



**NORTH CAROLINA  
HONORS ASSOCIATION**

# **North Carolina Honors Association Conference, Oct. 4-5, 2013**

Hosted by:

**THE  
HONORS  
COLLEGE**  
at Appalachian State University



**Appalachian Hall, 214 Locust St.  
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# Conference Program

## Friday, October 4, 2013

**5:30-8:30 p.m. Informal Reception and Registration  
Plemmons Student Union, The Solarium**

## Saturday, October 5, 2013

**8:00-8:45 a.m. Registration, Continental Breakfast  
The Honors College, Appalachian Hall, Second Floor**

**8:45-8:55 a.m. Greetings in “The Bailey”**

**9:00-10:15 a.m. First Sessions and Posters, Appalachian Hall  
Room 85 (Programmatic topics)  
Room 161 (STEM topics)  
Room 162 (Humanities topics)  
Rooms 163 and 186 for posters**

**10:15-10:45 a.m. BREAK and manned poster viewing**

**10:45-12:00 Second Sessions and Posters, Appalachian Hall  
Room 85 (Programmatic topics)  
Room 161 (STEM topics)  
Room 162 (Humanities topics)  
Rooms 163 and 186 for posters**

**12:15-1:30 p.m. Luncheon (Blue Ridge Ballroom, Plemmons Student Union)  
Table Topics: Globalizing Honors; Budget Challenges; Honors Housing; Honors Student Organizations; Community College MoUs; Honors in Science; Honors Recruiting/Admissions; Honors Projects; Honors Pedagogy; Gen Ed and Honors; Honors Advancement/Development**

**1:45-2:30 p.m. NCHA Business Meeting (Parkway Ballroom)  
Student Meeting (Rough Ridge Room, PSU)  
Discussion of Honors Student Organization Role**

**2:30-3:00 p.m. Concluding Session (Parkway Ballroom)  
Student Meeting Report  
Announcement of 2014 NCHA Conference Site and President-Elect**

**Program for NCHA 2013**  
**By session times**

<b>Time/ Room</b>	<b>85 Honors Programmatic</b>	<b>161 STEM</b>	<b>162 Humanities</b>
<b>9-9:15</b>	<i>Honors in a Department</i> Mark C. Zrull ASU	<i>A Genetic Algorithm Solution to the NP-hard Bin Packing Problem</i> Brian Clee ASU	<i>The Power of Group Dynamics in Musical Ensembles</i> Carys Kunze ASU
<b>9:15-9:30</b>	<i>Town as Text</i> Dale Wheeler ASU	<i>Bounding Ramsey Numbers with Massively Parallel Genetic Algorithms</i> Gabriel Triggs ASU	<i>Experiential Learning in the Wilderness</i> Alexandra Briggs GWU
<b>9:30-9:45</b>	<i>Bookends: Bringing together students at either end of the Honors experience</i> Patrick Bahls and Richard Chess UNCA	<i>Mathematically Modeling of Telomere Dynamics in Budding Yeast Cells</i> Joshua C. Recore WSSU	<i>Tomorrow is Another Day</i> Taylor Lee and Mary Lindsay Boyd Pfeiffer
<b>9:45-10</b>	<i>Pizza with Professors</i> Rachel Southern, Caitlin Tharpe, and Bill Atwill UNCW	<i>Permutations and Weyl Groups: Seeing Irreducibility through Cycle Structures</i> Noah Avery Hughes ASU	<i>Raising Cultural Awareness via Food</i> Christy Apisa, Breanna Dargel, and Sarah Venn GWU
<b>10-10:15</b>	<i>STEM vs Liberal Arts for Preparation for the Global Community</i> Jasmine Stevenson, Kevin Mills, and Brooke Rampy GWU	<i>Using Computational Tools to Understand the Sound of a Bee Hive</i> Dakota Murray ASU	<i>Genocide: Its Development, Preventive Long-Term Intervention Strategies and Short-Term Initiatives</i> Bret Woodruff MOC
<b>10:15-10:45</b>	<b>BREAK for POSTER VIEWING rms 163 and 186</b>		
<b>10:45-11</b>	<i>King Arthur in Britain: Taking your Honors Seminar abroad!</i> Alexandra Hellenbrand, Brian Clee, Olivia Fitts ASU	<i>Developing a Beehive Surveying System</i> Nathan Hernandez ASU	<i>Constraint, the absurd, and creativity: how to make up words and call them literature</i> Emily Reed UNCA
<b>11-11:15</b>	<i>Internal Recruiting Efforts to Increase Honors College Diversity</i> Angela Mead ASU	<i>Honors Program Database</i> Trey Fenner ASU	<i>Primo Levi's The Periodic Table: Chemistry and Creative Writing Combined</i> Corey McClintock UNCA
<b>11:15-11:30</b>	<i>Teaching to learn: student-taught courses through the UHP Academy</i> Hailey Andler, Carolyn Veale, and Aaron Stoller NCSU		<i>International Clinical Experiences: a pre-med month in South Africa</i> Caleb Yelton ASU
<b>11:30-11:45</b>	<i>Building mentoring networks through freshman seminars</i> Ashley Teal, Nicholas D'Andrea, and Isaac Warren NCSU		
<b>11:45-12</b>	<i>Unpacking the process: creating an undergraduate journal to understand research, inquiry, and discovery</i> Courtney Vaughn NCSU		

**Program for NCHA 2013**  
**By rooms**

**Room 85: Honors Programmatic Presentations 9:00-10:15**

**9-9:15 Rm 85**

*Honors in a Department*

**Mark C. Zrull ([zrullmc@appstate.edu](mailto:zrullmc@appstate.edu))**

**Appalachian State University**

As long ago as I can recall, the Department of Psychology at Appalachian State has offered its undergraduates the opportunity to pursue a degree with “honors in psychology,” and this presentation is about that opportunity and some of the challenges it presents. The path to a degree with honors in psychology begins when a student applies to take courses in the Department’s nine-semester hour honors sequence. The sequence consists of six hours from an honors version of the general psychology course and one or two honors colloquium courses with topics that vary by semester. The two-semester thesis sequence yields a publically defended document and provides the final three hours. A student must complete the program meeting GPA and course grade requirements. Currently, the Department graduates 16 to 20 students with honors in psychology each year, which represents 8% to 10% of the 250 graduating majors. The number of students can challenge the psychology faculty, but overall the program is good thing. Psychology majors benefit from the opportunity, particularly those who distinguish themselves academically after a year or so of college and those who transfer to Appalachian. Hopefully, we can have a brief but meaningful conversation about honors in psychology at Appalachian and generalize a bit about departmental honors.

**9:15-9:30 Rm 85**

*Town as Text*

**Dale Wheeler ([wheelerde@appstate.edu](mailto:wheelerde@appstate.edu))**

**Appalachian State University**

Town as Text is a structured exploration of the service organizations in the town of Boone and Watauga County. The experience is designed specifically for **incoming freshmen honors students** to visit various service and governmental agencies. Students travel to these locations in the morning via mass transit and meet with the directors of the agencies. They learn about the history, current issues confronting the agency, and possible opportunities for volunteering. Student presentations in the afternoon provide the opportunity to disseminate this information to the entire group. This program is modeled from City As Text™ developed by Bernice Braid for the National Honors Semesters through the National Collegiate Honors Council.

**9:30-9:45 Rm 85**

***Bookends: Bringing together students at either end of the Honors experience***

**Patrick Bahls ([pbahls@unca.edu](mailto:pbahls@unca.edu)) and Richard Chess ([rchess@unca.edu](mailto:rchess@unca.edu))**

**UNC-Asheville**

We will speak about a new sort of academic and social orientation program taking place this term in the UNC Asheville Honors Program. The program involves all students enrolled either in an Honors section of the school's first-year colloquium (HON 179) or in the sole section of the Honors capstone course (HON 479). The program's structure is simple: every one of the roughly 100 students involved will attend a class meeting of the other course.

Everyone benefits! In observing the HON 479 students' animated conversations on readings by Cornel West, Jonathan Kozol, and bell hooks, HON 179 students gain familiarity with a discussion-based classroom and get a good sense of what will be expected of them in their Honors coursework. Meanwhile, the HON 479 students offer HON 179 instructors with an excellent resource: instructors might ask these more senior students to talk about their individual Honors experiences, to respond to the first-year students general queries about college life, or simply to take part in the first-year class's daily discussion.

Though we've not yet assessed the success of this program, preliminary feedback from students and faculty alike suggest that it will offer our Honors community a meaningful experience.

**9:45-10:00 Rm 85**

***Pizza with Professors***

**Rachel Southern ([rss7406@uncw.edu](mailto:rss7406@uncw.edu)), Caitlin Tharpe ([cat3352@uncw.edu](mailto:cat3352@uncw.edu)) and Bill Atwill ([atwillw@uncw.edu](mailto:atwillw@uncw.edu))**

**UNC-Wilmington**

Pizza with Professors at UNCW is an informal "meet and greet" in which students and faculty can come together in a stress-free environment so that students can form greater connections with professors in their fields of study in order to create the best possible paths for their academic futures. There are multiple programs per year that are held for various departments so that as many students as possible can be helped. This experience allows students to form relationships with their professors and brings the entire honors community together in a relaxed and enjoyable way that ultimately leads to future success.

**10:00-10:15 Rm 85**

***STEM vs Liberal Arts for Preparation for the Global Community***

**Jasmine Stevenson ([jstevenson1@gardner-webb.edu](mailto:jstevenson1@gardner-webb.edu)), Kevin Mills ([kmills2@gardner-webb.edu](mailto:kmills2@gardner-webb.edu)) and Brooke Rampy ([brampy@gardner-webb.edu](mailto:brampy@gardner-webb.edu))**

**Gardner-Webb University**

How can honors create a better global citizen? In honors classes, studies have favored STEM or Liberal Arts teachings when discussing how to better prepare students for the global community. Theorists that favor Liberal Arts argue that the interdisciplinary style of learning shapes the minds of students to think about how their decisions affect others more than STEM methods. STEM theorists present the need of technical teachings to further medical and scientific advancements by creating critical thinkers that apply their skills to real-world situations.

The comparison of these two methods present plausible arguments, but a question arises of how much of one or the other is needed. Because the answer is not black and white, many theorists believe that to create a well rounded global citizen a mixture of STEM and Liberal Arts teaching methods are necessary. The teachings of honors help create aware global citizens as the program focuses on a position of one of these arguments.

## **Room 161: STEM Presentations 9:00-10:15**

**9:00-9:15 Rm 161**

***A Genetic Algorithm Solution to the NP-hard Bin Packing Problem***

**Brian Clee ([cleebp@appstate.edu](mailto:cleebp@appstate.edu))**

**Appalachian State University**

In this presentation, I will discuss the research I conducted while taking an Honors Genetic Algorithms course (CS 3515) in the spring semester of 2013 at ASU. The class allowed for an introduction in a complex theoretical Computer Science topic, genetic algorithms, and encouraged students to investigate a currently open problem in computer science that could be solved using a genetic algorithm approach. I chose to create a solution for the well-known NP-hard bin packing problem (BPP). Being an NP-hard problem, most algorithms that already existed were tailored to specific data sets; however, an algorithm known as the first fit algorithm provides steadily decent results, and as such is used in most major BPP situations. Of course since the BPP is NP-hard there can be no optimal solution; therefore, my genetic algorithm aimed to outperform the first fit algorithm on a well-tested and established set of data. In the end, my genetic approach outperformed the first fit algorithm in certain situations, yet performed identically in others. Because of this I was able to establish that my genetic algorithm approach is a viable solution to the BPP and in certain situations should be favored over the most widely used solution.

**9:15-9:30 Rm 161**

***Bounding Ramsey Numbers with Massively Parallel Genetic Algorithms***

**Gabriel Triggs ([triggsg@appstate.edu](mailto:triggsg@appstate.edu))**

**Appalachian State University**

In any group of six people, it is guaranteed to be true that three of the six are mutual acquaintances or that three of the six are mutual strangers. To guarantee such a subgroup of size four, we must start with a group of eighteen. We do not yet know the sizes of the groups that will guarantee the existence of subgroups larger than four. The search for these numbers involves exponential algorithms, so we turn to heuristic methods for help. In genetic algorithms, randomly generated solution candidates cross and mutate over thousands of generations as the fitter solutions survive and reproduce and the weaker solutions die off. Eventually, the fittest member of the population approximates a correct solution to the given problem. One issue with genetic algorithms is that they can take a long time to “evolve” into a solution. Evaluating the fitness of a candidate solution for this particular problem is a highly parallelizable algorithm, so we offloaded this evaluation onto video cards capable of performing thousands of simultaneous

computations, speeding up our algorithm by orders of magnitude. Through this work, we are getting closer to finding these subgroup-guaranteeing numbers.

**9:30-9:45 Rm 161**

***Mathematically Modeling of Telomere Dynamics in Budding Yeast Cells***

**Joshua C. Recore ([jrcore111@rams.wssu.edu](mailto:jrcore111@rams.wssu.edu))**

**Winston-Salem State University**

This work includes the study of chromosomal DNA in budding yeast cells during interphase. Understanding the behavior of DNA in the cell nucleus is important because we are creating a baseline for up and coming experiment data for telomeres and how they relate to DNA damage. This summer we focused our research in capturing and modeling the dynamics of centromeres and telomeres. Centromeres and telomeres are the attachment sites of the chromosomes to the boundary of the cell nucleus. In this paper, we describe mathematical models derived from bead spring models. We use these models to investigate telomere behavior assuming different conditions. The models have shown there are more behind this problem and have help us to refine mathematical models that can capture the chromosome behavior inside a cell. Although telomere dynamics remain unclear, analysis of bead spring chain models have refined our understanding of these dynamics.

**9:45-10:00 Rm 161**

***Permutations and Weyl Groups: Seeing Irreducibility through Cycle Structures***

**Noah Avery Hughes ([hughesna@appstate.edu](mailto:hughesna@appstate.edu))**

**Appalachian State University**

The theory of Lie algebra is very important and can be applied in many fields including physics. Finite dimensional simple Lie algebras are among the most important and best understood examples of Lie algebras. A simple Lie algebra's structure is determined by its "root system" (a collection of generalized eigenvalues associated with certain elements of the algebra). These root systems have beautiful geometric structures and are highly symmetric. The symmetry groups of these root systems are known as "Weyl groups."

In this talk we will describe the Weyl groups associated with simple algebras of type  $B_n$  (special orthogonal algebras  $so_{2n+1}$ .) In particular, we will present a set of permutations which generate the representation of the Weyl group corresponding to the so-called "minuscule" representation. Claude Mitschi and Michael F. Singer developed a technique which constructs differential equations whose symmetry groups (i.e. differential Galois groups) are simple Lie groups if their corresponding Lie algebras possesses a minuscule representation. Using our generators we are able to show that such a set exists for simple Lie algebras of type  $B_n$  when  $n = 2,3,5,7$ . In addition, we can show that no such set exists for when  $n = 4,6,8,9,10,11$ .

**10:00-10:15 Rm 161**

***Using Computational Tools to Understand the Sound of a Bee Hive***

**Dakota Murray ([murrayds@appstate.edu](mailto:murrayds@appstate.edu))**

**Appalachian State University**



The work of the honey bee directly results in nearly one third of the food that humans consume. Due to their importance in agriculture the problem of dwindling bee populations is made even more dire. Research on bee hives and bee populations has increased in recent decades and a multidisciplinary approach must be taken to find a solution. The work of the Appalachian State Department of Computer Science is to create a cheap hardware and software package which can effectively monitor the health of bee hives while also obtaining general data on honey bee populations. Assets of the package include a camera, a microphone, and audio analysis software which will record the sound of a beehive and listen for signs of swarming or changing health. Results thus far have displayed that large quantities of information can be extracted from short recordings and that the health of a bee hive can largely be determined from its sound output. The goal of the research is to create a cheap and easy to use system which utilizes audio processing techniques to learn the standard sound of an individual beehive and alert the owner of abnormal variances. In doing so the job of both large and small scale beekeeping will be made easier and large quantities of useful data will be generated.

## **Room 162: Humanities Presentations 9:00-10:15**

**9:00-9:15 Rm 162**

***The Power of Group Dynamics in Musical Ensembles***

**Carys Elisabeth Kunze ([kunzece@appstate.edu](mailto:kunzece@appstate.edu))**

**Appalachian State University**

Directors of musical ensembles may not fully understand the importance of group dynamics in the success of a musical ensemble. Greater knowledge about this phenomenon could be of great use to directors and performers alike in order to create a more successful rehearsal environment. This preliminary research studies how the group dynamics of a musical ensemble may affect the ensemble's musical performance, the quality of student learning, and overall student experiences. Students enrolled in choral ensembles at a state regional university were surveyed about their experiences in the ensemble setting, focusing on student interactions within the ensemble, the director's leadership style, student enjoyment, and rehearsal climate. Rehearsals were observed with a focus on the leadership style of the director, student interactions before, during, and after rehearsal, overall rehearsal climate, and the quality of the music produced. The results of this research were then compiled in order to find relationships between the above listed qualities and the musical success of each ensemble.

This presentation will include both the results of the student survey and overall qualitative observations made by the researcher. The results of this study may allow directors to gain a better understanding of the importance of group dynamics in musical ensembles, thus allowing directors to tailor their rehearsal and leadership styles so as to maximize student learning, enjoyment, and the quality of musical performance.



**9:15-9:30 Rm 162**

***Experiential Learning in the Wilderness***

**Alexandra Briggs ([abriggs@Gardner-Webb.edu](mailto:abriggs@Gardner-Webb.edu))**

Partners-in-the-Park is a rewarding experiential learning opportunity for honors students across the United States. The program was created in cooperation with National Parks Service and National Collegiate Honors Council with support from Southern Utah University and Cedar Breaks National Monument and intended to develop a student's understanding and appreciation for the significance of national parks to the country and its citizens. Partners-in-the-Park is a valuable experience that teaches the complexities of society, the controversies of man actions and causes students to challenge the relationship between man and nature. The particular Partners-in-the-Park trip to Sequoia and King Canyon National Park is the focus of this presentation. This presentation will touch on some of the benefits and potential of experiential learning, the unique experience of backpacking with honors students from around the country and the complexities of the American Wilderness that were discovered during the sequoia trip.

**9:30-9:45 Rm 162**

***Tomorrow is Another Day***

**Taylor Lee ([tmlee000@my.pfeiffer.edu](mailto:tmlee000@my.pfeiffer.edu)) and Mary Lindsay Boyd**

**([lboyd373@my.pfeiffer.edu](mailto:lboyd373@my.pfeiffer.edu))**

**Pfeiffer University**

The Civil War was a time of unrest throughout the entire country but it was especially a time of change among the American women. We both have always been fascinated with the Civil War and enjoy looking into the history of women. Our common love of *Gone with the Wind* helped us realize how we could combine majors of English and Communication with History and Psychology. Therefore, we combined our efforts into a collaborative research project to analyze the historical portrayal of Southern belles and compare it with how they are generally viewed in fictional works like *Gone with the Wind*. We examined historical documents like Mary Chestnut's diary as well as more scholarly research such as Ann Scott. To centralize our theme, we used excerpts of the novel and the film to create an order in which to discuss key characteristics of women and why they are viewed in particular ways, especially highlighting Scarlett and Melanie. Lastly, we used examples of extraordinary women during this time period who definitely defied the stereotypes. This project was not only informative but it was also quite enjoyable as well.

**9:45-10:00 Rm 162**

***Raising Cultural Awareness via Food***

**Christy Apisa ([capisa@gardner-webb.edu](mailto:capisa@gardner-webb.edu)), Breanna Dargel ([bdargel@gardner-webb.edu](mailto:bdargel@gardner-webb.edu))**

**and Sarah Venn ([svenn@gardner-webb.edu](mailto:svenn@gardner-webb.edu))**

**Gardner-Webb University**

Argentina. Ethiopia. Thailand.

These are just a few of the places to which the Gardner-Webb Honors Student Association has ventured through our TSD dinners. What is a TSD? It is a "Try Something Different" – and in many cases, "different" is an understatement. Regardless, much is to be garnered from our

adventures, and much that can diversify, revolutionize, and transform one's very own Honors program. Cultural activities and tastings of ethnic foods are just a few of the ways in which we expand the minds of our students. Moreover, increased dedication of existing students as well as involvement from International Students is an enriching benefit. The taste of unique cultural experiences merely whets the palate of Honors students, leaving them with a desire to expand horizons as a global citizen. Enriching occurrences such as TSD's leave all involved, faculty and students alike, with lasting memories and appreciation for creative cultural diversity.

**10:00-10:15 Rm 162**

***Genocide: Its Development, Preventive Long-Term Intervention Strategies and Short-Term Initiatives***

**Bret Woodruff ([BTW7333@MOC.edu](mailto:BTW7333@MOC.edu))**

**Mount Olive College**

Comparative research on the Holocaust and other genocides strongly support the supposition that genocide is the final step in a sequential process of escalating violence toward a particular ethnic group or nation. Besides location, victim group, and methods of murder, the way genocide plays out is almost always the same. Moreover, the series of stages that ultimately leads to genocide may be used to benchmark the point at which a culture finds itself along the continuum.

Unfortunately, even in the 21<sup>st</sup> century, genocide remains prevalent in some countries; for example, Syria, Dafur, Rwanda, Myanmar, the Central African Republic, and the Kachin State. However, history is not destined to repeat itself, as research also offers insights into preemptive intervention strategies that may be employed to address the characteristic precursors of genocide; essentially altering the course of history.

Session attendees will be (a) introduced to current research on the process through which genocide evolves, (b) presented research-based insights into the preemptive strategies and actions that should be considered to halt the process and, therefore, escape genocide altogether, and (c) provided general information about initiatives in which students and the general public may become engaged to help bring an end to ongoing genocide.

**10:15-10:45**

**BREAK for POSTERS**

**Posters up all morning in the hallways and open classrooms, manned at 10:15-10:45**

**# 1**

**Environmental enrichment affects novelty seeing in adolescent rats**

**Dana Cobb ([cobbde@email.appstate.edu](mailto:cobbde@email.appstate.edu))**

**Appalachian State University**

Environmental enrichment (EE), or interaction with novel objects and conspecifics, affects brain development and behavior. While increased preference for novelty and exploration should increase across adolescence, EE experiences can lessen that behavior. This study investigates relationships between EE and novel object exploration and activation of amygdala neurons,

which contribute to processing emotions related to risk-taking. Adolescent Long-Evans rats (n=16) were exposed to EE cages over 20 days. Age-matched controls experienced a non-enriched home-cage. A two-trial object preference task, with varied delays, took place in an open field containing two different objects. Time in direct contact with novel object during the second trial was recorded. After behavioral testing, brain tissue was processed to examine levels of neural activity in the amygdala. EE rats spent more time exploring familiar and new objects on Trial 2 than non-EE rats across all delays ( $p < .06$ ). While non-EE spent more time (+42%) than EE rats attending to the novel object after 15, 30 and 60 minute delays ( $p < .001$ ), this trend disappeared with a 24 hour delay. Histology data showed 34% fewer active neurons in basolateral amygdala of EE rats than non-EE rats ( $p < .001$ ). For adolescent rats, a history of enrichment decreases novelty seeking when a familiar environment changes after a short period of time, which correlates with reduced amygdala activity. However, after a long enough time between exposures, there is little effect of EE on risk-taking behavior.

**#2**

***New Cobalt Glyoximes as Potential Hydrogen Catalysts***

**Corbin Ester ([estercd@appstate.edu](mailto:estercd@appstate.edu))**

**Appalachian State University**

The environmental and social implications of global carbon emissions require a rapid transition to alternate energy sources. The development of cost-effective catalysts for the interconversion of electrical and chemical energy could enable the widespread acceptance of existing renewable energy technologies. In particular, the production of hydrogen gas via water electrolysis is a promising method of renewable energy storage. For the hydrogen evolution half-reaction, cobaloximes have received attention as active catalysts containing only Earth-abundant elements. We currently are investigating the surface immobilization of cobaloxime catalysts in order to improve the stability and optimize the complexes for catalysis under aqueous conditions. The present strategy is to use N-alkyl glyoxime ligands for immobilization via hydrophobic interactions with a diazonium-modified electrode surface. In this approach, the inductive effect of electron donating and withdrawing substituents is being explored to tune the electron density on the central cobalt ion. Such substituents can influence the basicity of Co(I), modifying the catalyst to match the acidity of a target solution. The synthesis and characterization of these glyoxime ligands will be presented, along with a preliminary electrochemical investigation of the catalytic activity of the resulting cobalt complexes.

**#3**

***Isolation and Characterization of *Stenotrophomonas maltophilia* Lytic Bacteriophage***

**Kaleigh Featherstone ([kbfeatherstone388@my.pfeiffer.edu](mailto:kbfeatherstone388@my.pfeiffer.edu))**

**Pfeiffer College**

Bacteriophages are viruses that infect bacteria and are found wherever that bacteria exist in nature. A lytic bacteriophage infection results in the lysis and death of the infected bacterial cells. While lytic bacteriophage have been used in Eastern Europe for more than 90 years as an alternative to antibiotics, only recently has an increased interest in bacteriophage therapy developed in the United States. The bacterium *Stenotrophomonas maltophilia*, a common

nosocomial pathogen, has proven difficult to treat and control using antibiotics. The organism is resistant to multiple antibiotics and can be found growing in biofilms that colonize medical devices such as catheters. Prior research in our laboratory has identified two lytic bacteriophages, XMM1 and SMM1 that successfully infect strains of *S.maltophilia*. A putative new phage (SMK1) infectious against *S.maltophilia* strain 17445 has been isolated from a rhizosphere environment at Pfeiffer. Initial tests on SMM1 and SMK1 have demonstrated an insensitivity of the phage particles to chloroform and that incubation temperature during infection affects plaque formation. Currently, work is being completed to clone and sequence the DNA fragments from the phage genomes to allow for DNA sequence analysis.

#4

***Development of rhythms in larval release of the crab Rhithropanopeus harrisi***  
**Bianca Moeller ([bpmoeller416@my.pfeiffer.edu](mailto:bpmoeller416@my.pfeiffer.edu))**  
**Pfeiffer University**

Ovigerous females of the crab *Rhithropanopeus harrisi* were collected from an estuary having irregular tides. Crabs with embryo in all developmental stages, when monitored under constant conditions in the laboratory, released larvae in the 3 h interval after sunset in the field. The crabs had a circadian rhythm in larval release, with a free running period of 24.6. Crabs with the least developed embryo were exposed to an altered light:dark cycle for 3 cycles and then placed in constant conditions, the crab and the embryo became entrained to the new LD cycle, larval release mainly occurred within the 3 h interval after the beginning of the new dark phase. This suggests that the female must have some influence on the entrainment of the embryo. Blinded crabs could not be entrained to an altered light:dark cycle, nor did they retain their circadian rhythm, which resulted in arrhythmic larval release. Rhythm analysis was done on crabs monitored for an oxygenation rhythm and activity rhythm, no rhythm was found. Thus female crab must have some other influence on the entrainment of the egg hatching rhythm in the embryo.

#5

***Determining the Role of Adjunctive Clenbuterol in Muscle-targeted Gene Therapy in Pompe Disease***  
**Sierra Nance ([snance111@rams.wssu.edu](mailto:snance111@rams.wssu.edu)), Dustin Landau, Dwight Koeberl, Ph.D, M.D.**  
**Winston-Salem State University and Pediatric Medical Genetics, Duke University**

Pompe Disease (PD) is a glycogen storage disorder caused by a mutation in acid alpha-glucosidase (GAA). Clenbuterol increased cation-independent mannose-6-phosphate receptor (CI-MPR) expression in GAA knock-out mice, thus producing more cellular GAA. Clenbuterol combined with muscle-targeted GAA gene therapy improves efficacy (glycogen metabolism) in a PD mouse model. However, an increase in GAA enzyme was found in GAA knock-out/CI-MPR knock-out (DKO) mice, indicating that Clenbuterol modulates a second cargo receptor. Our goal was to determine if Clenbuterol was responsible for gene delivery in DKO mice. Vector DNA was quantified in 8 mice, 4 treated with GAA gene therapy and 4 being treated with Clenbuterol in conjunction with gene therapy. Results showed that there was no significant difference in the amount of vector DNA between the two groups: the average vector DNA copies in the control group was ~1.352 copies v ~1.599 copies in the treated group. Clenbuterol is not

responsible for gene delivery in DKO mice; therefore, we postulate that it increased the amount of RNA by increasing the promoter for myosin-heavy chain. The cDNA was quantified and the amount was not significantly different between control (~0.355 copies) and treated (~0.428 copies) group.

**#6**

***A Study on the Interaction Between Religious Beliefs and Beliefs About Sexuality Through the Lens of Cognitive Dissonance***

**Kayleigh Peterman ([KCPeterman952@my.pfeiffer.edu](mailto:KCPeterman952@my.pfeiffer.edu))**

**Pfeiffer University**

There is an important interaction between religious beliefs and beliefs about nearly every other facet of life. One facet that has often come into contact with religion is sexuality. This study investigated the interactions between religious beliefs and beliefs regarding human sexuality in its differing forms (i.e., the spectrum of hetero- to homosexuality, monogamy versus polygamy, and married versus unmarried cohabitation). These elements were studied through the lens of cognitive dissonance. The researcher hypothesized that, in order to reduce dissonance, an individual would be just as likely to modify his/her actions or cognitions regarding religion to better resonate with his/her cognitions regarding sexuality as he or she would be to modify his/her actions or cognitions regarding sexuality to better resonate with his/her cognitions regarding religion. The study consisted of an online survey which people selected or deselected themselves to take. The researcher used the “snowball effect” method of obtaining participants. The researcher’s hypothesis was not supported: the participants tended to be more likely to modify their actions or cognitions regarding sexuality to better resonate with their actions or cognitions regarding religion than to modify their actions or cognitions regarding religion to better resonate with their actions or cognitions regarding sexuality.

**#7**

***A Living and Learning Program Focused on Maritime Heritage***

**Tim Runyan ([runyant@ecu.edu](mailto:runyant@ecu.edu))**

**East Carolina University**

This is an extraordinary time for celebrations of maritime heritage: the 200<sup>th</sup> anniversary of the War of 1812, the 150<sup>th</sup> anniversary of the battle of the USS *Monitor* and CSS *Virginia (Merrimack)*, and the 100<sup>th</sup> anniversary of the sinking of *Titanic*. East Carolina University’s Honors College organized many of its Living and Learning program activities and courses around this theme.

Students participated through several activities. Recognizing that most students had never sailed or crewed aboard a sailing vessel in the ocean, sailing expeditions were organized. The response was very positive. This was followed by visits to a conservation laboratory to see artifacts recovered from the pirate Blackbeard’s ship *Queen Anne’s Revenge*, lost in 1718 off Beaufort, North Carolina. An overnight field trip included the USS Monitor Center at the Mariners’ Museum in Newport News, VA and to the exhibits at Nauticus, the battleship *Wisconsin*, a harbor tour of the US Naval base at Norfolk, and the replica ships of 1607 at Jamestown. Honors courses on ocean exploration, and war at sea, and other conflicts, including the pirates of Somalia, brought the subject into the classroom.

This poster focuses on how the maritime themed approach provided opportunities for honors students through informal learning as well as in the classroom. The relationship of maritime heritage to the local environment and nearby communities is a key factor in the positive response to the program.

This poster raises the issue of the complement to formal structured learning by an active and engaged living and learning program. Few courses in the undergraduate curriculum focus on the ocean—which is 70% of our blue planet. Maritime heritage is an excellent entry point for conversations on ocean conservation-- in the classroom, or at sea.

## **Room 85: Honors Programmatic Presentations 10:45-12:00**

**10:45-11:00 Rm 85**

***King Arthur in Britain: Taking your Honors Seminar abroad!***

**Alexandra Hellenbrand ([hellenbranda@appstate.edu](mailto:hellenbranda@appstate.edu)), Brian Clee ([cleebp@appstate.edu](mailto:cleebp@appstate.edu)),**

**Olivia Fitts ([fittsos@appstate.edu](mailto:fittsos@appstate.edu))**

**Appalachian State University**

In this presentation, we will describe a unique course-embedded international experience from spring semester 2013. The story of King Arthur has been shaped by the geography of Great Britain, even as the country has shaped the story over time. This program will take students enrolled in spring course HON 3515 King Arthur to Great Britain to explore Arthurian sites that figure prominently in the course literature (medieval and modern): Stonehenge, Salisbury, Bath, Caerleon, Glastonbury, Winchester Castle and the Round Table. In this respect the program will serve as a “laboratory” for the course, since we will use these visits as a way to study “the story in its place.” While in Britain, students collected photos, drawings or other visual materials to document their experience of course-related activities and sites. Students then incorporated these materials into a course portfolio and into their final research project for the course due at the end of the semester.

**11:00-11:15 Rm 85**

***Internal Recruiting Efforts to Increase Honors College Diversity***

**Angela Dawn Mead ([meadad@appstate.edu](mailto:meadad@appstate.edu))**

The Honors College at Appalachian State University actively recruits students during their first three semesters who are already enrolled at the university to apply to join the Honors College. This internal application process allows students who either did not apply or were not accepted to the Honors College as incoming freshmen to join the Honors College, which adds a great deal of diversity to the Honors College. Data on the differing demographics between the two populations of students will be briefly presented, as will an overview of our internal recruiting efforts.



**11:15-11:30 Rm 85**

***Teaching to learn: student-taught courses through the UHP Academy***

**Hailey Andler ([hhandler@ncsu.edu](mailto:handler@ncsu.edu)), Carolyn Veale ([cpveale@ncsu.edu](mailto:cpveale@ncsu.edu)), and Aaron Stoller ([ajstolle@ncsu.edu](mailto:ajstolle@ncsu.edu))**

This presentation will describe the history, mission, and vision of the University Honors Program Academy (UHPA). UHPA began in 2012 as an opportunity for Honors students to teach and learn from each other, while receiving Honors Program credit. Under the guidance of a faculty mentor, UHP students teach semester-long S/U courses to other UHP students on topics that matter most to them.

Hailey Andler, a former UHPA student-instructor of *Societal Perceptions of Gender and Sexuality*, will describe her experience, highlighting the growth in critical thought and discourse she witnessed in her course. Andler will show how the UHPA brings deep intellectual diversity to the curriculum at NC State, offering students the opportunity to create an intellectual identity outside of the confines of their chosen discipline.

**11:30-11:45 Rm 85**

***Building mentoring networks through freshman seminars***

**Ashley Teal ([ateal2@ncsu.edu](mailto:ateal2@ncsu.edu)), Nicholas D'Andrea ([nadandre@ncsu.edu](mailto:nadandre@ncsu.edu)), and Isaac Warren ([ipwarren@ncsu.edu](mailto:ipwarren@ncsu.edu))**

This presentation will describe how the NCSU Honors Program's peer-mentor program, linked to its freshmen HON seminars, has helped students adapt to the overall college experience while also improving their academic and personal goals. Each Honors Fellow is assigned to a freshman HON seminar, in which she or he is able to contribute his or her advice, suggestions, and ideas to the course in order to promote academic excellence and community-building in the freshman group.

The presentation will articulate how the program has benefited students by fostering a sense of community within the UHP and allowed them to form important connections to upperclassmen. It will include experiences from two current freshmen who are part of the program and an Honors Fellow, who serves as a peer mentor in their freshman HON seminar. Each student will share how they benefited from the program in his or her respective class and how this has given them special opportunities to contribute to other Honors student-led initiatives around campus. In particular, the presentation will focus on how the seminar-based format of the freshman HON sections encourages students to share their ideas and prepare them for further research and involvement in the UHP.

**11:45-12:00 Rm 85**

***Unpacking the process: creating an undergraduate journal to understand research, inquiry, and discovery***

**Courtney Vaughn ([cmvaugh2@ncsu.edu](mailto:cmvaugh2@ncsu.edu)), Carolyn Veale ([cpveale@ncsu.edu](mailto:cpveale@ncsu.edu)), Aaron Stoller ([ajstolle@ncsu.edu](mailto:ajstolle@ncsu.edu))**

Effective communication is essential to disciplinary progress. Given the indefinite number of ideas and methods, research can often seem overwhelmingly complex. To make the research



process more accessible, students in the University Honors Program at North Carolina State University created a new journal, *The Journal of Reflective Inquiry* (JORI).

JORI strives to create an intellectual community founded upon common principles of research, inquiry, and discovery. Through publication and public forum, JORI invites learners to investigate the research process and its societal implications. Although innumerable research journals exist across almost every discipline, there appears to be a general lack of critical examination of the research process. JORI aims to narrow this gap by publishing personal reflections that accompany technical research papers in order to shed light on the research process. Developing JORI involved solidifying a mission, a vision, and guiding principles, as well as designing a structure and workflow that effectively matched our ideals. We hope to share the journey of creating the journal and promote involvement among motivated honors students.

## **Room 161: STEM Presentations 10:45-12:00**

**10:45-11:00 Rm 161**

***Developing a Beehive Surveying System***

**Nathan Hernandez ([hernandeznp@appstate.edu](mailto:hernandeznp@appstate.edu))**

**Appalachian State University**

Honey bees are important pollinators of cash crops which account for a large percentage of global food production; they are necessary for a commercial and sustainable agriculture. Honey bees have been an area of major research lately due to the widely spoken of colony collapse disorder (CCD), where honey bee colonies curiously lose their workers. CCD has resulted in a major loss of colonies in beekeeping operations across the United States. Our research aims to create an inexpensive and modular system that can wirelessly send sensor data acquired from beehives to servers for analysis. This project is still a work in progress; we will discuss data acquisition techniques we've found to work and those we've found not to. Related materials may also be covered: analysis on sound and video, environment and beehive activity relationship, hardware implementation, and data distribution.

**11:00-11:15 Rm 161**

***Honors Program Database***

**Trey Fenner ([fennerwe@appstate.edu](mailto:fennerwe@appstate.edu))**

**Appalachian State University**

Current student tracking practices among departmental honors program directors are varied and require a high degree of maintenance, increasing the likelihood of error. A central database comprised of information for all those enrolled in departmental and/or university honors would provide a means to efficiently and effectively organize and manage students. Departmental honors program directors and honors college personnel can access and manage the database through a dynamic web interface that is individually tailored to fit the needs of the various departments. To illustrate one point in favor of this dynamic environment, major GPAs are automatically calculated based on the accepted calculation algorithm used by the student's major department. The database and web interface also will provide the means to track and manage courses (for GPA calculations), theses, thesis directors and secondary/tertiary readers.

**11:15 Rm 161**

**11:30 Rm 161**

**11:45 Rm 161**

**Room 162: Humanities Presentations 10:45-12:00**

**10:45-11:00 Rm 162**

***Constraint, the absurd, and creativity: how to make up words and call them literature***

**Emily Reed ([ereed@unca.edu](mailto:ereed@unca.edu))**

**UNC-Asheville**

Oulipo, founded by French writers in 1960, was a movement dedicated to writing and its connection to literary constraint. Many of these were based in mathematics. Constrained literature gave rise to a number of questions: What constitutes a piece of creative writing? It is still literature if all the words are chosen at random? Can a poem be one word? One letter? What if the words are made up by a computer program? In this presentation I will show how I used the software Mathematica to write a program that invents new words and generates random definitions. We'll explore how this program was written, show several examples, and reflect on how such a constraint can be interpreted and viewed as a creative endeavor.

**11:00-11:15 Rm 162**

***Primo Levi's The Periodic Table: Chemistry and Creative Writing Combined***

**Corey McClintock ([cemcclin@unca.edu](mailto:cemcclin@unca.edu)) Faculty Advisor: Dr. Chess**

**UNC-Asheville**

Chemist, writer, and Holocaust survivor Primo Levi claimed there were important parallels between the occupations of chemistry and writing. His work demonstrates many ways in which chemistry and writing are complimentary trades. His book *The Periodic Table*, autobiographical in nature, is formatted so each chapter title is a periodic element that thematically presides over the content of each chapter. Levi's combination of attentive style and holistic themes evidences his transfer of skills from chemist to writer. While Levi's work has been widely studied for its blend of scientific and literary aspects, a current investigation of secondary sources surrounding his work reveals a lack of emphasis on the significance of the extended metaphors produced by use of the periodic elements. As a double major in chemistry and creative writing, I am investigating Levi's work to explore his application of accurate scientific metaphors, focusing on how such metaphors enrich the content of Levi's work, and how their authenticity appeals to a scientific audience. I will then use Levi's work as a model to craft my own non-fiction essays themed around periodic elements.

**11:15-12:00 Rm 162**

***International Clinical Experiences: a pre-med month in South Africa***

**Caleb Yelton ([yeltoncj@appstate.edu](mailto:yeltoncj@appstate.edu))**

**Appalachian State University**

Pre-health majors generally do not plan semester-long study abroad. Clinically-relevant summer internships at international medical, dental, etc. schools offer a highly desirable and valuable alternative. Qualitative results will be presented, along with direct reports from a student who interned in South Africa the summer 2013. This presentation will focus on a pre-medical experience specifically.

**11:30-11:45 Rm 162**

**11:45-12 Rm 162**

## Conference Attendees

### **Appalachian State University**

Katie Savannah Amos  
Laurel Bates  
Joshua Carr  
Brian Clee  
Dana Cobb  
Allison Collins  
Corbin Daniel Ester  
Sarah Eubanks  
Trey Fenner  
Olivia Fitts  
Robert Harris  
Alexandra Hellenbrand  
Nate Hernandez  
Noah Avery Hughes  
Leslie Sargent Jones  
Rachel Jordan  
Lisa Kirscht  
Carys Kunze  
Angela Mead  
Charlie Mize  
Dakota Murray  
Dee Parks  
Allison Tresslar  
Gabriel Triggs  
Dale Wheeler  
Kirstie Wolf  
Jessica Yandow  
Caleb Yelton

### **Asheville-Buncombe Technical Community College**

Gigi Derballa

### **Cape Fear Community College**

Myssie Mathis

### **Central Carolina Community College**

Karen Allen

### **Durham Technical Community College**

Tracy Mancini

### **East Carolina University**

Tim Runyan  
Marianna Walker

### **Gardner-Webb University**

Christy Apisa  
Alexandra Briggs  
Breanna Dargel  
Tom Jones  
Kevin Mills  
Brooke Rampy  
Jasmine Stevenson  
Kristina Stroope  
Sarah Venn

### **Haywood Community College**

Steven Heulett

### **Louisburg College**

Candace Jones

### **Mount Olive College**

Dr. Norman Crumpacker  
Kayla Gudac  
Emily Guy  
Taylor Halso  
Ashley Jansen  
Jeanna Jepsen  
Dr. Alan Lamm  
Michael Munoz  
Maricela Ortiz  
Kasyn Sturgill  
Amber Thompson  
Mary Thompson  
Jo Turner  
Alicia Vazquez  
DeQuewnshun Wilson  
Bret Woodruff  
Cody Worrells

### **North Carolina State University**

Hailey Andler  
Nicholas D'Andrea  
Gabriel Decaro  
Sarah McAdams  
Aaron Stoller  
Ashley Teal  
Courtney Vaughn  
Carolyn Veale  
Isaac Warren

### **Pfeiffer University**

Mary Boyd  
Kaleigh Featherstone  
Taylor Lee  
Bianca Moeller

Kayleigh Peterman  
Michael Thompson

### **University of North Carolina – Asheville**

Patrick Bahls  
Richard Chess  
Corey McClintock  
Emily Reed

### **University of North Carolina – Charlotte**

Malin Pereira

### **University of North Carolina – Fayetteville**

Erin N. White

### **University of North Carolina – Wilmington**

William Atwill  
Tiffany Ernst  
Jordan Foster  
Mary Jaskowiak  
Danielle Siegert  
Rachel Southern  
Juliet Taylor  
Caitlin Tharpe

### **Wake Technical Community College**

Kimberley Eaton

### **Wayne Community College**

Charlotte Brow

### **Winston-Salem State University**

Keon Artis  
Dara Green  
Quiana Harris  
Alexandra Lynch  
Jasmine May  
Soncerey Montgomery  
Sierra Nance  
Uzoji Nwanaji-Enwerem  
Joshua Recore  
Andrelisae Robinson  
Darien Robinson  
Amaya Turner  
Brianna Walton  
Cari Webb

## NOTES

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