

RISE COHORT 16

2021 – 2022

Profiles





Fellow Profile

2021-2022

Cohort 16



Aida Cortez

Classification: Senior

Major: General Chemistry

Mentor: Devang Natvarlal Upadhyay

Current Research Activities: I am working with Danny, whose work consists of entomopathogenic nematodes and producing their bacterial symbiont to reduce the use of chemical insecticides. Since I have just started conducting research, I am still learning the basics of the project. Such as identifying the bacteria as gram-positive or gram-negative (gram staining).

Honors, Awards, Publications: Silver Academic Achievement Award from New Student Programs (2020), UNCP RISE Fellow

Career Aspirations and Goals: My goal is to ultimately work in the distillery industry.

Clubs and Organizations: Alpha Zeta Chapter of The Gamma Sigma Epsilon Chemistry Honor Society, COMPASS Scholarship Program



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Ashley M. Edwards

Classification: Senior

Major: Biology, Chemistry & Music

Mentor: Dr. Courtney Alexander

Current Research Activities: An expedition to Mars or any far-off stretch of space is highly unlikely until adequate protection against ionizing radiation is developed. Interestingly, natural products from some marine algae have radioprotection, which can possibly protect human cells against damage in space. Additionally, previous research suggests some algae have anticancer properties. I aim to discover if algae can be used to shield humans from ionizing radiation as well as totally inhibit or slow tumorigenesis. I will accomplish this using mutant strains of the model organism *C. elegans* (they're adorable!).

Honors, Awards, Publications: REU Summer Internship – University of Hawai'i at Manoa, Maynor Honors College, Music Department Scholarship, Chancellor's List, UNCP RISE Fellow

Career Aspirations and Goals: I will complete a PhD program and ultimately work at NASA or the Smithsonian as a renowned phycologist.

Conferences: Annual Biomedical Research Conference for Minority Students (ABRCMS), Integrating Research in Science (IRIS) Conference, & North Carolina Academy of Science (NCAS), RISE End of Summer Symposium

Clubs and Organizations: Honors College, String Quartet,



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Carlee Epting

Classification: Senior

Major: Environmental Science

Mentor: Dr. Amber Rock

Current Research Activities: Evaluating microplastics in the Lumber River using water and sediment sampling.

Honors, Awards, Publications: Braves Scholar Award (Bronze), UNCP RISE Fellow

Career Aspirations and Goals:

Attend graduate school for a master's degree and then obtain a job in the conservation field

Conferences: PURC 2021

Clubs and Organizations: Chancellor Ambassadors & Beta Beta Beta – Psi Lambda Chapter



Fellow Profile

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Emily Kate Harrison

Classification: Senior

Major: General Biology, Environmental Concentration

Mentor: Dr. Brittany Miller

Current Research Activities: Dr. Brittany Miller, Leah Frazier, and I are using Clustered Regularly Interspaced Short Palindromic Repeats, or CRISPR, to engineer the genome of *Saccharomyces cerevisiae*, or baker's yeast. By using the endonuclease enzyme CAS9 and a single guide RNA, we can edit genomes of a cell. Doing so, we hope to induce and recreate various cancerous missense mutations that are seen in humans in yeast CDC42 (which is 80% identical to human CDC42). We will see how the missense mutations we have selected affect factors such as cell morphology and polarity, growth rate, and temperature sensitivity.

Honors, Awards, Publications: Associates in Science, Chancellor's List, UNCP RISE Fellow

Career Aspirations and Goals: To earn a Master's Degree in Microbiology, to work at a biopharmaceutical or genetics medicines company (such as Audentes Therapeutics or Pfizer), and to build a small digital art and print business on the side.

Conferences: UNCP RISE End of Summer Research Symposium 2021

Clubs and Organizations: Art Club, TriBeta, UNCP RISE Program



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Eric Schwarz

Classification: Junior

Major: Agriculture Science

Mentor: Dr. Bryan Scales

Current Research Activities: Conducting research with Dr Sales on the water and fertilizer use and efficiency in a hydroponic system with different substrates located in the high tunnel. Come check it out

Honors, Awards, Publications: Chancellor's List, recognized as a silver scholar, UNCP RISE Fellow

Career Aspirations and Goals: To make all farms in beautiful North Carolina environmentally sustainable.

Conferences: End of Summer Research Symposium 2020

Clubs and Organizations: RISE, UNCP Rocket Club, UNCP Garden Club, Veterans of Foreign Wars, Disabled Veterans of America, The Fallen Outdoors, USMC and Army



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Imani Gordon

Classification: Senior

Major: General Biology

Mentor: Dr. Kaitlin Campbell

Current Research Activities: I am currently working with Dr. Campbell to study butterfly longevity, diversity, and floral use.

Honors, Awards, Publications: Chancellor's List, GOLD Academic Achievement Award, UNCP RISE Fellow

Career Aspirations and Goals: To earn a Doctorate and become a Professor.

Conferences: End of Summer Research Symposium 2021, Entomology 2021

Clubs and Organizations: Tri-Beta, Honors College, RISE Program



Fellow Profile

2021-2022

Cohort 16



James D. Locklear

Classification: Junior

Major: General Chemistry

Mentor: Professor Vallabha

Current Research Activities: I am currently working with Dr. Tirla doing research on a new way to recycle plastics as well as performing extractions on rabbit tobacco.

Honors, Awards, Publications: UNCP RISE Fellow

Career Aspirations and Goals: To do research on something that I enjoy and have a doctorate in chemistry.

Conferences: End of Summer Research Symposium, SERMACS 2021

Clubs and Organizations: RISE Program



Fellow Profile

2021-2022

Cohort 16



Jenna K. Larkins

Classification: Junior

Major: Biology w/ Zoology Track

Mentor: Dr. Katherine Thorington

Current Research Activities: I am working with Danny, whose work consists of entomopathogenic nematodes and producing their bacterial symbiont to reduce the use of chemical insecticides. Since I have just started conducting research, I am still learning the basics of the project. Such as identifying the bacteria as gram-positive or gram-negative (gram staining).

Honors, Awards, Publications: Honor's college student, Chancellor's list, RISE Cohort 15 (2020-2021) member, UNCP RISE Fellow

Career Aspirations and Goals: To obtain my Master's degree in a Wildlife science related program. To eventually work in a zoo or Ornithological rescue with ambassador animals, primarily vultures (new world and old), to educate and promote conservation.

Conferences: NENHC (Northeast Natural History Conference) 2021, poster: "*Nuthatch Territories on The University of North Carolina at Pembroke Campus*" & PURC Conference (Pembroke Undergraduate Research and Creativity) 2021, poster: "*Nuthatch Territories on UNCP Campus*"

Clubs and Organizations: Maynor G. Honors College, RISE program



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Kalani Gaddy

Classification: Junior

Major: Biology

Mentor: Dr. Nicolas Negrin Pereira

Current Research Activities: Dr. Negrin and I are working towards the factors that affect bull fertility from the fetal stage until puberty. We will focus on Sertoli cells, which are the most important in determining daily sperm production, and the different methods of extracting them!

Honors, Awards, Publications: Chancellor's List, Brave Scholar, Academic Enhancement Award & Provost's Fellowship Award, UNCP RISE Fellow

Career Aspirations and Goals: I aspire to work with animals in captivity and rehabilitation centers, as well as doing research on animals who are endangered and how we can cease the problem.



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Leah K. Frazier

Classification: Junior

Major: Biology with a Biomedical Emphasis

Mentor: Dr. Brittany Miller

Current Research Activities: I am currently working with Dr. Miller using CRISPR to mutate *Saccharomyces cerevisiae* with CDC42 to emulate cancerous missense mutations in humans.

Honors, Awards, Publications: Chancellor's list, UNCP Bronze Scholar, UNCP RISE Fellow

Career Aspirations and Goals: My goal is to get my doctorate in Cancer Biology and to continue doing "bench science".

Conferences: Wake Forest University Summer Research Symposium 2021, RISE End of Summer Research Symposium 2021

Clubs and Organizations: RISE program and Housing and Residence Life



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2021-2022

Cohort 16



Melissa Creech-Sutton

Classification: Senior

Major: Chemistry (pre-pharmacy)

Mentor: Dr. Walline

Current Research Activities: I am currently working on a new project studying the gut microbiota in native bees using next generation sequencing.

Honors, Awards, Publications: Chancellor's List, Honors List, UNCP RISE Fellow

Career Aspirations and Goals: My overall career goal is to obtain my PhD in pharmacology. Pharmacology is the study of the effects of drugs and chemicals on living organisms. By succeeding in my career goal, I will also be achieving my other major goal of continuing to grow as an individual and a scientist.

Conferences: RISE End of Summer Research Symposium 2021

Clubs and Organizations: Maynor's Honor College, Rise, Delight Ministries, Braves Track club and Student Veterans of America



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Mic Schulte

Classification: Junior

Major: Biology w/ Zoology Track

Mentor: Dr. John H. Roe

Current Research Activities: I am currently studying the behavior and ecology of Eastern Box turtle populations (*Terrapene carolina carolina*) as part of a 10-year project at Lumber River State Park and Weymouth Woods Sandhills Nature Preserve. Our aim is to continue

collecting data on turtles using radiotelemetry and mark-recapture methods. From this, we will further expand our understanding of Eastern Box turtle nesting ecology, spatial ecology, and the effects of personality on individual fitness. We also hope to fill knowledge gaps pertaining to the juvenile life stage of this species, their home-range requirements, and recruitment at both locations. Additionally, during the Summer of 2021, we used wildlife cameras at each site to assess predator activity and determine whether or not this correlated with injuries and mortality in turtle populations. This facet of the project is ongoing as we continue to rotate cameras and collect predator activity data.

Honors, Awards, Publications: Chancellor's List, Spring 2020/Fall 2020/Spring 2021 | Gold Academic Achievement Award from New Student Programs, 2020-2021, UNCP RISE Fellow

Career Aspirations and Goals: Upon graduating from UNC Pembroke, I plan to attend a graduate program where I will study wildlife ecology and conservation biology. My ultimate goal is to spend my career studying species of concern so that I can contribute valuable knowledge to the field of conservation. I hope that my research contributions will have a positive impact on the management practices surrounding my species of interest and their respective habitats/environments. Eventually, I would like to hold a position where I will be able to lead others in conducting their own wildlife related research and fieldwork.

Conferences: End of Summer Research Symposium 2021

Clubs and Organizations: Member of TriBeta



Fellow Profile

2021-2022

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Nikki Clayman

Classification: Senior

Major: Biology

Mentor: Dr. Ben Bahr

Current Research Activities: For the last year I have been working at Dr. Bahr's lab. We have been working on the effects of positive lysosomal modulation on protein accumulation in Alzheimer's Disease. I have gotten experience using BCA Protein Assay, electrophoresis, and other important research tools to obtain results for the experiment while working under Dr. Bahr. I will be continuing this research project for my senior year in the RISE program.

Honors, Awards, Publications: Honors List, Chancellors List, RISE Cohort 15 Fellow, NC Space Grant Awardee, UNCP RISE Fellow

Career Aspirations and Goals: My goal is to complete a dual degree pathway and receive a DVM/ PhD in graduate school. With that degree I will pursue a career in research where I can help to innovate and develop the field of Veterinary Medicine

Conferences: Pembroke Undergraduate Research and Creativity Center Conference (PURC) and North Carolina Academy of Science Conference (NCAS)

Clubs and Organizations: RISE Program, Pembroke Grievance Board Committee Member



Fellow Profile

2021-2022

Cohort 16



Samantha N. Cranford

Classification: Senior

Major: General Chemistry

Mentor: Dr. Smith

Current Research Activities: Working with Dr. Tirla and Dr. Bullard-Dillard, currently performing extractions on Rabbit Tobacco to see what active compounds we can find

Honors, Awards, Publications: Golden Pin, Chancellor's List, GCMS Method for Determining Traces of Water in Organic Liquids After the Use of Drying Agents, UNCP RISE Fellow

Career Aspirations and Goals: To become a toxicologist and earn a Doctorate degree.

Conferences: End of Summer Research Symposium, PURC, IRIS

Clubs and Organizations: Honors College



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2021-2022

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Terry Chavez

Classification: Junior

Major: Applied physics

Mentor: Dr. William Brandon

Current Research Activities: In the process of designing, fabricating, characterizing a External Cavity Diode Laser (ECDL) by using diffraction gratings, Piezos and an infrared diode laser. Applications include: saturation absorption spectroscopy, laser mode locking, and atomic clock construction.

Honors, Awards, Publications: Honor's List, Chancellor List, Jose & Dorothy D'Arruda Endowed Scholarship, Chancellor Distinguished Scholarship, Honors Fellowship, '3+2' Student Award, GOLD Braves Scholar, UNCP RISE Fellow

Career Aspirations and Goals: Become an Electrical Engineer that focuses in any subject dealing with circuitry, robotics, light, lasers or radio frequency. Getting my Masters and then Doctorate when I have secured both levels of my electrical engineering license.

Conferences: End of Summer Symposium 2021

Clubs and Organizations: Maynor's Honor College, RISE