

FRONTIERS OF SCIENCE INSTITUTE

NEWSLETTER

SUMMER 2024



**65 YEARS
OF EXCELLENCE**



UNIVERSITY OF
**NORTHERN
COLORADO**

A NOTE FROM THE DIRECTOR

VICTORIA DUNCAN, PHD



Hello! My name is Dr. Victoria Duncan and I am the director of the Frontiers of Science Institute (FSI), as part of my role as the Assistant Director of Pre-Collegiate and Collegiate Programs within the Math and Science Teaching (MAST) Institute at the University of Northern Colorado (UNC).

Over the summer, I directed my second cohort as the Director of FSI and was able to continue to grow our programming and opportunities for students. One of the major highlights of the 2024 program was expanding our STEM course topics and field trip experiences! The 2024 cohort brought exciting new perspectives to their research groups and projects, ending with fascinating diversity in our research topics! Watching students with little to no research experience give scientific talks and create professional research products within six weeks is inspiring!

This year's program marked the 65th anniversary of FSI, and we immensely enjoyed celebrating and connecting with our past FSI participants! Each year also instills a wealth of gratitude for the fantastic students, staff, alums and supporters of FSI! We are so grateful for the support, as FSI would not have been possible without all the donors and alums who have dedicated their time to the program and those who have generously supported FSI philanthropically. Thanks to our generous donors, 100% of students in the 2024 cohort received financial aid to reduce their cost of participating in FSI.

We are actively planning and recruiting for next year, and I look forward to meeting our next cohort!

A handwritten signature in black ink that reads "Victoria L. Duncan".

VICTORIA L. DUNCAN, PHD



WHAT DID WE DO THIS SUMMER?

SUMMER CLASSES

Students took a variety of courses this summer, including: Wilderness Medicine, Plant Physiology, Snake & Venom Analysis, Applied Statistics, Math Explorations, and Anatomy & Physiology. These courses included collegiate-level coursework, hands-on lab experiences, and activities.



SPECIAL TOPICS & FIELD TRIPS

In addition to the science content courses, students attended special topics courses and workshops, such as Human Osteology and a medical careers panel. Students were also engaged in multiple field trip experiences, including a visit to the Denver Museum of Nature and Science and other site visits, including touring the UNC Brewing Science Facility and Xcel Energy. They also competed in Cardbrad Boat Races & camping in Estes Park!



STEM ENTREPRENEURSHIP CHALLENGE

This summer, students participated in the second annual STEM Entrepreneurship Challenge, led and developed by a STEM industry professional and FSI alum, Othman Ouenes. In this challenge, students learned about startup companies and explored how their STEM interests could be applied to a business model by creating a business in small groups and presenting to a panel of judges.

STUDENT RESEARCH PROJECTS

Sreyanth Alla (Parker, CO) Impact of Puberty Blockers on Soleus Muscle Minimum Feret Diameter in Female Adolescent Rats, Mentors: Kara Phillips, Scotty Davis, Dr. David Hydock

Tanish Alluru (Cedar Park, TX) Optimized Use of Photoredox Catalyzed OATRP to be Used for a Teaching Model, Mentor: Dr. Bonnie Buss

Dillon Curtis (Brush, CO) Measuring the Sun's Brightness Compared to Sunspots Over Time, Mentor: Erin McCartney

Siddharth Eadara (Parker, CO) Optimizing a Speaker System for a Flatter Frequency Response, Mentor: Indigo Peppard

Evan Huang (Novi, MI) Sunspots and Brightness of the Sun, Mentor: Erin McCartney

Hyojae Lee (Centennial, CO) Comparing the impact of puberty blockers on the activity rates of male versus female rats, Mentors: Kara Phillips, Scotty Davis, Dr. David Hydock

Brian Lum (Palo Alto, CA) How Eliminating *Serratia symbiotica* Impacts Apolipophorin Gene Expression in Pea Aphids, Mentor: Lani Irvin

Ariana Morfin (Greeley, CO) Triptorelin Effects on Physical Activity in Adolescent Sprague-Dawley Rats, Mentors: Kara Phillips, Scotty Davis, Dr. David Hydock

Charan Narahari (Aurora, CO) Public Perception and Ethical Concerns Regarding Artificial Intelligence, Mentor: Saeed Fayyaz

STUDENT RESEARCH PROJECTS

Miah Ortecho (Loveland, CO) Optimizing a Speaker System for a Flatter Frequency Response, Mentor: Indigo Peppard

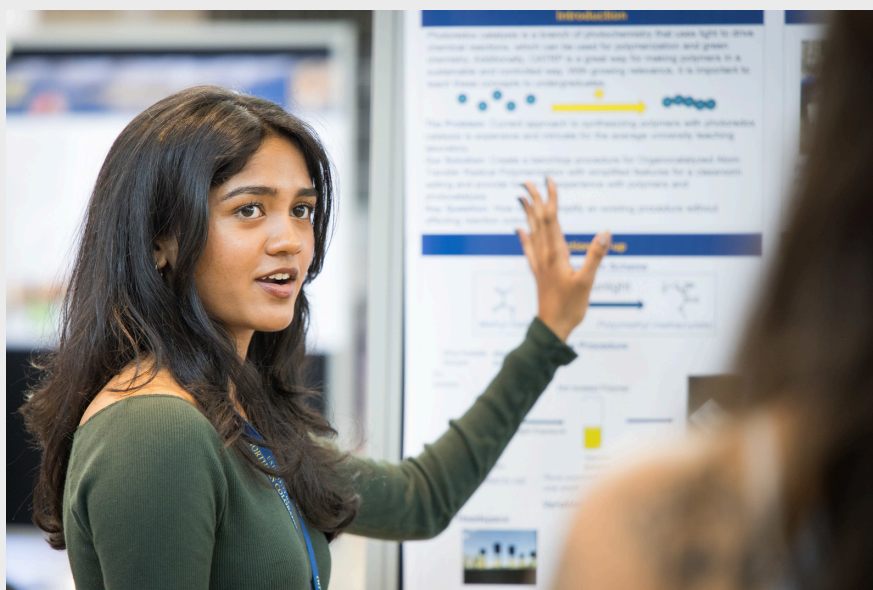
Sami Rahim (Palo Alto, CA) Satisfiability Models as a Substitute for Linear Programming Models to Optimize Agriculture, Mentor: Saeed Fayyaz

Nalan Rajan (Palo Alto, CA) Pea Aphids Gene Expressions of Apolipoprotein after Ampicillin Treatment, Mentor: Lani Irvin

Sahethi Ratnapu (Scottsdale, AZ) Photoredox Catalysis: A Simpler Approach to Polymerization, Mentor: Dr. Bonnie Buss

Sachin Suresh (Aurora, CO) Grip Strength Difference within active female rats on hormone blockers and control female rats, Mentors: Kara Phillips, Scotty Davis, Dr. David Hydock

Lydia Yilma (Aurora, CO) Students perceptions of AI in education, Mentor: Saeed Fayyaz



STUDENT TESTIMONIALS

"I chose to attend FSI because of its outstanding reputation for providing hands-on research opportunities and a strong support system for aspiring scientists. The program's focus on practical experience and mentorship aligns perfectly with my goal of becoming a radiologist. Through FSI, I am gaining invaluable skills and knowledge that will not only enhance my college applications but also prepare me for a successful career in healthcare." - Sreyanth



"I chose to attend FSI because I wanted a view of college life and to explore the science field. I have always been interested in science and medicine and this program has allowed me to see and experience different aspects of science. This program has truly shown and emphasized to me that I want to go into the science field in the future and taught me to reach out for help if needed." - Hyojae

"FSI will help me start a college education and introduce me to presenting information to a scientific audience. My career is on track thanks to FSI and will help me with more opportunities in the future." - Dillon

"Through FSI I was able to gain experience in the field of research, along with getting a feel for college life, and building lifetime connections with my peers and mentors. FSI has provided me with not only a fun summer, but a challenging one, where I have learned to take risks, appreciate education, and better my social skills." - Ariana



FSI SCHOLARS CELEBRATION



Students presented their research projects by giving professional scientific talks and poster presentations. We celebrated all of their achievements with a weekend packed with events, including a banquet and award ceremony. We hope you will join us for the FSI banquet and award ceremony next year!

STUDENT AND STAFF AWARDS

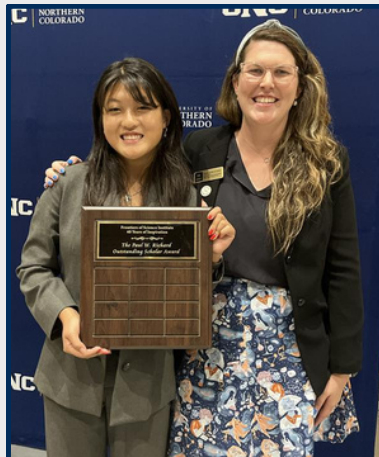
EXCEPTIONAL SCIENTIFIC TALK - ARIANA MORFIN

EXCEPTIONAL POSTER PRESENTATION - TANISH ALLURU

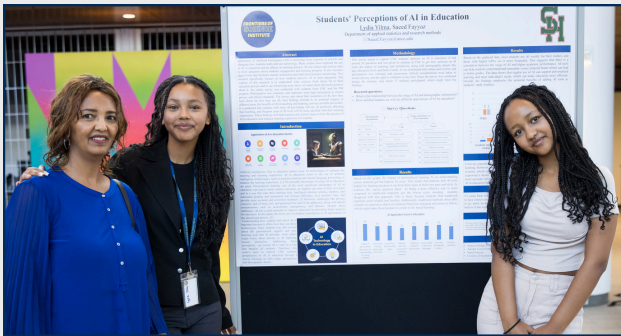
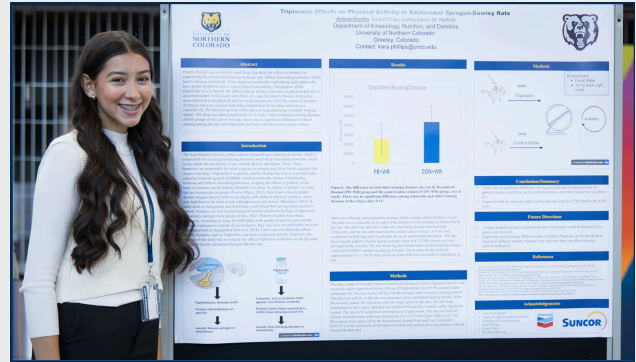
JOHN K. GAPTER TEACHING EXCELLENCE AND SERVICE -
SAMUEL KERWIN

PAUL W. RICHARD OUTSTANDING SCHOLAR - HYOJAE LEE

LORI K. BALL EXCELLENCE IN LEADERSHIP
AWARD - BRIAN LUM



2024 POSTER SESSION



FSI - 65 YEARS OF EXCELLENCE

FSI has a long history of success, and celebrating and connecting with our alumni is so exciting! We enjoyed this year's reunion and those who could join during our 2024 cohort celebrations!



FSI Class of 1959



FSI Alums Family Alums celebrating with their family in the 2024 cohort!



THANK YOU FOR THE SUPPORT!

We wish to thank all of the FSI **corporate and foundation sponsors:**

State Farm



**UNION PACIFIC
FOUNDATION**



And all of the **individual alumni and friends of FSI**
that support our institute!

This couldn't happen without you!

ITS BEEN AWHILE...UPDATE YOUR INFO!

We would love to keep in touch with you!
Please update your contact with us by using the
following update link:

<https://bit.ly/fsialumniconcontactupdate>

Frontiers of Science Institute
University of Northern Colorado
Campus Box 123
Greeley, CO 80639

bit.ly/frontiersofscienceinstitute



UNIVERSITY OF
**NORTHERN
COLORADO**