

Fifty-First Annual Arkansas Junior Science And Humanities Symposium

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OBJECTIVES

- To promote research and experimentation in the sciences, mathematics, and engineering at the high school level.
- To recognize the significance of research in human affairs, and the importance of humane and ethical principles in the application of research results.
- To search out talented youth and their teachers, recognize their accomplishments at symposia and encourage their continued interest and participation in the sciences, mathematics, and engineering.
- To expand the horizons of research-oriented students by exposing them to opportunities in the academic, industrial, and governmental communities.
- To increase the number of future adults capable of conducting research and development.

Program

All rooms are located on the main campus of Arkansas Tech University

FRIDAY, MARCH 10, 2017

12:30pm **Registration, McEver Hall Lobby**
Bus parking is available in the Tucker Coliseum lot across from the East entrance to Doc Bryan

1:00-4:30pm **Demonstration Tours:**
Tours will assemble in the McEver lobby

2:40-3:00pm **Refreshments McEver 9**

4:35pm **Meeting of All Delegates, McEver 162**
A meeting of all teachers and delegates with the director to go over policies and procedures.

5:15pm **Return to Hotel**
(La Quinta Inn of Russellville)

6:30pm **Recognition Banquet, Chambers West**
Introductions:
Dr. Jessica Young, Director Arkansas JSHS

Welcome:
Dr. Robertson, Dean ATU Nat. & Health Sci.

Certificates:
Dr. Hamed Shojaei, Assoc Professor of Physics

7:45m **Keynote Speaker, Chambers West.**
Dr. Douglas Barron, Asst. Prof. of Biology ATU

9:00pm **Return to Hotel for Pizza Party and Swimming**
La Quinta Inn of Russellville

SATURDAY, MARCH 11, 2017

6:15-7:45am **Breakfast, La Quinta Inn of Russellville**
Students should be checked out before leaving the hotel for the paper presentations.

8:00-12:05 am **Presentation of Student Papers, Doc Bryan Auditorium**
Moderator:
Dr. Jackie Bowman Assoc. Prof. of Bio. ATU

12:05-1:00 am **Lunch, Chambers Cafeteria**

12:05-1:30pm **Poster Setup, Young ballroom**

1:30-3:00pm **Judging of Posters, Young Ballroom**
Head Judge:
Dr. Jim Musser, Assoc. Prof. of Physics ATU

3:00-3:15pm **Program Evaluation Young ballroom**

3:15-4:30 Barbie bungee challenge, McEver 124-126
We will finish the challenge and announce challenge winners in in Doc Bryan)

4:30—5:00 pm **Awards Presentations, Doc Bryan Auditorium**
Announcement of Arkansas JSHS paper and poser contest winners, announcement of the JSHS Teacher Award, and adjournment

Judges

Head Judges

Dr. Hamed Shojaei, Head Paper Judge, Assoc. Professor of Physics, ATU
Dr. Jim Musser, Head Poster Judge, Assoc. Professor of Physics, ATU
Head of the Department of Physical Sciences, ATU
Dr. Rajib Choudhury, Head Paper Judge in Training, Asst. Professor of Chemistry, ATU

Paper Judges Panel

Dr. Robert Allen, Professor of Chemistry (retired), ATU
Dr. Carl Greco, Professor of Electrical Engineering, ATU
Dr. Chris Kellner, , Professor of Wildlife Biology, ATU
Dr. Larry Morell, Professor of Computer and Information Systems, ATU
Dr. David Osburn, Assoc. Professor of Psychology, ATU
Dr. Ivan Still, Assoc. Professor of Biology, ATU
Dr. Bruce Tedford, Assoc. Professor of Biology, ATU
Dr. Tsunemi Yamashita, Professor of Biology, ATU
Dr. Charles Mebi, Professor of Chemistry, ATU
Dr. Doug Barron, Asst. Professor of Biology, ATU

Planning

Arkansas Tech University Planning Committee

Dr. Jacqueline Bowman, Assoc. Professor of Biology
Ms. Cheryl Chaney, Asst. Professor of Biology
Dr. Cindy Jacobs, Assoc. Professor of Biology
Dr. Jeff Robertson, Professor of Astrophysics and Dean ATU Nat. & Health Sci.
Dr. Amber Harrington, Asst. Professor of Physics

Director, Arkansas Junior Science & Humanities Symposium

Dr. Jessica Conry Young, Asst. Professor of Physics, Arkansas Tech University



Speaker



Dr. Douglas Barron

Assistant Professor of Physics
Arkansas Tech University

Don't (only) sweat the small stuff: Towards a whole-organism understanding of animal behavior

The field of biology was originally founded upon observations of organisms interacting in the natural world. Since this time methodological advancements have allowed biologists to shift their focus toward sub-organismal mechanisms at the molecular and cellular level. While such laboratory research has granted immense insight, it has also ushered the field towards an increasingly reductionist paradigm that is at times removed from organismal processes and implications. Here I argue that a comprehensive biological understanding requires today's scientists to pair a proximate focus on mechanisms with an ultimate focus on ecological and evolutionary outcomes. I will illustrate these points by describing several past research projects in which I characterized behavioral variation in birds, revealed physiological and neuronal explanations for such behavioral differences, and discovered how such variation may impact the species at a population or community level.

Doug Barron is originally from Russellville, Arkansas. However, he left the state after high school to pursue a Bachelor's degree in Biological Sciences at Louisiana State University. He then went on to earn a Master's in Ecology, Evolution, and Conservation Biology from University of Illinois in 2009, and a PhD in Zoology from Washington State University in 2014. Following a post-doctorate position at the University of South Florida he was hired by Arkansas Tech University, where he is currently an Assistant Professor of Biology. His research aims to understand the mechanisms underlying different animal behaviors, and the ecological and evolutionary consequences arising from variation in those behaviors. As such his work crosses traditional boundaries within the field and encompasses elements of physiology, neuroscience, disease biology, and behavioral ecology.



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and Humanities Symposium



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ARKANSAS TECH UNIVERSITY
Russellville, AR 72801