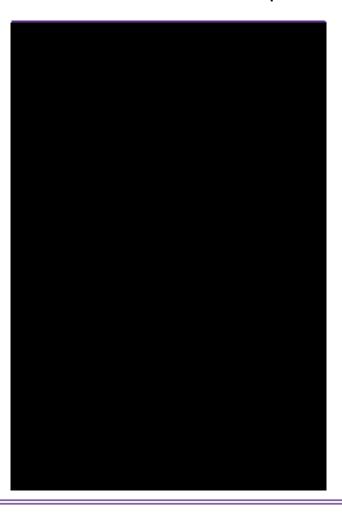
University of North Alabama

Three Minute Thesis Competition

April 20**20**

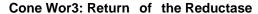


Three Minute Thesis Competition

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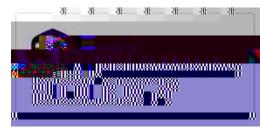
First place prize \$500 Larissa Huissen Faculty Mentor Dr. Eric Becraft, Biology

Larissa is a junior at the University of North Alabama studvina and Chemistry. At UNA, she member of the Honors College and LaGrange Society. She grew Wisconsin where Kenosha, high school attended Indian at School and Trail High Academy. graduation, Larissa After plans continue her education applying for a D.M.D/Ph.D. program to pursue career in dental academics and research.



Single cell genomics and metagenomics were used to identify candidate phylum WOR3 in samples taken geothermal pool in California. Results for the ecology, diversity, and evolution of WOR3 were reported contributing to the immense genealogy of life and the microbiology's understanding of contribution to Earth's geological structures.









Second place prize \$300 AnnaGrace Heinkel

Faculty Mentor Dr. Mel Blake, Physics

AnnaGrace was born and raised in Birmingham, Alabama. She is now a senior at UNA, majoring in Psychology and Biology with a minor in Chemistry. Following graduation, AnnaGrace plans to attend medical school. She began her research as a physics honors project with Dr. Mel Blake. Through her research AnnaGrace has learned how to apply basic physics principles to scientific questions, and hopes to further the available resources in astronomical research.

"A Beautiful Day in the Neighborhood: Developing Software for Determination of Star Cluster Membership of Neighboring Stars" Using Øublic p i

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Third place prize \$150 Alexa Dishroon

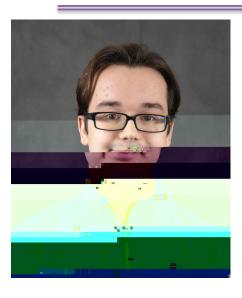
Faculty Mentor Dr. Meghan Merciers Music

Alexa Dishroon is a native of Higdon, AL. She is a senior music education major at the University of Alabama where she participates in many ensembles, including the North Alabama Marching Pride. passionate about bringing music to those who would otherwise not have the chance to participate, including teaching music in Haiti and researching inclusive music education practices. She is a member of the SOTA Student Leaders, Phi Kappa Phi, Pi Kappa Lambda. Tau Beta Sigma, College, Honors and serves president of the National Association for Music Education collegiate chapter at UNA.

"Bridging the Gap: Music Therapy Education" Music Music therapy is the evidenced-based use of music to achieve therapeutic goals. Music classrooms are often selected as inclusive environments, yet many music educators feel unprepared accommodate students with disabilities. Principles from music therapy can be applied to music education in order to achieve success for students with disabilities.







Fourth place prize \$50 Ethan Hood

Faculty Mentor Dr. Cindy Stenger Mathematics

Ethan is a computer science major at the University of North Alabama. He has always been interested in any kind of information. Using his knowledge about data, 3D modeling, and statistics, he has enjoyed contributing in any way that he can to the larger problem at hand.

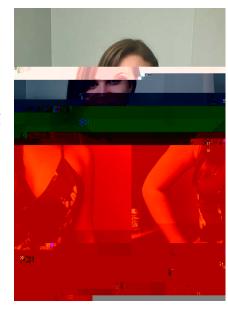
"Investigation of the structure of a SARS-CoV-2 spike protein 3D model, and its relationship with ACE2"

This thesis will analyze the structure of the spike protein in SARS-CoV-2, and how it infects host cells with its relationship to ACE2. In association with the Prokop lab, this project will also provide educational resources (through the 3D modeling of the protein) to help show how COVID-19 spreads.

Fifth place Savannah Pickens

Faculty Mentorg'8f" AY']ggU'8Y:ccfi'8f" J]bWY'6fYkhcb 5bXYfgcb'7c"Y[Y'ci'Bifg]b['UbX'<cbcfg'7c"Y[Y

Savannah Pickens is a senior student at UNA studying Nursing with a minor in French. She has been a student of the Honors College all four years and is an inducted member in Pi





, Exercise Science

Effects of a virtual reality pacer on cycling performance

Faculty Mentor: Dr. Lauren Killen

The presence of a deceptively faster pacer motivated untrained cyclists to exercise at higher intensities vs. baseline pacer and no pacer alone. Despite acute and session RPE values reflecting the higher intensity of the deception trial, participants reported feeling more absorbed in comparison to the baseline and no pacer trials.

Bio:

I am a graduate research assistant for the University of North Alabama's Kinesiology department, and I am majoring in Exercise Science. I am from Logan, Utah, however, I attained my bachelor's degree at West Virginia Wesleyan. I



Meet Patel, Biology (Chemistry)

A Missense Swap on SLC6A1 gene from Glutamine to Lysine at amino acid position 209

Faculty Mentor: Dr. Cindy Stenger

This work is part of a larger project with fellow colleagues from the University of North Alabama, Jacksonville State Prokop University and the Lab at Michigan State University. The project used a crowd sourcing approach to analyze mutations of SLC6A1. SLC6A1 encodes GAT-1 and is associated with epileptic encephalopathy. Clinical SLC6A1 epileptic manifestation of encephalopathy is characterized by an autosomal dominant early seizure and mild to severe intellectual disability. variant sought after in this project is a missense mutation at position 209 swapping glutamine with lysine (hereafter Q209K). This is classified as a semi-conservative mutation since the amino acids go from uncharged to positively charged residues. PolyPhen-2, Provean, and SIFT show probably benign, neutral, and tolerated, respectively. The Q209K is a variant of uncertain significance with a low impact score. However, mutation has RMSD of 1.604 thus suggesting it does have an impact on the protein structure.

Bio: I am junior majoring in biology with chemistry minor. My educational aspirations consist of acquiring a bachelor's degree in biology that would assist me in pursuing a medical career as a doctor (MD) and a researcher (Ph.D.). After becoming a certified doctor, I want to specialize in neurology and add my insight to the neuro research field. I am extrovert who loves nature, photography and, of course, helping people.

Mary Warren, Computer Science

Faculty Mentor: DrEÁÔã}å^ÁÙc^}*^!

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