



**UNC Charlotte  
Undergraduate Research Conference**

**Friday, April 20, 2018**

**Barnhardt Student Activity Center**

**Conference Program**



# Welcome

Welcome to the 2018 UNC Charlotte Undergraduate Research Conference (URC)! The URC continues to grow each year and this year we have almost 300 undergraduate students presenting. We have four formal sponsors for the conference: Academic Affairs, the Atkins Library, the Honors College, and the Levine Scholars Program. Additionally, the URC receives generous support from all the University's colleges and many of the University's departments. With this support we are able to present a number of awards including department awards, Community Engaged Research awards, Sustainability awards, and Honors awards. Thank you to all the sponsors, the Colleges, and the Departments for their monetary support of the conference. A special thank you goes to the Charlotte Research Institute for their continued support of the Atkins Library Research Awards.

The Undergraduate Research Conference would not be possible without the commitment of our UNC Charlotte faculty. The conference has a strong representation from faculty members who participate as research advisors, mentors, and judges. A big thank you to faculty for your service and dedication to undergraduate research and scholarship at UNC Charlotte. I would especially like to recognize the conference organizing committee, the Levine Scholars, and the staff in the Office of Undergraduate Education, all of whom played integral parts in the planning for today's event. Most of all please join me in congratulating our Undergraduate Researchers for their hard work and efforts. Now engage in the conference presentations, take pictures, and use the #NinerURC18 to share your URC moments on social media.

Enjoy your day!

Dr. Erik Jon Byker  
Chair, URC 2018 Organizing Committee

## UNC Charlotte URC 2018 Organizing Committee Members

Erik Byker, Chair; Reading and Elementary Education, Cato College of Education

Aba Ebong, Electrical and Computer Engineering, William States Lee College of Engineering

Chiamaka Okonkwo, Student, Levine Scholars Program

Coral Wayland, Associate Dean for Curriculum, Office of Undergraduate Education

Diane Zablotsky, Director of the Levine Scholars Program

Jessica Norwood, Doctoral student, Reading and Elementary Education

Lanny Inabnit, Kinesiology, College of Health and Human Services

Malin Pereira, English and Executive Director of the Honors College

Matt Elardo, Student, Levine Scholars Program

Melissa Goodnight, Post Doc, Office of Undergraduate Education

Ryan Harris, J. Murrey Atkins Library

Sharon Reichard, J. Murrey Atkins Library

Tamara Johnson, Academic Planning and Analysis, Office of the Provost



H – Honors College S - Sustainability  
G – Global CE – Community Engage

# URC 2018 Schedule of Events

Friday, April 20, 2018

**7:30 AM:** Registration opens in the James H. Barnhardt Student Activity Center (SAC)

Students and judges arrive to register. The Salon rooms are open for students to set-up their PPT presentations. A light, continental style breakfast is provided.

**8:45 AM – 12:15 PM: Oral PPT Presentations**

Judges and participants will follow the posted schedule and times for room assignments. Students must upload their presentation to their assigned Salon rooms by 8:30 AM.

- Salon A: Biological Sciences
- Salon B: Health and Physical Sciences
- Salon C: Social Sciences
- Salon D: Humanities
- Salon E: Communications and Education

**10:00 AM – 12:00 PM: Concurrent Poster Presentations**

Poster presenters should register their poster between 9:00 AM – 9:45 AM on Friday, April 20. The judging will begin at 10:00 AM. At 11:45 AM, the presenters should start taking down their posters. Please fold up your presentation easel, as well, and place it on the floor next to where you presented.

**12:30 PM – 2:00 PM: Luncheon and Awards Ceremony**

The Luncheon and Awards Ceremony will be in Salons D & E. Thank you to the Honors College for the sponsorship of the drinks at the luncheon. Thank you to the Belk College of Business Graduate Programs for the sponsorship of desserts.

**1:15 PM – 2:00 PM: Awards Ceremony**

Remarks from students who presented at the 2018 National Conference of Undergraduate Research  
Presentation of Departmental Awards: Dr. Erik Jon Byker  
Presentation of Community Engagement Award: Dr. Tamara Johnson  
Presentation of Sustainability Awards: Dr. Diane Zablotsky  
Presentation of Honors College Awards: Dr. Malin Pereira, Executive Director of the Honors College  
Presentation of Atkins Library Research Awards: Dr. Anne Cooper Moore, Dean of Atkins Library

\*At the conclusion of the Awards Ceremony, we asked that all winners remain in the Salons D & E for further instructions about group pictures. Much thanks to Wade Bruton for providing photography for URC 2018.



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## Salon A Oral Presentations 1: Biological Sciences

**8:45 AM:** Role of NEIL3 Zinc finger-GRF motifs in Base Excision Repair  
Anh Ha **H**  
Faculty Advisor: Dr. Shan Yan, Department of Biological Sciences

**9:00 AM:** Relationship between Antibiotic Resistance and Virulence in Salmonella Typhimurium  
Seth Flynn **H**  
Faculty Advisor: Dr. James Oliver, Department of Biological Sciences

**9:15 AM:** Prevalence of Plasmodium Vivax Infection in Duffy Negative Ethiopians  
Daniel Kepple **H, G**  
Faculty Advisor: Dr. Eugenia Lo, Department of Biological Sciences  
Additional Author(s): Kareen Pestana

**9:30 AM:** Endothelial cells, Inflammasomes, and Breast Cancer Progression  
Kristin Smoot **H**  
Faculty Advisor: Dr. Didier Dréau, Department of Biological Sciences

**9:45 AM:** Understanding the Role of Yeast Hsp40 in RNR Subunit Localization  
Montserrat Cuevas **H**  
Faculty Advisor: Dr. Andrew Truman, Department of Biological Sciences

**10:00 AM:** The Hsp70 Co-chaperone Ydj1/HDJ1 Regulates Ribonucleotide Reductase Activity  
Issac Sluder **H**  
Faculty Advisor: Dr. Andrew Truman, Department of Biological Sciences  
Additional Author(s): Laura Knighton, Nikita

### 10:15 AM: BREAK

**10:25 AM:** Development of Cellular Models of DNA Damage and Repair Relevant to Sepsis  
John Patterson **H**  
Faculty Advisor: Dr. Mark Clemens, Department of Biological Sciences

**10:40 AM:** Rational Chemovirotherapy Shows Improved Efficacy Against Pancreatic Cancer  
Gaith Droby **H**  
Faculty Advisor: Dr. Valery Grdzlishvili, Department of Biological Sciences

**10:55 AM:** Identification of Cargo of an Uncharacterized SNX-BAR Protein  
Daria Al-Khalidi **H**  
Faculty Advisor: Dr. Richard Chi, Department of Biological Sciences

**11:10 AM:** The v-SNARES, Snc1 and Snc2 Mediate Early Endosome Fusion in Yeast  
Henry Weaver **H**  
Faculty Advisor: Dr. Richard Chi, Department of Biological Sciences

**11:25 AM:** Understanding the Role of Intracellular RNA Sensors in the Recognition of Bacteria  
Sara Lynn Currin **H**  
Faculty Advisor: Dr. Ian Marriott, Department of Biological Sciences

**11:40 AM:** Impact of Pharmaceuticals on Microbial Communities in Urban Streams  
Robert Dixon **H, S**  
Faculty Advisor: Dr. Molly Redmond, Department of Biological Sciences

**11:55 AM:** Socioecology of Aedes Fever Virus Vectors  
Tyler Rapp **H, S, CE**  
Faculty Advisor: Dr. Michael Dulin, Department of Public Health Sciences

## **Salon B Oral Presentations 2: Health, Mechanical, & Physical Sciences**

**8:45 AM:** Effects of Real-Time Video Feedback on Plantar Pressure Measures  
in Individuals with Chronic Ankle Instability during Walking

Anna Maria Ifarraguerri **H**  
Faculty Advisor: Dr. Luke Donovan, Department of Kinesiology  
Additional Author(s): Danielle Torp

**9:00 AM:** Thermal Conductivity of C3N Nanotubes  
Patrick Guarente  
Faculty Advisor: Dr. Alireza Tabarraei, Department of Mechanical Engineering  
Additional Author(s): Mohan Surya Raja

**9:15 AM:** Study of Thermal Effects on Measurement of Freeform Optics  
in a Temperature Controlled Enclosure  
Laura Hopper  
Faculty Advisor: Dr. Christopher Evans, Department of Mechanical Engineering

**9:30 AM:** Real-Time Prognostics of Power Converters using the Internet of Things  
Michael Ajazi  
Faculty Advisor: Dr. Babak Parkhideh, Department of Electrical and Computer Engineering

**9:45 AM:** Efficient Measurement Method of Quantifying Mass and Area of Firebrands  
Noah Bull **CE**  
Faculty Advisor: Dr. Aixi Zhou, Department of Engineering Technology and Construction  
Additional Author(s): Ja Juan Battle

**10:00 AM:** Gain and Loss Assisted Cloaking of Optical Fibres  
Jordan McCourt **H**  
Faculty Advisor: Dr. Tsing-Hua Her, Department of Physics and Optical Science

**10:15 AM: BREAK**

**10:25 AM:** Determining Cognitive States of Mind of Users Using Analytics  
Tools via Hidden Markov Models  
Mohamad Aboufoul  
Faculty Advisor: Dr. Samira Saikh, Department of Computer Science

**10:40 AM:** Investigation of a One Flask Method for the Preparation of Silver Nanoparticle Solutions for 2-D Plasmon Enhancing Films  
James Bailey **S**  
Faculty Advisor: Dr. Marcus Jones, Department of Chemistry

**10:55 AM:** Synthesis of Bisferrocenoylhydrazone of 4-tert-butyl-2,6-diformylphenol for Use as a Ligand in the Production of Molecular Space  
William Hixson **S**  
Faculty Advisor: Dr. Jordan Poler, Department of Chemistry

**11:10 AM:** Silver(I) Complexes with New Heterocyclic Thiones and Selones  
Hussain Al Tuwailib  
Faculty Advisor: Dr. Daniel Rabinovich, Department of Chemistry

**11:25 PM:** Silver(I) Compounds with Potential Anticancer Activity  
Bryant Loor-Garcia **H**  
Faculty Advisor: Dr. Daniel Rabinovich, Department of Chemistry

### **Salon C Oral Presentations 3: Social Sciences**

**8:45 AM:** Examining the Sexual Politics, Gender Roles, and Power Structures in the Book of Esther  
Savanna Humphries  
Faculty Advisor: Dr. Barbara Thiede, Department of Religious Studies

**9:00 AM:** Chögyam Trungpa: Poetic Forms of Buddhist Modernism  
David Flaherty  
Faculty Advisor: Dr. Alexandra Kaloyanides, Department of Religious Studies

**9:15 AM:** The Unintended Consequence of Counterterrorism  
James Franco  
Faculty Advisor: Dr. Beth Whitaker, Department of Political Science and Public Administration

**9:30 AM:** An Investigation of Prison Rehabilitation Programs  
Jessica Francis **H**  
Faculty Advisor: Dr. Jacqueline Chattopadhyay, Dept. of Political Science & Public Administration

**9:45 AM:** The Hand That Feeds: American Public Perceptions of the 1960 Anpo Protests  
Marc Smith **H**  
Faculty Advisor: Dr. Mark Wilson, Department of History

**10:00 AM:** The Wreck of the Old North State  
Bradley Holt **H**  
Faculty Advisor: Dr. Mark Wilson, Department of History

**10:15 AM: BREAK**

**10:25 AM:** American Restorationism and the Alexandrian School  
Justin Sells **H**  
Faculty Advisor: Dr. Christopher Cameron, Department of History

**10:40 AM:** The Irish in the American Revolution  
Alea Chambers **H**  
Faculty Advisor: Dr. Christopher Cameron, Department of History

**10:55 AM:** "A House Divided": Religion's Role in the Formation of Mitchell County in 1861  
Sarah Presnell **H**  
Faculty Advisor: Dr. Christopher Cameron, Department of History

**11:10 AM:** I Wanna Be Like That!: How the Ball Culture Used Categories to Resist Social Restrictions  
Gabrielle Gray **H**  
Faculty Advisor: Dr. Brent Cebul, Department of History

**11:25 AM:** White Working Class Anger as the Leading Factor  
for the 1898 Wilmington Race Riot  
Anthony Yeager **H**  
Faculty Advisor: Dr. Shepard McKinley, Department of History

**11:40 AM:** Republican Paramilitary Women of the Troubles  
Tabitha Wood **H**  
Faculty Advisor: Dr. Peter Thorsheim, Department of History

**11:55 AM:** Mysticism of the Mountains  
Ty Sauerbrey **H**  
Faculty Advisor: Dr. Carol Higham, Department of History

### **Salon D Oral Presentations 4: Humanities**

**8:45 AM:** Thinking the End of Ontotheology: Aristotle and Hegel through the Eyes of Heidegger  
Lucas Carroll **H**  
Faculty Advisor: Dr. Reginald Raymer, Department of Philosophy

**9:00 AM:** Midnight in the Garden of Savannah Society: Examining the  
Influence of Marketing and Publishing in Public Perception  
Susanna Parkhill **H**  
Faculty Advisor: Dr. Kirk Melnikoff, Department of English

**9:15 AM:** Unmasking the Masochist: The Conception and Impact of Yukio Mishima's  
"Confessions of a Mask"  
Kelly Brabec **H, G**  
Faculty Advisor: Dr. Kirk Melnikoff, Department of English

**9:30 AM:** Of Ravens and Romanticism: the Enduring Legacy of Edgar Allan Poe in American Education  
Jordan Costanza **H**  
Faculty Advisor: Dr. Kirk Melnikoff, Department of English



**H** – Honors College **S** - Sustainability  
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**9:45 AM:** 1 Title, 2 Mommies, and 3 Stories: Publishers' Impact on *Heather Has Two Mommies*  
Christina Ramsey **H**  
Faculty Advisor: Dr. Kirk Melnikoff, Department of English

**10:00 AM:** "Now Receive My Word:" Analysis of Rhetoric and Authorship in the FLDS Church  
Jenna Hainlen **H**  
Faculty Advisor: Dr. Kirk Melnikoff, Department of English

**10:15 AM: BREAK**

**10:25 AM:** Racial Identity: Past and Present in Yusef Komunyakaa's "Clouds"  
Jarrett Moseley **G**  
Faculty Advisor: Dr. Malin Pereira, Department of English and the Honors College

**10:40 AM:** An Analysis of LGBTQ Personas, Sexuality, and Gender and Sex-based Stereotypes  
Portrayed in US Television  
M. Cheyenne Pennell  
Faculty Advisor: Dr. Meghan Barnes, Department of English

**Salon E Oral Presentations 5: Communications and Education**

**8:45 AM:** Differences between the Japanese and American Family Plan  
Joseph LeDrew **G**  
Faculty Advisor: Fumie Kato, Department of Culture and Language Studies

**9:00 AM:** Young Japanese and Ikebana  
Sarah Crawley **H, G**  
Faculty Advisor: Fumie Kato, Department of Culture and Language Studies

**9:15 AM:** The Utter Truth  
Jordan Brusso **H**  
Faculty Advisor: Dr. Richard Leeman, Department of Communication Studies

**9:30 AM:** Assessing Elementary Boys' Interest in Texts within the Classroom Library  
Kimberly Burchard **H**  
Faculty Advisor: Dr. Paola Pilonieta, Department of Reading and Elementary Education

**9:45 AM:** How Does a Black Male Teacher Impact the Behavior of Black Male Students?  
Terry Mclendon **CE**  
Faculty Advisor: Dr. Susan Harden, Department of Middle, Secondary, and K-12 Education

**10:00 AM:** Evaluating the Impact of Professional Development in CxC  
Sarah Davis  
Faculty Advisor: Dr. Heather Bastian, Communication across the Curriculum  
Additional Author(s): Angela Holland, Aaron Osborne, & Yassmin Sarabandan



# Poster Presentations

Judging Begins: 10:00 AM

Open to the Public: 10:00 AM – 12:00 PM

\* At 11:45 AM, the presenters should start taking down their posters. Please fold up your presentation easel, as well, and place it on the floor next to where you presented.

## 1. Gender and Age Constructs in Prehistoric Americas: Skeletal and Diet Indicators of Identities

Luisa Donoso

Faculty Advisor: Dr. Sarah Juengst, Department of Anthropology

## 2. Effects of Chronic and Acute Salinity Stress on the Behavior of a Burrowing Sea Anemone, *Nematostella Vectensis*

Meredith Collins

Faculty Advisor: Dr. Adam Reitzel, Department of Biological Sciences  
Additional Author(s): Whitney Leach

## 3. Factors Facilitating the Geographic Range of Invasive Species in the United States

Anja Lisby **S**

Faculty Advisor: Dr. Adam Reitzel, Department of Biological Sciences

## 4. Inflammasomes, Fibrosis, and Breast Cancer Progression

Makenzie Postma

Faculty Advisor: Dr. Dider Dreau, Department of Biological Sciences

## 5. Identifying Synergistic Drug Combinations for Cancer Treatment Using High-throughput Screening of an Hsp40 CRISPR KO Cell Line

Jacob Blackman **H**

Faculty Advisor: Dr. Andrew Truman, Department of Biological Studies  
Additional Author(s): Nitika

## 6. Comparing the Effects of Alum-Adjuvanted Immunization with Complete Freund's-Adjuvanted Immunization in Female-Lewis Rats

Rachel Jones **H**

Faculty Advisor: Dr. Kenneth Bost, Department of Biological Sciences

## 7. Investigating the Role of Global Medical Brigades in Developing Sustainability through Community Engagement

Rachel Jones **H, S, CE, G**

Faculty Advisor: Dr. Amanda Dexter, Department of Kinesiology

## 8. Water Purification: Reusability Studies of Nanomaterials

Kayla Blackburn **H, S**

Faculty Advisor: Dr. Jordan Poler, Department of Chemistry



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- 9. Fabrication and Characterization of Single Walled Carbon Nanotube Thin Films on ITO glass**  
Nickolas Zelenka **S**  
Faculty Advisor: Dr. Jordan Poler, Department of Chemistry
- 10. Examination of the Activity of a Proposed N-acetylglucosamine Transferase Using High Performance Liquid Chromatography**  
Claire Gates  
Faculty Advisor: Dr. Jerry Troutman, Department of Chemistry
- 11. The Synthesis and Use of Fluorescent Analogues as Probes in the Glycan Biosynthesis Pathway**  
Kara Lugli  
Faculty Advisor: Dr. Jerry Troutman, Department of Chemistry
- 12. Synthesis and Characterization of a Hexaamino Nickel-Sulfide Covalent Organic Framework**  
Ozioma Edokobi  
Faculty Advisor: Dr. Christopher Bejger, Department of Chemistry
- 13. Synthesis and Characterization of Superatomic Solids from Dichalcogenide Capped Trinuclear Nickel Molecular Clusters**  
Stephen Collins  
Faculty Advisor: Dr. Christopher Bejger, Department of Chemistry  
Additional Author(s): Matthew Freeman, Eli Snider
- 14. Synthesis and Purification Techniques of Asymmetric Push-Pull Thiazolothiazole Dyes**  
Josh Sailer  
Faculty Advisor: Dr. Michael Walter, Department of Chemistry
- 15. The Synthesis and Electrochromic Properties of Highly Fluorescent N, N'-Dibenzylated Thiazolothiazole Viologens**  
Kristin Sandor  
Faculty Advisor: Dr. Michael Walter, Department of Chemistry
- 16. Thiazolo[5,4-d] thiazole Compounds' Functionality as High-performance Fluorophores and their Environment-sensing Applications**  
Kimberly Goins  
Faculty Advisor: Dr. Michael Walter, Department of Chemistry  
Additional Author(s): Nickolas Sayresmith, Kristin Sandor, Josh Sailer
- 17. Understanding Effect of Alkyl Chain Length on Exciton Diffusion Parameters in Porphyrin Thin Films for OPV Applications**  
Jaclyn Stiller  
Faculty Advisor: Dr. Michael Walter, Department of Chemistry

- 18. Synthesis of N-heterocyclic Thione and Selone Silver(I) Complexes**  
Evan Grimm  
Faculty Advisor: Dr. Daniel Rabinovich, Department of Chemistry
- 19. N-heterocyclic Thione and Selone Complexes of Silver(I)**  
Kirk John Arcena  
Faculty Advisor: Dr. Daniel Rabinovich, Department of Chemistry
- 20. Synthesis and Reactivity of N-heterocyclic Telone Ligands**  
Mustafa Alshurafa  
Faculty Advisor: Dr. Daniel Rabinovich, Department of Chemistry
- 21. Experimental Approaches on the Synthesis of Highly Scattering Silver Nanoparticles**  
Abdurakhmon Abdulatipov  
Faculty Advisor: Dr. Marcus Jones, Department of Chemistry
- 22. Fabrication and Characterization of Single Walled Carbon Nanotube Thin Films on ITO glass**  
Dominic Finis  
Faculty Advisor: Dr. Craig Ogle, Department of Chemistry
- 23. New Orleans Pralines: A Historical, Economic, and Cultural Research Tool**  
Maiah Dixon **H**  
Faculty Advisor: Dr. Ashli Stokes, Department of Communication Studies
- 24. Applying Data Analytics Techniques to Aid the Teaching Process**  
Devansh Desai **H**  
Faculty Advisor: Dr. Mohsen Dorodchi, Department of Computer Science  
Additional Author(s): Aileen Benedict
- 25. Studying the Dynamics of Groups on the Students' Perception in Activity Based Active Learning Classroom**  
Erfan Al-Hossami  
Faculty Advisor: Dr. Mohsen Dorodchi, Department of Computer Science
- 26. Visualization, Assessment and Analytics in Data Structures Learning Modules**  
Matthew McQuaigue  
Faculty Advisor: Dr. Kalpathi Subramaniam, Department of Computer Science  
Additional Author(s): Anna Boekelheide
- 27. Increasing Engagement in Introductory Computer Science Courses by Providing Compelling Assignments**  
Alec Goncharow  
Faculty Advisor: Dr. Erik Saule, Department of Computer Science

**28. Housing Instability in Mecklenburg County**

Taelor Malcolm **H, CE**

Faculty Advisor: Dr. Ashley Clark, Department of Economics

**29. Removal of Agricultural Nutrient Pollution using a Biochar Media**

Savannah Green **S**

Faculty Advisor: Dr. Mariya Munir, Department of Civil and Environmental Engineering

**30. Wideband Contactless Current Sensing using Hybrid Magnetoresistor-Rogowski Sensor in High Frequency Power Electronic Converters**

Ian Hess

Faculty Advisor: Dr. Babak Parkhideh, Department of Electrical and Computer Engineering

**31. A Fence around Cane: The Beginning of the Authorial Function in Jean Toomer's Cane**

Mason Gibbs **H**

Faculty Advisor: Dr. Kirk Melnikoff, Department of English

**32. Analysis of Macroinvertebrates as Bioindicators for an Urban Watershed**

Haley Herrick **S**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Sciences

**33. Grey Water and How it Will Save Us**

Richard Micham **S, CE**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Sciences

Additional Author(s): Mitchell Venator, Spencer Bost, Sean Clark

**34. Reactive Phosphorus in Reedy Creek, Charlotte, NC**

Kaitlynn Bryan-Scaggs **H, S, CE**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Sciences

**35. Relationship of Chlorophyll A to Eutrophication and Algal Blooms in Fresh Water Ecosystems**

Katie Mazane **S**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Sciences

Additional Author(s): Haley Herrick

**36. The Human Water "Tab": Diet's Influence on The Water Footprint**

Amber-Lynn Cruz **S**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

**37. The Environmental Concerns of Turning Water to Beer**

Joseph Zufall **S**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

**38. Desalination**

Clay Grubb **S**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Caroline Brinegar, Devang Oza

**39. An Endangered Species: The Pygmy Hippopotamus**

Sarah Ray **S, G**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

**40. The Effects of Agriculture on Water Quality**

Robert Quinlan

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Dereck Serna

**41. Sustainable Gold Mining**

William Payne **S**

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Curtis Moore

**42. Dam Removal**

William Payne

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Curtis Moore, Kelsie Dwyer, Senon Tinoco

**43. Flint Michigan: Freshwater Supply and Human Rights**

Erika Hathaway

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Phillip Pollachioli

**44. Microplastics in Freshwater Ecosystems**

Brittany Reid

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Rachel Stiller

**45. Investigating Ground Water**

Mitchell Yokeley

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Matthew Mercuri

**46. Impacts of Agriculture on Water Quality**

Leah Lutz

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

Additional Author(s): Kenneth Hower

**47. Policies to Promote Water Sustainability in California**

Leah Lutz **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Sarah Ray

**48. Snow Sports**

Brian Gilley

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science

**49. Effects of Dams on Trout in the U.S.**

Tyler Davis

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science  
Additional Author(s): A.J. Smith

**50. Endangered Freshwater Species: The Axolotl**

Elizabeth Batianis

Faculty Advisor: Dr. Sandra Clinton, Department of Geography and Earth Science  
Additional Author(s): Bailey Jenkins

**51. Higher Levels of Diversity across Romer's Gap than Previously Demonstrated:  
Implications of Newly Discovered Tetrapod Specimens**

Caroline Brinegar

Faculty Advisor: Dr. William Garcia, Department of Geography and Earth Science

**52. Seasonal Variation in Stable Isotopes**

Emilia Torrellas **S**

Faculty Advisor: Dr. David Vinson, Department of Geography and Earth Science

**53. pH Control of Urban Forest Stream Water in Charlotte**

Sydney Swafford **S**

Faculty Advisor: Dr. David Vinson, Department of Geography and Earth Science

**54. Aquifer Storage and Recovery and its Effects on the Surface and Subsurface**

Gregory Thill **S**

Faculty Advisor: Dr. David Vinson, Department of Geography and Earth Science  
Additional Author(s): Amanda Lynn Ochoa

**55. Assessing Spatial and Temporal Changes in the Environment on the Evolution of  
Convection in a High Shear, Low CAPE Event in NC**

Richard Sirico

Faculty Advisor: Dr. Casey Davenport, Department of Geography and Earth Science

**56. Geologic Guide to Reedy Creek Nature Preserve, Charlotte, NC**

Brandon Nickerson **CE**

Faculty Advisor: Dr. Valerie Reynolds, Department of Geography and Earth Science

**57. Likeability of Forest Bird Species to Urban Residents**

Lillian Collins **CE**

Faculty Advisor: Dr. Sarah Gagne, Department of Geography and Earth Science  
Additional Author(s): Grant Paton

**58. Urban Water Sustainability**

Vincent Spagnuolo **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science  
Additional Author(s): Matthew Mercuri

**59. Improvements to Agriculture to Maintain Water Sustainability**

Raymond Galicia **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Brandon Nickerson

**60. Climate Impact on Freshwater Resources Vulnerability in Low-lying Pacific Islands and the Need for Sustainable Harvesting**

Julie Steensma **S, G**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Brandon Fallick

**61. Greywater Uses and its Feasibility**

Johnny Cook **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): James McGukin

**62. Impact of Microplastics on Aquatic Ecosystem and Human Health**

Rhea Greene **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Jodi-Ann Wright

**63. Limiting Marine Pollution for Marine Life Sustainability**

Camden Brunick **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Mitchell Yokeley

**64. Grey Water Benefits Towards Water Sustainability**

Mitchell Venator **S**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Charlotte Harrison

**65. Hog Farming Waste and its Impact on Freshwater in Southeastern North Carolina**

Andrew Bradley

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

**66. Impact of landfill leachate on groundwater in Mecklenburg County**

Aric Gamble

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Kenneth Howe

**67. Community Oriented Aquaponic Greenhouses in Charlotte**

John Dunn **S, CE**

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

**68. Renewable Energy Sources**

Devon Oza

Faculty Advisor: Dr. Craig Allan, Department of Geography and Earth Science

Additional Author(s): Matthew Bullock



**69. Is United States Development Aid to the South Pacific Perpetuating Imperialist Cold War Relationships?**

Asha Coutrier **G**

Faculty Advisor: Dr. Charles Houck, Department of Global Studies

**70. The Effects of Notch Knockdown on Skeletal Muscle Repair in Mice Following Downhill Running**

Ryan Brown

Faculty Advisor: Dr. Susan Arthur, Department of Kinesiology

Additional Author(s): Brooke Wilson, Mathew Bomkamp, Austin Palmer

**71. Pancreatic Cancer Induces Skeletal Muscle Injury**

Brooke Wilson

Faculty Advisor: Dr. Susan Arthur, Department of Kinesiology

Additional Author(s): Jacob Chesson, Brian Thompson, Matthew Bomkamp, Austin Palmer, Joshua Huot

**72. The Feasibility of a Respiratory Therapist in a Family Physician Practice**

Nikonya Godwin **CE**

Faculty Advisor: Dr. Lanny Inabnit, Department of Kinesiology

**73. Post-Operative Cardiothoracic Morbidly Obese Patients: An Informative Guide to Ventilating This Patient Population**

Christopher Hewitt

Faculty Advisor: Dr. Lanny Inabnit, Department of Kinesiology

**74. Respiratory Therapy Sift Change Communication Template**

Eve Herte

Faculty Advisor: Dr. Lanny Inabnit, Department of Kinesiology

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