



URAC•2018

UNDERGRADUATE RESEARCH & ARTS CELEBRATION

POSTERS PRESENTATIONS,
ORAL SESSIONS, AND PERFORMANCES

WEDNESDAY, APRIL 18, 2018

Sponsored by The Drinko Center for Undergraduate Research



WESTMINSTER COLLEGE

WELCOME FROM THE
DRINKO CENTER FOR UNDERGRADUATE RESEARCH

WELCOME TO URAC 2018!

Westminster College is proud to host the 2018 Undergraduate Research and Arts Celebration. Today, approximately 300 students will present their research and creative projects through oral presentations, poster sessions, films, music and theatre performances, and art displays. Nearly every academic program on campus is represented in the outstanding work being showcased today, and students at all levels, from first years to seniors, will be engaged in the activities.

The Westminster College mission statement includes eight essential outcomes: to reason logically and evaluate critically; to communicate effectively; to think creatively and appreciate aesthetic expressions; to demonstrate intellectual curiosity; to acquire knowledge of self, society, human cultures, the natural world, and human relationships to God; to apply knowledge to contemporary issues; to demonstrate moral and ethical commitments to neighbor, society, and the natural world; and to demonstrate commitment to lifelong learning and the acquisition of skills for careers and responsible service as world citizens. The student work being presented, performed, and displayed today embodies all of these outcomes and is a testament to the value of a Westminster Education.

Our 2018 URAC participants are excited to share their work with the community today. Much of what you will see today is the culmination of years of study or countless hours of rehearsal. For some students, URAC 2018 will be their first formal presentation in college, and for others, participating in URAC 2018 is a final milestone before graduation. We are enormously proud of all of the students sharing their work today.

Today's artists, performers, and scholars were supported in their endeavors by Westminster College faculty, staff, administration, and campus offices, as well as by parents and friends. We would like to thank everyone for providing this support and helping Westminster students to shine. Special thanks go out to the members of the Undergraduate Research Advisory Council, Library and Information Services, and Marketing and Communications. Their efforts made URAC 2018 possible.

We hope you enjoy today's events! Thank you for joining us at the Undergraduate Research and Arts Celebration.

The image shows two handwritten signatures. The top signature is "Karen K. Resendes" and the bottom signature is "Pamela A. Richardson". Both signatures are in cursive ink.

*Karen K. Resendes and Pamela A. Richardson
Co-Directors, Drinko Center for Undergraduate Research*

URAC 2018

#WCURAC

EVENT SCHEDULE

9 AM	COFFEE & PASTRIES <i>Carlson Atrium, 3rd Floor McKelvey</i>
9 - 10 AM	POSTER SESSION A <i>Witherspoon Rooms</i>
9 - 10 AM	PUBLIC SPEECH PERFORMANCES <i>Mueller Theater</i>
9 - 10:55 AM	CONCURRENT STUDENT SPEAKERS SESSION I <i>Patterson Hall</i>
10 - 11 AM	ORAL INTERPRETATIONS OF LITERATURE <i>Mueller Theater</i>
10:30 - 11:30 AM	POSTER SESSION B <i>Witherspoon Rooms</i>
11 - 11:20 AM	THEATRE PERFORMANCE <i>Beeghly Theater</i>
11 AM - 12 PM	ART DISPLAY <i>Carlson Atrium, 3rd Floor McKelvey</i>
11 AM - 1 PM	LIVE MUSICAL PERFORMANCES <i>1st floor McKelvey</i>
11:30 AM - 12:15 PM	VIDEO PRESENTATIONS <i>Mueller Theater</i>
11:30 AM - 12:30 PM	POETRY SLAM <i>Berlin Lounge</i>
12:30 - 1:30 PM	TINY HOUSE TOURS
12:30 - 1:30 PM	POSTER SESSION C <i>Witherspoon Rooms</i>
12:30 - 2 PM	CONCURRENT STUDENT SPEAKERS SESSION II <i>Patterson Hall</i>
1 - 2 PM	TRAVEL MUG <i>Carlson Atrium, 3rd floor McKelvey</i>
1 - 2 PM	GROUP ORAL INTERPRETATION <i>Berlin Lounge</i>
1:30 - 3 PM	VIDEO PRESENTATIONS <i>Mueller Theater</i>
2 - 3 PM	POSTER SESSION D <i>Witherspoon Rooms</i>
2 - 3 PM	ROBOTICS PRESENTATIONS & DEMONSTRATION <i>Hoyt Science Center 290</i>
2 - 3 PM	LIVE MUSICAL PERFORMANCES <i>Wallace Memorial Chapel</i>



POETRY SLAM



DATE // WEDNESDAY, APRIL 18

TIME // 11:30 AM - 12:30 PM

PLACE // BERLIN LOUNGE, MCKELVEY

[FREE COFFEE & BISCOTTI]



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3rd FLOOR MCKELVEY CAMPUS CENTER
1 - 2 p.m. • WEDNESDAY, APRIL 18



WESTMINSTER COLLEGE



TOUR THE TINY HOUSE

TOURS OFFERED: Wednesday, April 18 | 12:30 - 1:30 p.m.



- Meet members of the Tiny House Team
- Learn how the Tiny House Project is being incorporated into the academic curriculum
- See how a unique collaboration between Westminster College and the New Castle School of Trades made the tiny house idea a reality

Share your
#WCURAC
experience!



#WCURAC



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URAC•2018 POSTER PRESENTATIONS

URAC•2018 POSTER PRESENTATIONS

POSTER NUMBER	TITLE	RESEARCHER(S)	FACULTY SPONSOR(S)
SESSION A — 9-10 A.M.			
A1	Offense or Defense: Who Is More Aggressive?	Shamon Walker, Michael Kurtz	Robert Badowski
A2	Articulation of the Skeleton of the Chinese Water Dragon, <i>Physignathus Cocincinus</i>	Stephanie Van Horn, Justin Brandt	John Robertson
A3	The Effects of Aerobic Exercise on Free Memory Recall and Recognition	Bria Braddock	Sandra Webster
A4	American Model United Nations	Marissa Miller, Alexa DeSantes, Alina Clough, Ally Applin, Alyssa Hampton, Andrew Piatt, Brianna Papp, Christian Keegan, Cole Keister, Derek Bakewell, Emily Grimes, Emma Lawson, Erin Keich, Galiana Clark, Hannah Westwood, Ian Ross, Jackson Gastmeyer, Jacob Slapinski, Julie Kerlin, Kaylee Brosius, Kendall Graham, Matthew Causer, Megan Beaulé, Natalie Sperlunto, Samuel Stewart, Sergio Collazo, Seth Zacherl, Shane Fallen, Trevor Arrigoni	Michael Aleprete
A5	The Sierpinski Triangle	Matthew Gurneal	James Anthony
A6	Mahoning County's 1918 Pandemic Influenza Experience	Samuel Hockenberry, Dominic Boston	Carolyn Cuff, Timothy Cuff
A7	Allegheny County Dog Data	Jamie Thompson, Deontay Scott	Carolyn Cuff
A8	Pascal's Triangle and Modular Arithmetic	Casey Spieler	James Anthony
A9	Fractal Modeling and Suppression of <i>Staphylococcus Aureus</i> Biofilm Formation	Olivia Sniezek	Joshua Corrette-Bennett
A10	Seeking Solar in New Wilmington: An EPMA Feasibility Study	Cory Pullen, Akeenen Roberson, Zach Medarac, Olivia Sauserman, Kevin Hart	Helen Boylan
A11	Isolation and Examination of Cartilaginous Ray Skeleton	Alyssa McArthur, Shannon Joy	John Robertson
A12	Candidate Donald Trump's Use of Social Media in the 2016 United States Presidential Election and Its Impact on Western Pennsylvania Voters at Private Colleges	Anne Walther	Suzanne Prestien
A13	Data Analysis of Late-Game NBA Calls	Taran Treb	Carolyn Cuff
A14	Emotional Labor of Restaurant Servers	Nathaniel Best	Kristin Park
A15	Trust the Process: Product Placement from a Public Relations Point-of-View	Rachel Eliser	Suzanne Prestien
A16	The Influence of Music Tempo on Heart Rate in the Human Body	Julia Evans	Sandra Webster

POSTER NUMBER	TITLE	RESEARCHER(S)	FACULTY SPONSOR(S)
A17	College Football Coaches Compared to High School Coaches	Braden Hogue, Jordan Cominos, Carter Lutz	Robert Badowski
A18	Difference between Men and Women at Identifying and Communicating Duchenne Smiles	Cheyenne Shifflet	Sandra Webster
A19	Comparison of Vietnam and World War Two Conscription through Public Reactions in Newspapers	Jazmyn Rohrer	Timothy Cuff
A20	Issues In High School Social Studies: How Students Learn About the Past	Alexa Owrey	Timothy Cuff
A21	Using Perfusion-Decellularization to Prepare the Extracellular Matrix of a Vertebrate Heart	Zachary Fryda, Kiana Kawarizadeh	John Robertson
A22	Limited Carbon Conditions Reduce Ampicillin Resistance in pCR2.1 Transformed E. Coli	Austin Arrigo 	Joseph Balczon

SESSION B — 10:30-11:30 A.M.

B1	Computational Models of Molecular	Jacob Staub	Robert Knop
B2	"Insure your Future:" Changing Millennial Perceptions of Insurance	Patricia Pivaronas	Suzanne Prestien
B3	The Effect of Body Modification on Questions Containing Possible Risk-Factors	Anna Faluszczak	Sandra Webster
B4	Exploring Retinal Blood Vessels through Fractal Dimension	Elaina Chapnell 	James Anthony
B5	A Visual Interpretation of Musical Instruments	Christine Lowers,  Bailey Griffith	James Anthony
B6	An Analysis of Boston Marathon Result	Erin Keich	Carolyn Cuff
B7	Allegheny Car Accidents Data Study	Jonas Kresak, Casey Spieler	Carolyn Cuff
B8	Effective Communication in the Workplace	Erika Wintermantel, Galiana Clark	Robert Badowski
B9	An Analysis of the Use of the Word Feminism in Major U.S. Newspapers During the Women's Liberation Movement in America	Emma Lawson 	Timothy Cuff
B10	Seeking Solar in New Wilmington: An EPMA Feasibility Study	Jennifer Vogel, Allison Rebich, Hunter Ferchaw, Dylan Whitney, Shelby Wood	Helen Boylan
B11	Philanthropic Cartography: Crowdmapping Rural Tanzania with OpenStreetMap (OSM)	Alina Clough	Kristianne Kalata



FIRST-YEAR PRIZE CANDIDATE



LIBRARY INFORMATION TROPHY CANDIDATE

POSTER NUMBER	TITLE	RESEARCHER(S)	FACULTY SPONSOR(S)
B12	Computer Simulations of Galaxy Mergers	Jessica Nelson 	Robert Knop
B13	Making a World of My Own	Andrius Burnelis 	Robert Knop
B14	The Skeletal Staining of the Leopard Frog	Taylor Drzewiecki	John Robertson
B15	Incentives for Motivation and Job Satisfaction in Professors at Private and Public Higher Education Institutions	Ellen Greene, Baffuor Akoto, Luke Murawski	Robert Badowski
B16	Does Stress Relate to Job Satisfaction?	William Madeja, Travis Lauster, Tyler Jeffreys	Robert Badowski
B17	Abolishing the Slave Trade and Slavery for Good: The Transatlantic and Domestic Anti-Slavery Movements	Michaela Marini	Angela Lahr
B18	Investigation of Membrane Binding of α -Synuclein Using Electron Spin Resonance Spectroscopy	Christina Robb 	Jessica Sarver
B19	Electric Utilities and Their Powerful Use of Public Relations	Matthew McDonald	Suzanne Prestien
B20	FDI and Global Welfare	Stephen Barr  	David Offner
B21	Construction of an Inexpensive Raman Spectrometer	Daniel Bogen	Mark Wilson
B22	Pattern Analysis of the 3n+1 Conjecture	Connor Carbonneau	James Anthony

SESSION C — 12:30-1:30 P.M.

C1	Communication versus Conflict	Benjamin Gard, Ernie Burkes, Jake Gard, Jean-Luc Havan	Robert Badowski
C2	Flexible Frogs: An Exploration of Muscle and Tendon Performance in Amphibians	Hunter Ferchaw, April Larrison	John Robertson
C3	Perceptions on Juvenile Rehabilitation	Caitlyn Kreider	Jamie Chapman
C4	Membrane Binding Analysis of Mutant alpha-synuclein	Jarrett Vrabel	Jessica Sarver
C5	Predictors of Attitudes toward the Police in "Steeltown"	Alicia Clark-Williams 	Kristenne Robison
C6	Skeletal Elements of the Dogfish Shark (<i>Squalus acanthias</i>)	Hunter Cox, Courtney Kinkead	John Robertson
C7	Men or Women: Who Gets Paid More?	Richard Flynn, Michael Spencer, Jarrett Dudley	Robert Badowski



FIRST-YEAR PRIZE CANDIDATE



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POSTER NUMBER	TITLE	RESEARCHER(S)	FACULTY SPONSOR(S)
C8	Efferent Mushroom Body Axons Terminate in Lateral Horns of the Harvester Ant Brain	Madison Gallucci 	John Robertson
C9	Body Positivity and Confidence: Aerie's "Aerie Real" Campaign a Real Success	Danielle Grady	Brittany Rowe-Cernevicius
C10	Seeking Solar in New Wilmington: An EPMA Feasibility Study	Ashley Berman, Luke Simmons, Jill Caldwell, Caitlyn Peace, Jamie Thompson	Helen Boylan
C11	Biophysical Characterization of Interactions Between a Uridylated Histone mRNA Degradation Intermediate, SLBP, and 3'hEXO	Sarah Harris	Patrick Lackey
C12	α -Crystallin: A Model of Its Activity After Exposure to UV Light	Tristan Toca	Erin Wilson
C13	Perceptions of the Death Penalty	Nicholas Kerr	Jamie Chapman
C14	The Effects of Tempo on Mood and Working Short-Term Memory	Sydney Kaboly	Sandra Webster
C15	United Airlines Crisis Management	Holly Marshall	Suzanne Prestien
C16	Impact of Methylmercury on Zebrafish Development and Behavior	Erin McLaughlin	Marosh Furimsky
C17	Position Based Satisfaction of Women in the Workplace	Haley Smith, Amber Burrows, Kaitlyn Fast	Robert Badowski
C18	Cultivating Chemistry: Analysis of Cannabinoids in Hemp Products as an Alternative to Cannabis in the Undergraduate Lab Setting	Nathaniel Cavlovic	Helen Boylan
C19	Understanding the Skeletal Components for Locomotion of the Horse	Haley Tammaro, Laura Fox	John Robertson
C20	Quit Monkeying Around with Crisis Management	Nicole Thompson	Suzanne Prestien
C21	Moral Philosophy in Modern Literature: An Examination of the Influence of Ethics on Heroic Convention	Taylor Hertzler 	Kristianne Kalata
C22	Using the Ising Model to Build a Computer Simulation of Ferromagnetism	George Huncik	Robert Knop

SESSION D — 2-3 P.M.

D1	Lighting Design for <i>Eurydice</i>	Carlos Barrett	Christopher Strangfeld
D2	Where do Introverts and Extroverts Sit in the TUB During Lunch?	Alexander Bove, Mackensie Garris, Zach Medarac	Robert Badowski
D3	The Effect of Social Comparison on Reaction Time	Gianna Serignese 	Sandra Webster
D4	College Students' Attitudes toward Prison Conditions and Prisoners' Rights	Alexa DeSantes 	Kristin Park



POSTER NUMBER	TITLE	RESEARCHER(S)	FACULTY SPONSOR(S)
D5	When Are Employees Most Motivated?	Bradley Dickinson, Nathan Rose, Seth Fisher	Robert Badowski
D6	Superparasitizing Parasitoid Wasps (<i>Nasonia vitripennis</i>) Exposed to the Pesticide Thiamethoxam Produce More Females in Their Offspring	Michael DiDomenico 	Ann Throckmorton
D7	The Effects of Incarcerated Parents on Child Development	Bailey Frisco	Jamie Chapman
D8	The Pesticide Malathion Inhibits Growth in Developing Zebrafish	Grant Gagnon 	Marosh Furimsky
D9	Analysis of Trace Metals in Human Hair Using ICP-OES	Lindsay Homan 	Helen Boylan
D10	Seeking Solar in New Wilmington: An EPMA Feasibility Study	Zachary Fryda, Philip Waddell, Brett Steinmiller, Sam Hockenberry, Keely Flynn	Helen Boylan
D11	Extraction Mechanism of Samarium Cobalt Magnets Using Hydrophobic Deep Eutectic Solvents	Jennifer Bickel, Emma Pollock	Peter Smith
D12	Preliminary Tests for Potential Stream Restoration Project	Jessica Grady, Andrew Kearney, Emma Pollock, Rachael Elliott, Erin Ward, Victoria Lisbon, Alexa Yoho	Helen Boylan
D13	Perceptions of Performance Enhancement Drug Use in College Athletics	Jaevon Hardy	Jamie Chapman
D14	Protein Homology Suggests Similarities in Histone mRNA Processing Between Humans and Slime Molds	Stefen Roth	Patrick Lackey
D15	Summer Olympic Medalists	Maggie Monahan	Carolyn Cuff
D16	Do Personality Types Influence Management Style Preferences?	Emma Messett, Shae Cogley	Robert Badowski
D17	Discovering the Learning Perspective of the Incarcerated Female Student: A Qualitative Diary Study	Maximalian Ungerman 	Jamie Chapman
D18	Intramurals at Westminster College: Exploratory Research	Jean-Luc Havan, Taylor Moon, Dylan Wolford	Robert Zullo
D19	The Effects of Idealized Photos from Instagram on Young Women's Body Satisfaction	Meghan Long	Sandra Webster
D20	Nest Box Selection and Nesting Success in American Kestrels (<i>Falco sparverius</i>)	Patrick Allston 	Kerri Duerr



ENVIRONMENTAL PRIZE CANDIDATE



LIBRARY INFORMATION TROPHY CANDIDATE

POSTER NUMBER	TITLE	RESEARCHER(S)	FACULTY SPONSOR(S)
D21	Host Preference of Mosquitoes Collected in Lomas de Barbudal, Costa Rica	Tia Kowalo 	Diana Ortiz
D22	Antibiotic Properties of Brown Bullhead Catfish (<i>Ameiurus Nebulosus</i>) Epidermal and Gill Mucus	David McCollough 	John Robertson
D23	Stress Levels and Job Tier	Mia Magnotti, Nate Piocquidio	Robert Badowski



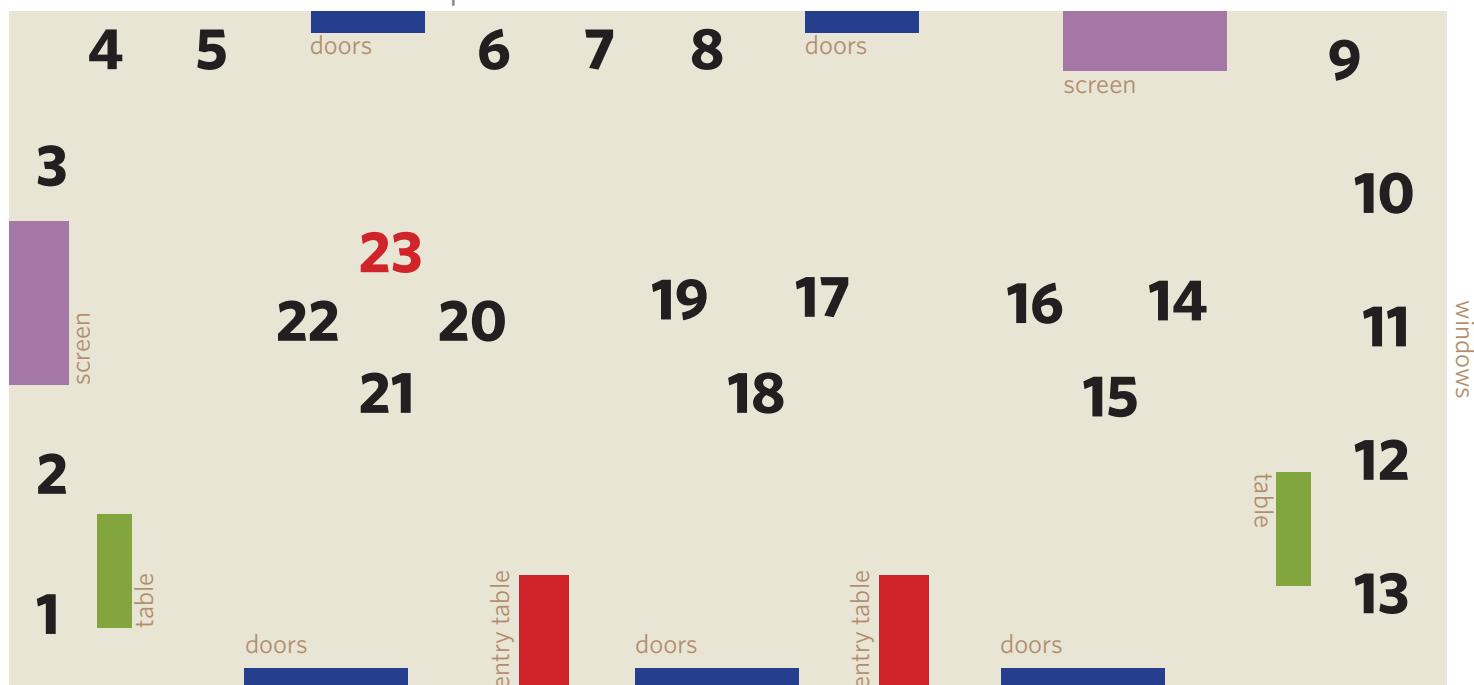
ENVIRONMENTAL PRIZE CANDIDATE



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POSTER LOCATION MAP

WITHERSPOON ROOM | MCKELVEY CAMPUS CENTER



Note: Poster board for 23 is only necessary in session D.

INDEX OF POSTER PRESENTERS

PRESENTER	POSTER #	PRESENTER	POSTER #	PRESENTER	POSTER #
Baffuor Akoto	B15	Jake Gard	C1	Taylor Moon	D18
Patrick Allston	D20	Mackensie Garris	D2	Luke Murawski	B15
Ally Applin	A4	Jackson Gastmeyer	A4	Jessica Nelson	B12
Austin Arrigo	A22	Kendall Graham	A4	Alexa Owrey	A20
Trevor Arrigoni	A4	Danielle Grady	C9	Brianna Papp	A4
Derek Bakewell	A4	Jessica Grady	D12	Caitlyn Peace	C10
Stephen Barr	B20	Ellen Greene	B15	Andrew Piatt	A4
Carlos Barrett	D1	Bailey Griffith	B5	Nate Piocquidio	D23
Megan Beaule	A4	Emily Grimes	A4	Patricia Pivaronas	B2
Ashley Berman	C10	Matthew Gurneal	A5	Emma Pollock	D11, D12
Nathaniel Best	A14	Alyssa Hampton	A4	Cory Pullen	A10
Jennifer Bickel	D11	Jaevon Hardy	D13	Allison Rebich	B10
Daniel Bogen	B21	Sarah Harris	C11	Christina Robb	B18
Dominic Boston	A6	Kevin Hart	A10	Akeenan Roberson	A10
Alexander Bove	D2	Jean-Luc Havan	C1, D18	Jazmyn Rohrer	A19
Bria Braddock	A3	Taylor Hertzler	C21	Nathan Rose	D5
Justin Brandt	A2	Samuel Hockenberry	A6, D10	Ian Ross	A4
Kaylee Brosius	A4	Braden Hogue	A17	Stefen Roth	D14
Ernie Burkes	C1	Lindsay Homan	D9	Olivia Sauserman	A10
Andrius Burnelis	B13	George Huncik	C22	Deontay Scott	A7
Amber Burrows	C17	Tyler Jeffreys	B16	Gianna Serignese	D3
Jill Caldwell	C10	Shannon Joy	A11	Cheyenne Shifflett	A18
Connor Carboneau	B22	Sydney Kaboly	C14	Luke Simmons	C10
Matthew Causer	A4	Kiana Kawarizadeh	C2	Jacob Slapinski	A4
Nathaniel Cavlovic	C18	Andrew Kearney	D12	Haley Smith	C17
Elaina Chapnell	B4	Christian Keegan	A4	Olivia Sniezek	A9
Galiana Clark	A4, B8	Erin Keich	A4, B6	Michael Spencer	C7
Alicia Clark-Williams	C5	Cole Keister	A4	Natalie Sperlunto	A4
Alina Clough	A4, B11	Julie Kerlin	A4	Casey Spieler	A8, B7
Shae Cogley	D16	Nicholas Kerr	C13	Jacob Staub	B1
Sergio Collazo	A4	Courtney Kinhead	C6	Brett Steinmiller	D10
Jordan Cominos	A17	Tia Kowalo	D21	Samuel Stewart	A4
Hunter Cox	C6	Caitlynn Kreider	C3	Hailey Tammaro	C19
Alexa DeSantes	A4, D4	Jonas Kresak	B7	Jamie Thompson	A7, C10
Bradley Dickinson	D5	Michael Kurtz	A1	Nicole Thompson	C20
Michael DiDomenico	D6	April Larrison	C2	Tristan Toca	C12
Jarrett Dudley	C7	Travis Lauster	B16	Taran Treb	A13
Taylor Drzewiecki	B14	Emma Lawson	A4, B9	Maximalian Ungerman	D17
Rachel Eliser	A15	Victoria Lisbon	D12	Stephanie Van Horn	A2
Rachael Elliott	D12	Meghan Long	D19	Jennifer Vogel	B10
Julia Evans	A16	Christine Lowers	B5	Jarret Vrabel	C4
Shane Fallen	A4	Carter Lutz	A17	Philip Waddell	D10
Anna Faluszczak	B3	William Madeja	B16	Shamon Walker	A1
Kaitlyn Fast	C17	Mia Magnotti	D23	Anne Walther	A12
Hunter Ferchaw	B10, C2	Michaela Marini	B17	Erin Ward	D12
Seth Fisher	D5	Holly Marshall	C15	Hannah Westwood	A4
Keely Flynn	D10	Alyssa McArthur	A11	Dylan Whitney	B10
Richard Flynn	C7	David McCollough	D22	Erika Wintermantel	B8
Laura Fox	C19	Matthew McDonald	B19	Dylan Wolford	D18
Bailey Frisco	D7	Erin McLaughlin	C16	Shelby Wood	B10
Zachary Fryda	A21, D10	Zach Medarac	A10, D2	Alexa Yoho	D12
Grant Gagnon	D8	Emma Messett	D16	Seth Zacherl	A4
Madison Gallucci	C8	Marissa Miller	A4		
Benjamin Gard	C1	Maggie Monahan	D15		

URAC•2018 ORAL PRESENTATIONS

Student Presenters and all URAC Attendees:



We want to hear from you!

Complete the URAC experience survey
and be entered for a chance to win a \$25
Sheetz gift card.

<https://www.surveymonkey.com/r/URAC2018>

Survey must be completed by Friday May 4th to be
eligible for prize drawing.



URAC•2018 ORAL PRESENTATIONS

PATTERSON HALL ROOMS 105, 107, 108, 110

	PATTERSON 105	PATTERSON 107	PATTERSON 108	PATTERSON 110
9:00 - 9:15	ADDISON DIETERICH The Impact of Family Structure on Romantic Relationship Perceptions and Traditional Family Roles	ABIGAIL ARRIGO  PCID2 Function in Centrosome Duplication and Localization of BRCA1 and BARD1 to the Centrosome	NICHOLAS CAIAZZA The Math Behind Cryptocurrency	STEPHANIE BELL Cellular Automata and Fractal Clouds
9:25 - 9:40	ALEXIS ARRIGO  Determining the Function of PCID2 in Nuclear Protein Export and BRCA1 and BARD1 Localization	ERIC ADAMS Integration and Administration of Macs in the Westminster College Unix Lab	NICHOLAS CAIAZZA Hash Functions in Intrusion Detection Systems	GLENN VEAHMAN Public Health in Franco Era Spain
9:50 - 10:05	RACHEL MOORE Mathematical Computer Programs for Elementary School Students	ERIC ADAMS Studying the Apollonian Gasket	HANNAH YOUNGWORTH Marginalization of Female Characters in Magical Realism Literary Works from Latin America	ANTONIO TROESE & CONNER WILSON Fractal Patterns in Cryptocurrency Markets
10:15 - 10:30	KATELYNN MORRELL Effects of Forced Limb-Use and Exercise on Motor Recovery of a Rat Model of Parkinson's	ALEXANDER MICHELS Decentralizing the World with Blockchain	KALLEN ECKERT Steampunk, Poetry and Raining Elevators: The Scenic Design and Technical Direction of Sarah Ruhl's <i>Eurydice</i>	N. CANNONE, B. HOGUE, T. MAXWELL, T. NORDBY & P. STITT Intramurals at Westminster College: Exploratory Research
10:40 - 10:55		EMILY CONNELL The Effects of Incentives on Sustained Attention among Adults High and Low in ADHD-like Symptoms	SHANNON JOY Fractal Dimensions in Cancerous Cells	



LIBRARY INFORMATION TROPHY CANDIDATE

PATTERSON HALL ROOMS 205, 207, 208

	PATTERSON 205	PATTERSON 207	PATTERSON 208
9:00 - 9:15	MORGAN KOHLER  The Fictional Realities of Racism and Sexism in Faulkner and Morrison's Novels	NATALEIGH KERR, STEPHEN BARR & DANIEL ZIEGLER Enactus: Social Entrepreneurship in Action	KRISTEN KUBACKA The Effect of Serial Publication on 19th Century French Literacy
9:25 - 9:40	BRIDGET HERLIHY The Effects of Methylphenidate and Azo Food Dyes on Hyperactivity in Male Sprague Dawley Rats	S. JACKSON, A. FAGLEY, A. CARDIGES & A. TROMBETTA Intentional Exposure to Art and the Use of Art Materials Linked to Descriptive Language Skills in Young Children	RACHAEL ELLIOTT An Application of K-Modes Clustering to Institutional Advancement Data
9:50 - 10:05	BRIDGET HERLIHY The Combination of Ethanol and Methylphenidate on Fear Memory in Male Rats	KAELYN PUHALLA The Sales Experience: LeBron James Meets the Titans of Westminster	ALEXANDRIA QUIGLEY On the Way
10:15 - 10:30	TREVOR ARRIGONI Generalizing the Pill Problem	PETER M ^C MASTER The Effects of the Mongol Invasions on Medieval Japan	ASHLEY BERMAN Building an Army of Tiny Men
10:40 - 10:55	TREVOR ARRIGONI On the Structure of Inverse Semigroups of Self-Similar Graph Actions	KELSEY PHILLIPS The Study of the Implementation of Fluency Strategies in a Classroom	



PATTERSON HALL ROOMS 105, 107, 108

	PATTERSON 105	PATTERSON 107	PATTERSON 108
12:30 - 12:45	VANESSA RESTIFO Lessons in Leadership for Student-Run Campus Organizations	KAITLYN KRUG The Effect of Mirroring Movements on Emotion Empathy and Detection	TYLER HEINTZ Finding Unimodular Roots of Complex Polynomials
12:55 - 1:10	TARAN TREB Cellular Automata and Conway's Game of Life	MORGAN WIDINA Reaction Time Advantage: A Comparative Study of Early Training and Duration in Musicians and Athletes	GABRIEL ROMAN & SKYLER HAYES Quaternion Escape Time Fractal
1:20 - 1:35	TESSA ALTMAN  Agnes Grey and Anne Brontë's Fight for Animal Rights	MADISON ORDONEZ Cloning and Expression of Stem Loop and Stem Loop Binding Proteins in Histone mRNA from Dictyostelium Discoideum	KATHERINE SHAW Comparing Attitudes Towards Physically Disabled Individuals in Private and in Public
1:45 - 2:00	MARISSA MILLER  The Homosexual Role of Holden Caulfield	M. ORDONEZ, B. HERLIHY & K. MORRELL  Assessment of Knowledge of Risk and Prevention of Mosquito-Transmitted Disease in the Dominican Republic	ANNA AMSBAUGH  Environmental Policy Convergence: The Impact of Domestic Environmental Movements and Strength of Trade with the European Union



ENVIRONMENTAL PRIZE CANDIDATE



LIBRARY INFORMATION TROPHY CANDIDATE

PATTERSON HALL ROOMS 205, 207, 208

	PATTERSON 205	PATTERSON 207	PATTERSON 208
12:30- 12:45	NICHOLAS CAIAZZA The Symmetry of Flame Fractals	OLIVIA SNIZEK Internship at Magee Women's Research Institute: Variant Annotation Analysis of Whole Exome Sequencing Using Omicia Opal	PATRICIA LOUGHNEY Fractals in Forest Fires
12:55- 1:10	JESSIE POKRANT Spatial Density, Preferences for Orderliness, Extroversion, and Job Satisfaction in the Workplace	AVA HOAG A Glimpse at Space Around Black Holes	SAMUEL HOCKENBERRY & MITCHELL STAHLARA Visualizing Musical Chords Through Fractals
1:20- 1:35	LAURA PAGE How Packaging Design Elements Influence the Way Consumers View Products	AVA HOAG & TYLER HEINTZ Improvements to the Root Finding Algorithm in VBBinaryLensing	JACOB STOYER Flame Fractals
1:45 - 2:00	MEGAN DOUDS The Effects of Prolonged Exposure to Caffeine on Recognition Memory in Rodents	MITCHELL STAHLARA Development of a Cross-Platform Logbook Application	E. KEICH, M. SIMPSON, C. KIMBALL, C. BURNS & B. BOKESCH K'aan Maya



URAC•2018 PERFORMANCES

Register Now for Westminster Summer Courses!

*Get ahead.
Try unique options.
Focus on one course at a time.*



Online:

- BA/ECO 220 Statistics
- BA 325 Management Info Systems
- BC 253/COM 205 Mass Communication (HC)
- CS 151 Principles of Computer Science (QR)
- ECO 150 Economic Reasoning (ST)
- EDU 231 Educational Psychology
- ENG 142 Fantasy, Fairytales, & Folklore (HC)
- HIS 223 African-American History (HC)
- MTH 110 Mathematical Perspectives (QR)
- PS 104 International Politics (ST)
- PSY 101 Introduction to Psychology (ST)
- SOC 101 Principles of Sociology (ST)

On-campus:

- ART 120 Sculpture and Science (VP)
(Co-req. w/ CS 105)
- CS 105 Introduction to Robotics (QR)
(Co-req. w/ ART 120)
- HIS 106 America Since 1865 (HC)
(Cluster w/ THE 101)
- THE 101 Introduction to Theatre (VP)
(Cluster w/ HIS 106)
- SPA 101 Elementary Spanish I

* Housing is available in Berlin Village.



Register for classes at www.westminster.edu/admissions/summer

Sign up for housing at the Student Affairs Office in McKelvey.

URAC•2018 MORE PERFORMANCES & EVENTS

MUSICAL PERFORMANCES

11 - 11:30 a.m. **TITAN BRASS QUINTET** (*1st floor McKelvey*)

Sean Evanick
Nikalas Guadagnino
Helen Kanaitis
Jeanne Barbour
Christen Snyder

11:30 a.m. - 12 p.m. **THE SWEET TREBLES** (*1st floor McKelvey*)

Nicholle Clayton	Kaylee Krug
Samantha Connell	Ashlinn Meechan
Theodora Constantine	Taylor Powell
Lauren Faber	Allison Savage

12:30 - 1 p.m. **WESTMINSTER COLLEGE TRUMPET ENSEMBLE** (*1st floor McKelvey*)

Vincent Buell	Courtney Labritz	Tyler Snodgrass
Sean Evanick	Ian Ollila	
Nikalas Guadagnino	Brianna Richey	
Timothy Hering	Allison Savage	

2 - 2:20 p.m. **VIOLIN PERFORMANCES IN WALLACE MEMORIAL CHAPEL** (*Wallace Memorial Chapel*)

Concerto No. 5 in A Major Mvt. II — Mozart
Ashleigh Nealer, violin

Adagio from the Sonata in D Minor — Brahms
Ashleigh Nealer and Gier Chen, violin

2:25 - 2:55 p.m. **TRUMPET PERFORMANCES IN WALLACE MEMORIAL CHAPEL** (*Wallace Memorial Chapel*)

Sonata No. 2 for Trumpet and Piano — Allen Vizzutti
Sean Evanick, trumpet

Sonata for Trumpet and Piano — Kent Kennan
Vincent Buell, trumpet

Solo de Concours — Theo Charlier
Courtney Labritz, trumpet

A Song from the Heart for Trumpet and Piano — Eric Ewazen
Timothy Hering, trumpet

THEATRICAL PERFORMANCES

BEEGHLY THEATER

11 - 11:20 a.m. **CABIN FEVER — A TEN MINUTE PLAY**

Jace Armentrout
Jeremy Roberts
Lucas Turner

VIDEO PRESENTATIONS

MUELLER THEATER

11:30 a.m. - 12:15 p.m.	TITAN TERROR — THE LOST PROJECTS
	Jace Armentrout Anthony Goldman
	Linzy Borowicz Tyler Helvin
	Dwayne Brown Danny Mercer
1:30 - 2 p.m.	HITTING THE REDLINE
	Brad Kolesar
2 - 2:30 p.m.	FINDING MYSELF IN A TINY HOUSE
	Justin Wilson
2:30 - 3 p.m.	KATIE JOY MUSIC
	Kaitlyn Nicholson
	Stephen Wells
	Logan Wilson

ART DISPLAY

CARLSON ATRIUM

11 a.m. - 12 p.m.	METAPHORICAL CERAMIC VESSELS OF HUMAN ATTRIBUTES
	Stephanie Dorsch

POETRY SLAM

BERLIN LOUNGE

11:30 a.m. - 12:30 p.m.	POETRY SLAM
	Kallen Eckert
	Martin Koegler
	Justin Wilson

PUBLIC SPEECH PERFORMANCES

MUELLER THEATER

9 - 9:15 a.m.	BRIAN DODSON
	Hannah Westwood
9:15 - 9:30 a.m.	THE SHELTERED EMPLOYMENT NIGHTMARE
	Emily Gellatly
9:30 - 9:45 a.m.	YOLOCAUST AS AN IDEOGRAPH: A RHETORICAL ANALYSIS OF SHAHAK SHAPIRA'S "YOLOCAUST"
	Bailey Dunks
9:45 - 10 a.m.	IMPROMPTU POLITICAL SPEAKING
	Matthew Causer

ORAL INTERPRETATIONS OF LITERATURE

MUELLER THEATER

10 - 10:15 a.m.	PROSE INTERPRETATION, 100% COTTON Christian Na
10:15 - 10:30 a.m.	MY HUNGER GAMES OR JE SUIS LA YOGURT Yiannoula Katsadas
10:30 - 10:45 a.m.	MILLS DUO Tanner Easley Jackson Gastmeyer
10:45 - 11 a.m.	DUO INTERPRETATION: LUNGS Christian Na Julie Yesko

GROUP INTERPRETATION

BERLIN LOUNGE

1 - 2 p.m.	A GROUP INTERPRETATION OF JACK RIDL'S POETRY COLLECTION, LOSING SEASON		
	Leah Billingsley	Jacob Herrmann	David Waldschmidt
	Chloe Brown	Jaret Johnson	Connor White
	Malique Burton	Rianna Lyden	Emmitt Willis
	Elaina Chapnell	Shannon McNamara	Erika Wintermantel
	Kendall Graham	Michael Sholtis	
	Thomas Graham	Nicholas Stupar	

ROBOTICS PRESENTATIONS AND DEMONSTRATION

HOYT SCIENCE CENTER, ROOM 290

2 - 2:15 p.m.	ROBOTICS Alex Georgescu Conner Wilson
2:15 - 2:30 p.m.	COMPUTER VISION WITH OPENCV, INTEGRATING OBJECT RECOGNITION AND LIDAR FOR ROBOTIC NAVIGATION AND INTERACTION Connor Byrnes Kyle Monteleone
2:30 - 2:45 p.m.	LIDAR IN ROBOTICS Matthew Gurneal Aaron Signer
2:45 - 3 p.m.	ROBOTICS CLUB PRESENTATION ON THE TRINITY FIRE FIGHTING HOME ROBOT CONTEST Connor Byrnes Alex Georgescu Matthew Gurneal Alexander Michels

TINY HOUSE TOURS

(Westminster's Tiny House Site): 12:30-1:30 p.m.

URAC Scavenger Hunt!

Complete these Two Simple Steps on 4-18-18 and be entered to win URAC and Westminster College Swag!



1. Take any three of the following pictures :

A Research Poster with Presenter Present (Witherspoon Rooms)
Selfie with an Oral Session Moderator (Patterson Hall)
Image of a Musical Performance (McKelvey or Chapel)
Image of the Poetry Slam (Berlin Lounge)
Selfie with a Travel Mug Presenter Poster (3rd floor McKelvey)

2. Post your images on Instagram and tag @wcurac

Neuroscience Club

Kent State Symposium

Stress Less Week Brain Awareness



If interested, please contact Ashley Barker at
barkam22@wclive.westminster.edu



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BETA BETA BETA

ALPHA SIGMA CHAPTER

"TO SEE THE FOUNDATION OF LIFE"

We are a collegiate honor society and academic fraternity for students of the biological sciences.

WHAT IS ALPHA PHI SIGMA?

Nationally recognized honor society for criminal justice studies. It was founded in 1942.

WHY JOIN ALPHA PHI SIGMA?

This membership recognizes a student's dedication and exceptional academic achievements are recognized at a higher level.



BENEFITS OF MEMBERSHIP

- Scholarships, Awards & Grants
- Membership certificate, pin, and cords
- Access to career pathways, internships & jobs

Congratulations to all URAC presenters, Criminal Justice researchers, and Seniors!



Any Questions?

Contact Advisor Dr. Robison: robisokm@westminster.edu

Psychology Club

- Open to all psychology and non-psychology majors
- Closely involved with the Neuroscience club
- Numerous guest speakers covering a range of topics, including graduate school

If you would like to join or learn more information, contact Anna Muraca At

Muraap22@wclive.westminster.edu

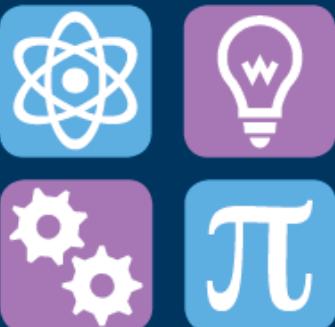
2018 STUDENT SYMPOSIUM ON THE Environment

SPONSORED BY WESTMINSTER COLLEGE & THE SLIPPERY ROCK WATERSHED COALITION

Thursday, December 6th, 2018
5:30–7:30 p.m. Networking & Poster Session
7:30–9:00 p.m. Oral Presentations
Westminster College

The Student Symposium on the Environment is held each December at Westminster College to highlight environmental study, research, artistic expression, and service work being done by students in the region. Students from all disciplines, ranging from high school through graduate school, are encouraged to participate. Research posters, art work, oral presentations, and even performances are welcome.

Call for participants available in October
www.westminster.edu/environment



IQ-STEM
Science • Technology • Engineering • Math
National Science Foundation
Robert Noyce Teacher
Scholarship Program

EMAIL: iqstem@westminster.edu

BENEFITS OF THE IQ:STEM PROGRAM:

1. Up to \$15,000 grant for tuition, room, and board during their junior and senior year.
NOTE: acceptance of this scholarship may impact your overall financial aid package; contact the financial aid office with specific questions.
2. Stipends to attend a conference in the area of discipline: (a) \$1500 to attend a conference in the Noyce Scholars junior year and (b) \$1500 to present at a conference in the Noyce Scholars senior year.
3. Stipend to cover the cost of certification tests and application fees for teacher certification (up to \$500)
4. Stipend to assist with a Teachers Workshop in the summer (\$2000)

VISIT: www.westminster.edu/biology

www.westminster.edu/education



Summer Science Splash Camp

at Westminster College



SESSION I: JULY 8-13

SESSION II: JULY 15-20

westminster.edu/sciencecamp

CALL: 724-946-7206

Twitter and Facebook:
[@ScienceSplashWC](https://twitter.com/ScienceSplashWC)

ENJOY A WEEK-LONG RESIDENTIAL CAMP

Led by Westminster College faculty

Assisted by Westminster College students

Learn in the lab and in the field

Evening games, sports, and arts

Research Professions Advisory Committee

Giving guidance and career advice to students interested in masters and Ph.D. programs in science or professions in industry.

RESPAC WORKSHOPS

ResPAC hosts regular workshops in such topics as:

- Preparing for the GRE Test
- Finding a Research Internship
- Writing your Resume or *Curriculum Vitae*
- Applying to Graduate School
- Writing a Personal Statement

VISIT: <https://www.westminster.edu/academics/respac/index.cfm>

ResPAC Co-Chairs

Jessica Sarver, Ph.D and Deanne Buffalari, Ph.D

sarverjl@westminster.edu buffald@westminster.edu

WESTMINSTER COLLEGE

Drinko Center for Undergraduate Research

Patterson Hall | Room 315

319 S. Market Street

New Wilmington, PA 16172-0001

JOIN THE CONVERSATION



#WCURAC