

# ALEX COLE FOSTER

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**Class Rank:** Junior

**Mentor:** William Brandon, PhD

**Majors:** Applied Physics and Philosophy and Religion (Philosophy Concentration)

**Research Interests:**

I have very broad research interests, although I am currently investing most of my efforts in optical interferometry and the Faraday rotations of various translucent, solid-state materials. In the future I would like to investigate further the cogency of modeling human consciousness as an emergent phenomenon of electromagnetic fields, and magnetism itself as an emergent phenomenon of relativistic effects.

**Awards/Honors:**

Methodist University Presidential Scholarship (Fall 2010)

Methodist University Dean's List (Fall 2010 – Spring 2011)

UNC Pembroke Chancellor's List (Fall 2011, Spring 2012, Fall 2012, Spring 2013)

Gustafson Memorial Scholarship in Philosophy and Religion (2012 – 13 Academic Years)

**Clubs/Professional Organizations:**

Tau Sigma National Honor Society Member

National Honor Society (NHS) Member

National Society of High School Scholars (NSHSS) Member

# ARMANDO CORONA



**Major:** Chemistry

**Class:** Senior

**Mentor:** Ben Bahr, Ph.D.

**Research Interests:**

My current research interests are in the field of biochemistry and chemical biology. Currently, I work in Dr. Ben Bahr's lab in the assessment to establish indicators of neuropathogenesis that provide a strong impact on the characterization of neuroprotective compounds. The purpose is to use cultured hippocampal slices in the search of potential neuroprotectants. Interestingly, these cultured brain slices can maintain adult-like cellular organization for months and they also express a pathogenic responsiveness similar to that found in animal studies.

**Conference Attendance:**

UIC Summer Research Symposium 2012

Illinois Summer Research Symposium (ISRS 2012)

Pembroke Undergraduate Research and Creativity Center (PURC 2012, 2013)

Symposium for Young Neuroscientists & Professors of the South East (SYNAPSE 2012)

North Carolina Academy of Sciences (NCAS 2012, 2013)

The State of North Carolina Undergraduate Research Symposium (SNCURCS 2011, 2012)

Annual Biomedical Research Conference for Minority Students (ABRCMS 2010, 2011, 2012)

The Southeastern Regional Meeting of the American Chemical Society (SERMACS 2012)

**Academic Awards and Honors/Clubs & Organizations:**

UNCP Dean's List (Spring 2013, Fall 2012, Spring 2012, Fall 2011, Spring 2011)

UNCP RISE Fellowship Cohorts 5, 6, 7, 8

Chemistry Club President

Gamma Sigma Epsilon (Chemistry Honor Society) Secretary

**Research/Career Internships:**

University of Illinois at Chicago- Chemistry- Yoshitaka Ishii (2012)

University of North Carolina at Chapel Hill- Thomas Freeman (2013)

**Presentations:**

*Biodiesel production from vegetable oils by using TMAH as a catalyst* - North Carolina Academy of Sciences (NCAS 2012) in Campbell University, and Pembroke Undergraduate Research and Creativity Center (PURC 2012) in UNCP.

*Analysis of the interaction between CIB1 and integrin  $\beta$ 1b through x-ray crystallography and nanodiscs* - End of Summer Research Presentation (UNC Chapel Hill 2013)

*Solid-phase peptide synthesis and solid state NMR analysis of GRF (1-29)* - UIC Summer Research Symposium 2012 at The University of Illinois at Chicago and Illinois Summer Research Symposium (ISRS 2012) at The University of Illinois at Urbana-Champaign

## CALEB STUBBS

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**Mentor:** Dr. Maria Santisteban

**Major:** Molecular Biology

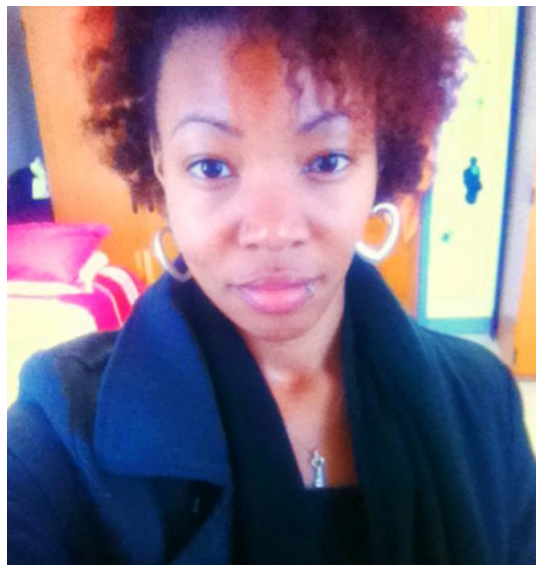
**Class:** Sophomore

**Research Interests:** In my early stages of research my interests have been on Microbiology and Molecular Biology. Research is a new experience for me and I am looking forward to the challenges and experiments ahead. My career goals include going to graduate school and continuing to conduct research thereafter.

**Current Research:** I am currently working on a project that studies the Histones in *Saccharomyces cerevisiae* (Yeast) and relatable patterns concerning transcription of different genes throughout their genome.

## CARLISHA HALL

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**Major:** Environmental Science

**Minor:** Geology

**Mentor:** John Roe, Ph.D.

**Academic Background:**

\* High School Honor Roll

\* Chancellors List Freshman year

\* Honors List (second semester Freshman year and Sophomore year)

\* GPA Currently a 3.5

**Research Interest:**

My research interests are primarily on environmental issues and the impacts they have on humans and other organisms. I believe it is important to preserve and protect our environment because it is essential for our survival and that of other species. Environmental research is meaningful to sustaining biodiversity worldwide. I strive to make a difference in this world by getting involved in all types of environmental studies and building environmental awareness everywhere.

**Research Experience:**

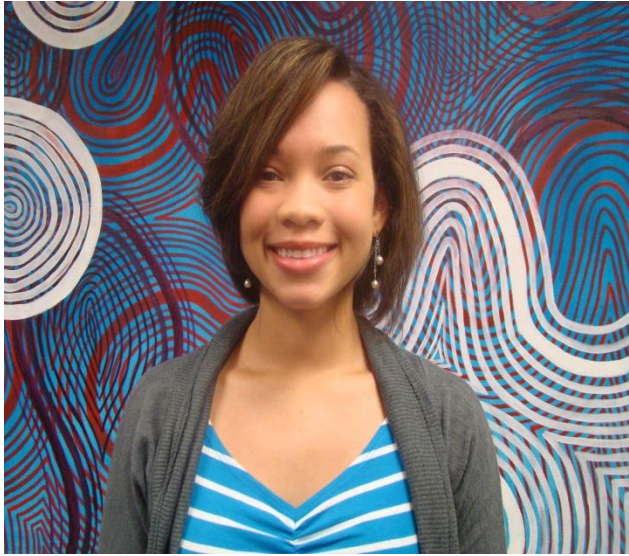
This is my first semester as a rise fellow so I do not have any research experience yet. However, I am currently establishing a project to work with Dr. Roe in his efforts to observe turtles and their response to forest burning. Forest burning is common in this region to preserve the pine Forests. The Eastern Box Turtle (*Terrapene Carolina*) is a terrestrial turtle currently on the endangered species list because it is vulnerable to habitat loss. My partner and I hope to conduct a research project observing turtles during their hibernation season because it is possible that park rangers could burn more around this time and have no impact on the turtles' health.

**About Me:**

I am currently an RA in Cypress Hall and a Tutor in Biology and Chemistry. During Spring Break (2013) I attended an environmental convention in West Virginia that emphasized mountaintop removal and hydraulic fracturing. I am also a Crosby scholar member/alumni receiving a grant from this program each year for completing the program from 6-12<sup>th</sup> grade. This program required members to take learning courses on Saturdays, provided college tour opportunities, required members to apply to at least 5 different colleges, remain drug free and fulfill community service hours yearly.

# CATHERYN WILSON

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**Major:**

Biology (Environmental Concentration)

**Mentor:**

John Roe, PhD.

**Academic Experience:**

- \*UNCP Chancellor's List (Spring 2013)
- \*Dean's List at Craven Community College
- \*Obtained an Associate Degree of Art at Craven Community College (Dec. 2012)

**Research Interest:**

Currently, I am interested in environmental biology as it relates to wildlife conservation as well as the human impact on the overall health of various ecosystems.

**Research Experience:**

I am a first semester RISE fellow collecting and studying data related to the effects of prescribed fire on Eastern Box Turtles in North Carolina State Parks. My goal is to gain greater insights into the habitats, behavior, and influential environmental factors of Eastern Box Turtles in order to aid in conservation efforts.

**About Me:**

I've thought about engaging in other fields of academia; however, I've always had a special place in my heart for science. With careful thought and guidance, I chose to major in Biology with a concentration in Environmental studies. I'm not looking to become "the perfect scientist" (that'd be too boring!), but I am looking forward to becoming an excellent researcher in order to share the knowledge and skills that I've learned along the way. I care about the futures of humanity, wildlife, and the environment; so, I hope that with whatever research program/project with which I am involved in, that my work is able to have a positive impact on this Earth. After all, I want to leave this planet in at least a little bit better condition than how I found it!



# CHATTERIA PERRY

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**Major:** Biology and Spanish

**Class:** Sophomore

**Mentor:** Ben Bahr, Ph.D.

**Conference Attendance:**

Plans to attend the ABRCMS National Conference in Nashville, TN in November 2013

**Research Experience:**

Currently conducting research at the William C. Friday Laboratory with Ben Bahr, Ph.D.

**Honors:**

UNCP-RISE Fellow, 2013

**Career Goals:**

Become a Doctor and continue to conduct Medical Research.

# CHRISTOPHER LONG

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**Major:** Biology

**Class:** Junior

**Mentor:** Ben Bahr, Ph.D.

**Conference Attendance:**

Plans to attend the ABRCMS National Conference in Nashville, TN in November 2013

**Research Experience:**

Currently conducting research at the William C. Friday Laboratory with Ben Bahr, Ph.D.  
Conducted research under Dr. Lillie, and the REU Program at Auburn.

**Honors:**

UNCP-RISE Fellow, 2013

**Career Goals:**

Conduct research into the use of microbes for the development of medicine and therapies.

# JORDAN SMINK



**Major:** Biomedical Sciences, Molecular Biology, Zoology  
**Class:** Senior

**Mentor:** Ben Bahr, Ph.D.

**Research Interests:**

My research interests include bacterial resistance and vaccine development. I am interested in developing new treatments against bacterial, viral, and parasitic pathogens of animals.

**Research Experience:**

Eastern Virginia Medical School (2012)  
The University of North Carolina at Pembroke,  
William C. Friday Laboratory (2012-2013)  
Virginia Regional College of Veterinary Medicine (2013)  
The University of North Carolina at Pembroke, Field  
Work with Dr. John Roe, PhD (Present)

**Academic Awards and Honors:**

University Honors List (2010-2013) / Clinical Veterinary Internship, Pamlico Veterinary Hospital (2011)  
National RISE Fellowship (2011-2014) / NC Zoo: Wildlife Rehabilitation Center Internship (2013)  
Clinical Veterinary Internship, Southeastern Veterinary Hospital (2013)

**Abstracts:**

Smink JA, Bandara A, Inzana T. The Construction of an Improved Shuttle Vector for Transformation and Gene Expression of *Histophilus somni* to compliment the LusS mutant. (*Virginia Bioinformatics Institute National Science Foundation Research Day*) (2013)

Smink JA, Ebru Caba, Robert C. Elliott, Heather Romine, Hsin-wei Wang, Charles Giardina, Don-Guk Shin, and Ben A. Bahr. A Model of Brain damage to study early and delayed responses with focused transcriptomics: Identifying opposing roles of the transcription factor NF- $\kappa$ B.

Bahr BA, Walters-Romine H, Smith M, Hafner S, Corona AL, Smink JA, Metzger E, Willoughby K, Bullard O, and Ikonne US. Small-molecule cathepsin B modulators reduce behavioral deficits in hAPP mouse models and in the Fischer rat model of age-related cognitive decline. *Alzheimer's and Dementia 9 (Internatl. Conf. on Alzheimer's Disease)* (2013).

Smink JA, Wild K, and Roe J. Effect of Prescribed Fire on Overwintering *Terrapene carolina*. *The 4<sup>th</sup> Box Turtle Conservation Workshop*. (2013)

Smink JA, Soult MC, Lonergan NE, and Sullivan CJ. The Effects of Bacterial Enterotoxigenic *E. coli* Membrane Vesicles on the Endothelium. *State of North Carolina Undergraduate Research and Creativity Symposium*. (2012).

Smink JA, Roe J. The Effects of Parks' Management Techniques on *Terrapene carolina*. *Pembroke Undergraduate Research and Creativity Symposium* (2012).



## MARSALIS T. SMITH

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**Education:**

**Bachelor of Science in Textile Engineering** - 2010  
North Carolina State University

**Bachelor of Science in Biology** - Present  
University of North Carolina at Pembroke

**Research Experience:**

**Ricci Lab, Otolaryngology** - Department of Head and Neck Surgery, **Optimizing whole animal auditory measurements, Stanford Summer Research Program, Stanford School of Medicine, Stanford, CA**  
*Jul. 2013 - Aug. 2013*

Through elimination of interference in the signal, both mechanical and electrical, increased both precision and accuracy of various measurements used to identify hearing thresholds of animal models.

**Bahr Lab, Biotechnology Research and Training Center, University of North Carolina at Pembroke, Pembroke, NC**

*July 2012 - Present*

Conducted therapeutic treatments against the numerous diseases that disrupt brain function including Parkinson's disease, Alzheimer's disease, and other neurodegenerative diseases. Also participated in pharmaceutical methods to potentially deter and treat protein accumulation disorders of the heart.

**Science Conferences Attended:**

Stanford Summer Research Program Symposium - Stanford, CA 2013  
Annual Meeting of the North Carolina Academy of Science - Pembroke, NC 2013  
Pembroke Undergraduate Research and Creativity Symposium - Pembroke NC 2013  
State of NC Undergraduate Research and Creativity Symposium - Durham, NC 2013  
Annual Biomedical Research Conference for Minority Students - San Jose, CA 2012

**About Me:**

I am pursuing a second degree in **Biology: Biomedical Emphasis** at UNCP. The RISE program has given me wonderful opportunities and allowed me to network with outstanding people. RISE has afforded me the opportunity to become a competitive applicant for various prestigious graduate programs, where I hope to earn my PhD in neural engineering.

# ROBERT LAMB

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**Major:**  
Chemistry

**Mentor:** Corneila Tirla, Ph.D.

**Research Interests:**  
My research interests lie in the field of organic synthesis, particularly in synthesis methods and optimization of reactions.

**Research Experience:**

Appalachian State University: "A Better Suzuki Polymerization for Thiophene-Containing Monomers with Electron-Neutral Coupling Partners"  
UNC Pembroke: "Optimization Conditions for the Production of Biodiesel"

**Research Presentations:**

Annual Biomedical Research Conference for Minority Students November 2013: *Abstract Submitted*  
RISE End-of-Summer Research and Creativity Presentation August 2013  
Appalachian State University End-of-Summer Presentation August 2013  
North Carolina Academy of Science April 2013  
Pembroke Undergraduate Research and Creativity Symposium April 2013

**Conferences Attended:**

North Carolina Academy of Science April 2013  
Pembroke Undergraduate Research and Creativity Symposium April 2013  
Pembroke Undergraduate Research and Creativity Symposium April 2012

## SARAH RUIZ

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**Class Rank:** Junior

**Mentor:** Ben Bahr, PhD

**Major:** Biology

**Awards:**

\*North Carolina Space Grant Research Scholarship  
(1<sup>st</sup> in the Science Division)- PURCS

\*Derieux Research Award- Biotechnology,  
Genomics and Molecular Biology -NCAS

\*UNCP RISE Fellowship Cohorts 7&8

\*Chancellor's Commendation/Dean's List

**Research Experience:**

Currently, I am involved with research under supervision of Dr. Ben Bahr involving a treatment administration pathway to combat protein accumulation disorders, specifically of a neurodegenerative nature. My work for the North Carolina Space Grant included working with the cannabinergic route of neuroprotection to attenuate seizure and other excitotoxic insult and its effect on the integrin class of adhesion molecules.

**Presentation Experience:**

110<sup>th</sup> Annual Meeting of the North Carolina Academy of Science

Pembroke, North Carolina April 2013

Pembroke Undergraduate Research and Creativity Symposium

Pembroke, North Carolina April 2013

RISE Summer Research Poster Presentation

Pembroke, North Carolina August 2013

**Future Plans:**

After graduating from UNCP, I plan to attend graduate school and pursue a PhD in neurobiology, cell biology, microbiology or epidemiology, or biomed. I would like to continue doing research in a medical or research setting or working closely with public health organizations both in the U.S. and internationally.