Undergraduate Research and Design Symposium – Oral Presentations

Welcome to the College’s Undergraduate Research and Design Symposium (UGRADS) Oral Presentations. We have reached the 22nd year of oral presentations showcasing our Civil, Electrical, Environmental, Mechanical Engineering and Computer Science capstone projects and the 11th year of oral presentations showcasing our Environmental Sciences and Environmental Studies capstone projects. Additional poster presentations featuring the varied intellectual accomplishments that result from undergraduate research throughout the college are in the Skydome in two sessions from 9:00 – 11:00am & 2:00 - 4:00pm.

Presentations are arranged into two morning sessions (#1: 8:55 – 10:10am & #2: 10:20 – 11:35am) and two afternoon sessions (#3: 1:30 - 2:45pm & #4: 2:55 – 4:10pm), by discipline as shown below. Note that Environmental Science/Environmental Studies presentations start at 8:20am. All presentations will be in the du Bois Center meeting rooms. Lunch and the Keynote address will be in the du Bois Ballroom. Engineering and Computer Science project websites are available for viewing for this year and as far back as 1996, see http://www.cefns.nau.edu/capstone/d4p/.

**Quick Overview**

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<td>Agassiz (4)</td>
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<td>Mechanical Engineering</td>
<td>Fremont (all)</td>
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<td>Environmental Sciences and Environmental Studies</td>
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<td>Room A (all)</td>
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<td>Civil Engineering, Environmental Engineering</td>
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<td>Computer Science</td>
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<td>Interdisciplinary Engineering</td>
<td>Southwest (2,3,4)</td>
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**Luncheon & Keynote Address – 11:30am-1:00pm, du Bois Ballroom**

Please join us for lunch if you are a poster or oral presenter, family member, judge, sponsor, alumni, mentor, faculty, staff or advisory council member. Many thanks to W. L. Gore, Inc. for their support.

“From Airplanes, to Pine Trees, to the Pythagorean Theorem - how your education can be the first step to a great career” by Michael Downey, Honeywell Aerospace, Inc.
du Bois Center Facility Map – 1st Floor (please note Room A is on the 2nd floor, left at top of stairs)
MORNING SESSIONS

Southwest Room – Electrical Engineering & Interdisciplinary Engineering Oral Presentations

Session 1 – Prof. Julie Heynssens, Moderator
8:55am – NASA Radiation Absorption in Tissue by A. Rhodes, J. Sellstrom, T. Labanz, K. Caldwell and K. DeFonce
9:45am – Child Mobility Project by B. Turcott, K. Gray, J. Randolph, D. Mongeau, B. Gilpin and B. Jacobs

Session 2 – Prof. Bryan Cooperrider, Moderator
10:20am – Powered Child Mobility by M. Brzozowy, S. Hanson, J. Mully and N. Sunna
10:45am – Preventing Cattle Disease by C. Anderson, D. Buzzard, N. Ensley, L. Jordan, B. Matthews and C. Vickers
11:10am – Development for Rural Sustainability by J. Dumontelle, J. McKay, S. Monahan, N. Reimers and D. Richards

Fremont Room - Mechanical Engineering Oral Presentations

Session 1 – Dr. Heidi Feigenbaum, Moderator
8:55am – Aquascooter 1 by T. Ballard, T. Furuya, C. Jones, S. Kemper, and M. Morrison
9:20am – Aquascooter 2 by D. Cannon, D. Gilliam, E. Palomares, E. Tyler, J. Wang, and T. Winston

Session 2 – Dr. Heidi Feigenbaum, Moderator
10:20am – Micro Wind Turbine by HM Dai, A. Hunter, J. Mohammad, A. Sandiago, and J. Vielma
10:45am – Mobile Computer Cart by M. Aldosari, A. Alhamdi, J. Asirsan, S. Martin, and T. Scott
11:10am – Parabolic Trough: Tracking & Energy Extraction by S. Almonneay, R. Blaskey, D. Chief, C. Mesko, J. Rivera-Mendez, and J. Seitzer

Agassiz Room - Civil Engineering & Environmental Engineering Oral Presentations

Session 1 – Prof. Gary Slim, Moderator
8:55am – Sun Valley Water & Wastewater Design by S. Bateman, M. Strong, A. Cordero and M. Alsabah
9:20am – Steel Bridge Design by W. Clark, N. Cruz, S. Higgins and L. Stadelmeier
9:45am – Orange Peels and Iron Filings for U and Ar Removal by H. Alkandari, A. Alsaraf, M. Beltran and H. Zhang
Session 2 – Dr. Jeff Heiderscheidt, Moderator

10:20am – *Concrete Canoe Design* by C. Alvarez, R. Aguilar, J. Degeyter, M. Snyder and K. VanSciver

10:45am – *Risk Assessment at Uncontrolled Shooting Sites* by A. Ashkanani, K. Khan and S. Klotzman

11:10am - *Sinclair Wash Restoration Feasibility Study* by R. King, H. Mohammad, H. Swenson and L. Richardson

Festival Room - Computer Science and Electrical Engineering Oral Presentations

Session 1 – Prof. Steve Jacobs, Moderator

8:55am – *Interactive Point Visualization* by E. Bailey, C. Bilbrey, A. Farmer, and T. Velgos

9:20am – *Automatic Syllabification* by M. Albanese, S. Bottiglieri, T. Cooper, D. McDaniel, and A. Thomas

9:45am – *SciViewer* by L. Kalush, A. Lanza, J. Liddicoat, and A. Sanders

Session 2 – Dr. Niranjan Venkatraman, Moderator

10:20am – *Increasing Microbial Resolution* by R. Buckingham, K. Handady, C. Holcomb, and I. Humphrey

10:45am – *Implant Battery Charger GUI* by N. McCollough, K. Meyer, C. Winkler, and T. Zukowski

11:10am - *A Net Solar Energy Charger* by O. Tom, F. Binyom, Z. Xiao, F. Alsayegh and M. Alsawa

Meadows Room - Environmental Sciences and Environmental Studies Oral Presentations

8:20 – 8:30 – Angie Moline, Welcoming Comments

8:30am - *Camp Colton: The Legacy of Interdisciplinary Env. Education in Flagstaff, AZ* by N. Ortega

8:42am - *Whipstone Farm: The business, the science, the passion!* by B. Ireland

8:54am - *Education at Flagstaff Arborteum* by C. Doud

9:06am - *Friends of Flagstaff’s Future Internship* by D. Acker

9:18am - *Flagstaff EcoRanch Fall Internship 2014: Tangible, Local, Sustainable Solutions* by J. Christ


9:42am - *Creating sustainable practices for Flagstaff EcoRanch* by S. Rivers

9:54am - *Fieldwork Experience on a Sustainable Farm and Vineyard in Hunters, Washington* by M. Bem

10:06am - *Developing BioScience Education Enrichment Kits for educators in Flagstaff, AZ* by M. Fisher

10:18am – *Public Air Quality Awareness: an alternative to Method 9 EPA opacity standards* by R. Ryan

10:30am - *Coconino Sustainable Building program: newsletter, high school education project* by R. Heydorn

10:42am - *Friends of Flagstaff Future* by A. Lerager
11:00am - **Food Sustainability: Siena’s Various Food Operations** by C. Silvernale

11:12am - **Internship Experience with Rabbit Run Farm** by W. Pleitgen

11:24am - **Demand and Proposed Methods for Local Food Production on Saipan** by B. Wilson

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**Room A - Environmental Sciences and Environmental Studies Oral Presentations**

8:20 – 8:30 – Buck Sanford, Welcoming Comments

8:30am - **Paleoecology of the Chuska Mountain Region: A Study of Sediment Cores** by B. Pelletier

8:42am - **Colorado Plateau Research Station** by J. Bain

8:54am - **The Pathway to Owls in the Coconino National Forest** by C. Harvey

9:06am - **The Virulence of Dendroctonus-associated Fungi on Ponderosa Pines** by A. Roberts

9:18am - **Patterns of Arbuscular Mycorrhizal Fungal Communities in the Serengeti** by S. Krznarich

9:30am - **Defecation, Realization, Restoration: The Oak Creek Watershed Council (OCWC)** by D. Bicoy

9:42am - **Water System Quality (Secondary Standards) Inventory** by R. LeQuesne

9:54am - **Presence of Non-native Crayfish and Effect on the Sonora Mud Turtle in Central AZ** by S. Watts

10:06am - **Southwest Riparian Habitat and Tamarisk Leaf Beetle Introduction** by T. Glynn

10:18am - **Internship on the Range: Where Managing Cattle and Water Meet** by T. Swift

10:30am - **Electrofishing: Protecting the Endangered** by D. Kimball

10:42am - **Assessing Energy Usage at NAU with Visual Interactive Technology** by K. Cloud

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**Luncheon & Keynote Address – 11:30am-1:00pm, du Bois Ballroom**

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**AFTERNOON SESSIONS (1:30PM – 4:10PM)**

**Southwest Room - Engineering Entrepreneurship and Interdisciplinary Engineering Oral Presentations**

Session 3 – Prof. Bryan Cooperider, Moderator

1:30pm – **ScreedAll** by D. Deniger, K. Maddux, L. Montano  and K. Spaulding

1:55pm – **Brewmeter** by K. Dierking, T. Moore and J. Preston
2:20pm – *Pause. The Smart Shower.* by N. Belew and K. Stazkow

**Session 4 – Prof. Bryan Cooperrider, Moderator**

2:55pm – *Separation of Oil from Water* by A. Hasan, C. Holt, M. Mohammad and D. Pardo.


**Agassiz Room – Civil Engineering, Environmental Engineering & Electrical Engineering Oral Presentations**

**Session 3 – Dr. Robin Tuchscherer, Moderator**

1:30pm – *Risk Assessment & Waste Migration South of the Vulture Mine* by A. Lang, N. Boon and N. Stanczak

1:55pm – *PCI Big Beam Design* by A. Alhaddad, B. Bloom, M. Chen and C. Irvine

2:20pm - *Kendrick Street Bicycle Boulevard Design* by Y. Alkandari, S. Hirte, P.J. McKelvey and C. Sobie

**Session 4 – Dr. Paul Gremillion and Prof. Alan Francis, Moderators**

2:55pm – *Channel Stabilization Design for Summit Homeowners* by H. Alajmi, E. Carrasco and F. Husain

3:20pm – *Space Radiation Detection Imaging System* by D. Keene, J. King, R. Peterson, S. Sauceda and B. Shipman

3:45pm - *Interactive Wi-Fi Mapping: GPS and Voice Communication* by R.Hudson Jr., A. Rutledge and H. Alharbi

**Fremont Room - Mechanical Engineering Oral Presentations**

**Session 3 – Prof. David Willy, Moderator**

1:30pm – *WL Gore Mock Vessel* by J. Chen, R. Geier, K. Martin, S. Nickerson, J. Paotathat, and R. Smith

1:55pm – *SAE Mini Baja West* by A. Alnattar, Z. Cross, K. Egan, N. Garry, N. Gehr, T. Hochhaus, R. Inzunza, B. Janca, M. Legg, and R. Worden

2:20pm – *SAE Mini Baja West* (continued)

**Session 4 – Prof. David Willy, Moderator**


3:20pm – *Horizontal Test Stand* by M. Begay, B. Booen, C. Boothe, J. Ellis, and N. Garcia

3:45pm - *Mechanical Shredder* by S. Alshahrani, R. Baloo, K. Meyer, and M. Molani
Festival Room – Computer Science Oral Presentations

Session 3 – Dr. Eck Doerry, Moderator
1:30pm – Department Scheduler by D. Ayers, K. Bullins, R. Dooley, K. Granchelli, and J. Oishi
1:55pm – Mother Road Brewing Company Sales Dashboard by A. Alonis, V. Alves, R. Jamil, and J. Travis
2:20pm – Clinical Pathway Management by A. Abhari, J. Harris, C. Heiser, and E. Iniquez

Session 4 – Dr. Dieter Otte, Moderator
2:55pm – CU Then by M. Al-Otaibi, L. Fujikado, S. Kehoe, and M. Thompson
3:20pm – (not needed)

Meadows Room - Environmental Sciences and Environmental Studies Oral Presentations

1:20 – 1:30 – Angie Moline, Welcoming Comments

1:30pm - Earthship Biotecture: Sustainable From The Ground Up by J. Cowin
1:42pm - Plant-pollinator associations of the San Francisco Peaks: pollination ecology over an elevation gradient by P. Minette
1:54pm - Do High-Severity Fires Influence Patterns of Seedling Regeneration? by J. Blanks
2:06pm - A Decade of Increased Temperature Affects Soil Fungal Communities by M. Belus
2:18pm - Reconstructing Past Environments to Understand Human Land Use: Paleocology of Montezuma Well, AZ by E. O. Tsosie
2:30pm - The influence of ponderosa pine structure, understory abundance, and fuel loading on the emergence and early survival of ponderosa pine germinants by S. Michl
2:42pm - Locomotor behaviors exhibited by California grunion (Leuresthes tenuis) during spawning runs on Southern California beaches vary with environmental conditions by A. Johnson
2:54pm - Earthship Biotecture: Sustainable Systems thinking within the housing market by I. Smith
3:06pm - Grey Whales in Clayoquot Sound, Canada: Are they moving further North? by C. Smolenski
3:18pm - Mortality Rates for Young Ponderosa Pine Seedlings Following Disturbance by K. Webster
3:30pm - Earthship Biotecture: A Secondhand Home, Taos, New Mexico by M. Glessing
3:42pm - Where the Wild Wolves Are by M. Starostecki
3:54pm - Sea turtles in Costa Rica by S. Davidson
Room A - Environmental Sciences and Environmental Studies Oral Presentations

1:20 – 1:30 – Ashley DeBoard-McKenzie, Welcoming Comments

1:30pm - Green NAU Energy Initiative: Sustainable Behaviors Program by B. Baracco

1:42pm - Teaching Assistant for First Year Seminar Adventure and Wildlands by D. Dresler

1:54pm - Environmental Education in the Backcountry with NAU Outdoor Adventures by L. Styrmoë

2:06pm - Rehabilitated Houses: How are Regulation Reviews Processed? by C. Mueller

2:18pm - Community in the Marketplace: A Comparison of Tuscan and American Markets by C. Rolinger

2:30pm - Sustainability in the Marketplace: A Comparison of Tuscan and American Farmers Markets by E. Olsen

2:42pm - Raising community based interactions through Social Events and Educational Seminars by G. D’Luzansky

2:54pm - SkyHi!, an All Natural Microgreen Producer by A. Gilmore

3:06pm - Community Engagement of Social and Env. Sustainability at Friends of Flagstaff's Future by S. Stanfield

3:18pm - Internship at Rabbit Run Farm by J. Calvin

3:30pm - The unconventional intern: how to give your best as a non-traditional student by H. Aaron

3:42pm - Rerouting the Rio de Flag: Effects on the Flagstaff Community by A. Garcia

3:54pm - Exploring Ecotourism in the Southwest by T. Landy

Following our SESES presentations please join us for the Second Annual Spring Reception honoring Graduating Seniors, Graduate Students, and Alumni of NAU’s Environmental Sciences, Environmental Studies, Climate Science & Solutions, Environmental Science & Policy, and Quaternary Science degree programs!

1899 Bar & Grill Patio, 5 – 7 PM