

# ABSTRACT NUMBER

T-1

**Student Author(s):** Kimberly L. Carren

**Department(s):** Animal Science  
Zoology

**Teaching Mentor(s):** Mitchell E. Hockett/Animal Science

**Title of Presentation:** Utilizing Computer Resources to Optimize Student Learning in the ANS 205 Laboratories

As computer technology improves and the public in general becomes more technologically informed teaching strategies have to evolve. Technologies such as specialized instruments have traditionally been incorporated into laboratory activities, but teaching-oriented computer resources are often absent. PowerPoint presentations and online websites are now frequently used as teaching aids in lectures, but it is less common to see them integrated into laboratories. As a teaching assistant for Anatomy and Physiology of Domestic Animals (ANS 205) I have attempted to integrate an online website and PowerPoint presentations into the laboratory to optimize student learning. I created a laboratory website to display pictures of specimen dissections that could be used by the students when studying for the laboratory practical. PowerPoint presentations were also used in the lab to familiarize the students with basic information about the body system they were dissecting and to provide them with real world examples of some diseases or injuries of that system. The application of facts learned in lecture and lab to diagnosing or treating injuries and to understanding the disease process was stressed in the presentations so that the students would understand why anatomy and physiology is so important and applicable even outside of class. I and the other teaching assistants with the aid of the instructor, Dr. Hockett, created these presentations. After the labs were over the presentations were made available for download online at the lab website. Near the end of the semester a survey was handed out during the laboratory period to see if these changes were helpful to the students.

# ABSTRACT NUMBER

T-2

**Student Author(s):** Sara M. Gibbs  
**Department(s):** Plant Biology  
**Teaching Mentor(s):** Chad V. Jordan/Plant Biology  
**Title of Presentation:** Dichotomous Key of Fern Species

My project involved creating an exercise for the Botany 200 (Plant Life) laboratory on fern morphology to augment the existing exercises on the fern life cycle. This was done in the context of generating a dichotomous classification key, an activity that has not been a part of the lab curriculum recent years. I developed a key of 14 different fern species. Ferns from the Department of Plant Biology's teaching collection were chosen for this exercise because they are easily maintained and are available for use from semester to semester. By using the fern key in the Botany 200 Lab, students will not only learn to utilize a dichotomous key, but also will learn more about unique features of fern leaf morphology. A set of background materials and instructions for the key were created for the students to introduce students to the concept of using keys as identification tools and familiarizing them with fern morphological characteristics. Assigned readings in the students' textbook and other sources will be given so the students will know how to use dichotomous key. The key will be used in the last lab of the spring 2007 semester determine how this exercise works with the existing Botany 200 lab on ferns. This will help determine if any revisions or modifications are needed to make the key easier to understand and use so that this exercise can be incorporated into the established course lab manual in the fall 2007 semester.

# ABSTRACT NUMBER

T-3

**Student Author(s):** Emily A. Gifford  
**Department(s):** Zoology  
**Teaching Mentor(s):** James A. Knopp/Biochemistry  
**Title of Presentation:** Repetition of Biochemical Topics in CALS Courses

As part of the overall program assessment for the biochemistry department, I chose to determine, from the students' perspective, the relationship of Biochemistry 451 (BCH 451) to other courses in the College of Agriculture and Life Sciences. A sample population of BCH 451 students and graduating seniors was chosen as the target for my study. A survey was developed and tested during the fall of 2006, and a refined survey was given to BCH 451 students and graduating biochemistry seniors during the spring of 2007. The survey assessed the importance of different courses, and it was determined that organic chemistry was the most helpful course in preparation for BCH 451. The survey also asked for the extent and relative importance of duplication of 40 different topics. Three topics were found to be repeated unnecessarily. The results of this survey demonstrate, from the students' perspective, that while there is significant overlap between various CALS science courses, for the most part this overlap is beneficial.

# ABSTRACT NUMBER

T-4

**Student Author(s):** Drew W. Hines

**Department(s):** Plant Biology

**Teaching Mentor(s):** Chad V. Jordan/Plant Biology

**Title of Presentation:** Impact on Student Performance on Exams after Implementation of a Supplemental Worksheet on Photosynthesis in Botany 200, Plant Life

Instructors that teach ‘mixed ability’ classrooms typically find it hard to engage above average students while still teaching at a level that does not alienate lower ability students (Parker et al., 2006). Worksheets have been used effectively to supplement normal instruction and to help provide individualized instruction for students of different abilities (Engle, 2006). The implementation of a worksheet into Botany 200 (Plant Life) Laboratory compares the three types of photosynthesis in plants: four-carbon compound photosynthesis (C4), three-carbon compound photosynthesis (C3), and Crassulacean Acid Metabolism photosynthesis (CAM). The students that took Botany 200 in the spring of 2007 receive the supplemental worksheet to complete while students from the fall of 2006 did not receive the worksheet and served as the control group. Both groups of students were tested on similar photosynthesis material during lecture exams. The grades each group received on the photosynthesis questions were compared to see if there was a statistically significance difference between the two groups as well as to see how the worksheet helped science and non-science majors. Students that received the worksheet showed a statistically significant increase at a 95% confidence interval in their grade on photosynthesis questions. Students in the spring of 2007 showed a 15% increase in their grade over the previous semester. Both non-science and science majors of spring 2007 showed a statistically significant increase over their peers with comparable majors from the previous semester. Non-science majors showed an 11.7% increase while science majors showed a 15.8% increase in their grade. From this data, we are able to determine that the worksheet made a significant difference with student performance. The students were also surveyed to gauge their attitude toward the supplemental worksheet and identify any areas that need to be changed in order to make the worksheet a more effective learning tool.

# ABSTRACT NUMBER

T-5

**Student Author(s):** Kyle A. Murrah

**Department(s):** Biological Sciences

**Teaching Mentor(s):** Chad V. Jordan/Plant Biology

**Title of Presentation:** Development of an Allelopathy Experiment for the Plant Life Laboratory

The purpose of this project was to develop a new laboratory exercise for the Botany 200 Plant Life course that would incorporate inquiry-based learning, quantitative analysis, and an experimentally oriented procedure into the existing laboratory curriculum. Allelopathy, the production of chemicals by one species to inhibit another, provides a background for the exercise. Juglones (5-hydroxy-p-naphthiquinone) produced in *Juglans nigra* (black walnut) are allelopathic chemicals that inhibit the growth of many species. A series of experiments was conducted which confirmed varying degrees of inhibition in corn, pea, tomato, and rye grass seedling germination and growth when treated with black walnut fruit leachate. The experiment was found to be an effective demonstration of the effects of allelopathy, and was developed as a viable exercise in a laboratory for a high-enrollment course. A protocol for students conducting this experiment was developed and written as a supplement to the existing Botany 200 laboratory guide. This new section includes objectives, relevant background information regarding allelopathy, a procedure for preparing the experiment and recording results, and materials for interpreting the experimental outcome. To incorporate inquiry-based learning into the exercise, students will make hypotheses about the effects of juglones on different seed types, and conduct the allelopathy experiment over a one-week period. Students will then identify qualitative features of the germinated seedlings to record, and discuss why they consider their chosen feature to be a good indicator of inhibition in the seedlings. They will also take measurements of seedling germination and growth in order to determine what effects the walnut leachate had on the various species. This will incorporate quantitative analysis into the exercise. Overall, this experiment will provide students with introductory exposure to allelopathy and allow them to quantitatively determine allelopathic effects on basic plant growth.

# ABSTRACT NUMBER

T-6

**Student Author(s):** Natalie M. Ramirez

**Department(s):** Zoology

**Teaching Mentor(s):** John Godwin/Zoology

**Title of Presentation:** Oxygen Consumption in *Procambarus clarkii* as a Measure of Dissolved Oxygen: An Effective Student Laboratory Experiment?

A basic measure of metabolic rate in a variety of organisms is oxygen consumption. By measuring the metabolic rate of organisms, one can gain important insights into animal function. The oxygen consumption in aquatic organisms can be negatively affected by hypoxia and stressed habitats. This study sought the feasibility of testing oxygen consumption of crayfish in a student laboratory setting. We studied the rate of oxygen consumption of *Procambarus clarkii* in airtight Tupperware containers. We wanted to develop a system in which students can study metabolic rate by monitoring oxygen consumption across a variety of physiological and environmental variables, such as body weight, water temperature, and activity. We also wanted to use the apparatus to test whether crayfish had a limiting oxygen concentration (LOC) and if students could experimentally assess different factors that could affect the LOC. Using an oxygen probe and computerized monitoring equipment (Logger Pro 3.4.6, Vernier Software & Technology, Beaverton, Oregon, on an Apple Macintosh), we were able to monitor dissolved oxygen concentrations for individual crayfish over varying time periods. More trials need to take place in order to determine clear patterns between oxygen consumption and body size and between specific metabolic rates and body size. Specific metabolic rate did decrease over time, indicating oxygen consumption rates changed as oxygen levels dropped. The crayfish response to decreasing dissolved oxygen content is relevant and applicable to both respiration generally and the threat of hypoxia in aquatic environments. Students can relate this experiment to anatomy and physiology courses, as well as to ecology and conservation courses. One benefit of such an experiment is that it allows students an opportunity to get hands-on experience with fieldwork and then link their findings to studies in the laboratory.

# ABSTRACT NUMBER

T-7

**Student Author(s):** Paige M. Roe

**Department(s):** Molecular and Structural Biochemistry

**Teaching Mentor(s):** Anita P. Flick/Zoology

**Title of Presentation:** Development of an Extended Laboratory Experiment for a Non-Majors Biology Laboratory Course (BIO 106) to Facilitate Student Understanding of the Scientific Process

BIO 106 is a one credit hour lab course that accompanies BIO 105 (Biology in the Modern World). The lecture and lab are structured to provide a generalized understanding of the principles of biology for what are essentially non-science majors. Many of the students do not have a strong science background. This teaching project was first constructed to develop a supplementary lab experiment, outside of the normal realm of the lab, to be conducted over several weeks and class periods to provide students a better understanding of how to conduct scientific experiments over time. Secondly, upon completion of the project, students analyzed and compiled data thus allowing a better understanding of how to write scientific reports. In order to complete the project in three weeks, the effects of different conditions on plant growth were observed using Wisconsin Fast Plants. Students compiled and analyzed data on the growth of the plants and wrote individual or group scientific reports. A detailed lab handout was composed to aid students in their understanding of the various treatments, the compilation and analysis of data, and the requirements of the scientific report. Students and TAs were surveyed for input regarding the project's effectiveness. Students were surveyed twice. Three hundred and eighty-nine students, representing 19 different lab sections, returned the first survey and 177 students completed and returned the second survey. The student surveys indicated a significant improvement in students' understanding of the components of a scientific report. There was also a substantial difference in how long students perceived a scientific experiment would take to be completed. Before the project, 23.91% of students thought a typical experiment took less than one lab period and 34.96% said it would depend on the experiment compared to 7.91% and 49.72%, respectively, after the project.

# ABSTRACT NUMBER

T-8

**Student Author(s):** Lia Amini  
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Beth Migliaccio  
Mastafa Springston  
Erica Sickelbaugh  
Joe Jackson  
Mandy Womble  
Beth Hall  
Debbie Smith

**Department(s):** Biochemistry

**Teaching Mentor(s):** Clay Clark/Biochemistry

**Title of Presentation:** Teaching Methods for Apoptosis Using Various Disease Models

Cell death via necrosis and apoptosis plays a crucial role in maintaining homeostasis in the human body; however, these processes can also have a close relationship with diseases. In particular, understanding the molecular pathways of apoptosis, a programmed cell death, allows one to develop treatment strategies for debilitating or lethal diseases prevalent in the cardiovascular and nervous systems. We identified similar intrinsic and extrinsic apoptotic pathways exhibited in cardiomyocytes, neurons, and specifically oligodendrocytes. Then, in order to further understand our research and extend our knowledge, our group organized a teaching component to introduce topics of cell death in cardiovascular disease, Multiple Sclerosis, and Alzheimer's disease to students ranging from elementary to high school. Treatment and prevention of such diseases is dependent upon unraveling the biochemical details of apoptosis; however, as students ourselves, we find the use of educational tools also quite essential for future progress.

# ABSTRACT NUMBER

T-9

**Student Author(s):** Cole Andrew  
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Margaret Jane Freeman  
Kyle Gazdeck  
Brittany Hoyle  
Jayme Kemp  
John M. Kepley  
Amanda Langdon  
Sarah Mitchell  
Melissa Wood

**Department(s):** Biological Sciences  
Microbiology  
Animal Science  
Biochemistry  
Agricultural Resource Economics Faculty

**Teaching Mentor(s):** Barry Croom/Agricultural and Extension Education

**Title of Presentation:** Voices along Tobacco Road

Many of us have seen and heard about the ill effects of smoking tobacco, but few of us understand the political, social, economic, and cultural influence of *Nicotiana tabacum* to the people of North Carolina, our nation, and our world. The purpose of this seminar is to provide students with a deeper understanding of all of the aspects of tobacco. Reviled by some and praised by others, tobacco has been a part of the American experience for more than 400 years, and was one of the first cash crops exported from the thirteen original colonies. In order to gain a deeper understanding of the complexity of this controversial issue, students in this seminar will listen to the “voices” of tobacco: the tobacco farmer, a health care professional, an industry representative, the researcher, the elected official, and others who have an interest in the crop. Field trips to manufacturing facilities, farms, research sites, and health care facilities may be part of the seminar experience as needed.

# ABSTRACT NUMBER

T-10

**Student Author(s):** Ruba Beltaji  
Rohit Bhandari  
Maggie Carnes  
Angela Delis  
Mindy Hill  
Dana Hogg  
Edwina Joe  
Allisyn Kennedy  
Kaitlyn Kennedy  
Shane McDaniel  
Marlana Sheridan  
Rebecca Wolf

**Department(s):** Animal Science  
Biochemistry  
Biological Sciences  
Zoology

**Teaching Mentor(s):** Herbert Underwood/Zoology

**Title of Presentation:** The Effects of Sleep Debt on College Students

Sleep debt is a term that can be used to describe the effect of sleep loss that accumulates over a period of time when a person does not get sufficient sleep. Sleep debt can be caused by various sleep disorders and is very commonly associated with college students. As a group, we looked at sleep and sleep disorders, with a focus on sleep debt in college students. Many different factors can affect a college student's sleep debt such as socializing, having loud roommates, stress from tests and homework, and drinking caffeinated drinks throughout the day. We hypothesized that college students do not receive enough sleep, which would exacerbate that person's sleep debt. Research was conducted through a survey to test our hypothesis. The Epworth Sleepiness Scale along with several questions regarding daytime activity and amount of sleep per night comprised the survey that was given to 113 college students at North Carolina State University. We then made conclusions from this data in regards to college students. The results of our research showed that college students do not get enough sleep and that most students have a critical sleep debt.

# ABSTRACT NUMBER

T-11

**Student Author(s):** Kristina Bowles  
Kristen Davis  
Stacy Mabe  
Scott Mathews  
Caroline Williams

**Department(s):** Animal Science  
Biological Sciences  
Social Work

**Teaching Mentor(s):** Sarah Ash/Food Science

**Title of Presentation:** Educating the NCSU Community Regarding  
Alternative Pork Production

North Carolina is the second largest pig-producing state in the country. However, between 1986 and 2000 the number of hog farms declined from 15,000 to 3,600. This means more pigs concentrated on fewer farms, which have the potential to adversely affect the health of the pigs, the environment, and the local community. Therefore, there is a need to encourage alternative production systems that address these issues, and to develop consumer markets for their products. The purpose of this project was to educate the NCSU community and gain support concerning pasture-raised pork as a way to reduce the use of large-scale confinement operations. Library research, in addition to interviews with a local farmer, NCSU faculty and staff, and a tour of a model sustainable hog operation, provided the basis for the preparation of an educational brochure that was handed out to students in conjunction with Ag Awareness Week. Contact was made with a representative of University Dining to discuss the possibility of bringing pasture pork to the dining halls on at least a limited basis. Information regarding similar initiatives across the country, along with details regarding pricing and products were presented. Student support of the initiative seemed high; however, the extent of the institutional commitment remains undetermined. Despite the benefits, there are barriers to the widespread adoption of alternative agricultural practices, including: the need for more small farms spread throughout the state to maintain a high level of production; a supporting infrastructure, such as processing plants and smoking /curing facilities, to ensure a variety of pork products for the consumer; consumer willingness to seek out and pay appropriate prices for sustainably raised pork products; and a willingness on the part of large scale purchasers, such as institutional food service, to devote a portion of their budget to buying a constant and consistent amount of product.

# ABSTRACT NUMBER

T-12

**Student Author(s):** Kirstin Bradley  
Siddhi Gupta  
Kiti Ho  
Dan McKearney  
Karen Payne  
Devin Perry  
Katherine Saylor  
Angela Stancil  
Chase Thomas  
Lindsey Waugh  
Tiffany Wong

**Department(s):** Biological Sciences  
Biochemistry

**Teaching Mentor(s):** James A. Knopp/Biochemistry

**Title of Presentation:** Radioisotopes: The Good, The Bad, and The Ugly

The topic of our ALS 398 Honors Seminar was looking at “Poisoning across the Ages.” We began our research by investigating a wide range of poisoning methods. We looked into everything from well-known poisons, such as arsenic or antifreeze, to lesser-known accounts such as the use of insulin in medical poisonings. The more recent use of polonium in the poisoning of the Russian spy Alexander Litvinenko led us to focus upon radioisotopes. Specifically, we examined six of the more common and dangerous radioisotopes of the following elements: cesium, strontium, plutonium, polonium, cobalt, and iodine. We looked at the positive and the negative consequences of the use of radioisotopes. On the positive side, our research on cobalt and iodine included their usage in medical facilities. Radioactive iodine treatment is used in the correction of hyperthyroidism, while cobalt is used in radiotherapy and radiography. Further examination of the polonium poisoning case of Alexander Litvinenko suggested other possibilities of disuse of radioisotopes. Finally, cesium, strontium and plutonium were found to be some of the United State’s top fears for use in a weapon of mass destruction, something we could all be concerned of in the future. Therefore, radioisotopes can neither be good or bad in themselves. It is the way they are used that determines the positive or negative benefits.

# ABSTRACT NUMBER

T-13

**Student Author(s):** Jamie D. Cash  
Catherine F. Frock  
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Malory A. Herbold  
Branson P. Maynard  
Stephanie M. Morgan  
Atif T. Sheikh  
Shequenta L. Wray

**Department(s):** Animal Science  
Biological Science

**Teaching Mentor(s):** William Hoffmann/Plant Biology

**Title of Presentation:** Learning Experience in Topics Related to Global Warming

In the world today, global warming has become a significant issue with not only the scientific community, but also with the average person. However, there are some critics who oppose such alarming results, arguing that the notion of climate change is a naturally occurring phenomenon in the Earth's history. With this in mind, we set out to test many of the preconceived or misunderstood topics concerning global warming. We have created four different experiments that would test carbon emissions from an average person, the rate of polar ice melting, albedo effect, and the effects of plant growth. Each of these experiments are seen as contributors to or influenced by global warming. The data we achieved received alarming results. In the experiment to obtain carbon emissions from the average person, we found that our test subject released 18,907 lbs of CO<sub>2</sub> per year into our environment. The albedo experiment found that there was a 60% increase in light absorbance. The plant growth experiment, it was found that the increase in climate did not affect the plant growth. And finally, the ice melting experiment found that melting sea ice would have no effect on the sea level, while land ice would drastically increase it. Each of the experiments has ultimately shown that there is a definite change occurring the world's overall climate, and the cause is coming from humans. In order to combat such effects we all have to work to reducing carbon emissions. In doing so, we can ensure a better outlook in the future of this planet.

# ABSTRACT NUMBER

T-14

**Student Author(s):** Nadia B. Hassounah  
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Stephen M. Fuchs  
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Katrina B. Levine  
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Bonnie F. Merrel  
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**Department(s):** Zoology  
Microbiology  
Animal Sciences  
Biological Sciences  
Biological Sciences  
Biochemistry  
Biochemistry  
Microbiology  
Biological Sciences  
Biological Sciences  
Microbiology

**Teaching Mentor(s):** Amy M. Grunden/Microbiology  
Wendy F. Boss/Plant Biology

**Title of Presentation:** Redesigning Living Organisms to Survive on Mars:  
Development of Radiation Resistant Plants

NASA has planned a future manned mission to Mars, which would require efficient plant-based bioregenerative life support systems. This ALS 398H section was challenged to investigate possibilities for developing radiation-resistant plants that could survive intense, prolonged cosmic radiation exposure. Mechanisms of radiation resistance found in radiation-tolerant organisms were explored to select

appropriate mechanisms to incorporate into plants. To gain sufficient background in radiation and its effects on living organisms, the class met with speakers specializing in radiation environments in space and DNA repair mechanisms of organisms, and analyzed relevant journal articles. This background material allowed us to focus on select organisms and mechanisms for the development of radiation-tolerant plants. To cover all project aspects, the class organized into five main groups: Radiation Exposure in Space, Biological Effects of Radiation, Prevention of Damage and Repair Mechanisms in Radiation-sensitive and Radiation-tolerant Organisms, and Feasibility of Developing Radiation-tolerant Plants. The Radiation in Space group evaluated the kinds of space radiation and methods of exposure limitation. The Biological Effects of Radiation group investigated long-term and short-term effects of radiation on organisms. The group that studied prevention of damage and repair mechanisms in radiation-sensitive organisms focused on key mechanisms present in most living organisms not accustomed to high-level radiation. In addition, mechanisms present in organisms that tolerate high-level radiation were explored by the Prevention of Damage and Repair Mechanisms in Radiation-tolerant Organisms group. The Feasibility of Developing Radiation-tolerant Plants group explored the rationale, limitations, and development plans. The class further divided into groups responsible for completing the research paper, oral presentation, and symposium poster. This interactive small-class setting allowed students to be more involved in the learning experience, both with each other and the mentors, for a stronger grasp on radiation effects on living organisms and the viability of developing radiation-tolerant plants.

# ABSTRACT NUMBER

T-15

**Student Author(s):** Ashton Mudd  
Myra Fulp  
Morgan Miller  
Katherine Bridges

**Department(s):** Poultry Science  
Molecular and Structural Biochemistry

**Teaching Mentor(s):** Jim Croom/Poultry Science  
Matthew Koci/Poultry Science

**Title of Presentation:** 1918 Influenza Pandemic

Our group traced the historical development of the Great Influenza Pandemic of 1918 from its postulated points of origin to the soldiers who spread the disease around the world during World War I. The United States lost more soldiers to influenza in 1918 than all deaths due to battlefield actions in World War I. Although the etiology of this outbreak is still a source of controversy, many historians believe its origins can be traced to military training camps in the United States and the slow response of the Army Medical Corps to contain the disease. Our group examined the scientific evidence for this hypothesis as well as explored the social and economic impact influenza had on our country in the years following its outbreak. We have studied the impact another influenza pandemic would have if this disease was to reoccur and consulted with experts who have reconstructed the causative agent of the 1918 pandemic. Additionally, we have examined both the State and NCSU preparations for any future pandemic.

# ABSTRACT NUMBER

T-16

**Student Author(s):** Karoline White Nathan Harpe  
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Nikki Schweizer Olivia Campbell  
Crystal Baker Alex McKenzie  
Lisa Whalen Timothy Webster  
Dorothy Horton Scott Craddock  
Ginny Moye

**Department(s):** College of Agriculture and Life Sciences  
(ALS 398H) Faculty

**Teaching Mentor(s):** Ken Esbenshade/CALS

**Title of Presentation:** An Investigation of Leptospirosis,  
a Global Zoonotic Disease

Leptospirosis was isolated in the 19th century and has become a disease of global importance due to its ability to adapt to a variety of temperatures, pH, and nutrient levels, which allows it to survive in both rural and urban areas worldwide.

Leptospire is a gram-negative spirochete, with 16 genospecies of which there are 60 non-pathogenic and 200 pathogenic serovars. Leptospirosis is spread from companion, wild, and livestock animals to humans via indirect and direct contact through recreational and occupational handling of animals. In animals, symptoms vary between species, but renal dysfunction is common among livestock and companion animals, while wild animals are usually carriers. In humans, the infection presents itself systematically with an incubation state of 2-20 d, followed by distinct septicaemic and immune phases. During early phases, it is easily misdiagnosed due to common flu-like symptoms. The most common means of leptospirosis detection come through dark field microscopy, agglutination test (MAT), antibody detection (ELISA), and DNA detection (PCR). A vaccine exists for most animals, but despite reported short-term success of leptospirosis vaccine some countries, there is no globally accepted vaccine for humans. Standard treatment includes antibiotics and treatment of symptoms for both mild and severe cases in animals and humans, though effectiveness of antibiotics may be debated. There is speculation that leptospirosis will continue to be a serious global zoonotic disease that will affect developing and developed countries.

# ABSTRACT NUMBER

**T-17**

**Student Author(s):** Abby M. K. York  
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Catherine M. Duszlak  
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Eric C. Hsu  
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Megan K. Poston  
Shawna C. Buerkle  
Serena L. Clark

**Department(s):** Animal Science  
Biochemistry  
Biological Sciences  
Zoology

**Teaching Mentor(s):** Vivek Fellner/Animal Science

**Title of Presentation:** Do You Know Where Your Food Comes From?

Throughout history livestock has been an important aspect of food production. New technologies have been developed to make food production more efficient in order to meet demands of the rising population. Important facets of animal production include animal welfare, research technology, and future consequences of the food production process. Animal welfare is regulated by government measures and influenced by societal ethics, such as the United States Department of Agriculture (USDA) and People for the Ethical Treatment of Animals (PETA). Current technology allows for wide-scale production using various methods including artificial insemination, genetic engineering, and supplemental hormones. Eventually, advances in research may lead to the use of cloning as a food production method. However, with the increase in livestock population arise waste management and animal food supply issues. It is our hope that the public will be enlightened to these issues, form educated opinions and take appropriate action as they see fit.

# ABSTRACT NUMBER

T-18

**Student Author(s):** Dorothy Horton  
**Department(s):** Animal Science  
**Teaching Mentor(s):** Kim Ange/Animal Science  
**Title of Presentation:** Analysis of Prevalent Canine Ailments from Greenville, North Carolina

This study included recording data on the ten most common dog breeds at Animal Care Veterinary Hospital in Greenville, North Carolina. These ten breeds had data collected concerning age, name, all previous and current ailments, ailment severity, treatment recommendations, and the action taken by the veterinarian. The data was collected from May 2005 to August 2005. Once the ten breeds were determined, the three most prevalent medical conditions according to veterinary textbooks for each breed were recorded. Once compared to the data recorded in this study, the results show that the three selected canine diseases were in fact not prevalent in most cases in this selected area of eastern North Carolina. The most common canine complaint included skin infections, inflammation of the skin, and ear infections. This study should give veterinarians a direction in which to head in the future so that there can be even further improvement in the life of dogs. The three most common published ailments for each selected breed may not be true for Eastern NC and therefore veterinarians in this area need to focus on other ailments and potentially also focus on owner education about what the “true” most common problems are for them to avoid/prevent.

# ABSTRACT NUMBER

T-19

**Student Author(s):** Kelly C. Prettyman  
**Department(s):** Zoology  
**Teaching Mentor(s):** Sarah Ash/Food Science  
**Title of Presentation:** Do Americans Do a Good Job Following the Dietary Guidelines?

In order to evaluate the knowledge and behavior of Americans relative to the US Dietary and Pyramid recommendations, students were asked to survey 10 people; 5 between the ages of 18 and 22 and 5 over the age of 40, with 5 males and 5 females. Students were required to ask participants questions about their vegetable intake, whole grain intake, level of physical activity, and to name two specific foods that would be a source of “good fat,” two foods that are high in “trans fat,” two foods that are high in added sugars, and two good sources of fiber. Finally, students asked their participants why they are encouraged to stay away from trans fats and were given four options; they may cause cancer, they may increase the risk for heart disease, they are more fattening than foods lower in trans fats, or they don’t know. Responses were then evaluated comparing both age and sex. Overall, students seemed to gain knowledge that could both be used in their homework assignment, as well as in their daily lives. Most students believed all those interviewed could stand to improve their diet. It was also seen that participants had a good grasp on foods that are high on sugars, but that there was not much knowledge on food high in fiber or trans fats. From this assignment, students learned the public still has a great need for nutritional education. This was demonstrated in the analysis of 520 of the approximately 3500 responses that students collected. Themes were seen among level of physical activity, amount of grain intake, and the amount of vegetable intake. Little difference was seen between the sexes in levels of physical activity. However, females notably ate more grains and vegetables than males. More females ate grains two times on average a day, while males only ate grains once. Likewise, females ate two or more cups of vegetables on average a day, while males ate less than one cup on average a day. Participants over the age of 40 also ate two servings of grains and vegetables on average a day, with participants between the ages of 18 and 22 ate one or less than one serving on average per day. When asked about the reason why people are encouraged to stay away from trans fats, 76% said the right

answer, however only 29% said only the right answer. 11% said they did not know why they were encouraged to stay away from trans fats. The top answers given for foods high in trans fat were french fries and chips, soda and candy were the top two answers given for sources high in added sugars, fish and olive oil were the top two answers for sources of “good fat,” and bread and cereal were the top two answers for foods high in fiber.

# ABSTRACT NUMBER

T-20

**Student Author(s):** Joy H. Vonk

**Department(s):** Biological Sciences  
Animal Science

**Teaching Mentor(s):** Miriam Ferzli/Biological Sciences

**Title of Presentation:** Reinforcing Concepts through On-line Resources:  
Supplemental Learning Aids for Biology  
Laboratory Courses

In most undergraduate biology courses, students participate in laboratory sessions that include microscopy and dissections. These labs are often the focus of practical examinations, during which students are asked to identify structures and describe functions. In high-enrollment courses that do not have the resources to provide students with in-lab review sessions to view specimens multiple times, students find it very challenging to prepare for practical examinations. To aid students in these labs, on-line supplemental materials have been created that offer opportunities for students to view images of dissections, see animations, take quizzes, and revisit important concepts. This project came out students' requests to have access to laboratory materials and specimens while studying for their practical examinations. In free response surveys, students described the potential usefulness of labeled dissection guides and animations of biology concepts in lieu of additional contact time with specimens. In accordance with these responses, a website was designed to specifically emphasize the conceptual areas identified by the students as being challenging. Following design of the website, an analysis of its effectiveness was performed by collecting an additional set of survey data which demonstrated a positive response towards the website and the supplemental aids it offered. In progress is the integration of these supplemental learning aids within a larger framework that includes expansion and revision of the original supplemental aids webpage, discussion forums, and means to provide a more student-friendly feedback system.