

**The Graduate & Professional
Student Council (GPSC) Presents**

19th Annual



**University of Arizona
Mall in front of Main
Library**



Friday, November 4, 9:30AM—5:00PM

Sponsors

The Graduate & Professional Council created Student Showcase in 1993 to celebrate student research. GPSC would like to acknowledge the support of many dedicated Administrators, Deans, Faculty Members, Department Heads, Directors, and Staff at the University of Arizona. Without their support Student Showcase would not exist.

2011 Student Showcase Sponsors

Office of the VP for Research, Graduate Education &
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Student Affairs

Nutrition Research Consulting

The University of Arizona BookStores

The University of Arizona Libraries & Center for Creative Photography

BIO5 Institute

The Southern Arizona section of the American Chemical Society

Katheryne Willock

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Schedule

Friday, November 4

Exhibitor Check-in and Set-up	8:00 am
Judges Breakfast in UA Library	8:00 am
Judging Begins	9:30 am
Student Showcase Opens to Public	9:30 am
Lunch Served to Exhibitors	12:00 pm
Silent Auction Begins	2:30 pm
Awards Ceremony	4:00 pm
Student Showcase Closes	5:00 pm

Agriculture & Environmental Sciences

Graduate:

- | | | |
|--|---|--|
| Michael Johnson | 1 | Hopi Navoti |
| Tania Eulalia Martinez-Cruz | 2 | THE EFFECT OF WATER STRESS ON SWEET SORGHUM, A BIOETHANOL CROP, AND THE DEVELOPMENT OF CROP COEFFICIENTS |
| Tyler DalMolin | 3 | Grain fed vs. Grass fed beef; comparison and implications |
| Lila Otero-Gonzalez | 4 | Real Time Cell Analyzer (RTCA) as a High-Throughput Tool for Nanotoxicity Assessment |
| Chelsea Jones
Helena Horne
Victoria Lowe
Jessica Kraust | 5 | Collapse and Subsequent Vitrification of Expanded Equine Blastocysts |
| Jose M. Carvajal Arroyo | 6 | Inhibition assessment of the emerging N-removal process, anaerobic ammonia oxidation (ANAMMOX) |
| Brittany Choate | 7 | Conserve to Enhance: An Innovative Mechanism for Riparian Enhancement |

Undergraduate:

- | | | |
|--|----|---|
| Sarah Klopatek | 8 | Vascularity and Beta Cell Density of Growth Re- |
| Jennifer Sepulveda | 9 | Characterization of Genes Increased by Stress Responses and Mitochondrial Retrograde Regulation in Arabidopsis thaliana |
| Rachel Maxwell
Noelle Espinosa
Taryn Contento
Polly Juang | 10 | Compost Cats: Turning Garbage into Gardens |

Note: * indicates that the student is a Coverdell Peace Corps Fellow

Architecture, Planning & Landscape Architecture

Graduate:

- Nicholas Johnson 81 Renegotiating the Interface Between the Built and Natural Environments

Undergraduate:

- Alexandra Chavez 11 Exploration of Adult Education Programs for Latino Immigrants: A Perspective on Chicago Community Organizations

Biological Sciences

Graduate:

- Alexandria Lau 12 Arsenic and Nrf2: What's p62 Got to Do with It?
- Pacifica Sommers 13 Mechanism of Buffelgrass' Impact on Native Biodiversity
- Britt Singletary 14 Is there an environmental effect on acoustic strategies of black and white ruffed lemurs in Ranomafana National Park, Madagascar?
- David Bush 15 Analysis of Collagen and Elastin Cross-linked Amino Acids in the Aorta: a Possible Cause of Hypertension
- Eyad Nusayr 16 The Differential and Gender Specific roles of the Isoforms of Fibroblast Growth Factor 2 in Cardiac Remodeling
- Tyeen Taylor 82 From Biosphere 2 to the Edge of the Amazon: Diving tropical forest responses to climate change
- Marielle Smith 17 Carbon accumulation in secondary forests and plantations in the tropics
- Alejandra Encinas 18 Role of Transforming Growth Factor beta and SOX4 in aortic valve calcification
- Nadia Corral-Frias 19 Reward as a resilience factor: Responses to psychosocial stress

Undergraduate:

- Christina Bischoff 20 The role of meningeal TRPM8 in migraine headache

Biological Sciences cont.

Andrew Ma	21	Direct Detection of DNA Methylation Using Split-Protein Sensors
Brianna Flores-Keown	22	Analysis of the Endoplasmic Reticulum Stress Response Pathway in Progressive Human Non-Alcoholic Fatty Liver Disease
Angela Schlegel	23	A Yeast-Two Hybrid Screen Indicates Dynactin 6 is a Potential Cellular Factor Involved in HPV16 Infection
Farhan Anwar	24	Surveillance and Molecular Characterization of Clostridium difficile Infections in Southern Arizona
Brian Mannakee	25	Network dynamics influence protein evolution rate
Kevin Lewis	26	Clostridium difficile Spore Proteins in Regulating Germination
Iris Charcos Megan Delgado Fernanda Gonzalez Colleen Miller Jacquelyn Thomas	27	Individual Differences in Response to Psychosocial Stress
Stephanie Aguillon	28	Ashes to Ashes, Dust to Dust: Decomposition in the Desert

Business, Public Administration & Economics

Graduate:

Katherine Carl	29	Automated Bicycle Tour Route Generation: Modeling the Perceived Exertion Required on a Daily
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Education

Graduate:

Rebecca Covarrubias	30	The College Culture of Independence: The Impact of a Cultural Mismatch on First-Generation-College Students' Performance
Taneya Walker	31	Self-Mutilation; Understanding the Psychopathology

Education cont.

Graduate:

- | | | |
|--------------------------|----|--|
| Otilia Barbu | 32 | CFA: Investigating DECA's Validity Measures in Function of Parent and Teacher Ratings |
| *Vanessa Anthony-Stevens | 83 | Negotiating local knowledge and high stakes accountability testing: educators "taking back" to standardizing practices |
| *Michelle Young | 33 | K-Ready Kids |
| *Jessica Sleeper | 34 | Literacy Zone Project: Enhancing literacy from within the community |
| *Kathryn Zaleski | 35 | How Should Iskashitaa use our ESL Classes as a Space to Increase Self-Sufficiency, Language Acquisition and as a Bridge to the Com |
| Nick Tanner | 36 | The Compensatory Role of Education: How Effective Are Schools? Summer Learning, Socioeconomic Status, and the Achievement Gap |

Undergraduate:

- | | | |
|------------|----|---|
| Megan Reed | 84 | Slipping Through the Cracks: Analyzing Educational Programs for Migrant Children in Western India |
|------------|----|---|

Engineering

Graduate:

- | | | |
|-----------------------|----|--|
| Alandra Kahl | 37 | Tracking Trace Organics in the Santa Cruz River |
| Susan LeGendre-McGhee | 38 | Evaluating Chemopreventive and Chemotherapeutic Agent Effectiveness in Colorectal Cancer with Optical Coherence Tomography |
| Theresa Klein | 97 | Understanding Human Walking using Robotics |
| James Johnson | 39 | Surface Figure Measurement of 9 μ m Ground Surfaces at Visible Wavelengths |
| *Gwendolyn Woods | 40 | Centralized vs. Decentralized Wastewater Reclamation in Tucson |
| Celine Cohn | 41 | Engineering CSS-coated PCL Electrospun Scaffolds for Antibody Immobilization and Cell Capture |

Engineering cont.

- | | | |
|--------------------------------------|----|--|
| Rui Chen | 42 | Plant fiber reinforced geopolymer – A green and high performance cementitious material |
| Andrea Corral
Vasiliki Karanikola | 43 | Solar Membrane Distillation |
| Talieh Hajzargarbashi | 44 | Detecting the point of Impact on an Anisotropic surface |
| Sang Gu Lee | 45 | Development of a Temporal and Spatial Linkage between Transit Demand and Land Use Patterns |

Undergraduate:

- | | | |
|----------------------------|----|---|
| Jessica Rimsza | 85 | Modeling of Deep Eutectic Solvents for Removal of Copper Oxides and Fluorides in Semi-Conductor Fabrication |
| Ana Moreno | 46 | Rapid Molecular Detection of Escherichia Coli using Double-Stranded DNA Probes |
| Jin Zhang | 47 | Effect of Organic Solvents on Wet Chemical Etching of Thermal SiO ₂ by Hydrofluoric Acid |
| Kira Rundel
Celine Cohn | 48 | Promoting higher cell densities on engineered cardiovascular tissue scaffolds |
| Michael Galka | 49 | Greenhouse Gas Emissions for Refrigerant Choices in Window Air Conditioner Units |
| Ishan Joshipura | 50 | Chemical Bath Deposition (CBD) of Cadmium Sulfide (CdS) As a Buffer Layer for a Prototype Low-Cost Solar Cell |
| Nabila Huq | 51 | Deposition of zinc oxide for the window layer of a low-cost flexible solar cell |
| Yizhou Fang | 52 | Deposition of a CuInS ₂ Film of a Solar Cell |

Health Sciences

Graduate:

- | | | |
|-------------------|----|--|
| Christine Burns | 53 | Investigating the association between fasting serum glucose levels and risk for Alzheimer's disease |
| Adrienne Gilligan | 54 | Health Disparities in Medication Exposure and Cost of Care Across Four State Medicaid Populations with Alzheimer's Disease |

Health Sciences cont.

- Amanda Valles 55 Analysis of waveform characteristics to predict defibrillation in out of hospital cardiac arrest due to ventricular fibrillation
- Kaitlin Bergfield 56 Network of MRI gray matter volume associated with cognitive abilities in healthy aging

Undergraduate:

- Giau Le 57 Auditory-Perceptual Judgments of Velopharyngeal Status and Nasality in Infant Vocalizations
- Kenneth Brooks 58 Contagion
- Kevin Smith
James Mertz 86 Healthcare Efficiency and the Electronic Health Record: A Time-Motion Study
- Jose Quiroz 59 Environmental Toxin Bisphenol A Induces Insulin Resistance

Humanities, Literature, & Languages

Graduate:

- *Julianne Hammink 60 Paraguayan Guarani as a pronominal argument language
- Janel Goodman 61 Metonymy in "The Tale of Genji": An Analysis of Translation Strategies
- Sherrie Stewart 87 AVATAR: Stepping Through the Looking Glass
- Kara Johnson 62 Peer Review in ESL English composition: A waste of time?

Undergraduate:

- Kevin Larger
John Doyle Wagner 88 Kazakhstan: the heart of Central Asia and a bridge between the "Foreign" and "Familiar"
- Camille Mathieu 63 Identity in Solitude: The Artifacts of the Self

Physical Sciences, Mathematics, Computer Engineering and Computer Science

Graduate:

- Victor Piercey 64 Resolving Collinearity Among Four Points in the Complex Projective Plane

Physical Sciences, Mathematics, Computer Engineering, & Computer Science cont.

- | | | |
|---------------------|----|---|
| Alyssa Janning | 65 | Evaluating the botanical coverage of PATO using an unsupervised learning algorithm |
| Brendan Fry | 66 | Mathematical Model of Metabolic Blood Flow Regulation in Microvascular Networks |
| Emily Kopp | 67 | I-V Curves from Photovoltaic Modules Deployed in |
| Esther Posner | 89 | “Tectonic Petrameter,” An Alternative Method of Teaching the Geologic Time Scale |
| Kyriacos Pavlou | 90 | Database Forensics in the Service of Information |
| Varun Khare | 68 | Large Route Leaks: Detection and Characterization |
| Edward Carlo Samson | 69 | Generation and pinning of high winding-number vortices in Bose-Einstein condensates |
| Niranjan Shivaram | 70 | Observing the Real Time Electron Dynamics in Atoms on the Attosecond Time Scale |

Undergraduate:

- | | | |
|---------------|----|---|
| Kunal Mangal | 71 | The Effect of Shocks and Stresses on the Reliability of Networks with Radial Topology |
| Ashley Anhalt | 72 | Exploring Holistic Approaches to the Characterization of Particles in the Environment |

Public Health

Graduate:

- | | | |
|-----------------|----|--|
| Deirdre Demers | 73 | Finding Family Health Solutions within the Bhutanese Refugee Community |
| Marlene Dermody | 74 | Engaging Rural Domestic Well Users in Water Quality Analyses |

Social Sciences and Law

Graduate:

- | | | |
|----------------|----|--|
| Gabriella Soto | 75 | An Archaeology of the Undocumented Journey |
| Megan Robbins | 76 | The Daily Conversations of Couples Coping with Breast Cancer |

Social Sciences & Law cont.

Ann Clark	77	Building Digital Cultural Heritage Collections in Arizona
Celina Valencia	78	Youth GPS Mapping
*Joel Correia	91	Production, Promise, & Property: A Political Ecology of the Aché Experience with Agrarian Change, Land Struggles, and Fair Trade
Jennifer Mortensen	79	Contextual Instability and the Parenting of Mexican Mothers with Toddlers
Elizabeth Tilley Ashley Jordan Tommy De Baca Triin Anton	80	Poverty and health: Why Relationship Quality Matters
Stephan Przybylowicz	92	Queer/ability: Pathology, Identity, and Community
Katherine Brooks	98	Tattoo and Body Painting Designs Reflected in Women's Beaded Collars Among Lower Colorado River Yuman Societies
Caroline Williams	93	An Examination of Alaska Native Leadership Development through Native Nations Pageants

Undergraduate:

Sara Viator	99	The Formation of Object Categories in 4.5 Month Old Infants
Anthony Adams	100	Philosophical Reflections on Christ and America: How Would Jesus Vote?
Tess Gemberling	101	Sexual Aggression
Natalie Nevárez	102	My Spidey Sense Is Tingling: Prediction Errors in Anticipated Responses to a Caged Spider
Marcea Decker	94	Struggle to Arms and Equality: Women's Involvement in Violent Nationalist Groups in South Asia
Meardey Kong	103	The Politics of U.S. Intervention in the Sex Trafficking Industry of Cambodia

Social Sciences & Law cont.

- | | | |
|---------------------|-----|---|
| Magda Mankel | 104 | Purity and Danger within the Context of the Southern Arizona Borderlands |
| Annick Hope-Ezeigbo | 105 | Change in the Meaning of Marriage for African Americans: A Qualitative Study |
| Michael Hoffman | 106 | Pack Your Things and Get Out: Athenian Ostracism as a Mechanism of Accountability in the American Democracy |
| Meghan Rice | 107 | Self-Harm: What Can School Counselors Do? |
| Kristen Simmons | 108 | Transmitting Southern Paiute Epistemology and Analyzing Sacred Sites Within A Solar Programmatic Environmental Impact Statement |
| Priscila Matei | 109 | Ethnic Identity Among African Immigrant and African American College Students |

Visual & Performing Arts cont.

Graduate:

- | | | |
|--------------|-----|--|
| Angelina Lin | 110 | Understanding the effectiveness of active exhalation as a mode to discover dynamic, spinal verticality for ballet students |
| Sheila Rocha | 95 | Theater as Ceremony: Native Nation Healing Through Word & Image |

Undergraduate:

- | | | |
|----------------|-----|------------------------------|
| Audra Cobelis | 111 | Contemporary Fresco Painting |
| Derek Passmore | 96 | Film For the Future |

Awards Ceremony

Introduction	Chris Cornelison Student Showcase Director
Keynote Speaker	Dr. Leslie Tolbert Senior Vice President for Research
Graduate Awards	Dr. Leslie Tolbert Senior Vice President for Research
Undergraduate Awards	Chris Cornelison Student Showcase Director
President's Award	Roeland Hancock GPSC President
BIO 5 Innovator's Award	Dr. Jennifer Barton Assistant Director, BIO5 Institute
Katheryne B. Willock Library Research Award	Robert Mitchell Associate Dean of the Libraries
ACS Woman's Chemist Group Award	Dr. Colleen Janczak ACS Representative
Coverdell Peace Corps Fellow Award	Georgia Ehlers Director Fellowships & Community Engagement, Graduate College
Closing Remarks	Roeland Hancock GPSC President

Category Awards

There are a total of 12 categories of research in Student Showcase. The judges will examine and evaluate student's research based on four dimensions: quality of presentation, academic merit, value to the community and overall impression. The judges will determine if an exhibit is acceptable to receive first or second prize. Prizes will be given for both graduate and undergraduate research. Each first place winner is awarded \$250 and second place winner will be awarded \$120.

President's Award

The President's Award is designed to acknowledge graduate and undergraduate students who exemplify outstanding academic research and community service. The award is donated by UA President's Office and is awarded to one graduate and undergraduate exhibitor who demonstrates the above criteria. Each winner is awarded \$500 and a plaque.

BIO5 Innovator Award

The BIO5 Innovator Award recognizes one graduate and one undergraduate student exhibitor whose work best represents the goals of BIO5 in one of the following areas: Multidisciplinary bioscience research; Innovation in education; Entrepreneurship (technology transfer, new ideas for public/private partnerships, etc.). These awards are provided by the BIO5 Institute at The University of Arizona. Each winner is awarded \$250.

Coverdell Peace Corps Fellow Award

The University of Arizona Peace Corps Coverdell Fellows promotes service and research dedicated to improving underserved communities at home and abroad. This award will recognize three graduate students who present outstanding research which advances the conditions of underserved communities. First place winner receives \$250, second place \$150 and third place \$100.

ACS Women's Chemist Group Award

The Women's Chemists Group of the Southern Arizona section of the American Chemical Society is promoting the role of chemistry in society. This award will recognize two graduate students, preferably but not necessarily female, who present outstanding research in chemistry or a related field. First place winner receives \$200 and second place \$100.

Katheryne B. Willock Library Research Award

The Katheryne B. Willock Library Research Award recognizes University of Arizona students who have made extensive and innovative use of the UA Libraries' information resources and services in support of their coursework. Up to three undergraduate and three graduate prizes will be awarded each year. For each category, \$1,000 will be awarded per prize.

Judges

The Graduate & Professional Council and the Exhibitors would like to thank the following judges for participating in Student Showcase 2011. We appreciate your time and commitment to excellence in student research.

Michael Brewer	La Monica Everett-Haynes
Donna Cochran	Rebecca Blakiston
Heidy Contreras	Alexander Ganz
Jon Dennis	Lindsey Gant
Katerina Dontsova	Amy Fatzinger
Angelica Gomez	Andy Barss
Debbi Howard	Nicole Pagowsky
Andrew Huerta	Andreas Gross
Chad Marchand	Gail Burd
Samantha Munguia	Gayatri Vedantam
Patrick Baliani	Val Thompson
Randy Ryan	Mike Mallozzi
Wenjie Sun	Sandra Perry
Paul Swan	Rick Ziolkowski
Maria Teresa Velez	Edward Kerschen
Sarah Wilkinson	Erik Hanschen
Kim Jones	Clarity White

Acknowledgements

Thank you to everyone who participated in the planning and implementation of Student Showcase 2011! This event could not have happened without the dedication and hard work of those involved. Your support is greatly appreciated.

Best regards,
Chris Cornelison
Student Showcase Director

Special Thanks

Dr. Maria Teresa Velez

Bill Shiba

Dr. Leslie Tolbert

Cynthia Bjerk-Plocke

Anne Padias

Patti Waters

Chelsea Ewer

Dr. Andrew Comrie

Dr. Dianne Horgan

Anne Padias

Chrissy Lieberman

Dr. Colleen Janczak

Georgia Ehlers

Carla Stoffle, Dean UA Libraries

Rebecca Blakiston

Katheryne Willock

Heather Ingram

Kathi Hart and the UA Facilities Management Team

Melissa, Parties Plus

Donna, US EXPO & Convention Services

GPSC Representatives

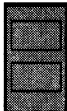
All the judges and student volunteers who donated their time

All the exhibitors for their hard work and dedication

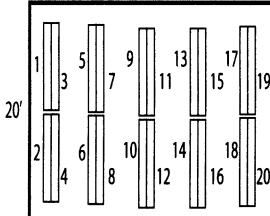
Exhibitors Map

Student Showcase 2011
The University of Arizona
November 4, 2011

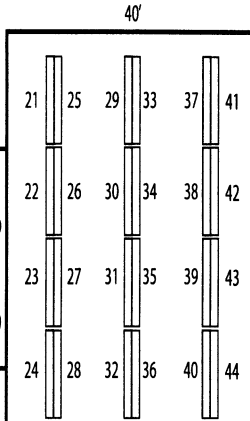
Information



40'
10'



20'



40'



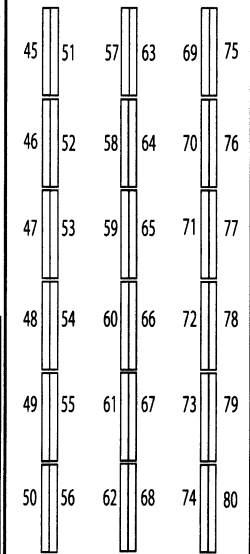
- Tables with electricity
- Exhibitor lunch tables
- Silent auction tables
- Exhibitor check-in



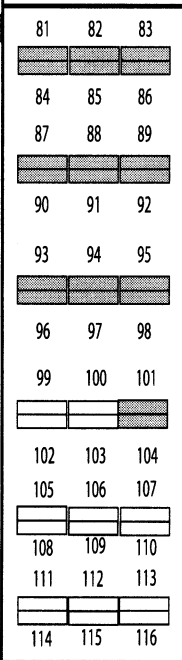
100'



Food Tables



30'



60'

UA Main Library

In memory of

Dr. Michael Cusanovich

*The GPSC will always appreciate
your years of dedication to students
across campus and passionate sup-
port for our
Student Showcase.*