18th Annual Graduate Research Symposium
March 15th-16th, 2019

Thinking Forward

wm.edu/as/grs
The cover image is of the College of William & Mary’s 1918-1919 Freshman Class and appears in the 1919 Colonial Echo. This year, William & Mary honors the 24 women who enrolled in 1918-1919, forever changing the learning and living environment of the University.

Photo provided courtesy of Special Collections Research Center, William & Mary Libraries
18th Annual Graduate Research Symposium
Schedule at a Glance

Thursday, March 14, 2019 -- Sadler Center

6:30 pm - 8:00 pm  Annual Raft Debate
                  Chesapeake ABC

Friday, March 15, 2019-- Sadler Center

8:00 am - 8:30 am  Registration
                   Chesapeake AB

8:30 am - 9:30 am  Concurrent Sessions
                   Tidewater A, Tidewater B, Chesapeake C, James Room, York Room

9:45 am - 10:45 am Concurrent Sessions
                   Tidewater A, Tidewater B, Chesapeake C, James Room, York Room

11:00 am - 12:00 pm Concurrent Sessions
                   Tidewater A, Tidewater B, Chesapeake C, James Room, York Room

11:45 am - 1:00 pm  Luncheon
                    Chesapeake AB

1:15 pm - 2:15 pm  Concurrent Sessions
                   Tidewater A, Tidewater B, James Room

2:30 pm - 3:30 pm  Concurrent Sessions
                   Tidewater A, Tidewater B, James Room, York Room

3:30 pm - 6:00 pm  Poster Presentations/Professional Development and Networking Reception
                   Chesapeake ABC

Saturday, March 16, 2019 -- Sadler Center

8:00 am - 8:30 am  Registration
                   Chesapeake AB

8:30 am - 9:30 am  Concurrent Sessions
                   Tidewater A, Tidewater B, Chesapeake C, James Room, York Room

9:45 am - 10:45 am Concurrent Sessions
                   Tidewater A, Tidewater B, Chesapeake C, James Room, York Room

11:00 am - 12:00 pm Awards for Excellence in Scholarship Presentations
                    Tidewater A

12:00 pm - 1:30 pm  Luncheon & Awards Ceremony
                    Chesapeake AB

https://www.wm.edu/as/grs
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<tr>
<th>Time</th>
<th>Session A</th>
<th>Session B</th>
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<tr>
<td>8:30-9:30</td>
<td>Tidewater A: Joseph Cuozzo, Savannah Cuozzo, Scott Madaras, Andrew Rotunno</td>
<td>Tidewater B: Eden Maness, Sarah Blumenthal, Claire Gallagher, Rachel Scrivano</td>
<td>Chesapeake C: Joseph Lawless, Zhongze Pan, Anjee Gorkhani</td>
<td>James Room: Kaushal Kafie, Syed Rizvi, Hongyuan Liu</td>
<td>York Room: Grover Conner, Grant Stanton, Marie Pellissier</td>
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<td></td>
<td>Chair: Eugeniy Mikhailov, Proctor:</td>
<td>Chair: Josh Burk, Proctor:</td>
<td>Chair: Jennifer Mellor, Proctor:</td>
<td>Chair: Weizhen Mao, Proctor:</td>
<td>Chair: Adreinne Petty, Proctor:</td>
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<td>9:45-10:45</td>
<td>Tidewater A: Yan Wang, Christopher Weld, Avishi Abeywickrama, Omaththe</td>
<td>Tidewater B: Nichole Gustafson, Benjamin Thompson, Qijue Wang</td>
<td>Chesapeake C: Marco Merchand, Archana Radhakrishnan, Adam Chiciak, Hao Xu</td>
<td>York Room: Kaila Schwartz, Hamza Radid, Mitchell Oxford</td>
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<td>Chair: Larry Leemis, Proctor:</td>
<td>Chair: Margaret Saha, Proctor:</td>
<td>Chair: Marc Sher, Proctor:</td>
<td>Chair: Kathrin Levitan, Proctor:</td>
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<td>11:00-12:00</td>
<td>Tidewater A: Ti Hsu, Repairer Etuk, Danielle Gilmore, Bendu Jackson</td>
<td>Tidewater B: Daniel Borrus, Sudip Paudel, Cameron Grover, Ryan Chaban</td>
<td>Chesapeake C: Nick Belluzzo, Erin Schwartz, Chandler Fitzsimons</td>
<td>James Room: Alexis Ohman, Hyunyoung Moon, Jennifer Ross</td>
<td>York Room:</td>
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<tr>
<td></td>
<td>Chair: Catherine Forrestell, Proctor:</td>
<td>Chair: Christopher Del Negro, Proctor:</td>
<td>Chair: David Armstrong, Proctor:</td>
<td>Chair: Martin Gallivan, Proctor:</td>
<td>Chair: Leisa Meyer, Proctor:</td>
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<tr>
<td>12:00-1:00</td>
<td>Luncheon - Chesapeake AB</td>
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</tbody>
</table>
18th Annual Graduate Research Symposium
Friday, March 15, 2019

Highlighted names indicate award winners

1:15-2:15 Tidewater B
Amanda Werrell
Heather Kenny
Robert Galvin
Rachel Davis

Chair: John Swaddle

James Room (1:15-3:00)
Summer Moore
Laura Beltran-Rubio
Rebekah Plant
Jessica Bittner

York Room
Zarah Quinn
Molly Shilo
Brian Jones

Chair: A. Horning/J. Kahn

3:30-5:30 Poster Presentation and Networking Reception - Chesapeake ABC
1) Kenneth Blackshaw
2) Timothy Boycott
3) Madeleine Bruce
4) Jessica Burns
5) Yi Cui

6) John Mart DelosReyes
7) Lisa Graves
8) Walter Hardy
9) Daryl Hesse
10) Mohamed Ibrahim

11) Prajkt Kallurkar
12) Ali Kucukozyigit
13) Julie Laudenschlager
14) Casey McLaughlin
15) Molly Miller

16) Megan Moran
17) Adenrel Oludiran
18) Tanvi Patel
19) Chenoa Payne
20) Olivia Penrose Hamouch

21) Astha Pokhrel
22) Asia Poudel
23) Fatima Quddos
24) Nyx Robey
25) Caroline Schlutius
26) Kasey Sease
27) Yasaman Setayeshpour
28) Morgan Shelton
29) Emma Walhout

Presenters are listed in order of appearance
Revised 03/05/19
18th Annual Graduate Research Symposium
Saturday March 16, 2019

Highlighted names indicate award winners

8:30-9:30 Tidewater A
Muloongo Simuzingili
Hongyang Zhao
Taiwo Oguntuyo

Chesapeake C (8:30-10:30)
Jasmine Parham
Katherine Bernis
Adrienna Bingham
Meredith Andersen
Federica Castellani

Chair: Eleanor Silverman
Proctor: Morgan Claybrook

9:45-10:45 Tidewater A
Cheng Li
Michele Tufano
Susan Zehra

Tidewater B
Kenneth Kaizer
Lauren Howard
Annette Cohn-Lois

Chair: Robert Saunders
Proctor: Chair: Michael Bracken

James Room
Olawenra Lasisi
Tomas Evans
Madeline Basset

York Room
Kelsey Shaffer
Joshua Lipson
Tianfang Yang

Proctor: Proctor: Proctor:

11:00-12:00 W&M Awards for Excellence in Scholarship Presentations - Tidewater A

W&M Interdisciplinary Award for Excellence in Research -- David Marquis
W&M Award for Excellence in the Humanities and Social Sciences -- Alexandra Macdonald
W&M Award for Excellence in the Natural and Computational Sciences -- Sofya Zaytseva

12:00-1:30 Luncheon & Awards Ceremony - Chesapeake AB

Presenters are listed in order of appearance
Revised 03/05/19
Friday 8:30 AM

**TIDEWATER A — Responses of Atoms and Materials**
Andreev Reflection in Graphene–Superconductor Junctions in the Quantum Hall Regime  
**Joseph Cuozzo** (William & Mary)
Tunable Dispersion via Four-wave Mixing for Enhance Laser Frequency Response  
**Savannah Cuozzo** (William & Mary)
Ultrafast Response of Thin Film Vanadium Dioxide Grown on Titanium Dioxide Doped with Niobium  
**Scott Madaras** (William & Mary)
Radiofrequency AC Zeeman Force for Ultracold Atoms  
**Andrew Rotunno** (William & Mary)

**TIDEWATER B — Of Fish and Men**
The Effects of Orexinergic Manipulations in a Pharmacological Model of Schizophrenia: Identifying Novel Therapeutic Targets  
**Eden Maness** (William & Mary)
Effects of an Orexin-2 Receptor Agonist on Attention Following Loss of Cortical Cholinergic Inputs  
**Sarah Blumenthal** (William & Mary)
Spatial Management of Benthic Resources fisheries in Chile  
**Claire Gallagher** (James Madison University)
Age-Related Differences in Inhibition: Investigation of Simon and Flanker Conflicts in ERP  
**Rachel Scrivano** (William & Mary)

**CHESAPEAKE C — Digital Culture and Technologies**
The Viral Inquisition of the HIV-Positive Body: Technologies of Confession and Avowal on Grindr  
**Joseph Lawless** (William & Mary)
Association Between Physician Fees And Quality Of HIV Care  
**Zhongzhe Pan** (Virginia Commonwealth University)
Early Information Access to Alleviate Emergency Department Congestion  
**Anjee Gorkhali** (Old Dominion University)

**JAMES ROOM — Assisted Automation**
A Study of Data Store-based Home Automation  
**Kaushal Kafle** (William & Mary)
ASAP: An Agent-Assisted Smart Auction-Based Parking System in Internet of Things  
**Syed Rizvi** (Old Dominion University)
Architectural Support for Efficient Large-Scale Automata Processing  
**Hongyuan Liu** (William & Mary)
18th Annual Graduate Research Symposium
Detailed Schedule

Friday 8:30 AM

**YORK ROOM — Acting for Change**
A Prairie Fire in Virginia: Divergent Approaches in the Sit-In Movement of 1960
  *Grover Conner* (William & Mary)
The Language of Liberty: Petitioning for Freedom in Revolutionary Massachusetts, 1773-1777
  *Grant Stanton* (University of Pennsylvania)
“Patriotism Was No Passive Virtue:” The Woman’s Christian Temperance Union and the Fight for Woman Suffrage, 1898-1920
  *Marie Pellissier* (William & Mary)

Friday 9:45 AM

**TIDEWATER A — Applied Science to the Extreme**
Persistence and Extinction of Population in Reaction-Diffusion-Advection Model with Weak Allee Effect Growth
  *Yan Wang* (William & Mary)
Golden Quantile Rank Sets: Implications and Applications of a “Perfectly” Representative Sample
  *Christopher Weld* (William & Mary)
Exfoliation of Graphene at Liquid-Liquid Interfaces and Study of Interfacial Forces
  *Avishi Abeywickrama* (William & Mary)
Characterization and Modeling of the Mechanical Anisotropy of Recluse Silk
  *Omaththage Dinidu Perera* (William & Mary)

**TIDEWATER B — Beetles, Bats and Spiders, Oh My!**
Herbivores as Conditional Mutualists: Red Milkweed Beetle (*Tetraopes tetrophthalmus*) and Common Milkweed (*Asclepias syriaca*)
  *Nichole Gustafson* (William & Mary)
Establishing the first unbiased baseline for aggregation size and genetic health of the endangered Fijian free-tailed bat
  *Benjamin Thompson* (Christopher Newport University)
Vibrational Spectroscopy of Nanofibrillar Spider Silk
  *Qijue Wang* (William & Mary)
**Friday 9:45 AM**

**CHESAPEAKE C — On the Lattice**
Phenomenology of 2HDM-Radion Mixing as Probe of a Compact Extra Dimension  
**Marco Merchand** (William & Mary)
Studying $K_\tau \to K^* \to K_\pi$ Transition Form Factors Using Lattice QCD  
**Archana Radhakrishnan** (William & Mary)
Magnetic Orders in the Hole-Doped Three-Band Hubbard Model: Spin Spirals, Nematicity, and Ferromagnetic Domain Walls  
**Adam Chiciak** (William & Mary)
Phase Diagram of the Two Dimensional Hubbard Model  
**Hao Xu** (William & Mary)

**YORK ROOM — A World of Religion**
A Uniform “Hebrew Invasion” Replacing the “Pagan and Popish”?: Naming in the Puritan Anglo-Atlantic in the 16th and 17th c.  
**Kaila Schwartz** (William & Mary)
The Crisis of French laïcité in Contemporary Pluralistic Republic  
**Hamza Radid** (Drew University)
Power in Portraiture: Catherine Spalding and the Sisters of Charity of Nazareth  
**Mitchell Oxford** (William & Mary)

**FRIDAY 11:00 AM**

**TIDEWATER A — Stressful Studies**
A Daily Diary Investigation of the Effects of Stress on the Eating Behavior of Adolescents  
**Ti Hsu** (William & Mary)
Automatic Approach and Avoidance Tendencies to Healthy and Unhealthy Foods in Food Neophobic Children  
**Repairer Etuk** (William & Mary)
Examine Chronic Absenteeism Using Systemic Questioning  
**Danielle Gilmore** (George Washington University)
First Generation Study: Stress, Depression, and Academic Success  
**Bendu Jackson** (William & Mary)
18th Annual Graduate Research Symposium
Detailed Schedule

Friday 11:00 AM
TIDEWATER B — Rhythmic Studies
Unraveling the Mechanisms Behind the Eupnea and Sigh Rhythms
  
  **Daniel Borrus** (William & Mary)
  Role of Calcium Activity During Early Neural Development
  **Sudip Paudel** (William & Mary)
  Cell-specific Laser Ablation of Pacemaker Dbx1 Neurons Will Determine Their Role in Respiratory Rhythmogenesis
  **Cameron Grover** (William & Mary)

CHESAPEAKE C — It’s Only Nuclear Physics
Correcting Precision Electroweak Nuclear Physics Experiments for Beam Parameter Fluctuations
  
  **Victoria Owen** (William & Mary)
  Numerical SOLPS-ITER Study of the Effect of Fueling on Ionization and Neutral Density Profiles on the Alcator C-Mod Tokamak
  **Richard Reksoatmodjo** (William & Mary)
  Searching for Exotic Mesons in the Five-Pion Decay Mode at GlueX
  **Amy Schertz** (William & Mary)
  Two is Better than One: Using Stereoscopic Cameras to Study Tokamak Exhaust
  **Ryan Chaban** (William & Mary)

JAMES ROOM — Situating Archaeological Landscapes
I waenakonu o ka ‘a‘ā: Environmental Uncertainty and Community Resilience at Manukā, Hawai‘i Island
  
  **Nick Belluzzo** (William & Mary)
  Visible Labor, Invisible Landscapes: Transformation of Spaces and Selves in the Early Industrial South
  **Erin Schwartz** (William & Mary)
  Whose Mountain Is it Anyway?: Landscape Approaches to Archaeology, Identity, and Positionality in Abiquiú, New Mexico
  **Chandler Fitzsimons** (William & Mary)

YORK ROOM — Soldiering On
Making Their Mark: Ceramics and Soldier Identity in the 19th-century Caribbean
  
  **Alexis Ohman** (William & Mary)
  Drone Warfare and Female Warrior: ‘Good Kill' and ‘Eye in the Sky'
  **Hyunyoung Moon** (William & Mary)
  Tactics of Battle, Strategies of State: Counterterrorism and the Hurricane Katrina Exception
  **Jennifer Ross** (William & Mary)

12:00 PM   Chesapeake A/B – LUNCH – Open to all presenters

denotes award winner
FRIDAY 1:15

TIDEWATER B — Birds of a Feather
Does a “Sonic Net” Protect Sunflower from Damage by Blackbirds?
   **Amanda Werrell** (William & Mary)
Investigating the Interaction Between Anthropogenic Noise and Bold and Shy Personality Types in Eastern Bluebirds
   **Heather Kenny** (William & Mary)
Wading Bird Use of Living Shorelines and Natural Fringing Marshes
   **Robert Galvin** (William & Mary)
Methylmercury Exposure on Tissue-specific Reduction in Telomere Length in Multiple, Early Ages in the Zebra Finch
   **Rachel Davis** (William & Mary)

JAMES ROOM (1:15-3:00) — Places in Time
Contrast and Connection in the Hinterlands: Household Archaeology at Post-Contact Hawaiian House Sites, Kaua‘i Island, Hawai‘i
   **Summer Moore** (William & Mary)
Fashioning the Criollo: Female Dress and the Creation of Local Identities in Eighteenth-Century Spanish America
   **Laura Beltran-Rubio** (William & Mary)
Heterotemporality, Materiality, and “Social Stratigraphy”: Toward a Life History of Bacon’s Castle, Surry County, Virginia
   **Rebekah Planto** (William & Mary)
Archaeologists as 'Time Detectives' in the Construction of Indigenous Heritage Tourism Destinations
   **Jessica Bittner** (William & Mary)

YORK ROOM — You’re Only Human
Haunted by the Human: Science, Storytelling, and the Anthropocene
   **Zarah Quinn** (William & Mary)
"I Feel Your Pain": Service-Learning, Anti-Racism, and the Liberal Narrative of Empathy
   **Molly Shilo** (William & Mary)
Paul Motian and Performance Capital: Expressive Labor in New York City, 1958-1964
   **Brian Jones** (William & Mary)

*denotes award winner*
Friday 2:30 PM

**TIDEWATER A (2:30-4:00 pm) — Smart Minds Also Need Modeling**

SSD Failures in the Field: Symptoms, Causes, and Prediction Models  
**Jacob Alter** (William & Mary)
Towards Reconstructing Software Evolution Trends with Statistical Models  
**David Nader** (William & Mary)
IoT Botnet Detection via Power Consumption Modeling  
**Woosub Jung** (William & Mary)
Shape-Based High-Dimensional Latent Source Model for Trajectory Inference  
**Xiaodan Zhu** (William & Mary)
GraphPhi: Efficient Parallel Graph Processing on Emerging Throughput-oriented Architectures  
**Zhen Peng** (William & Mary)

**TIDEWATER B — Water Power**

Invasive Species Research in Compensatory Wetland Mitigation  
**Dakota Hunter** (William & Mary)
Describing the Regional Population Structure of a Salt Marsh Obligate Butterfly, *Panoquina panoquin*  
**Sam Mason** (William & Mary)
Flooding and Electoral Outcomes: Lessons From Buenos Aires, 2015  
**Kylie Wheeler** (William & Mary)

Friday 2:30 PM

**YORK ROOM — Understanding Interactions**

Measuring Charged Current Muon Neutrino Cross Sections in the MINERvA Experiment  
**Amy Filkins** (William & Mary)
Applications of Local Embedding and Effective Downfolding in the Auxiliary-Field Quantum Monte Carlo Method  
**Brandon Eskridge** (William & Mary)
Microstructural Engineering of the UV/Near-UV Photocurrent Production in VO₂ Thin Film Based Detectors  
**Jason Creeden**
An Infrared Investigation of the Insulator-To-Metal Transition in a Thin, Epitaxially Strained VO₂ Film  
**David Lahneman** (William & Mary)

*denotes award winner*
18th Annual Graduate Research Symposium
Detailed Schedule

Friday 3:30 PM
Chesapeake A/B/C – POSTER PRESENTATION AND NETWORKING RECEPTION

UV Photodissociation Dynamics of Brown Carbon Chromophores: ortho-Nitrophenol and Nitroresorcinol
   Kenneth Blackshaw (William & Mary)
Reducing Avian Collisions with Human-Made Structures: an Informed Sensory Ecology Approach to Open-Air Settings
   Timothy Boycott (William & Mary)
Large-Scale Evaluation of Infants' Looking Patterns to Dynamic Audiovisual Displays
   Madeleine Bruce (Virginia Tech)
Changes in Study Methods and Problem-solving after Instruction in Sketching as Part of an Introductory Biology Course
   Jessica Burns (William & Mary)
The Chills As a Unique Sensational Response to Inspiration
   Yi Cui (William & Mary)
Estimation of the Correlation via the Bootstrap: Non-normal Distributions
   John Mart DelosReyes (Old Dominion University)
Sensitization of Photochromic Reactions by Conjugated Polymer Nanoparticles
   Lisa Graves (William & Mary)
How Art Can Dramatically Increase the Life Expectancy of African Americans
   Walter Hardy (Norfolk State University)
How Paternal Contact Affects School Success in Children with Incarcerated Mothers
   Daryl Hesse (William & Mary)
Design and Analysis of Efficient Inter-core Communication in GPUs
   Mohamed Ibrahim (William & Mary)
Burstlet Hypothesis of Inspiratory Rhythm Generation: Are Rhythm- and Pattern- Generation Separate Mechanisms?
   Prajkta Kallurkar (William & Mary)
Changes in the Security Environment and Its Effects on Emerging Leadership Skills
   Ali Kucukozyigit (Old Dominion University)
Disparities in Time to Treatment for Breast Cancer Patients in Virginia
   Julie Laudenschlager (University of Virginia)
Feather Corticosterone as a Bioassay for Stress from Mercury Exposure
   Casey McLaughlin (William & Mary)
A Longitudinal Examination of the Effects of Parental Emotion Socialization on Adolescent Anxiety
   Molly Miller (William & Mary)

denotes award winner
18th Annual Graduate Research Symposium
Detailed Schedule

Friday 3:30 PM
Chesapeake A/B/C – POSTER PRESENTATION AND NETWORKING RECEPTION

Mine Affinities of Townsend’s Big-eared Bat (*Corynorhinus townsendii*) in Nevada
   Megan Moran (Christopher Newport University)
Characterizing the Activity of Amps Against the Pathogenic Bacterium *Clostridium difficile* In Anaerobic Environment
   Adenrel Oludiran (Old Dominion University)
Use of Thermal Imaging for the Study of Harbor Seal (Phoca vitulina) Habitat Associations
   Chenoa Payne (Christopher Newport University) Electron Transfer Reactions on Hyperbolic Metamaterials
   Olivia Penrose Hamouch (Norfolk State University)
Single-cell Characterization of Clostridium difficile Motility and Chemotaxis Using Anaerobic Live Cell Microscopy
   Astha Pokhrel (Old Dominion University)
The Molecular Basis of Antibiotic Resistance in Clostridium difficile
   Asia Poudel (Old Dominion University)
Changes in the Abundance of B-Cell Population in the Spleen of Spawning Sockeye Salmon
   Fatima Quddos (William & Mary)
Mentoring Characteristics in a Bi-National Sample
   Nyx Robey (William & Mary)
Disentangling the Effects of Hybridization and Genome Duplication in Mimulus (Monkeyflower) Allopolyploids
   Caroline Schlutius (William & Mary)
Show Me the Money! Philanthropy, Capitalism, and Public Science Education in Nineteenth-Century America
   Kasey Sease (William & Mary)
The Biology of Robustness: How does SUMO Affect the Cell's Response to Stress?
   Yasaman Setayeshpour (William & Mary)
Modeling Mitochondrial Stress Response During Alzheimer’s Disease Onset
   Morgan Shelton (William & Mary)
Photochemical Processing of Filter Collected α-pinene SOA: Molecular Composition Changes and Absorption Properties
   Emma Walhout (William & Mary)

*denotes award winner*
**18th Annual Graduate Research Symposium**

**Detailed Schedule**

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**Saturday, March 16, 2019**

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**Saturday 8:30 AM**

**TIDEWATER A — Telemedicine**

The Association Of Provider Experience And Adherence To Colonoscopy Practice Guidelines On Polyp And Adenoma Detection Rates

Muloongo Simuzingili (Virginia Commonwealth University)

MobiGesture: Mobility-Aware Hand Gesture

Hongyang Zhao (William & Mary)

Globalization and Non-Profit Organizations: Effective Service Delivery Dependency on the Use of Information and Technology

Taiwo Oguntuyo (Old Dominion University)

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**TIDEWATER B — Social Climbing**


Kenneth Kaizer (George Mason University)

When Your (Social) World Changes: Exploring the Role of Relational Mobility in Social Adjustment

Lauren Howard (William & Mary)

High-Skill Emigration: Is Willingness to Leave a Country Linked With its Government Performance?

Annette Cohn-Lois (Georgetown University)

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**CHESAPEAKE C (8:30-10:30) — Dynamic Biology**

The Dietary Transfer of Methylmercury Between Aquatic and Terrestrial Food Webs in the South River Floodplain

Jasmine Parham (William & Mary)

Dentition of Living and Fossil Diodontidae (Porcupinefishes): Implications for Taxonomy of Isolated Jaws in the Fossil Record

Katherine Bemis (Virginia Institute of Marine Science)

Inter-Organ Patch Model for Competition Between Defective Interfering Particles and Wild Type Poliovirus

Adrienna Bingham (William & Mary)

Competitive Strategies and Community Composition in Mixed-Strain Saccharomyces Cerevisiae Biofilms

Meredith Andersen (William & Mary)

Molecular Dynamics Simulations of Ion Transport Through Electrically Stressed Biological Membranes

Federica Castellani (Old Dominion University)

Regulation of Somatic Cyst Stem Cell Behavior in Drosophila Testes by Chinmo Interacting Proteins

Morgan Claybrook (William & Mary)

**denotes award winner**
Saturday 8:30 AM
**JAMES ROOM — African Anthropology**
Crisis and Transformation in the “Slave Rivers” at the Dawn of the Atlantic Trade
  *Olawenraju Lasisi* (William & Mary)
Histories, Legends and Myths of the Yoruba – Politics and Possibilities in the Study of Nigerian Oral Traditions
  *Tomos Evans* (William & Mary)
Mapping Pastoralist Landscapes: Results of Archaeological Research in Djibouti
  *Madeline Bassett* (William & Mary)

**YORK ROOM — Social Networking**
Measuring Social Value
  *Kelsey Shaffer* (William & Mary)
Predicting Bias Against ASD Individuals in the University Environment
  *Joshua Lipson* (William & Mary)
Overlapping Maps: Exploring the Geographical Interplay of Personality Profiles and Political Orientation
  *Tianfang Yang* (William & Mary)
Be a Friend to Meet a Friend? The Role of Relational Mobility and Extroversion on Friendship Formation
  *Caroline Jordan* (William & Mary)

Saturday 9:45 AM
**TIDEWATER A — On the Edge**
Identity-based Encryption in Edge Computing
  *Cheng Li* (William & Mary)
Learning Bug-Fixing Patches in the Wild via Neural Machine Translation
  *Michele Tufano* (William & Mary)
AMBIENCE: An Adaptive Mobile-Edge Computing for Vehicular Networks
  *Susan Zehra* (Old Dominion University)

**TIDEWATER B — Physics Fest**
Quantum Transport in Gapped Bilayer Graphene in the Presence of Long-Range Disorder
  *Christopher Hipp* (William & Mary)
Quantitatively Accurate Numerical Modeling of Amplitude and Phase Contrast in Broadband Near-Field Infrared Spectroscopy
  *Patrick McArdle* (William & Mary)
Sensitivity Beyond the Shot-Noise Limit Using a Simplified SU (1,1) Interferometer
  *Nikunjkumar Prajapati* (William & Mary)
Potential Roughness Suppression in Microwave Chip Traps
  *Shuangli Du* (William & Mary)
Saturday 9:45 AM
**JAMES ROOM — Bodies of Power**
The Brafferton Club: Playing Indian at William & Mary, 1908-1918
  **Christopher Slaby** (William & Mary)
Narratives of Gender, Assimilation, and Embodied Sovereignty
  **Jessica Cowing** (William & Mary)

**YORK ROOM — Dynamic Molecular Structures**
Synthetic Control of Dimensionality in Cd(II) Complexes with Flexible Pentadentate Ligands
  **Alison Gerhard** (William & Mary)
Comparative Molecular Dynamics within the β-grasp Fold Reveals Insights into Structure and Stability
  **John Bedford** (Old Dominion University)
Intranuclear Dynamics of RTHα Mutant Thyroid Hormone Receptors
  **Rochelle Evans** (William & Mary)
QM/MM MD Simulations of the Reactivity of Zinc Finger Proteins
  **Ana Dreab** (Old Dominion University)

Saturday 11:00 AM

**TIDEWATER A — Awards for Excellence in Scholarship Presentations**
Dynamite: Southern Violence and the Transformation of the Piney Woods
  **David Marquis** (William & Mary)
“The Shop on the Corner of Wing’s Lane”: Retail Spaces in Colonial Boston
  **Alexandra Macdonald** (William & Mary)
A Study of Oyster Reef Morphology Using Remotely Sensed Data
  **Sofya Zaytseva** (William & Mary)

Saturday 12:00 PM  Chesapeake A/B – AWARDS LUNCHEON
Dear Members of the College of William & Mary Community, Visiting Presenters, and Guests,

On behalf of the Graduate Research Symposium organizing committee, I would like to welcome you all to the 18th Annual Arts & Sciences Graduate Research Symposium at the College of William & Mary! Over the past 18 years, well over 2,500 graduate students from across the country have presented their research to thousands of attendees. This year, 140 graduate students from William & Mary and 14 visiting institutions will add to this distinguished record of presenting excellence in graduate student research.

We have two special events to kick off the 18th Annual Graduate Research Symposium. The first is a professional development Elevator Pitch workshop, which will be held on Wednesday, March 13 at 5:00 pm in the Cohen Career Center. The workshop is designed to give graduate students the tools they need to develop a quick introduction summary of their credentials and expertise to quickly and effectively share with a general audience. The Raft Debate will be held the following evening on Thursday, March 14 at 6:30 pm. This event, an engaging blend of debate and comic relief, will be held in the Sadler Center, Chesapeake ABC.

The theme of this year’s symposium is “Thinking Forward.” This theme highlights and builds upon William & Mary President Katherine Rowe’s campus wide discussions focused on the future of three of the Universities core mission areas – knowledge, work and service, and also creating space for reflection and aspiration. As a way to promote interactions across disciplines, we are holding this year’s Poster Session jointly with the Networking Reception. This year’s Reception will also include a Professional Development Fair, to help students develop the skills and networks that will serve them well into their professional careers. The joint Poster Session/Professional Development Fair and Networking Reception will be held on Friday, March 15 from 3:30-6:00 pm in Chesapeake ABC. This event will give attendees the opportunity to polish their resumes, develop successful course syllabi, learn the ins and outs of academic CVs, and find out more about the services offered by the Graduate Writing Resources Center.

The success of the Graduate Research Symposium over the past eighteen years depends on all of the participants and volunteers who make this great symposium happen. I would especially like to thank the William & Mary graduate faculty, staff, and administration, and the Graduate Studies Advisory Board for their commitment to graduate students and graduate research. Last, but certainly not least, I would like to personally thank all of the members of the Graduate Research Symposium organizing committee for all of their hard work and dedication that went into making this year’s symposium better than ever!

Best,

Summer Moore
2019 Graduate Research Symposium Chair
Dear Colleagues, Students and Friends,

Welcome to the 18th annual Graduate Research Symposium at William & Mary! It is great to have you here.

Universities expand our knowledge of the world, and W&M students contribute seriously to deeper understanding in many fields on their way to advanced degrees. They then continue to do so as teachers and scholars. The Symposium provides an opportunity for our graduate students and their peers from other schools to present their work and receive comments from people in other departments and schools, as well as the greater William & Mary community. This year’s theme, “Thinking Forward,” builds upon President Katherine Rowe’s campus wide discussions focused on the future of three of William & Mary’s core mission areas – knowledge, work and service – and creates space for reflection and aspiration.

You have my best wishes for an enjoyable and rewarding time together.

Sincerely,

Michael R. Halleran
Provost
2019 Graduate Research Symposium

Program Chair
Summer Moore, Anthropology

Graduate Student Committee
Nick Belluzzo, Anthropology
Adrienna Bingham, Applied Science
Brandon Kyle Eskridge, Physics
Cheng Li, Computer Science
Rebekah Planto, Anthropology
Erin Schwartz, Anthropology

Judging Panel
Graduate student poster and oral presenters were eligible to submit a paper for award consideration in the disciplinary category of their choosing. The names and institutions of the students and advisors were removed from the submissions prior to evaluation by the judging panel. Advisors whose students submitted papers recused themselves from ranking those papers. All W&M students were eligible for the Corporate Awards and the W&M Awards for Excellence. Only W&M Master’s students were eligible for the Carl J. Strikwerda Awards.

Office of Graduate Studies & Research
Dean Virginia Torczon, Graduate Studies
Chasity Roberts
Wanda Carter
Sarah Glosson
Vicki Thompson Dopp

Sponsors
A&S Graduate Student Association
Graduate Studies Advisory Board

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Humanities & Social Sciences
Dr. Jody Allen, History
Dr. John Burton, Graduate Studies Advisory Board
Dr. Brian Morra, Graduate Studies Advisory Board
Prof. Elaine McBeth, Public Policy
Dr. Susan Rawles, Graduate Studies Advisory Board
Dr. Betsy Sigman, Graduate Studies Advisory Board

Natural & Computational Sciences
Dr. David Armstrong, Physics
Dr. Robert Barnet, Psychological Sciences
Dr. Adwait Jog, Computer Science
Dr. Oliver Kerscher, Biology
Dr. Gunter Luepke, Applied Science
Dr. Matthias Leu, Biology
Dr. Tyler Meldrum, Chemistry
Dr. Cynthia Morton, Graduate Studies Advisory Board
Dr. David Opie, Graduate Studies Advisory Board
Dr. Leah Shaw, Mathematics

Mentoring Awards: Humanities & Social Sciences
Dr. Tuska Benes, History
Dr. Alexandra Joosse, Public Policy
Dr. Neil Norman, Anthropology
Dr. Bob Scholnick, American Studies

Mentoring Awards: Natural & Computational Sciences
Dr. Christopher Del Negro, Applied Science
Dr. Diane Shakes, Biology
Dr. Mike Nichols, Psychological Sciences
Dr. J.C. Poutsma, Chemistry
Dr. Zhenming Liu, Computer Science
Dr. Leah Shaw, Mathematics/COR
Dr. Patricia Vahle, Physics
William & Mary
Interdisciplinary Award for Excellence in Research

This award acknowledges the graduate student whose research presentation demonstrates original investigation and the integration of knowledge, and distinguished excellence in scholarship through potential contribution to the discipline and recognition by peers. The top three papers submitted in the category of W&M Humanities and the top three papers submitted in the category of W&M Natural & Computational Sciences competed for the overall Award for Excellence in Research. The papers were judged blindly by an independent panel of William & Mary faculty. The paper by the following student was selected to merit an award among the outstanding submissions.

David Marquis
Ph.D. Candidate - Department of History
Advisor: Dr. Cindy Hahamovitch

_Dynamite: Southern Violence and the Transformation of the Piney Woods_

As a Ph.D. candidate in the department of History at William & Mary, David’s research focuses on the social history of working-class in the Southern timber industry during the early twentieth century.

Join David as he presents his award winning research
Saturday, March 16, 2019
11:00am-12:00pm in Tidewater A
The Arts & Sciences Graduate Studies Advisory Board at William & Mary is a proud sponsor of the 2019 Graduate Research Symposium

The Graduate Studies Advisory Board is a group of educational, corporate, and community leaders with a commitment to enhancing the quality of graduate education in Arts & Sciences at William & Mary. We commend the attendees of the Graduate Research Symposium for their dedication to excellence in research.

The missions of the Graduate Studies Advisory Board are:
- Development/fundraising to increase graduate Arts & Sciences financial resources
- Assisting in the building of a graduate Arts & Sciences community
- Enhancing professional development opportunities for graduate students
- Advocating for graduate Arts & Sciences within the William & Mary community

Arts & Sciences graduate programs are critical to the mission of William & Mary and to its status as a research university. Graduate programs strengthen the undergraduate program by providing research and mentoring opportunities, and are essential in retaining approximately a third of William & Mary's faculty members in Arts & Sciences.

By sponsoring the 2019 Graduate Research Symposium, initiating the Distinguished Thesis and Dissertation Awards, the Carl J. Strikwerda Awards for Excellence and the S. Laurie Sanderson Awards for Excellence in Undergraduate Mentoring in Arts & Sciences, as well as providing recruitment fellowships to outstanding entering graduate students, the Graduate Studies Advisory Board is playing a vital role in advancing William & Mary's graduate programs in Arts & Sciences.

Members of the Graduate Studies Advisory Board, 2018-19

President: Robert Saunders '00 BS Physics
Vice-President: Kathryn Caggiano '90 BS Math
Past President: Brian J. Morra '78 BA History
Chair, Communications and Advocacy Committee: Laura J. Terry, '03 BS Biology and Jim David '04 MA History, '10 PhD History
Chair, Finance and Development Committee: Michael Bracken, '86 BS Mathematics and John D. Burton '89 MA History, '96 PhD History
Chair, Student Professional Development Committee: David K. Hood '90 BS Chemistry, '92 MA Chemistry, '96 PhD Applied Science and David Opie '88 MS Physics, '91 PhD Physics

Diane Alleva Cáceres '87 BA Economics, '89 MA Govt
Kurt Erskine '92 BA Public Policy
Mike Hoak '02 MA History
Karen Hooker, '81 MA Psychology
Rick Kuhn, '76 BA Psychology, '77 MBA
George Miller '67 BS Physics, '69 MS Physics, '72 PhD Physics
Cynthia C. Morton '77 BS Biology
Susan Rawles '05 PhD American Studies
Judith Ridner, '88 MA History, '94 PhD History
Betsy Page Sigman '78 BA Government
Eleanor K. Silverman '85 BA Mathematics
Gail Williams Wertz '66 BS Biology

http://www.wm.edu/as/graduate/about/gradadvisoryboard/index.php
Graduate Studies Advisory Board Award for Excellence in Scholarship in the Natural and Computation Sciences

These awards acknowledge William & Mary graduate students whose research presentation demonstrates original investigation and the integration of knowledge, and distinguished excellence in scholarship through potential contribution to the discipline and recognition by peers.

To be considered for an award, presenters had to submit a 5-6 page paper describing their research. The papers were judged blindly by an independent panel of William & Mary faculty and Graduate Studies Advisory Board members. The papers by the following students were selected to merit an award among the many outstanding submissions. The corporate sponsored awards listed below were open to students from William & Mary.

Sofya Zaytseva
Ph.D. Candidate - Department of Applied Science
Advisor: Dr. Leah Shaw
A study of oyster reef morphology using remotely sensed data

As a Ph.D. candidate in the department of Applied Science at William & Mary, Sofya’s dissertation investigates pattern formation in marine systems using mathematical modeling and analysis of remotely sensed data.

Join Sofya as she presents her research
Saturday, March 16, 2019
11:00am-12:00pm in Tidewater A
Graduate Studies Advisory Board Award for Excellence in Scholarship in the Humanities and Social Sciences

These awards acknowledge William & Mary graduate students whose research presentation demonstrates original investigation and the integration of knowledge, and distinguished excellence in scholarship through potential contribution to the discipline and recognition by peers.

To be considered for an award, presenters had to submit a 5-6 page paper describing their research. The papers were judged blindly by an independent panel of William & Mary faculty and Graduate Studies Advisory Board members. The papers by the following students were selected to merit an award among the many outstanding submissions. The corporate sponsored awards listed below were open to students from William & Mary.

Alexandra M. Macdonald
Ph.D. Candidate - Department of History
Advisor: Nicholas Popper
“The Shop on the Corner of Wing’s Lane”: Retail Spaces in Colonial Boston

As a Ph.D. student in the department of History at William & Mary, Alexandra has common themes running throughout her scholarly that work include the relationship between gender and material culture in the long eighteenth-century, the intersections of material and intellectual culture, and the role(s) of space in the British Atlantic World.

Join Alexandra as she presents her research
Saturday, March 16, 2019
11:00am-12:00pm in Tidewater A
Award Recipients for Excellence in Scholarship

William & Mary Award for Excellence in the Humanities & Social Sciences

MARIE PELLISSIER
History, Advisor: Dr. Karin Wulf
“Why We Need the Ballot”:
The Woman’s Christian Temperance Union and Local Involvement in the Fight for Woman Suffrage, 1898-1920

William & Mary Honorable Mention

ALEXIS OHMAN
Anthropology, Advisor: Dr. Jennifer Kahn
Making Their Mark: Ceramics and Soldier Identity in the 19th-century Caribbean

Visiting Scholar Award for Excellence in the Humanities & Social Sciences

GRANT E. STANTON
History, University of Pennsylvania, Advisor: Dr. Daniel Richter
The Language of Liberty:
Petitioning for Freedom in Revolutionary Massachusetts, 1773-1777

Visiting Scholar Honorable Mention

KENNETH KAIZER
Anthropology, George Mason University, Advisor: Dr. Rashmi Sadana
The General Theory of Societal Domains:
The Exploration and Revelation of a Structural Framework for Human Society
Award Recipients for Excellence in Scholarship

William & Mary Awards for Excellence in the Natural & Computational Sciences

SARAH BLUMENTHAL  
Psychological Sciences, Advisor: Dr. Josh Burk  
*Effects of an Orexin-2 Receptor Agonist on Attention Following Loss of Cortical Cholinergic Inputs*

MICHELE TUFANO  
Computer Science, Advisor: Dr. Denys Poshyvanyk  
*Learning Bug-Fixing Patches in the Wild via Neural Machine Translation*

William & Mary Honorable Mentions

PRAJKTA KALLURKAR  
Applied Science, Advisor: Dr. Christopher Del Negro  
*Burstlet Hypothesis of Inspiratory Rhythm Generation: are Rhythm- and Pattern– Generation Separate Mechanisms?*

CHRISTOPHER WELD  
Applied Science, Advisor: Dr. Lawrence Leemis  
*Golden Quantile Rank Sets: Implications and Applications of a “Perfectly” Representative Sample*

Visiting Scholar Award for Excellence in the Natural & Computational Sciences

MADELEINE D. BRUCE  
Psychology, Virginia Tech, Advisor: Dr. Robin Panneton  
*Large-Scale Evaluation of Infants’ Looking Patterns to Dynamic Audiovisual Displays*

Visiting Scholar Honorable Mention

SYED RIZVI  
Computer Science, Old Dominion University, Advisor: Dr. Stephan Olariu  
*ASAP: An Agent-Assisted Smart Auction-Based Parking System in Internet of Things*
Carl J. Strikwerda Awards for Excellence

These awards recognize W&M Arts & Sciences graduate students for an outstanding written paper by a student who is engaged in thesis research/scholarship to earn an MA, MS, or MPP degree. In the spring of 2011, the Arts & Sciences Graduate Studies Advisory Board voted unanimously in support of the Board’s concept for initiating these annual awards. To be considered for an award, Graduate Research Symposium presenters had to submit a 5-6 page paper describing their research. The papers were judged blindly by an independent panel of William & Mary faculty and Graduate Studies Advisory Board members. Awardees are listed in alphabetical order.

Awards for Excellence in the Humanities & Social Sciences

GROVER JASPER CONNER
History Department, M.A./Ph.D.
Advisor: Dr. Adrienne Petty

KYLIE WHEELER
Public Policy Program, M.P.P.
Advisor: Dr. Eric Arias

Award for Excellence in the Natural & Computational Sciences

KENNETH J. BLACKSHAW
Chemistry Department, M.S.
Advisor: Dr. Nathanael Kidwell
S. Laurie Sanderson Awards for Excellence in Undergraduate Mentoring

These awards recognize Arts & Sciences graduate students for outstanding undergraduate mentoring in scholarship and research outside of classroom teaching. Such mentoring includes graduate students who mentor undergraduates in the context of the undergraduate students’ senior theses, honors theses, writing projects, term papers, or research in a laboratory, field site, museum, or archive. In the spring of 2009, the Arts & Sciences Graduate Studies Advisory Board and the Arts & Sciences Committee on Graduate Studies voted unanimously in support of the Board’s concept for initiating and funding these annual awards.

Nominations consisted of supporting statements from current or past W&M undergraduate students and faculty members. A panel of W&M faculty and Graduate Studies Advisory Board members ranked the nominations. Awardees are listed in alphabetical order.

Award for Excellence in Undergraduate Mentoring in the Humanities & Social Sciences

ZARAH QUINN
American Studies Program, Ph.D.
Advisor: Dr. Kara Thompson

Awards for Excellence in Undergraduate Mentoring in the Natural & Computational Sciences

SUDIP PAUDEL
Applied Science Department, Ph.D.
Advisor: Dr. Margaret Saha

MARIA ALEXANDRA LARRAZABAL CARRILLO
Psychological Sciences Department, M.S.
Advisor: Dr. Chris Conway

YASMAN SETAYESHPOUR
Biology Department, M.S.
Advisor: Dr. Oliver Kerscher
A workshop in conjunction with:
2019 Graduate Research Symposium,
March 15-16

MARCH 13

ELEVATOR PITCH WORKSHOP

Cohen Career Center
Presentation Room
5pm, Wed. March 13

Learn what makes a good elevator pitch, see examples, and begin to work on your own! Get ready for networking at the Graduate Research Symposium!

QUESTIONS: SGGLOS@WM.EDU
18th Annual Graduate Research Symposium

Four William & Mary faculty members from diverse disciplines are stranded on a desolate island with only a one-person life raft to escape to civilization. Who should survive for the sake of humanity?

THE ANNUAL
RAFT DEBATE

Annie Blazer for the Humanities
Drew LaMar for the Natural and Computational Sciences
John Lopresti for the Social Sciences
Michael R. Halloran as the Devil’s Advocate

Virginia Torczon as the Judge

THURSDAY, MARCH 14, 2019 @ 6:30PM
SADLER CENTER, CHESAPEAKE ABC
The Debate is free and open to the public.
Sponsored by the Office of Graduate Studies & Research
Graduate Writing Resources Center

LOCATED ON THE 1st FLOOR OF SWEM LIBRARY
Appointments are FREE

Strengthen your writing skills! Learn to improve clarity, flow, and organization at any stage of the writing process.

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