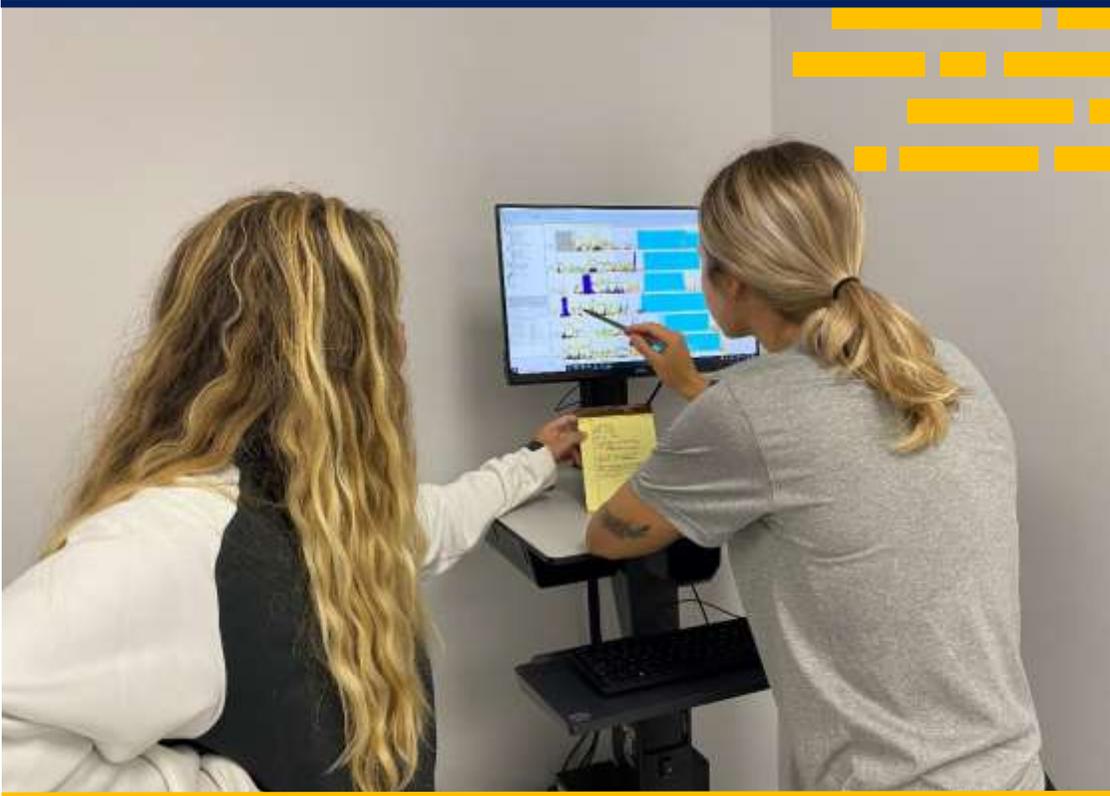




# OFFICE OF UNDERGRADUATE RESEARCH

Annual newsletter | 2021-2022



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Welcome to the inaugural issue of the NCWU office of undergraduate research (OUR) newsletter. The mission of the OUR is to support and promote opportunities for students in all disciplines to engage in advanced inquiry through research, creative, and scholarly experiences.

- Need to find a research opportunity? Search the OUR faculty research database: <https://ncwcresearch.wordpress.com/ncwc-faculty-research-activities-and-interests/>
- Need help designing a research poster or writing a research abstract? We've got you covered with presentation tips and undergraduate research workshops: <https://ncwcresearch.wordpress.com/present-your-research/>
- Looking for ways to fund your research? Check out the OUR's research funding page: <https://ncwcresearch.com/fund-your-research/>

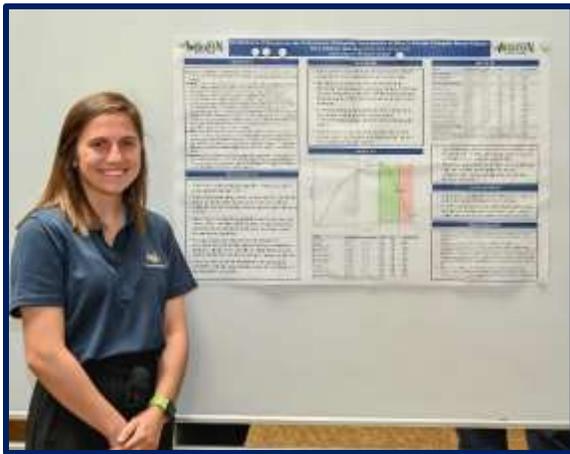
## NCWU Undergraduate Student Research Spotlight

Many of NCWU's undergraduate students conduct high quality research, outside of the classroom. Check out some of the undergraduate research highlights from across the campus:



Students in Dr. Katrina Sweet's (Assistant Professor of Business Administration) ADM 495: Special Topics class conducted research on gender bias and counterproductive work behavior. As part of this project, students reviewed existing data and explored how gender bias and counterproductive work behavior create a hostile working environment,

limit women in the workplace (and the organizations they work for), forecloses opportunities for creativity and innovation, and reduce morale and retention. Findings from this research will be presented at the The Music, Ministry, & Mental Health Conference for Professionals, Educators, & Community Leaders in Valdosta, GA, and also submitted to several peer-reviewed journals.



Under the direction of Dr. Alex Ehlert, Assistant Professor of Exercise Science, Ms. Emily Ketchum (Exercise Science) conducted research to evaluate whether measurements of neuromuscular function were different between female athletes with high or low deceleration abilities. The ability to rapidly decelerate the body from high speeds is important for athletes, but most studies have primarily focused on male athletes.

Emily was heavily involved in this study, and was able to gain experience in leading testing sessions for athletes and with using high-tech equipment such as electronic timing gates and radar guns (to measure acceleration and deceleration of an athlete) and force plates (to measure how an athlete interacts with the ground during various tests). Findings from Emily's work was presented at the 2022 Carolinas' Exercise Science and Kinesiology Research Symposium (held virtually), and the 2022 NCWU Student Research Symposium.



Under the direction of Dr. Kaitlin Pericak, Assistant Professor of Sociology, Mr. Fabio Felli (Sociology) helped to conduct focus groups to understand experiences of belonging among National Collegiate Athletic Association (NCAA) Division III (DIII) international student-athletes at a small NCAA DIII institution in the Southern U.S.. Through the use of a key informant in the sport community, international student athletes were recruited using snowball sampling, or convenience sampling. For this study, Fabio conducted a literature

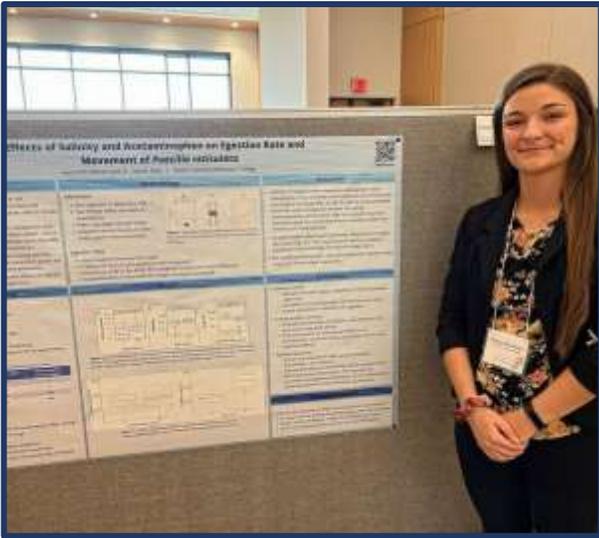
review, aided in data collection, and analysis of data. Findings from Fabio's research project titled "Experiences of Belonging Among International Student-Athletes (ISAs)," at the 2022 North American Society for the Sociology of Sport Annual Meeting in Montreal, Canada. Fabio received a \$100 award from the North American Society for the Sociology of Sport to support his conference attendance.

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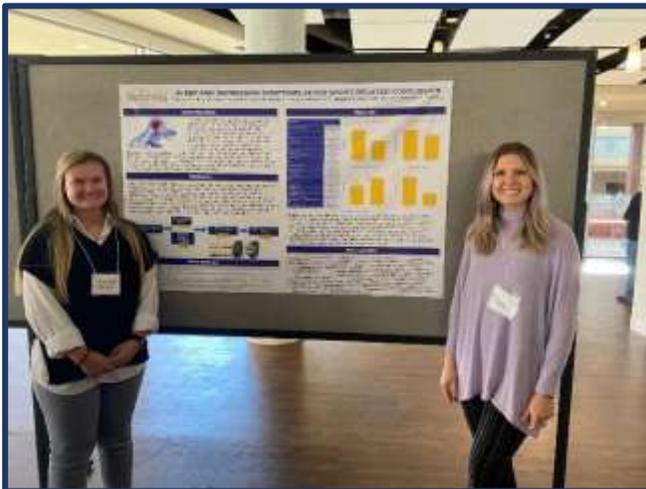
Under the direction of Dr. Meir Magal, Program Director and Professor of Exercise Science, Mr. Enrique Chang (Biomedical Sciences; Taylor-Crocker Honor's Program) investigated the metabolic demands of guitar performance. A total of three sessions of data collection were performed, the first being a VO<sub>2</sub>max test to serve as the control dataset. The second and

third sessions included cardiovascular, metabolic and perceptual data measures of guitar performance while seated and standing, respectively. Enrique was highly involved in this study and gained experience in data collection, including calibrating the metabolic cart (which takes direct measures of inhaled and exhaled air volume and content), assisting in conducting a maximal aerobic capacity test (which measures aerobic fitness), analyzing the data, and interpreting the results to formulate logical conclusions.



Under the direction of Dr. Daniel Elias, Assistant Professor of Environmental Science, Ms. Alyssa Brookhart (Environmental Science; Biomedical Science, Taylor-Crocker Honor's Program) investigated the combined effects of acetaminophen (Tylenol) and salinity on fish (*Poecilia reticulata*). Freshwater organisms currently face increasing salinity in their habitats, which is driven by agriculture, runoff of road salts, and global climate change. Additionally, there is an increasing consumption of pharmaceuticals due to increasing human population. These products are not fully removed from wastewater and are found in freshwater (e.g., rivers) and saltwater habitats.

For this research, Alyssa used the software ImageJ to quantify fish length and standardized egestion rates. In addition, Alyssa used a movement tracking software (AnyMaze) to identify and quantify erratic movement. Measuring non-lethal endpoints are critical for understanding the impacts of pollutants in aquatic ecosystems and used throughout ecotoxicological research. Alyssa presented her findings, "Effects of Salinity and Acetaminophen on Egestion Rate and Movement of *Poecilia reticulata*" at the 2021 North Carolina Independent Colleges and Universities (NCICU) annual meeting; the 2022 North Carolina Academy of Science Annual Meeting at Campbell University, NC; and the 2022 NCWU Undergraduate Research Symposium. Alyssa received a \$600 award from NCICU to support her research.



Under the direction of Dr. Shannon Crowley, Associate Professor of Exercise Science, Ms. Megan Mackey (Biomedical Sciences, Taylor-Crocker Honor's Program) and Ms. Savannah Chenault (Exercise Science) investigated sleep and depressive symptoms after a sport-related concussion. Both sleep problems and depression have been reported post-concussion, and these can have profound negative impacts on social, academic, and occupational functioning in athletes. Megan and Savannah were highly involved in this study, and gained experience in the

measurement of sleep-wake behavior via wrist actigraphy, assessment of mood and sleep via standard questionnaires, and learned about standard tests used by athletic trainers to diagnose concussion. Megan and Savannah's scientific poster titled, "Sleep and Depressive Symptoms After Sport Related Concussion" was presented by Megan as a top 8 undergraduate student award finalist at the 2022 annual meeting of the Southeast Chapter of the American College of Sports Medicine in Greenville, SC, and was presented at the 2022 NCWU Student Research Symposium.

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Under the direction of Dr. Amy Karnehm Willis, Professor of Sociology, and honors thesis committee members Dr. Danielle Braxton (Assistant Professor of Health Promotion), and Dr. Jarrod Kelly (Assistant Professor of Political Science), Ms. Sam Valeros (Biomedical Sciences, Taylor-Crocker Honor's Program) conducted a qualitative content analysis of 27 fictional films created between the 1930s and 2020. Her research question was to examine differences and similarities in the portrayal of black women over time, with the backdrop of slavery as a starting point for description. Her analysis established 19 primary categories for these portrayals, amongst 70 black female characters represented in the films. While some of the characters portrayed fit into only one category, approximately 70% of them fit into at least two categories. The pattern category which was the most prevalent was what Valeros termed the "Bold and the Forthright", which was stably present throughout the 1900s. Among other traits she was very willing to speak her mind. The second most prevalent pattern portrayed was the "Strong Christian Influence", one portrayed as religiously active. She concluded that while stereotypes as such referred to in her title may have undergone some changes, some remain common in fictional films. Sam's honor's thesis, which included this work, was titled, "From 'Mammy' in *Gone with the Wind* to Tyler Perry's 'Angry Black Woman': A Qualitative Content Analysis of the Portrayals of Black Women in Fictional Films from the 1930s to Modern Day."

## Highlights from the NCWU Undergraduate Student Research Symposium



The NCWU annual Undergraduate Student Research Symposium returned this year, after a COVID-19 induced pause. Twenty-five undergraduate students presented their research at NCWU's Dunn Center April 13, 2022. The symposium was organized by Drs. Heather Louch and Daniel Elias.

Dr. Dimitri Blondel, Assistant Professor of Biology, provided the keynote address: "Genetic Biocontrol of Invasive Rodents: Using Gene Drives to Protect Island Biodiversity."



Undergraduate student presentations included research conducted as part of class projects, Taylor-Crocker Honor's Theses, and research conducted for presentation at external conferences. Student poster award winners were Emily Ketchum (1<sup>st</sup> place), Alyssa Brookhart (1<sup>st</sup> place), Emily Elston (1<sup>st</sup> place), and Andrea Rizzo and Sanad Najemeddin (2<sup>nd</sup> place).

*(Photos courtesy of Professor Carl Lewis)*

## Where are They Now? NCWU Undergraduate Research Alumni Spotlight:



**C. Tyler Ricks, DPT**

C. Tyler Ricks, DPT (class of 2019) conducted two research projects at NCWU including: (1) the "American College of Sports Medicine (ACSM) Submaximal Cycle Ergometer Protocol and Push-up Test Validation Study," which focused on the development of an ACSM-based cycle ergometer protocol and push-up tests (project director: Dr. Meir Magal); and (2) "Factors Influencing Attitude Towards, and Participation in, Physical Activity in Eastern NC," which focused on identifying barriers and facilitators to physical activity participation in Nash and Edgecombe Counties (project director: Dr. Shannon Crowley). Tyler recently completed a Doctorate of Physical Therapy at Eastern Carolina University (ECU). He is now working at Goldsboro Physical Therapy & Wellness, and will sit for his licensure exam this upcoming July to become a licensed physical therapist in NC.

### **What role did your research experience at NCWU play in your current position or graduate program?**

My research experience at NCWU helped foster a passion for problem solving and staying up to date on current issues in my field. I used my experience with research and writing to evaluate literature and tailor my PT practice to best level evidence. It also prepared me to conduct a case study at ECU and present my research at the American Physical Therapy Association's Annual CSM meeting in San Antonio this past February.

### **Have you received any awards or recognition that you would like to share, related to your current position or graduate school?**

I served as the Physical Therapy Club President for my 3 years in PT school. This allowed me to organize meetings, establish fundraising and volunteer events, and spread the word about the profession throughout Greenville. I also served as a Clinical Assistant in the faculty run clinic where I treated patients with a variety of conditions. At graduation, I was presented the Student Leadership Award which was voted on by my classmates for a student that displays leadership qualities in a variety of areas throughout the program. I also was one of the recipients for the Best Graduate Poster at ECU's College of Allied Health Sciences Research Day.

**What was the most valuable skill you learned from conducting research with a faculty mentor at NCWU?**

The most important skill I learned while conducting research at NCWU was how to interpret articles and determine where there are gaps in the literature. When these gaps are highlighted, it allows you to ask hard questions that need answers. These questions often lead to amazing research, yield answers to those hard questions, and help advance the respective field and shape clinical practice!

**Would you encourage undergraduate students to participate in a research experience?**

I definitely encourage all students to participate in research to some extent while at NCWU. The experiences cause you to fall in love with problem solving and finding results to specific research questions! This love helped make me a great PT student and has made me a great clinician as well. I now stay up to date on literature within PT to mold my clinical practice and help my patients have the best outcomes. I will be forever grateful for the research and mentoring I received while at NCWU!

**Apply for the Annual Office of Undergraduate Research Faculty-Student Research Award (FSRA)**

Did you know that the Office of Undergraduate Research (OUR) provides an annual faculty-student research award (FSRA)? This \$500.00 award may be used to purchase supplies, software, or equipment to support the conduction of student research, and/or provide funding to help cover travel expenses for the student to present their research at a conference. This award also covers a one-semester course release for the faculty mentor.

For more information and to apply, follow this link:

<https://ncwcresearch.com/our-faculty-student-research-award-fsra/>

Applications for the OUR Faculty-Student Research Award must be completed by both the student and faculty mentor, and are due by 9/15/2022.