

# ARKANSAS ACADEMY OF SCIENCE

## 101<sup>th</sup> Annual Meeting



Hosted by



UNIVERSITY OF  
**CENTRAL  
ARKANSAS™**

COLLEGE OF NATURAL  
SCIENCES & MATHEMATICS

## **SCHEDULE AT A GLANCE**

### **Friday, April 7 (Conway Corporation Center for the Sciences- CCCS)**

10:00 am - 11:30 am	AAS Executive Committee CCCS 212C
11:00 am - 5:00 pm	Meeting Registration in front of the lobby of CCCS (instructions for judges will be handed out at registration)
1:00 pm - 5:00 pm	Science Sessions CCCS (Break 3:00pm Lewis Science Center Foyer)
4:30 pm - 6:00 pm	No-host Social at Mosaique (Donaghey Hall)
6:30 pm - 8:30 pm	Banquet in the Brewer-Hegeman
7:00 pm - 8:00 pm	Invited Speaker Remarks: Dr. Sally Entrekin- “Arkansas streams will play a pivotal role in our freshwater future.”

### **Saturday, April 8 (Conway Corporation Center for the Sciences- CCCS)**

7:00 - 8:00 am	Continental Breakfast in Lewis Science Center Foyer
7:45 - 10:00 am	Meeting Registration in CCCS Lobby
8:00 - 10:15 am	Science Sessions
9:30 - 11:00 am	Poster Session HPER Court (posters can be set up at 8am, students should be at posters from 9:30-10:30)
10:30 - 11:30 am	Judges meet and awards are prepared.
11:30 - 12:30 pm	AAS Meeting & Awarding Prizes to students in Lewis Science Center 102 Your presence at the Academy business meeting is encouraged.

## SCHEDULE OF SCIENTIFIC SESSIONS

\*Indicates to be judged for undergraduate student awards

\*\* Indicates to be judged for graduate student awards

### Biological Sciences Session- Medicine & Microbiology

#### Room CCCS 207 (Friday)

Chair:

1:00	Anna Sharabura*	Collagen Increases Tumorigenicity of Papillary Thyroid Cancer Cells Harboring BRAFV600E Mutations
1:15	Ben Zamzow*	Focal Adhesion Kinase Displays Altered Regulation in Papillary Thyroid Cancer
1:30	David Williams*	The Use Of Ligation Independent Cloning To Generate <i>Escherichia coli</i> Capable Of Producing Centruroides Vittatus Scorpion $\delta$ -Toxins Na681 And Na682 To Allow For Further Analysis Of Physiological And Medical Significance
1:45	Wallace Williamson*	Validation Of Methods To Improve The Use Of P19 Cells As A Model Of Neuronal Differentiation.
2:00	Aimee Bowman*	Relative Gene Expression Study on Centruroides vittatus Investigating Sodium Toxin Gene Activity
2:15	Jacob Pinkerton*	Using Escherichia Coli To Generate Scorpion $\delta$ -Toxins, As Seen In Centruroides Vittatus, To Allow For Further Structural And Physiological Analysis
2:30	Hunter Scharbor	Mitochondria Morphology And Rotenone
2:45	Pristine Pittman	Observing Fsz-B's Function in <i>Dictyostelium discoideum</i> Mitochondrial Dynamics

### Chemistry Session

#### Room CCCS 115 (Friday)

Chair:

1:00	Alan Jackson*	Flourescent Inhibitor of System Xc-
1:15	Ruth Lykins*	Bond Length and Bond Valence for Tungsten - Oxygen and Tungsten - Sulfur Bonds
1:30	Connor Purvis*	Atmospheric Photochemistry Studies Related to Saturn's Moon Titan
1:45	Jade Toth*	Analysis of Surface Waters in Searcy, Arkansas
2:00	Jordan Labrecque*	Bond Length and Bond Valence Relationship of Chromium Oxides, Chromium Sulfides, Molybdenum Oxides, and Molybdenum Sulfides
2:15	David Williams*	Photocatalytic Sterilization Of Aqueous Solutions
2:30	Franklin Hardcastle	Carbon-Carbon, Carbon-Oxygen, Carbon-Nitrogen, and Carbon-Hydrogen Bond Valence - Length Relationships
2:45	Natalie Whitlock	Searching for Pharmaceuticals and Personal Care Products in Wastewater in Searcy, Arkansas

### Physics Session

#### Room CCCS 101 (Friday)

Chair:

1:00	Calla Bassett*	Suppression of Radiation-Induced Chromosome Damage by GT3 and the Role of Microgravity
1:15	Jazmin Urioste*	A Sign-Changing Interaction Between Dark Energy And Matter
1:30	Jesse Griffiths*	Ionization Rate for Breakdown Waves with a Significant Current behind the Wave Front
1:45	Sami Salman Chiad	Optical and Dispersion Parameters of PMMA Doped by Indium Salt
2:00	Alaa H. Shneishil	Design Of Central Receiver Solar Thermal Concentrator
2:15	Ismaeel Al-Baidhany	A New Relation between Spiral Arm Pitch Angles ( $p$ ) and the Bulge Luminosity

## Biological Sciences Session- Aquatics

### Room CCCS 105 (Friday)

Chair:

1:00	Aaron Burgad**	Spatio-Temporal Dynamics of Fish Assemblage Structure After Watershed Alteration in the Saline River, Arkansas
1:15	Taylor Lee**	Environmental DNA vs. Traditional Sampling: a Case Study Using the Federally Threatened Leopard Darter, <i>Percina pantherina</i>
1:30	Kyle Dineen**	Genetic Structure and Diversity of Disjunct Populations of Rainbow Darters ( <i>Etheostoma caeruleum</i> ) and Southern Redbelly Dace ( <i>Chrosomus erythrogaster</i> ) Throughout the Mississippi Corridor.
1:45	Michelle Furr**	Historic Changes in Fish Assemblage Patterns in the Little Missouri River, Arkansas
2:00	Brittany McCall**	Spatiotemporal Population Dynamics of the Caddo Madtom ( <i>Noturus taylori</i> )
2:15	Chelsey Sherwood**	Fish-Habitat Associations in the Kings River, Arkansas
2:30	Kara O'Neal*	The analysis of coliform bacteria in Lake Columbia, AR.
2:45	Stephanie Stoughton**	Components Of Urbanization And Urban Proximity Identify Threats To Stream Water Quality

## Biological Sciences- General

### Room CCCS 207 (Friday)

Chair:

3:30	Zachary Nickell*	Disease Introduction by Aboriginal Humans in North America and the Pleistocene Extinction
3:45	Christopher Robinson**	The Use Of Color As A Status Signal In The Prairie Lizard, <i>Sceloporus consobrinus</i>
4:00	Ashley Schulz**	Who Cites Whom? Communication Insights from a Bibliometric Analysis of Invasion and Biological Control Literature
4:15	Helena Abad*	Ecosystem Services Of The Big Bend Region Of The Chihuahuan Desert
4:30	Amanda Brooks*	Biodiversity in Biocubes
4:45	Claire Turkal**	A fracking racket: do birds change the way they sing when experiencing chronic noise from shale gas extraction?

## Engineering & Computer Science

### Room CCCS 115 (Friday)

Chair:

3:30	Doga Demirel**	Generative Anatomy Modelling Language (GAML)
3:45	Damaso Dominguez**	Computing wind field close to the ground using CFD in a tornado chamber.
4:00	Silas Lankford*	Simulating Foodborne Pathogens in Poultry Production and Processing to Defend Against Intentional Contamination
4:15	Mohammadhossein Kashefzadeh**	Calculation Of The Width And Period Of Tornadoes From Google Earth Data And The Relationship Between The Tornado's Period And The Wind Speed
4:30	Marzia Zaman**	Nanostructures for Infrared Linear Polarizers
4:45	Mitchell Collins*	An Acoustic-Based Approach For Condition Monitoring Of Pipes

## Biological Sciences- Invertebrates

### Room CCCS 105 (Friday)

Chair:

3:30	Brandon Hogland*	A Description Of Variation In Fecundity Between Two Populations Of Wolf Spider <i>Rabidosa rabida</i> In Searcy Arkansas Using Brood Size Measurements
3:45	Sofia Varriano*	Seasonal Changes Of Arthropod Community Structure In Inactive Bison Wallows
4:00	Patricia Rivera*	A First Look into the microbiome of <i>Rabidosa rabida</i> , a Wolf Spider in Searcy, Arkansas
4:15	Geoffry Spooner**	Migration Dynamics of Ohio Shrimp, <i>Macrobrachium ohione</i> , in Arkansas
4:30	Chris McAllister	Distribution, Habitat, and Life History Aspects of the Shrimp Crayfish, <i>Faxonius lancifer</i> (Hagen) (Decapoda: Cambaridae) in Arkansas
4:45	Brian Wagner	Crayfish Changes to the Arkansas Wildlife Action Plan

## Biological Sciences- Botany

### Room CCCS 211 (Friday)

Chair:

3:30	James Vire**	Transcriptome Analysis for Three <i>Erigeron</i> (Asteraceae) Genotypes Differing in Mode of Reproduction
3:45	Mason Sifford*	Mitochondrial lineages of <i>Pinus</i> subsection <i>Ponderosae</i> to resolve the relationship of species named in the United States and Mexico
4:00	Samuel Lockhart*	Determining the Validity of the Species <i>Pinus washoenis</i> in the Western United States
4:15	Katie Dobbins*	Determining Recent Hybridization Of Pinyon Pines In A Zone Of Sympatry In Northern Arizona
4:30	Taylor Stone*	Seed Dispersal of <i>Diospyros virginiana</i> in the Past and the Present: Evidence for a Generalist Evolutionary Strategy
4:45	Sophie Katz*	Seed Dispersal In Osage Orange ( <i>Maclura pomifera</i> ) By Squirrels ( <i>Sciurus</i> spp.)

## Geoscience Session

### Room CCCS 101 (Friday)

Chair:

3:30	Riley Dickson**	Late Mississippian (Chesterian) Shallowing-Upward, Eustatic Cyclicity Reflected By Taphonomy Of Preserved Ammonoid Cephalopods, Northern Arkansas
3:45	Sydney McKim*	Lithologic Character, Sequence And Diagenetic History Of Lower Mississippian Tripolitic Chert, Northern Arkansas And Southern Missouri
4:00	Jonathan Chick**	Lower Mississippian, Tripolitic Chert Formed From Hydrothermally Emplaced Silica, And Its Possible Relationship To The Tri-State Lead-Zinc Mining District
4:15	Emily Roberts	Establishing a Trail Visitation Survey Method for the National Ouachita Recreation Trail
4:30	Elvis Bello**	Tectono-stratigraphic and Sequence and Stratigraphic Successions, Ozark Shelf, Tri-state Region, Southern Midcontinent
4:45	Walter Manger	Significance Of The Middle Mississippian Paleokarst Surface, Western Ozark Uplift, Arkansas, Kansas And Oklahoma

**Biological Sciences**  
**Room CCCS 105 (Saturday)**

Chair:

8:00	Michael Ukpong	Comparison Of Bacterial Communities In Natural And Developed Watersheds Of The Buffalo National River Using Cultivation And 16S Metagenomics Techniques
8:15	Timothy Wakefieldv	Persistence of Downstream Negative Impact of Point Source and Non-Point Source Stream Pollutants
8:30	Stan Trauth	Histology of Rathke's Glands in the Razor-backed Musk Turtle, <i>Sternotherus carinatus</i> (Chelonia: Kinosternidae), with Comments On Lamellar Bodies
8:45	Chris McAllister	Coccidian Parasites (Apicomplexa: Eimeriidae) of Arkansas Herpetofauna: A Summary with Two New State Records
9:00	Selena Sasser	Ecology of Blanchard Springs Caverns, Ozark National Forest, Arkansas, 42 Years Later
9:15	Renn Tumilson	Vertebrate Natural History Notes from Arkansas, 2017
9:30	Virginie Rolland	Bat Occupancy Estimates and Species Richness at Cache River National Wildlife Refuge
9:45	Douglas James	Results Of Trapping Small Mammal Populations In A Grassland And Forest Area At The Lake Fayetteville Environmental Center.
10:00	Newton Hillard	Sulfur Oxidation Genomics In The Aerobic Purple Sulfur Bacterium <i>Halothiobacillus neapolitanus</i>

**Engineering/Chemistry**  
**Room CCCS 115 (Saturday)**

Chair:

8:00	Mahbub Ahmed	Developing a Low Cost 3D Printing Lab and the Use of 3D Printing in a Freshman Engineering Lab Course
8:15	Md Rashedul Islam	Restrained Shrinkage Of Fly Ash Based Geopolymer Concrete And Analysis Of Long Term Shrinkage Prediction Models
8:30	Ali N. Mohammed	Optical Properties Of Irradiated SnO <sub>2</sub> Thin Films Prepared By Chemical Spray Pyrolysis
8:45	Patrick Desrochers	Sweeter Scorpionates Incorporate Carbohydrates Into Functional Metal Chelates
9:00	Rajib Choudhury	Design and Synthesis of NIR Donor-Acceptor Fluorophores

**Biological Sciences**  
**Room CCCS 101 (Saturday)**

Chair:

8:00	James Daly Sr.	Geographic Distribution Of Yellow Grub In Smallmouth Bass Populations Of Crooked Creek As Determined By Metacercarial Cyst Counts In The Gill-Mouth (Orobranchial) Sites
8:15	Chris McAllister	The Fishes of Chadron Creek, Dawes County, Nebraska
8:30	James Daly Sr.	Anatomical Distribution Of <i>Clinostomum metacercariae</i> In The Tissues Of Pond-Raised Channel Catfish
8:45	Tsunemi Yamashita	Phylogeography and vicariant separation of two river darters, <i>Percina uranidea</i> and <i>Percina vigil</i> , from the North American Interior Highlands
9:00	David Bowles	Long-term aquatic invertebrate monitoring at Buffalo National River, Arkansas
9:15	Brook Fluker	Development of the Arkansas Center for Biodiversity Collections (ACBC) at Arkansas State University
9:30	Megan Stone	Liriope and Ophiopogon: overview of two genera of Ruscaceae naturalized in the Arkansas flora
9:45	Brook Olsen	New and Noteworthy Vascular Plant Records from Arkansas
10:00	Dennis Richardson	Leech Parasitism of the Gulf Coast Box Turtle, <i>Terrapene carolina major</i> (Agassiz, 1857) (Testudines: Emydidae)

## HPER Poster Session

### Instruction for Poster Presentations:

A single poster session will be held in the HPER building starting at 9:30am Saturday morning. Posters can be set up starting at 8:00am.

### Biological Sciences

1.	Antoinette	Odendaal	The Toxicological Effects Of Dietary Supplement Additives On <i>Daphnia magna</i>
2.	Kimberly	Smith	Sunbathing In The Northern Roadrunner: An Unexplored Trait For Their Range Extension
3.	Stephen	Chordas III	Literature Record Checklist Of True Bugs (Hemiptera) For Arkansas With The First Report Of Pseudopachybrachius Vincetus (Rhyparochromidae) (Also Oklahoma) And An Analysis Of Miridae Sex Ratio From Light Traps.
4.	Matthew	Connior	Survey Of Rodents Within Arkansas Game And Fish Commission Wildlife Management Areas
5.	Matthew	Connior	New Records Of Parasites (Apicomplexa, Acari, Anoplura, Nematoda) From Rodents In Arkansas
6.	Matthew	Connior	The Fleas (Arthropoda: Insecta: Siphonaptera) Of Arkansas
7.	D. Blake	Sasse	Distribution Of The Eastern Spotted Skunk, <i>Spilogale putorius</i> , In The Early Twentieth Century
8.	Steward	Huang	Central Nests Are More Successful And Preferred For Reuse Than Peripheral Nests In Cliff Swallow (Petrochelidon Pyrohonota) Colonies
9.	Chris	McAllister	An Annotated Checklist of the Crayfishes (Decapoda: Cambaridae) of Arkansas
10.	Victoria	Veerhusen	Understanding Confrontational Behavior of the Rainbow Lorikeet ( <i>Trichoglossus haematodus</i> ) as a Strategy to Reduce Its Impact as an Invasive Species
11.	Nicholas	Dial	Physiological effects of lead nitrate on four Arkansas native plant species and the role of Arbuscular Mycorrhizal Fungi on plant stress mitigation
12.	Sage	Shaddox	The Effects of Microgravity on Vascular Tone in Female Mice
13.	McKenzie	Stribling	Analysis of the Oxidative Enzymatic Properties of the Bottlenose Dolphin Diaphragm and Scalenus Muscle
14.	DeShauna	Tucker	A Qualitative Analysis of Macroinvertebrates in the UCA Vernal Ponds
15.	Olivia	Sims	Swimming Preferences of Guinea Pigs
16.	Mallory	Heft	The Effect of Habitat Fragmentation on <i>Sceloporus consobrinus</i> -Prairie Lizards Located in Central Arkansas
17.	Lauren	Toivonen**	A Habitat Suitability Analysis of the Red Wolf across its Historic Range
18.	Brooke	Skinner**	Effect of Styrofoam Diet on the Gut Protists of Mealworms ( <i>Tenebrio molitor</i> )
19.	Angela	Lenard**	Longitudinal patterns in an Arkansas River Valley stream: testing the River Continuum Concept
20.	Miguel	Mercado*	Utility of the low copy nuclear gene LEAFY for phylogenetic studies in the sunflower family (Asteraceae), tribe Astereae
21.	Kyle	Davis*	Rwandan Societal Improvements via the Use of Rocket Stoves
22.	Ashley	Henderson*	Enzyme Production and Hormone Signaling Mediate Longevity Responses to Dietary Restriction in <i>C. elegans</i>
23.	Elias	Smith*	Isolation of Erythrocytes from Freshwater Turtles for Use in Telomere Length Analysis
24.	Billy	Huggins*	Influence of Common Salt Concentrations on Detritivore Respiration
25.	Kandria	Driskill*	Body shape variation within and among lineages of the Rainbow Darter, <i>Etheostoma caeruleum</i>
26.	Lindsey	Martin*	Effects of Black-spot Disease on the Body Condition of Bleeding Shiners, <i>Luxilus zonatus</i>
27.	Mitchell	Rowland*	Bioremediation of Petrochemicals from Soil
28.	Deion	Everhart*	Western Spruce Budworm Herbivory Influences Stream Macroinvertebrate Structure and Biomass
29.	Joshua	Nilz*	Macroinvertebrate Community Response to a Gradient of Urbanization in the White Oak Bayou Watershed

30.	Ross	Shiery*	Prey items impaled by Loggerhead Shrikes in northwestern Arkansas
31.	Scotty	McKay*	Immunolocalization of the Cadherin 18 Protein in Fetal Kidney Cells
32.	Dustin	Thomas*	Analysis of body shape variation among restricted and widespread populations of the Southern Redbelly Dace, <i>Chrosomus erythrogaster</i>
33.	Mason	Rostollan*	Recruitment and survival in <i>Ligustrum sinense</i>
34.	John	Mitchell*	Analysis of a <i>Drosophila melanogaster</i> Ribosomal Protein Gene
35.	Stetson R.	Collard*	Evaluating the Effects of Bird Feeders on Songbird Plumage Coloration
36.	Crystal	Haynes*	Soil Crust Algal Communities of Warren Prairie Natural Area
37.	Kendall	Davis*	A comparison of the impacts of wind energy and unconventional gas development on land-use and ecosystem services: An example from the Anadarko Basin of Oklahoma, USA
38.	Nathan	Taylor*	Land-use and Ecosystem Services Costs of Unconventional Oil and Gas in the U.S
39.	Howden	Carly*	Impact of Bakken/Three Forks unconventional oil and gas development on important wildlife landscapes in North Dakota
40.	Camryn	Ruggeri*	Optimum Lighting for Oxygen Production of <i>Arthrospira platensis</i>
41.	Alex	Abbott*	Characterizing a Putative Mycobacteriophage Toxin-Antitoxin System
42.	Ethan	Clement	Expression of OCT4 and NANOG in Human Fibroblasts with Short Telomeres
43.	Terri	Teague	Characterizing the Persisting Cortical Subplate in Rats Across Development, Maturation, and Aging
44.	Landon	Gatrell	Glucose-Mediated Neuroprotection Against Proteotoxicity is Energy-Dependent in <i>Caenorhabditis elegans</i>
45.	Alan	Jackson	The Effects of TRPC3 Channel Activation on Vascular Tone in Healthy Arteries Versus Diseased Arteries
46.	Alexandria	Melton	Comparative genomics of the Paraburkholderia bacterial symbionts of the social amoeba <i>Dictyostelium discoideum</i>
47.	Jenna	Suen	Epidemiology of Pandemic Influenza in Arizona
48.	Harleigh	Robbins	Epidemiology of Pandemic Influenza in Missouri
49.	Lauren	Westwood	Lipid Extraction of <i>C. elegans</i>
50.	Nathan	Carmichael*	<i>Caenorhabditis elegans</i> hermaphrodites have reduced stress tolerance when grown in the presence of residual male pheromones
51.	Kaitlynn	Butler*	Glucose Mediates Early-Life Stress Resistance in <i>C. elegans</i>
52.	Ha Ram	Kim*	Regulation of symbiotic gene expression in rice
53.	Marcia	Polett**	The influence of embryonic stress hormones on phenotypic variation and fitness in <i>Sceloporus consobrinus</i>
54.	Kristen	Jones*	The Effect Of Simulated Microgravity On The Biophysical Properties Of The Tibia

## Chemistry

55.	Candice	Foscue	Synthesis of Amino Acid Radical Precursors
56.	Victoria	Niedzwiedz	Retinoic Acid Receptor Gamma Reciprocally Regulates Cellular Adhesion and Proliferation in K562 Cells
57.	Aaron	Stebbins	Impact of chemistry/mathematical video-lectures on student-based learning in a freshman level chemistry course
58.	Dakotah	Cooper*	Analyzing the Properties of Biodiesel.
59.	Mallory	Bryant*	Identifying the Structure of Fat-Mobilizing Substance (FMS-1) Associated with Congenital Lipodystrophy



60.	Haley	Kay*	Measurement of multicomponent aerosol optical properties using pulsed laser cavity ring-down spectroscopy
61.	John	Bentley*	Theoretical Semi-empirical Calculations of Ethylenediaminetetraacetic acid (EDTA) bound Metal Complexes Modeled for Heavy Metal Poisoning
62.	Peter	Joseph*	Theoretical Thermochemical Bond Stability of EDTA Chelation with Metal Ions for Chelation Therapy to Treat Heavy Metal Poisoning
63.	Stacy	Justice*	Determination of Fatty Acid Concentrations in Algae
64.	Nicholas	Rathke*	Altering the Conformational Ensemble of Pep-19 using Calcium
65.	Kassandra	Cendejas*	In Silico Predictions of Conformations and Orientations of Small Molecules within a Macrocyclic
66.	Kaitlyn	Walden*	The Effect of Video-Based Instruction on Student Performance in a College Chemistry Laboratory
67.	Danica	Ordenez*	Conformational Protein Ensemble of the Calmodulin Ligand PEP-19
68.	Christian	Mitchell*	Expression and Purification of Calmodulin Binding Partner PEP-19
69.	Megan	Cassingham*	Water adsorption on montmorillonite: Comparison of washed and unwashed clays
70.	Shelby	Bridges*	Towards a Chlorin-Based Fluorophore Synthesis for Pharmacokinetic Diagnosis in Neglected Tropical Diseases
71.	Adam	Hargis	The Synthesis of Natural Product-based Drugs to Treat a Neglected Tropical Disease: Leishmaniasis

## Computer Science

72.	Berk	Cetinsaya**	Design of Virtual Endoluminal Surgery Simulator (VESS)
73.	Mustafa	Tunc**	Virtual Arthroscopic Tear Diagnosis and Evaluation Platform (VATDEP)
74.	Recep	Erol**	A Gentleness Simulator for Surgical Dexterity Evaluation of Surgeons with Haptic Interfaces
75.	Valentin	Velchev**	Analysis and Comparison of Wine Experts with Wineinformatics
76.	James	Palmer**	Drone Delivery with a Parrot Bebop 2
77.	Reese	Childers**	Low-Delay Rate Control for H.265/HEVC Video Compression
78.	Binqi	Sun**	Orion Rover Maze solver and Object Detection
79.	Sravani	Marreddy**	Educational Drones: Mini-Drone TRAVIS by Parrot
80.	Seth	Cooper-Baer*	Arthroscopic Rotator Cuff Surgery Performance Comparison Study of Novices and Experts
81.	Min	Kim*	JD Humanoid Robot

## Engineering

82.	Andrew	Zhou	Evaluation of a 3D metal-organic framework Cu(bpy)V4O10 as a cathode material for Li-ion batteries
83.	Tyler	Bowman	Terahertz Pulsed Imaging of Freshly Excised Xenograft Breast Cancer Tumors in Mice
84.	Mohammad Habibur	Rahaman**	Radiation pressure on core-shell nanoparticles
85.	Misuk	Saha**	Analytical modeling of microscopic and macroscopic analysis of dielectric material.
86.	Samia	Sanjari**	Image Analysis Toolboxes for Finding the Mean Pore Size of Scaffolds and Diameter Distribution of Fibers

## Geosciences

87.	Samantha	Wacaster*	Utilizing karst features to account for differences in water quality in the Ozark Plateaus in northern Arkansas
88.	Samuel	Treece*	Bridging Technology and Community using Web-based GIS
89.	Ryan	Tumminello*	Water adsorption on goethite: CCN activation from Frenkel, Halsey and Hill Activation Theory
90.	Abigail	Gatmaitan*	Quantification of levoglucosan in PM2.5 atmospheric aerosols using GC/MS: Seasonality of a biomass burning tracer in Central Arkansas

## Physics

91.	Jessica	Young	Generation of Mixed-Parity Ince-Gauss Laser Beams
92.	Qinqing	Yang	The Impact of Weather on Music Festivals in Oklahoma
93.	Justin	Seymour	Optimal Locations for the Generation of Renewable Energy
94.	Justin C	Seymour*	The Effect of Model Atmosphere Parameters on the Elemental Abundances in Halo Stars
95.	Jess	Ray	Creation of Image Masks for Barred Spiral Galaxies using Source Extractor
96.	Charles	Bertram*	Potential Differences in Problem Solving Approaches When Using Different Textbooks
97.	Joseph	Akers*	Process Engineering: 3 Dimensional ColorSpace Correction
98.	Joseph	Akers*	The effects of weather on insurance
99.	Nick	Scoles*	Design and Development of an Acoustic Field Scanner
100.	Nick	Scoles*	Mapping the Influence of Weather on Concrete
101.	Garrott	Granholt*	The Lagrangian and Hamiltonian formulation of the Linear Oscillator Chain
102.	Garrott	Granholt*	Air Temperature/ Dew Point vs. Frequencies of Tornadoes
103.	Royer	Ramirez Ruiz*	Maximizing Wind Power
104.	Jacob	Cameron*	Determining Black Hole Mass of Active Galactic Nuclei using FWHM of the H- $\beta$ Emission Line and Luminosity Relations
105.	Brandon	Miller*	A Geometric Approach to Determining Conservation Laws for Waves on a String
106.	Timothy	Brown*	Precipitation totals and the effect on Soil Temperature
107.	Hayley	Heacox*	Mechanical and Chemical Alterations in Rat Leg Bones upon Exposure to Simulated Microgravity and Cosmic Radiation
108.	Lauren	Corby*	Renewable Energy in Research and Education
109.	Audrey	Schucker*	Tomato Growth in Oklahoma
110.	Isaac	Raphael*	Impact of Mesonet on Oklahoma Agricultural Processes
111.	Blake	Bryant*	Correlation of Average Temperature vs. Consecutive Temperature to Drought Conditions in the Oklahoma City area
112.	Elias	Smith*	Optimal Crop Growing Seasons Determined Using Mesonet
113.	Kenneth	Jumper*	Neutron capture elements in low metallicity stars within the inner-galactic halo.
114.	Spencer	Sherwood	Using a Photon Beam for Thermal Nociceptive Threshold Experiments

## **Banquet Keynote Speaker: Dr. Sally Entrekin**

**Title: Arkansas streams will play a pivotal role in our freshwater future.**



Background: Dr. Entrekin is an environmental scientist; she earned her BS in Biology at Georgia Southwestern University, and MS in Entomology from the University of Georgia, and a PhD in Biology from the University of Notre Dame. Dr. Entrekin has been a faculty member at UCA since 2008. The basic question addressed by Dr. Entrkin's lab is: "How do natural and human disturbances interact to influence aquatic community composition and function." Dr. Entrekin is widely published and has made many presentations at national and regional meetings. Recent work has included stream ecology in the area of the Fayetteville Shale. This work includes examining how rapid land use changes, such as natural gas extraction and urbanization, alter associated freshwater ecosystems, and how interactions among common and emerging watershed activities change stream structure and functions.

## **2016 AAS Executive Officers**

**Dr. Edmond Wilson President (2016-2017)** Department of Chemistry , Box 10849 Harding University, Searcy, AR 72149-5615 ph: (501)279-4513, email: [willyard@hendrix.edu](mailto:willyard@hendrix.edu)

**Dr. R. Panneer Selvam President-elect**  
Department of Civil Engineering  
BELL 4190 University of Arkansas  
Fayetteville, AR 72701  
Ph: (479) 575-5356, email: [rps@uark.edu](mailto:rps@uark.edu)

**Dr. Frank Hardcastle Vice-President**  
Department of Chemistry, Arkansas Tech University  
1701 N. Boulder Ave., Russellville, AR 72801  
Ph: (479) 880-2241, email: [fhardcastle@atu.edu](mailto:fhardcastle@atu.edu)

**Dr. Ann Willyard Past President (2015-2016)** Department of Biology, Hendrix College 1600 Washington Ave, Conway, AR 72032 ph: (501)450-1376, email: [willyard@hendrix.edu](mailto:willyard@hendrix.edu)

**Dr. Mostafa Hemmati Treasurer**  
P.O. Box 1950, Russellville, AR 72811  
Phone: (479) 968-0340, email: [mhemmati@atu.edu](mailto:mhemmati@atu.edu)

**Please mail membership dues to the above address!!**

**Dr. Mostafa Hemmati Editor-in-Chief, AAS Journal**  
Department of Physical Science,  
Arkansas Tech University  
1701 N. Boulder Ave., Russellville, AR 72801  
Phone: (479) 968-0340, email: [mhemmati@atu.edu](mailto:mhemmati@atu.edu)

**Dr. Ivan Still Journal Managing Editor**  
Dept. of Biological Sciences, Arkansas Tech University  
1701 N. Boulder Ave., Russellville, AR 72801-2222  
Phone: (479) 968-0294, email: [istill@atu.edu](mailto:istill@atu.edu)

**Dr. Collis Geren Secretary**  
16116 Pin Oak Road, Fayetteville, AR 72704 ph: (479) 521-5311, email: [cgeren@uark.edu](mailto:cgeren@uark.edu)

**Dr. Kimberly G. Smith Historian**  
Department of Biological Sciences  
University of Arkansas, Fayetteville, AR 72701 ph: (479) 575-6359, email: [kgsmith@uark.edu](mailto:kgsmith@uark.edu)

**Dr. Rami Alroobi Webmaster Math and Computer Science** Department Southern Arkansas University  
100 East University Road, Magnolia, AR 71753 Phone (870) 235-4295, email: [ramialroobi@saumag.edu](mailto:ramialroobi@saumag.edu)

**Dr. R. Panneer Selvam Newsletter Editor**  
Department of Civil Engineering  
BELL 4190 University of Arkansas  
Fayetteville, AR 72701  
Ph: (479) 575-5356, email: [rps@uark.edu](mailto:rps@uark.edu)

