



Indiana University of Pennsylvania

# IUP Scholars Forum

Wednesday, April 6, 2022

PROGRAM



# Seventeenth Annual IUP Scholars Forum

Sponsored by  
School of Graduate Studies and Research

## Program at a Glance

8:00 AM - 9:00 AM	<b>Registration</b> KCAC Lobby Atrium
9:00 AM - 1:00 PM	<b>Juried Art Submissions</b> Toretti Auditorium Foyer
9:00 AM - 1:00 PM	<b>Poster Presentations Session</b> KCAC Arena Floor
9:00 AM – 10:50 AM	<b>Concurrent Oral Presentations Sessions A–E</b> <ul style="list-style-type: none"><li>• Conference Room 7    A    <i>Investing in the Stock Market</i></li><li>• Conference Room 6    B    <i>Biology and Ecology</i></li><li>• Conference Room 5    C    <i>Psychology and Sociology</i></li><li>• Conference Room 4    D    <i>Gender and Race Concerns</i></li><li>• Toretti Auditorium    E    <i>History Reconsidered</i></li></ul>
11:00 AM – 12:50 PM	<b>Concurrent Oral Presentations Sessions F–I</b> <ul style="list-style-type: none"><li>• Conference Room 7    F    <i>Business and Economics</i></li><li>• Conference Room 6    G    <i>Environmental Studies</i></li><li>• Conference Room 5    H    <i>Crime and Economics</i></li><li>• Conference Room 4    I    <i>Health and Medicine</i></li></ul>
11:30 AM - 1:00 PM	<b>Lunch</b> PNC Conference Room
1:00 PM – 2:00 PM	<b>Three Minute Thesis</b> Toretti Auditorium

**Special Thanks to:**

- ❖ Scholars Forum Planning Committee
- ❖ Jones White Writing Center
- ❖ IUP Research Institute
- ❖ Scholars Forum Judges
- ❖ Applied Research Lab
- ❖ School of Graduate Studies and Research
- ❖ Cook Honors College

**Award Sponsors:**

- ❖ Academic Deans
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## JURIED ART EXHIBITION

### Toretti Auditorium Foyer

*This exhibition features artworks created by a select group of Art students. The artworks are juried by faculty members and represent the breadth of studio research conducted during the 2021/2022 academic year.*

J01	Nine Faces	<b>Berghoff, Justin</b>	<i>Faculty Mentor: Sharon Massey</i>
J02	Self Nurturing	<b>Berghoff, Justin</b>	<i>Faculty Mentor: Sean Derry</i>
J03	Teapot Exoskeleton	<b>Boggs, Caitlyn</b>	<i>Faculty Mentor: Sharon Massey</i>
J04	Life in a Tabasco Bottle	<b>Boggs, Caitlyn</b>	<i>Faculty Mentor: Sharon Massey</i>
J05	Am I Alone	<b>Bower, Reece</b>	<i>Faculty Mentor: Sharon Massey</i>
J06	Maybe You've Been Here Before	<b>Bower, Reece</b>	<i>Faculty Mentor: Sharon Massey</i>
J07	Balance	<b>Burger, Rose</b>	<i>Faculty Mentor: Sharon Massey</i>
J08	Blue Herring Teapot	<b>Burger, Rose</b>	<i>Faculty Mentor: Sharon Massey</i>
J09	Untitled Oil Painting	<b>Caryl, Nathan</b>	<i>Faculty Mentor: Sharon Massey</i>
J10	Hometown Hero	<b>Fulton-Schuller, Keegan</b>	<i>Faculty Mentor: Ivan Fortushniak</i>
J11	Lotus Necklace	<b>Johnson, Paige</b>	<i>Faculty Mentor: Sharon Massey</i>
J12	Geo(metric) Tea Pot	<b>Johnson, Paige</b>	<i>Faculty Mentor: Sharon Massey</i>
J13	Snowflake	<b>Johnson, Paige</b>	<i>Faculty Mentor: Sharon Massey</i>
J14	Self-Preservation	<b>Julian, Jasmine</b>	<i>Faculty Mentor: Anthony DiMauro</i>
J15	Shelter	<b>Julian, Jasmine</b>	<i>Faculty Mentor: Anthony DiMauro</i>
J16	Keypot	<b>Kubicsek, Adeline</b>	<i>Faculty Mentor: Sharon Massey</i>
J17	Keepsake box	<b>Kubicsek, Adeline</b>	<i>Faculty Mentor: Sharon Massey</i>
J18	Duck Belt	<b>Kubicsek, Adeline</b>	<i>Faculty Mentor: Sharon Massey</i>
J19	Charles Bridge	<b>Sobolewski, Cecilia</b>	<i>Faculty Mentor: Anthony DiMauro</i>
J20	Gender Juice	<b>Zeff, Klaus</b>	<i>Faculty Mentor: Ivan Fortushniak</i>
J21	Gas Station Academica	<b>Zeff, Klaus</b>	<i>Faculty Mentor: Ivan Fortushniak</i>

## Oral Presentation Schedule

### Early Morning Podium Sessions A–E, Conference Rooms 4–7 & Toretti Auditorium

<b>Time</b>	<b>Conference Room 7</b>	<b>Conference Room 6</b>	<b>Conference Room 5</b>	<b>Conference Room 4</b>	<b>Toretti Auditorium</b>
	<b>Session A: Investing</b>	<b>Session B: Biology and Ecology</b>	<b>Session C: Psychology and Sociology</b>	<b>Session D: Gender and Race</b>	<b>Session E: History Reconsidered</b>
<b>9:00-9:20</b>	A1. Investing in The Stock Market: A Risky Venture To Go Big Or Go Home	B1. Long-term monitoring and comparison of conservation strategies for the Allegheny woodrat in Pennsylvania	C1. Adult Children's Parental Estrangement: Reasons and Complicated Grief	D1. The Structure of Gender During Crisis: Exploring and understanding the experiences of women in academia during the COVID19 pandemic.	E1. "Everything . . . They Tried to Destroy:" The Role of Americanization in Native American and Philippine Educational Practices Under American Rule and its Long-Term Impact on Societal Institutions, 1879-1935
<b>9:20-9:40</b>	A2. Investing In the Stock Market: Adjusting to the Volatility of the Economy Through the Prices of Stock	B2. Occupancy of Allegheny Woodrats Across Pennsylvania	C2. From Discovery to Recovery: Parents' Emotion Work to Transcend Fallout From a Child's Opioid Use Disorder	D2. Gender inequality in another form: How the unequal coverage of women's sports is impacting female athletes.	E2. A Democratic Constitutionalist: Lincoln, Emancipation, and the Invocation of Presidential Power
<b>9:40-10:00</b>	A3. The Stock Market: An Investor's Version of Gambling	B3. An Assessment of Monarch Butterfly ( <i>Danaus plexippus</i> ) and Other Pollinator Use of Early Successional Communities Managed for Golden-Winged Warbler ( <i>Vermivora chrysoptera</i> ) In the Western Great Lakes.	C3. Modern Media: Content Analysis of Children's Television Shows vs. YouTube Content	D3. African American's Need for the Re-establishment of Affirmative Action	E3. Reconstructing Historical architecture for academic study and preservation
<b>10:00-10:10</b>	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>
<b>10:10-10:30</b>	A4. Market Watch Virtual Trading Game: The Real-Time Trading Version of the Game "Risk"	B4. Population Ecology and Comparison of Methods for Sampling Invasive Round Goby ( <i>Neogobius melanostomus</i> ) in LeBoeuf Lake, Pennsylvania	C4. The Impact of Peer Emotion Socialization in Emotion Regulation and Adjustment among College Students	D4. The Racialized Film Perspicuity	E4. Deconstructing Etruscan Tombs
<b>10:30-10:50</b>	A5. Impacts of the Virtual Stock Exchange on Real-Life Investing	B5. Finding novel molecules that affect kidney development in zebrafish	C5. I-Sharing: Getting Along in the Workplace		E5. Making Sense of Ned Rorem's First Piano Sonata

## Oral Presentation Schedule

### Late Morning Podium Sessions F–I, Conference Rooms 4–7

Time	Conference Room 7	Conference Room 6	Conference Room 5	Conference Room 4
	<b>Session F: Business and Economics</b>	<b>Session G: Environmental Studies</b>	<b>Session H: Crime and Economics</b>	<b>Session I: Health and Medicine</b>
11:00-11:20	F1. Portfolio Optimization and the Effect of Market Impact Estimators	G1. Mitigating Harmful Algal Blooms	H1. The Effects of Unemployment on Crime in the Golden State	I1. The Best Position to Place a Nebulizer in a Ventilator Circuit to Deliver the Highest Deposition of Aerosol Particles to a Patient.
11:20-11:40	F2. Profit Optimization based on Promotional Expansion: An Applied Mathematical Case Study as an Application of Nonlinear Programming Methods	G2. Mitigating the Blight Cycle through Land Banking in small Rust Belt cities	H2. The Economic Variables that Contribute to White-Collar Crime Rates by State	I2. Diagnostic Accuracy of Rapid Antigen Detection Tests and RT-PCR diagnosis of SARS-CoV-2
11:40-12:00	F3. Evaluating the Importance That Small Businesses Play at Determining the Success of National Main Street Programs: A Review of Pennsylvania Main Street Programs	G3. Influence of abiotic variables on biological recovery from abandoned mine drainage in a western Pennsylvania watershed	H3. A State-Level Analysis of Recidivism in the United States	I3. Social Media Misinformation
12:00-12:10	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>
12:10-12:30	F4. Revenue Sharing and Its Effect on Win Percentage in Major League Baseball			I4. Work Effort and Perceived Exertion While Wearing a Passive Exoskeleton in Industrial Overhead Tasks
12:30-12:50	F5. Economic influence on Summer Olympic Medal Counts			I5. Evaluation of Carbon Xerogels and Diatomite for Dye Removal from Wastewater

## Oral Presentation Sessions

Conference Rooms 4–7 & Toretta Auditorium

### SESSION A: Investing in the Stock Market 9:00am–11:00am, Conference Room 7

- 9:00–9:20 A1. Investing in The Stock Market: A Risky Venture To Go Big Or Go Home.  
**Ribelin, Ethan** (Management). *Faculty Mentor: Yaya Sissoko*
- 9:20–9:40 A2. Investing In the Stock Market: Adjusting to the Volatility of the Economy Through the Prices of Stock.  
**Swan, Alex** (Business & Information Techonology). *Faculty Mentor: Framarz Byramjee*
- 9:40–10:00 A3. The Stock Market: An Investor’s Version of Gambling.  
**Zik, Nathaniel** (Economics). *Faculty Mentor: Yaya Sissoko*
- 10:00–10:10 *Break*
- 10:10–10:30 A4. Market Watch Virtual Trading Game: The Real-Time Trading Version of the Game “Risk”.  
**Sutcavage, Sean** (Finance and Legal Studies). *Faculty Mentor: Todd Potts*
- 10:30–10:50 A5. Impacts of the Virtual Stock Exchange on Real-Life Investing.  
**Olver, Emma** (Economics). *Faculty Mentor: Yaya Sissoko*

### SESSION B: Biology and Ecology 9:00am–11:00am, Conference Room 6

- 9:00–9:20 B1. Long-term monitoring and comparison of conservation strategies for the Allegheny woodrat in Pennsylvania.  
**Smith, Tristan** (Biology); **Duchamp, Joseph; Moyer, Colton; Turner, Greg; Scafini, Mike; Vreeland, Justin; Giazzon, Mario; and Stauffer, Aura.** *Faculty Mentor: Joseph Duchamp*
- 9:20–9:40 B2. Occupancy of Allegheny Woodrats Across Pennsylvania.  
**Moyer, Colton** (Biology); **Smith, Tristan; Duchamp, Joseph; Giazzon, Mario; Turner, Greg; and Vreeland, Justin.** *Faculty Mentor: Joseph Duchamp*
- \*9:40–10:00 B3. An Assessment of Monarch Butterfly (*Danaus plexippus*) and Other Pollinator Use of Early Successional Communities Managed for Golden-Winged Warbler (*Vermivora chrysoptera*) In the Western Great Lakes.  
**Keele, Emma** (Biology). *Faculty Mentor: Jeffrey Larkin*
- 10:00–10:10 *Break*
- \*10:10–10:30 B4. Population Ecology and Comparison of Methods for Sampling Invasive Round Goby (*Neogobius melanostomus*) in LeBoeuf Lake, Pennsylvania.  
**Byington, Darby** (Biology); **Janetski, David; Fischer, Doug; Ensign, Brian; Billman, Eric.** *Faculty Mentor: David Janetski*
- 10:30–10:50 B5. Finding novel molecules that affect kidney development in zebrafish.  
**Semelsberger, Scott** (Biology). *Faculty Mentor: Cuong Diep*

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\* Denotes Women in STEM submission

**SESSION C: Psychology and Sociology**  
**9:00am–11:00am, Conference Room 5**

- \*9:00–9:20 C1. Adult Children's Parental Estrangement: Reasons and Complicated Grief.  
**Wilhelm, Erin** (Psychology). *Faculty Mentor: Tara Johnson*
- 9:20–9:40 C2. From Discovery to Recovery: Parents' Emotion Work to Transcend Fallout  
From a Child's Opioid Use Disorder.  
**Covolo, Danielle** (Sociology); **Swauger, Melissa**; **Hysock, Dana**; **Heckert,  
Daniel**; **Vaccaro, Christian**; **Garcia, Victor**; and **Lauber, Erick**. *Faculty Mentor:  
Melissa Swauger*
- 9:40–10:00 C3. Modern Media: Content Analysis of Children's Television Shows vs.  
YouTube Content.  
**Lutz, Paige** (Communications Media). *Faculty Mentor: Nurhaya Muchtar*
- 10:00–10:10 *Break*
- \*10:10–10:30 C4. The Impact of Peer Emotion Socialization in Emotion Regulation and  
Adjustment among College Students.  
**Jasiewicz, Julia** (Psychology). *Faculty Mentor: Stephanie Davis*
- \*10:30–10:50 C5. I-Sharing: Getting Along in the Workplace.  
**Sharkey, Kaitlyn** (Psychology). *Faculty Mentor: Anson Long*

**SESSION D: Gender and Race Concerns**  
**9:00am–11:00am, Conference Room 4**

- 9:00–9:20 D1. The Structure of Gender During Crisis: Exploring and understanding the  
experiences of women in academia during the COVID19 pandemic.  
**Ghouralal, Sera-Leigh** (Sociology). *Faculty Mentor: Susan Boser*
- 9:20–9:40 D2. Gender inequality in another form: How the unequal coverage of women's  
sports is impacting female athletes.  
**Fuhrman, Abby** (Communications Media). *Faculty Mentor: Nurhaya Muchtar*
- \*9:40–10:00 D3. African American's Need for the Re-establishment of Affirmative Action.  
**Coleman, Charles** (Nursing and Allied Health Professions). *Faculty Mentor:  
Yaya Sissoko*
- 10:00–10:10 *Break*
- 10:10–10:30 D4. The Racialized Film Perspicuity.  
**Bryant, Donny** (Communications Media). *Faculty Mentor: Nurhaya Muchtar*

**SESSION E: History Reconsidered**  
**9:00am–11:00am, Toretta Auditorium**

- 9:00–9:20 E1. "Everything . . . They Tried to Destroy:" The Role of Americanization in  
Native American and Philippine Educational Practices Under American Rule and  
its Long-Term Impact on Societal Institutions, 1879-1935.  
**Wilt, Jacob** (History). *Faculty Mentor: Soo Lu*

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- 9:20–9:40 E2. A Democratic Constitutionalist: Lincoln, Emancipation, and the Invocation of Presidential Power.  
**Evans, Isaac** (History). *Faculty Mentor: Wang Xi*
- 9:40–10:00 E3. Reconstructing Historical architecture for academic study and preservation.  
**Meyers, Zachary** (Fine Arts). *Faculty Mentor: Irene Kabala*
- 10:00–10:10 *Break*
- 10:10–10:30 E4. Deconstructing Etruscan Tombs.  
**Wheeler, Taylor** (Arts). *Faculty Mentor: Irene Kabala*
- 10:30–10:50 E5. Making Sense of Ned Rorem's First Piano Sonata.  
**Rice, Teryl** (Music). *Faculty Mentor: Henry Wong Doe*

## **SESSION F: Business and Economics** **11:00am–1:00pm, Conference Room 7**

- \*11:00–11:20 F1. Portfolio Optimization and the Effect of Market Impact Estimators.  
**Sasai, Sinti** (Mathematics and Computer Sciences); **Semone, Sky; and Deak, Alicia**. *Faculty Mentor: Yu-Ju Kuo*
- \*11:20–11:40 F2. Profit Optimization based on Promotional Expansion: An Applied Mathematical Case Study as an Application of Nonlinear Programming Methods.  
**Moon, William** (Mathematics and Computer Sciences); **Sharek, Casey; and Miller, Joe**. *Faculty Mentor: Yu-Ju Kuo*
- 11:40–12:00 F3. Evaluating the Importance That Small Businesses Play at Determining the Success of National Main Street Programs: A Review of Pennsylvania Main Street Programs.  
**Pernelli, Matthew** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Sudeshna Ghosh*
- 12:00–12:10 *Break*
- 12:10–12:30 F4. Revenue Sharing and Its Effect on Win Percentage in Major League Baseball.  
**Swanson, Benjamin** (Finance and Economics). *Faculty Mentor: James Jozefowicz*
- 12:30–12:50 F5. Economic influence on Summer Olympic Medal Counts. **Marsteller, Margaret** (Finance and Economics); **and Kline, Richard**. *Faculty Mentor: James Jozefowicz*

## **SESSION G: Environmental Studies** **11:00am–1:00pm, Conference Room 6**

- 11:00–11:20 G1. Mitigating Harmful Algal Blooms.  
**Hudzicki, Taylor** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Sudeshna Ghosh*
- 11:20–11:40 G2. Mitigating the Blight Cycle through Land Banking in small Rust Belt cities.

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**McLaren, Chad** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Sudeshna Ghosh*

\*11:40–12:00 G3. Influence of abiotic variables on biological recovery from abandoned mine drainage in a western Pennsylvania watershed.

**Hershberger, Alexa** (Biology); **Janetski, David**; **Clark, Tom**. *Faculty Mentor: David Janetski*

## **SESSION H: Crime and Economics**

**11:00am–1:00pm, Conference Room 5**

11:00–11:20 H1. The Effects of Unemployment on Crime in the Golden State.

**Friedman, Taylor** (Finance and Economics). *Faculty Mentor: James Jozefowicz*

11:20–11:40 H2. The Economic Variables that Contribute to White-Collar Crime Rates by State.

**Haring, Jack** (Finance and Economics). *Faculty Mentor: James Jozefowicz*

11:40–12:00 H3. A State-Level Analysis of Recidivism in the United States.

**Uber, Jocelyn** (Finance and Economics). *Faculty Mentor: James Jozefowicz*

## **SESSION I: Health and Medicine**

**11:00am–1:00pm, Conference Room 4**

11:00–11:20 I1. The Best Position to Place a Nebulizer in a Ventilator Circuit to Deliver the Highest Deposition of Aerosol Particles to a Patient.

**Alfares, Najla** (Nursing and Allied Health Professions); **Albedaiwi, Saja**; and **Alyahya, Reem**. *Faculty Mentor: William B. Rogers*

\*11:20–11:40 I2. Diagnostic Accuracy of Rapid Antigen Detection Tests and RT-PCR diagnosis of SARS-CoV-2.

**Trale, Austan** (Biology); **Dienes, Nichol**; **Bharathan, Tashi**; **Bharathan, Tanvi**; **Duchamp, Joseph**; **Bharathan, Seema**; **Sansig, Jackie**; and **Wilson, Steven**. *Faculty Mentor: Narayanaswamy Bharathan*

11:40–12:00 I3. Social Media Misinformation.

**Armstrong III, Joseph Clark** (Education and Communications). *Faculty Mentor: Nurhaya Muchtar*

12:00–12:10 *Break*

12:10–12:30 I4. Work Effort and Perceived Exertion While Wearing a Passive Exoskeleton in Industrial Overhead Tasks.

**Newton, Amelia** (Safety Sciences); **Minnick, Wanda**; **Marin, Luz**; and **Zreiqat, Majed**. *Faculty Mentor: Wanda Minnick*

\*12:30–12:50 I5. Evaluation of Carbon Xerogels and Diatomite for Dye Removal from Wastewater.

**Brady, Ashlee** (Biology). *Faculty Mentor: Sanda Andrada Maicaneanu*

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\* Denotes Women in STEM submission

## Poster Presentation Sessions

KCAC Arena Floor

9:00am–1:00pm

### SESSION J: Multidisciplinary Assessments of the Impacts of COVID-19

- \*P01. Coronavirus Effects on The Job Market.  
**Rivera, Jordan** (Mathematics and Computer Sciences). *Faculty Mentor: Gregory Wisloski*
- P02. Code Blue Safety Protocols for the COVID-19 Pandemic: How Safe Do Healthcare Workers Feel?  
**Almomen, Amina** (Nursing and Allied Health Professionals); **Mudahogora, Alice; and Butler, Destiny**. *Faculty Mentor: Joyce Ann Shanty*
- \*P03. A Work of Heart: Working Women & COVID-19.  
**Long, Kaylee** (Anthropology). *Faculty Mentor: Amanda Poole*
- \*P04. Harvesting Resilience: How Gardening Has Helped Appalachia Cope During COVID-19.  
**Pinkham, Ava** (Anthropology). *Faculty Mentor: Amanda Poole*
- P05. GEOINT Analysis of COVID-19 and its Disproportionate Effect on Specific Communities.  
**Richey, Connor** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*
- P06. Mapping the Impacts of a Covid-19 Outbreak to the High-Risk Populations of Florida.  
**Mannone, Nicholas** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*
- \*P07. The Negative Impact Of COVID 19 On Marginalized Population: Michigan State.  
**Zakki, Khadija** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*

### SESSION K: Research in Psychology

- P08. Examining the Consequences of Dehumanization in Justification of Police Use of Force Against Minoritized Youth.  
**Bennett, Sean** (Psychology). *Faculty Mentor: Jennifer Perillo*
- \*P09. Internalizing and Externalizing Behaviors in ADHD.  
**Sherretts, Kelly** (Psychology); **Lucas, Lauren; and Morris, Jeffrey**. *Faculty Mentor: Jenna Hennessey*

### SESSION L: Science Education and Learning

- P10. Student Learning in a 9th and 10th Grade Biology Classroom.  
**LaRocca, Samuel** (Biology). *Faculty Mentor: Holly Travis*
- P11. Comparison of Learning in a 10th-12th Grade Science Elective Course.  
**O'Hara, Brad** (Biology). *Faculty Mentor: Holly Travis*
- \*P12. Effects of paper and electronic homework on summative assessment results of 9th and 10th grade biology students.  
**Aurand, Lindsay** (Biology). *Faculty Mentor: Holly Travis*
- \*P13. The Effects of Online Work versus Paper Work in a School Classroom.  
**White, Elyse** (Biology). *Faculty Mentor: Holly Travis*
- \*P14. Effects of Group Work vs. Individual Work in the Science Classroom.

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- Bowers, Kaylee** (Biology). *Faculty Mentor: Holly Travis*
- \*P15. Utilizing Guided Discovery Before Direct Instruction: A Comparison Study.  
**McGhee, Breanna** (Chemistry). *Faculty Mentor: Holly Travis*
- P16. Effects of Diagram Orientation on Student Recollection.  
**Robinson, Ian** (Biology). *Faculty Mentor: Holly Travis*
- \*P17. Exploring the Collatz Conjecture.  
**Lees, Elizabeth** (Mathematics and Computer Sciences). *Faculty Mentor: Rachelle Bouchat*

### SESSION M: Investing

- P18. Investments Through the Stock Market: Taking the Risks.  
**Whitton, Nicole** (Business and Information Technology). *Faculty Mentor: Yaya Sissoko*
- P19. Markets to Markets: Which Is More Efficient.  
**Rocco, Dominic** (Finance and Economics); **and Guo, Muchen**. *Faculty Mentor: Todd Potts*
- P20. TheBiziApp.  
**Froggatt, Kevin** (Business and Information Technology); **Leighty, Kaiya; Zandier, Cassidy; Valentine, Mashayla; and Donovan, Evan**. *Faculty Mentor: Stephan Osborne*

### SESSION N: Mathematics and Computer Sciences

- P21. Comparative Study of IoT-TON Machine Learning Algorithms.  
**Deak, Alicia** (Mathematics and Computer Sciences); **Good, Zaryn; and Gress, Ryan**.  
*Faculty Mentor: Soundararajan Ezekiel*
- \*P22. IoT Anomaly Detection Using a Multitude of ML Algorithms.  
**Balega, Maria** (Mathematics and Computer Sciences). *Faculty Mentor: Waleed Farag*
- P23. Anomaly Detection Within IoT Devices Using The NSL-KDD Dataset.  
**May, Franklin** (Mathematics and Computer Sciences). *Faculty Mentor: Waleed Farag*
- \*P24. The benefits to Agrivoltaics.  
**Neese, Alexis** (Mathematics and Computer Sciences). *Faculty Mentor: Kimberly Burch*
- \*P25. Using Wearable Technology to Assess Slips, Falls and Trips in Construction Industry.  
**Meiss, Parker** (Mathematics and Computer Sciences); **Gaye, Cory; Marin, Luz S; Zreiqat, Majed; and Minnick, Wanda**. *Faculty Mentor: Wanda Minnick*

### SESSION O: Research in Chemistry

- \*P26. Antimicrobial Resistance Gene Frequency and Distribution around IUP Campus.  
**Colen, Philip** (Chemistry). *Faculty Mentor: Sudipta Majumdar*
- \*P27. Nano-Engineering a Sensor to Measure to Degradation of Lubricating Oil.  
**Heppler, Morgan** (Chemistry); **and Lane, David**. *Faculty Mentor: Gregory Kenning*
- \*P28. Novel Suzuki Cross-coupling of sp<sup>3</sup> Halides Utilizing Heterogeneous Pd/C.  
**Nesgoda, Rachel** (Chemistry); **and Faber, Brandon**. *Faculty Mentor: Carl Leblond*
- \*P29. Selective Oxidation of Alcohols in the Presence of Amines by Oxoammonium Salts.  
**Dadum, Abra** (Chemistry). *Faculty Mentor: Justin Fair*

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\* Denotes Women in STEM submission

### SESSION P: Biology and Ecology

- P30. Characterizing the effects of chloroquine treatment on planarian tissue maintenance.  
**James, Rufus** (Biology). *Faculty Mentor: Robert Major*
- \*P31. Tipin gene function is required for planarian tissue regeneration.  
**Soliman, Eman** (Biology). *Faculty Mentor: Robert Major*
- \*P32. Multi-Site Directed Mutagenesis, Expression, and Characterization of the Srs2 Helicase C-terminal Domain from *S. cerevisiae*.  
**Pettipas, Gabriella** (Biology). *Faculty Mentor: Jana Villemain*
- \*P33. Identifications to Characterize Beetles in Hemlock Forests of Pennsylvania.  
**Bland, Mary** (Biology); **Bobak, Alexis; Wentz, Alec; and Yerger, Ellen**. *Faculty Mentor: Ellen Yerger*
- P34. Comparison of fish communities represented by different gear types in LeBoeuf Lake, Pennsylvania.  
**Keech, Kaleb** (Biology); **Janetski, David; Byington, Darby; Fisher, Douglas; Billman, Eric; Ensign, Brian; and Bradshaw-Wilson, Casey**. *Faculty Mentor: David Janetski*

### SESSION Q: Geography, Geology, Environment, and Planning

- P35. Bumble Bees in the United States: A review of literature to analyze factors causing decline in bee population.  
**Heckert, Daniel** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Christopher Schaney*
- P36. Coral-stromatoporoid symbiosis in a Late Silurian patch reef of Central Pennsylvania.  
**Colasante, Joshua** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Jonathan Warnock*
- \*P37. Brittle Deformation: Fault Analysis in the Eastern Central Range.  
**Adams, Susie** (Geography, Geology, Environment, and Planning); **and Lewis, Jonathan C.** *Faculty Mentor: Jonathan C. Lewis*
- P38. Volcanic Disaster: Predicting Impacts of Eruption through Geospatial Intelligence.  
**McGann, Chad** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Christopher Schaney*
- P39. Spatial Procedures to Analyze the Hazards to Communities and Infrastructure in Savannah, Georgia from a Direct Hit from a Category 3 Hurricane.  
**Lessman, Emily** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Christopher Schaney*
- P40. Understanding the Impacts of Algal Blooms on Fishing Communities in the Gulf of Mexico.  
**Rand, David** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Sudeshna Ghosh*
- P41. Assessing the Value of Implementing Incentives for New York City Residents to Install Small Scale Wind Turbines.  
**Pichler, Mark** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*
- P42. Using Diatoms to Model Antarctic Sea Ice during the mid-Pleistocene.

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- Vizza, Christian** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Jonathan Warnock*
- P43. 1925 Vandergrift Urban Reconstruction.  
**Goins, Eric** (Geography, Geology, Environment, and Planning); **Pichler, Mark; Deily, Alena; and Stiles, Kegan**. *Faculty Mentor: John Benhart*
- \*P44. Analysis of Metal-Containing Sediment Samples from Bear Run Watershed.  
**Schambura, Micayla** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Jonathan C. Lewis*
- P45. Assessing and Quantifying Changes in Rainfall and Temperature Patterns in Indiana Pennsylvania along with many other locations within the Appalachian Plateau.  
**Merichko, Joshua** (Geography, Geology, Environment, and Planning); **and Farnsworth, Katherine**. *Faculty Mentor: Katherine Farnsworth*
- P46. Aultman's Run Watershed Flood Risk Analysis.  
**Toki, Jaclynn** (Geography, Geology, Environment, and Planning); **Bobak, Alexis; and Barnes, John**. *Faculty Mentor: John Benhart*
- P47. Enhanced Planning and Awareness of Road Paving Projects through Spatial Data Development in Hampton Township, Pennsylvania.  
**Hollingshad, Zachariah** (Geography, Geology, Environment, and Planning); **Fryar, Austin; and Rihn, Michael**. *Faculty Mentor: John Benhart*
- P48. Farming and Heavy industry.  
**Cross, Daniel** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Karen Rose Cercone*
- \*P49. Flood Risk Analysis - Two Lick Creek Watershed in Indiana County, PA.  
**Lukcik, Amber** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*
- P50. Generating a GIS Map of Major Business and Industry locations in Ligonier, Pennsylvania based on 1910 Sanborn Insurance Maps.  
**Payne, Jenny** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*
- P51. How A Comprehensive Geodatabase Can Be Used to Inform Community Redevelopment.  
**McLaren, Chad** (Geography, Geology, Environment, and Planning); **Pernelli, Matthew; and Krinock, Jacob**. *Faculty Mentor: John Benhart*
- P52. Phase 1 Environmental Site Assessment of the Mount Union Railroad Museum.  
**Cramer, Caleb** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Karen Rose Cercone*
- P53. Phase I of a Former Radioactive Materials Production Facility.  
**Reynolds, Eric** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Karen Rose Cercone*
- P54. Microplastic Contaminants in Indiana, PA's Freshwater Systems.  
**Vashie, Gavin** (Geography, Geology, Environment, and Planning). *Faculty Mentor: Katherine Farnsworth*
- P55. Indiana Blighted Property Inventory.  
**Leadbeater, Vernon** (Geography, Geology, Environment, and Planning); **Rura, Riley; and Jones, Trajan**. *Faculty Mentor: John Benhart*

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- P56. Indiana Borough Active Transportation Plan.  
**Hudzicki, Taylor** (Geography, Geology, Environment, and Planning); **Thompson, Isaac; and Seidel, Dakota**. *Faculty Mentor: John Benhart*
- \*P57. Spatial Data Development for Indiana County Active Transportation Plan.  
**Kolakowski, James** (Geography, Geology, Environment, and Planning). *Faculty Mentor: John Benhart*
- \*P58. Water Budget Study of Marsh Run Watershed: A Small Urbanized Headwater Stream.  
**Rabon, Molly** (Geography, Geology, Environment, and Planning); **and Farnsworth, Katherine**. *Faculty Mentor: Katherine Farnsworth*

#### **SESSION R: Archaeology and Anthropology**

- P59. A Comparative Analysis of Boat Petroglyphs.  
**Chadwick, Parker** (Anthropology). *Faculty Mentor: Benjamin Ford*
- \*P60. Raw Material Usage of Formal and Expedient Stone Tools at the Squirrel Hill Site.  
**Filmyer, Amanda** (Anthropology). *Faculty Mentor: Lara Homsey-Messer*
- \*P61. An Archaeology of Western Pennsylvania oil boom towns – Modoc City: Statistical Analysis of Artifacts.  
**Nagle, Ashley** (Anthropology). *Faculty Mentor: Lara Homsey-Messer*
- P62. Drinking at the County Seat: An Archaeological Analysis of a Revolutionary War Era Tavern.  
**Farley, Richard** (Anthropology). *Faculty Mentor: Benjamin Ford*
- P63. Presque Isle Metal Detection Survey Sampling Evaluation.  
**Garcia, Brandon** (Anthropology). *Faculty Mentor: Lara Homsey-Messer*
- P64. Statistically analysis for Newport Site.  
**Liu, Jiahan** (Anthropology). *Faculty Mentor: Lara Homsey-Messer*
- P65. Testing Sampling Survey Techniques at Mary Rinn.  
**Szczotka, Robert** (Anthropology). *Faculty Mentor: William Chadwick*
- \*P66. Watershed 8B Archaic and Woodland Sites.  
**Roland, Caitlin** (Anthropology). *Faculty Mentor Lara Homsey-Messer:*
- \*P67. Evaluating the Effectiveness of Standard Sampling Methods in Brush Valley Lutheran Cemetery.  
**Zellers, Stephanie** (Anthropology). *Faculty Mentor: Lara Homsey-Messer*
- P68. The Impact of Side: A Statistical Investigation of Humeral Osteometric Data.  
**Kamler, Anthony** (Anthropology). *Faculty Mentor: Andrea Palmiotto*
- \*P69. The Effects of Varying Soil pH and Aluminum Foil on the Elemental Composition of Bones in a Forensic Setting.  
**Motacek, Raeann** (Anthropology); **and Gonzales, Lily**. *Faculty Mentor Andrea Palmiotto:*
- \*P70. A Zooarchaeological Analysis of Faunal Remains from Pockoy 1, a Shell Ring on the Botany Bay Plantation Heritage Preserve, Charleston County, South Carolina.  
**Winters, Hannah** (Anthropology). *Faculty Mentor: Andrea Palmiotto*

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## **SESSION S: STEM High School Poster Presentations**

*This session features exemplary research conducted by a select group of Indiana Area High Schools students under the mentorship of Ms. Emily Hixson.*

S01	Paint for Blind People.	<b>Ali, Vania</b> (9 <sup>th</sup> grade)
S02	Innovation of 3D Printed Knee Braces.	<b>Branan, Kiley</b> (11 <sup>th</sup> grade)
S03	The Effect of Aeroponics and Hydroponics on Plant Growth.	<b>Conrad, Jenna</b> (12 <sup>th</sup> grade)
S04	Mold Growing on Bread—How to Reduce Food Waste.	<b>Cowburn, Hannah</b> (9 <sup>th</sup> grade)
S05	Tired of Friction—Tire Treads.	<b>Dunmyer, Gavin</b> (9 <sup>th</sup> grade)
S06	Autonomous Solar Powered Pneumatic Soil Collection Robot.	<b>Farag, Yahya</b> (2 <sup>1st</sup> grade)
S07	Coal Run Off in Water—Abandoned Mine Drainage?	<b>Grimm, Emma</b> (11 <sup>th</sup> grade)
S08	Pyrocystis fusiformis' relationship with quality of water.	<b>Huang, Jinrui</b> (12 <sup>th</sup> grade)
S09	Using Science to Break Bad Habits.	<b>Kinneer, Elizabeth</b> (9 <sup>th</sup> grade)
S10	Crystals Effect on Phone EMF's.	<b>Krimin, Olivia</b> (11 <sup>th</sup> grade)
S11	A Magnet's Effect on the Movement of Charged Particles.	<b>Kuzneski, Andrew</b> (12 <sup>th</sup> grade)
S12	Gravity Battery Project.	<b>Lin, Sanderson</b> (11 <sup>th</sup> grade)
S13	Plant.	<b>Lin Xu, Belinda</b> (11 <sup>th</sup> grade)
S14	How to Combat Oil Spills.	<b>Newman, Trista</b> (12 <sup>th</sup> grade)
S15	Testing Environments.	<b>Runge, Julia</b> (11 <sup>th</sup> grade)
S16	UV Light Disinfection.	<b>Runge, Sophie</b> (11 <sup>th</sup> grade)
S17	Light on Microbial Growth.	<b>Stevens, Lillian</b> (9 <sup>th</sup> grade)
S18	Spectator's Effect on Athletic Performance Mindset.	<b>Manzek, Victoria</b> (11 <sup>th</sup> grade)
S19	Storage of Solar Energy using Electrolysis.	<b>Wu, Victor</b> (12 <sup>th</sup> grade)
S20	Biochemistry Project.	<b>Yang, Athena</b> (12 <sup>th</sup> grade)
S21	The Effect of Menstrual Products on the User and Environment.	<b>Yuha, Isabella</b> (10 <sup>th</sup> grade)



## Three-Minute Thesis Competition

Toretti Auditorium

1:00–2:00pm

*This exciting event features graduate students advancing from the preliminary competition into the final round of the 3-Minute Thesis competition. Students have exactly three minutes to present their original scholarship with the aid of one static PowerPoint slide.*

T01	Gann, Sarah (Psychology).	<i>Amaru: A Golden Key to the Adolescent Mental Health Crisis.</i>
T02	Nahar, Lizoon (Professional Studies in Education)	<i>Inquiry-Based Learning Through Virtual Laboratory: A New Era of Learning Science.</i>
T03	Miller, Ryan (Business and Information Technology)	<i>The Moderating Role of Situational Awareness on the Effects of Supply Chain Flexibility and Agility on Firm Performance in the Manufacturing Industry</i>
T04	Yim, Andrew (English)	<i>How Multilingual and Second Language (L2) Students' Self-Sponsored and Everyday Writing Practices Affect their Writing Development Inside and Outside a First-Year Writing Academic Classroom.</i>

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Almomen, Amina	Undergraduate	P02
Alyahya, Reem	Undergraduate	I1 (11:00-11:20)
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Barnes, John	Undergraduate	P46
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Butler, Destiny	Undergraduate	P02
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Chadwick, Parker	Undergraduate	P59
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Cross, Daniel	Undergraduate	P48
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Dunmyer, Gavin	High School	S05
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Gonzales, Lily	Undergraduate	*P69
Good, Zaryn	Undergraduate	P21
Gress, Ryan	Undergraduate	P21
Grimm, Emma	High School	S07
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Haring, Jack	Undergraduate	H2 (11:20-11:40)

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Hepler, Morgan	Undergraduate	*P27
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Miller, Joe	Graduate	*F2 (11:20-11:40)
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Sasai, Sinti	Graduate	*F1 (11:00-11:20)
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Yang, Athena	High School	S20
Yuha, Isabella	High School	S21
Zakki, Khadija	Graduate	*P07
Zandier, Cassidy	Undergraduate	P20
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