable Mention-Neuroscience |

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| Sarah Grace<br>Grace Lebovitz                                                                                                                                                                         | Circadian Rhythms in<br>Matrix Metalloproteinase-<br>2/9 Proteolytic Activity in<br>the             | Prosser,<br>Rebecca    | Honorable Mention-<br>Neuroscience    |
| Izabella Nicole Nill<br>Gomez, Ashlee Jo<br>Tannehill                                                                                                                                                 | Investigating fine motor<br>behavior in female mouse<br>model of Rett Syndrome                      | Krishnan,<br>Keerthi   | Honorable Mention-<br>Neuroscience    |
| Charles Earles                                                                                                                                                                                        | Rural Kenyans views on<br>healthcare, nutrition, and<br>foreign medical providers                   | Baldwin, Debora        | First Place, Social<br>Sciences       |
| Johanna Grace<br>Lohman                                                                                                                                                                               | The Role of Statistics in<br>Infant Word Learning                                                   | Hay, Jessica<br>Sari   | First Place, Social<br>Sciences       |
| Pete Michael<br>Cates                                                                                                                                                                                 | Indigenous Rhetorics in<br>Quebec's Education<br>System                                             | King, Lisa<br>Michelle | First Place, Social<br>Sciences       |
| Chesnea A Skeen                                                                                                                                                                                       | Tornado Watch and<br>Warning Understanding in<br>Tennessee Counties                                 | Ellis, Kelsey          | Honorable Mention,<br>Social Sciences |
| Hannah Gabrielle<br>Mitchell                                                                                                                                                                          | The Effect of Being<br>Overweight on ER Positive<br>Breast Cancer                                   | Roberson,<br>Patricia  | Honorable Mention,<br>Social Sciences |
| Darcy A Ayers                                                                                                                                                                                         | Validating Geospatial<br>Analysis with Community<br>Risk Perception Survey in<br>Big Island, Hawaii | Swamy, Raja<br>Harish  | Honorable Mention,<br>Social Sciences |
| Gretchen Lorena<br>Roberts, Carly<br>Ann Chwat, Peter<br>Lawrence Ignacio,<br>Victoria Gail<br>Vanmaaren,<br>Stephanie Kride<br>Daniels, Madeline<br>Birch Auge, Janet<br>Elaine Schwartz-<br>Michaux | Influence of College Pen<br>Pal Program on Fourth<br>Grade Writing Attitudes                        | McCurdy,<br>Merilee    | First Place,<br>Humanities            |
| Erika Rene<br>Knowles                                                                                                                                                                                 | Tolstoy, Shklovsky, and<br>the Image of Creativity in<br>Nabokov                                    | Blackwell,<br>Stephen  | First Place,<br>Humanities            |

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|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------|
| Savannah Dixon,<br>Simone Yates,<br>Kelsey Waterson | The History of Mayan Resilience as Seen in the Indigenous Language, Particularly K'iche'                                                                                              | Gimmel, Millie           | First Place-Humanities                             |
| Tiffany Cantrell                                    | Did UT's college girls participate in the Rampant Culture of Prostitution in Knoxville in the 1950s? A Look at the Economic and Social causes of "Pickup Dating" among College Girls. | Sacco, Lynn              | Honorable Mention, Humanities                      |
| Matthew Douglas Scott                               | Seroprevalence of T. gondii infection in the Knoxville Zoo                                                                                                                            | Su, Chunlei              | First Place, Ecology and Evolutionary Biology      |
| Taylor Elizabeth Tieche                             | GIS Accuracy Assessment of Forested Wetland Predictive Model for TVA                                                                                                                  | Li, Yingkui              | First Place, Ecology and Evolutionary Biology      |
| Abigail Amina Edwards                               | Evidence for the priming effect in single strains and simplified communities of estuarine bacteria                                                                                    | Buchan, Alison           | First Place, Ecology and Evolutionary Biology      |
| Jenna Rae Davis                                     | Comparison of Field Sampled Trends of US Dryland NPP to Spatially Extensive Satellite Data                                                                                            | Washington-Allen, Robert | Honorable Mention – Ecology & Evolutionary Biology |
| Robert Seth Wood                                    | Assessing Microfossil Taphonomy With High-Resolution Imagery                                                                                                                          | Kah, Linda               | Honorable Mention – Ecology & Evolutionary Biology |
| Hung Quoc Luong                                     | The Effect of Environmental Gradients on Populus Angustifolia Growth Traits                                                                                                           | Schweitzer, Jennifer     | Honorable Mention – Ecology & Evolutionary Biology |
| Jeremiah Ray Holt                                   | Genetic and molecular characterization of Arabidopsis thaliana eukaryotic initiation factor (eIF)2 $\pm$                                                                              | Vonarnim, Albrecht       | First Place, Cellular and Molecular Biology        |
| Emily Jean Miller                                   | TMM as a GPI-Anchored Protein in Stomatal Formation                                                                                                                                   | Shpak, Elena             | First Place, Cellular and Molecular Biology        |

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|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------|
| Avery N Sukienik                       | Prevention of healthcare-associated infections through daily patient bathing with chlorhexidine gluconate                          | Nebenfuehr, Andreas | First Place, Cellular and Molecular Biology       |
| Clayton H Nunn                         | Sub-cellular Localization of Arabidopsis thaliana NIP2;1 Major Intrinsic Protein, and its Effects on Hypoxia Induced Survivability | Roberts, Daniel     | Honorable Mention, Cellular and Molecular Biology |
| Nekiaya L Elam                         | Virus-Induced Gene Silencing of TAT1 in Nicotiana benthamiana                                                                      | Burch-Smith, Tessa  | Honorable Mention, Cellular and Molecular Biology |
| Carloyn R. Ware                        | Interactions of Trehalose with Model Folate Compounds                                                                              | Howell, Elizabeth   | Honorable Mention, Cellular and Molecular Biology |
| Esther Heewon Choo                     | The presence of various spinal joint diseases and its correlations to age and sex                                                  | Steadman, Dawnie    | Honorable Mention, Cellular and Molecular Biology |
| Jerry Clint Shannon, David Byrne Moore | Improved sinkhole detection and mapping for Knox County, TN with LiDAR data                                                        | Li, Yingkui         | First Place-Physical Sciences                     |

## School of Art, College of Arts & Sciences



| Student Name                                | Project Title                                                                        | Faculty Mentor       | Place                       |
|---------------------------------------------|--------------------------------------------------------------------------------------|----------------------|-----------------------------|
| Joseph Grant Barbour                        | Bubble Boy and His Rooms                                                             | Murphy-Price, Althea | First Place-<br>Studio Art  |
| Rachel Gorman                               | Visualizing the Stigma of Mental Illness                                             | Staples, Carolyn     | First Place-<br>Design      |
| Elise Camille Stephens                      | Creative Collaboration: Exploring the Aesthetics of Bridging Music and Art with Code | Variego, Jorge       | Second Place-<br>Studio Art |
| Sierra Renee Plese                          | Visualization of Research on Homeless Veterans                                       | Staples, Carolyn     | Second Place-<br>Design     |
| Margaret Jane Moore, Jordan Katherine Beets | Sneaker Popularity Study                                                             | Staples, Carolyn     | Third Place-<br>Design      |
| Adelaide E Davis, Cameron Spooner           | Normalizing Disability Through Design                                                | Staples, Carolyn     | Third Place-<br>Design      |

### School of Music, College of Arts & Sciences

| Student Name                     | Project Title                                             | Faculty Mentor                  | Place  |
|----------------------------------|-----------------------------------------------------------|---------------------------------|--------|
| Brianna Terry,<br>Alto Saxophone | Improvisation et Caprice<br>(Andy Akiho)                  | Allison Adams                   | First  |
| Meghan Mays,<br>Soprano          | Dearest Mama-The Ballad<br>of Baby Doe (Douglas<br>Moore) | Marjorie<br>Bennett<br>Stephens | Second |
| Natalie Gregg,<br>Flute          | Sonata Apassionata (Sigfrid<br>Karg-Elert)                | Shelley Binder                  | Third  |

### Haslam College of Business



| Student Name     | Project Title                                                                           | Faculty Mentor | Place             |
|------------------|-----------------------------------------------------------------------------------------|----------------|-------------------|
| Adam Clay Miller | The Feasibility and Impact<br>of Autonomous<br>Technology on<br>Transportation Networks | Holcomb, Mary  | Honorable Mention |

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|--------------------------|----------------------------------------------------------------------------------------------------------|-------------------|-------------------|
| Mary Margaret Mobley     | Head Over Heels: Women in Supply Chain Management                                                        | Mollenkopf, Diane | Honorable Mention |
| Samantha Nicole Steichen | Is Changing Your Layout Worth The Payout? The Impact of Office Layout on Employee Wellness and Reactions | Munyon, Tim       | Honorable Mention |

### College of Education, Health, and Human Sciences



| Student Name           | Project Title                                                                                                                        | Faculty Mentor     | Place        |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------|
| Lucas Forrest Sheridan | Using an Online Survey Distribution Platform to Conduct Ecological Momentary Assessment of Exercise Antecedents: A Feasibility Study | Strohacker, Kelley | First Place  |
| Beverly M Samples      | 2DG Decreases Butyrate's Ability to Function as an HDAC Inhibitor in Colon Cancer Cells                                              | Donohoe, Dallas    | Second Place |

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|----------------------|------------------------------------------------------------------------------------------------|-----------------|-------------------|
| Dexter Lee Puckett   | Improved glycemic control in mice with specific deletion of Pyruvate kinase M2 in the pancreas | Bettaieb, Ahmed | Honorable Mention |
| Kathleen Ann Mcinnis | Experiences of female high-school head coaches                                                 | Dzikus, Lars    | Honorable Mention |

## College of Engineering



| Student Name                           | Project Title                                                                   | Faculty Mentor  | Place                  |
|----------------------------------------|---------------------------------------------------------------------------------|-----------------|------------------------|
| Lauren Ashley Finney                   | Tungsten Deposition Analysis Using Inductively Coupled Plasma Mass Spectrometry | Donovan, David  | First Place, Research  |
| James Michael Ghawaly                  | Design of a Subcritical Fast Neutron Source for UTNE                            | Hines, Wes      | First Place, Design    |
| Zachary Reid Bingham, Matthew T Herald | Trajectory Distortions Associated with Positron Emission Particle Tracking      | Ruggles, Arthur | Second Place, Research |

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| Jake Allen Childs<br>Jason S. Seinfeld,<br>Austin Conley,<br>Jarrod Kenderick<br>Nachtrab                                                 | A Drill Guide Stabilization<br>System for<br>Acromioclavicular<br>Reconstruction Surgery                                                                                   | Reinbolt, Jeff           | Second Place,<br>Design        |
| Jesse Ashby<br>Johnson                                                                                                                    | Discovery of New Ternary<br>Compounds and<br>Scintillators of the A4BX6<br>Family                                                                                          | Melcher,<br>Chuck        | Third Place,<br>Research       |
| Eleanor Paige<br>Comer, Zane<br>Garrett Wallen,<br>Thomas Wayne<br>Smith, Cameron T<br>Ubben,<br>Stephen Barush,<br>Cal Joseph<br>Fosseen | Comprehensive Modeling of<br>Holdup Deposits for Internal<br>and External Piping<br>Measurement Systems                                                                    | Walford,<br>Graham       | Third Place, Design            |
| Justin Robert<br>Kilmarx                                                                                                                  | Object Manipulation in a<br>Brain-Machine Interface<br>Robotic Platform                                                                                                    | Zhao,<br>Xiaopeng        | Honorable Mention-<br>Research |
| Joshua James<br>Gurka                                                                                                                     | Characterization of<br>Surrogate Alloys for Special<br>Nuclear Material Forensic<br>Applications                                                                           | Auxier II, John<br>David | Honorable Mention-<br>Research |
| Jacob Edward<br>Cooper                                                                                                                    | Structural stability of REE-<br>PO4 (REE=Sm,Tb) under<br>static pressure and swift<br>heavy ion irradiation                                                                | Lang, Maik               | Honorable Mention-<br>Research |
| William C Hoskins                                                                                                                         | Friction Hydro Pillar<br>Processing of Graphitized<br>Carbon Steel Components                                                                                              | Lundin, Carl             | Honorable Mention-<br>Research |
| Tyler James<br>Newsom                                                                                                                     | Characterization of Void<br>Distribution in hand layup<br>Composite Patches using<br>Automated Processing of<br>Microstructure Imaging                                     | TerMaath,<br>Stephanie   | Honorable Mention-<br>Research |
| Igor Maximovich<br>Gushev                                                                                                                 | Study of temperature effect<br>on cation inversion in<br>MgAl <sub>2</sub> O <sub>4</sub> and NiAl <sub>2</sub> O <sub>4</sub><br>spinel using neutron total<br>scattering | Lang, Maik               | Honorable Mention-<br>Research |

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| Sabrina Emerson<br>Amy Schwerzler | Sol-Gel Synthesis and<br>Cation Doping of<br>Ca <sub>12</sub> Al <sub>14</sub> O <sub>33</sub> Nanocages | Rawn,<br>Claudia | Honorable Mention-<br>Research |
| Morgan Jenkins                    | Development of<br>Experimental Database of<br>Steel-Concrete Composite<br>Columns                        | Denavit, Mark    | Honorable Mention-<br>Research |

### College of Nursing



| Student Name                                                                                | Project Title                                                          | Faculty Mentor        | Place                                                     |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------|
| Morgan Brooke<br>Vantrease                                                                  | The Effects of Cuddling in<br>Neonatal Abstinence<br>Syndrome          | Chyka, Deb            | Honorable Mention-<br>Research Studies                    |
| Lauren Ashley<br>Whited, Tori Renee<br>Richardson, Haley E<br>Wilder, Kaitlyn Lee<br>Wright | Effects of Music Therapy<br>in Minimizing Depression<br>in the Elderly | Thompson,<br>Kathleen | Honorable Mention-<br>Evidence Based<br>Practice Projects |

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| Rachel E Poppert,<br>Benjamin Aaron<br>Vanderford,<br>Cassandra Jayne<br>Williams                                | A Comparison of<br>Alternative Therapies for<br>the treatment of Opioid<br>Addiction                                                 | Thompson,<br>Kathleen | Honorable Mention-<br><br>Evidence Based<br>Practice Projects |
| Sloan Taylor<br>Bennett, Robert<br>Darold Land, Isabel<br>Elise Cartwright,<br>Elizabeth<br>Alice Jenner         | Compliance with Personal<br>Protective Equipment                                                                                     | Thompson,<br>Kathleen | Honorable Mention-<br><br>Evidence Based<br>Practice Projects |
| Lauren Taylor Bolek,<br>Lauren Marie Lovell,<br>Su Mei Chin, Sara<br>Church                                      | Self-care strategies for<br>nurses: Relaxation and<br>meditation techniques for<br>stress reduction and the<br>prevention of burnout | Thompson,<br>Kathleen | Honorable Mention-<br><br>Evidence Based<br>Practice Projects |
| Shauna Lynn Sells,<br>Tawayne Jodie<br>Tucker, Samantha<br>Jade Driskell,<br>Suzanne R Johnson<br>Kaitlyn Wright | Prevention of healthcare-<br>associated infections<br>through daily patient<br>bathing with chlorhexidine<br>gluconate               | Thompson,<br>Kathleen | Honorable Mention-<br><br>Evidence Based<br>Practice Projects |
|                                                                                                                  | Effects of Music Therapy<br>in Minimizing Depression<br>in the Elderly                                                               | Thompson,<br>Kathleen | Honorable Mention,<br>Evidence Based<br>Practice Projects     |

## College of Social Work



| Student Name          | Project Title                                                                              | Faculty Mentor | Place        |
|-----------------------|--------------------------------------------------------------------------------------------|----------------|--------------|
| Lauren Scott Mohler   | Impact of New Policys Requirement on Individuals in the Intellectually Disabled Population | Choi, Sunha    | First Place  |
| Abagail Morgan Booher | Substance Abuse in Rural Communities and its Connection to The Child Welfare System        | Choi, Sunha    | Second Place |