Oklahoma Research Day 2007

Wellness Center
UCO Campus
Edmond, Oklahoma

Friday, October 26, 2007
7:30 a.m. - 12 noon
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<td>12:00 noon - 2:00 p.m.</td>
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Dear Friends and Colleagues


Research day has grown in quality and quantity hugely due to the support, enthusiasm and dedication of all involved. Research day has been a showcase and a model in this country for others to follow. We all must be proud of the combination of collaboration, commitment and consortium of regional universities in Oklahoma. The consortium has helped us to secure grants from the National Science Foundation to help our undergraduates. Thanks to all administrators, faculty and students involved.

The basic Foundation for Research is laid in undergraduate institutions. Thanks go to the Oklahoma State Regents for Higher Education (OSRHE), the National Science Foundation (NSF)– Oklahoma Experimental Program for Stimulating Competetive Research (EPSCoR), the National Institutes of Health (NIH)–INBRE, and the Oklahoma Center for the Advancement of Science and Technology (OCAST) for making Oklahoma Research Day possible.

On behalf of all Universities, Colleges and Research Institutions participating in Oklahoma Research Day let me take this opportunity to greet you. Have a great and productive day. Thank you for participating in Oklahoma Research Day.

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9th Annual Oklahoma Research Day
Oklahoma Research Day

Council on Research for Regional Universities and Campus Coordinators for Abstract & Banquet Registration

Dr. S. Narasinga Rao, Organizer, Oklahoma Research Day, Dean Emeritus, Graduate College
University of Central Oklahoma
Room 221, Max Chambers Library
100 N. University Drive, Box 82
Edmond, OK 73034-5209
405-974-2524 FAX 405-974-3881
srao@uco.edu

Dr. Richard Bernard, Interim Dean, Graduate College
University of Central Oklahoma
100 N. University Drive, Box 177, Room 404, NUC
Edmond, OK 73034-5209
405-974-3493 FAX 405-974-3852
rbernard1@uco.edu

Dr. Duane C. Anderson, Provost & V. Pres., Acad. Affs.
East Central University
Ada, OK 74820-6899
580-310-5701 FAX 580-332-1623
dandersn@mailclerk.ecok.edu

Mr. C. J. Vires, Assoc. V. P. for Sponsored Pros & Res.
1100 E. 14th Street
East Central University, Box C3
Ada, OK 74820-6899
580-310-5486 FAX 580-310-5788
cvires@mailclerk.ecok.edu

Dr. Marvin Burns, Dean School of Agric. & Appl. Sci.
Langston University
P.O. Box 730
Langston, OK 73050
405-466-3836 FAX 405-466-3148
mburns@luresext.edu

Dr. Clyde Montgomery, Assoc. V. Pres., Acad. Affairs
Langston University
P.O. Box 730
Langston, OK 73050

Dr. Frank J. Zittle, Dir. Acad. Res. Support Center
Cameron University
2800 W. Gore Boulevard
Lawton, OK 73505
580-581-5531 FAX 580-581-5532
fzittle@cameron.edu

Cameron University
2800 W. Gore Boulevard
Lawton, OK 73505
580-581-2987 FAX 580-581-5532
LanceJ@cameron.edu

Dr. Dalton Bigbee, Vice Pres., Academic Affairs
Northeastern State University
Tahlequah, OK 74464
918-456-5511, ext. 2060 FAX 918-458-2061
bigbee@nsuok.edu

Dr. Tom Jackson, Dean Graduate College
Northeastern State University
Tahlequah, OK 74464
918-456-5511, ext 2093 FAX 918-458-2061
jacks009@nsuok.edu

Ms. Kate Felzien, Coordinator, Res. & Spon. Pros.
Northeastern State University
Tahlequah, OK 74464
918-456-5511 FAX 918-458-2061

Dr. Blake Sonobe, Prov. & VP, Acad. & Stud. Affairs
Southwestern Oklahoma State University
100 Campus Drive
Weatherford, OK 73096
580-774-3264 FAX 580-774-7035
blake.sonobe@swosu.edu

Ms. Anita Blankenship, Grants & Contracts
Southwestern Oklahoma State University
100 Campus Drive
Weatherford, OK 73096
580-774-7010 FAX 580-774-7064
anita.blankenship@swosu.edu

Dr. Charles Weiner, Dir., Ofc. of Res. & Spon. Pros.
Southeastern Oklahoma State University
1405 N.4th Ave., PMB 4137
Durant, OK 74701
580-745-2200
cweiner@sosu.edu

Dr. Jesse Snowden, President
Southeastern Oklahoma State University
1405 N. 4th Ave., PMB 4136
Durant, OK 74701
580-745-2500 FAX 580-745-2515
jsnowden@sosu.edu

Dr. Douglas McMillan, Interim Vice Pres. Acad. Affairs
Southeastern Oklahoma State University
1405 N. 4th Ave., PMB 4137
Durant, OK 74701
580-376-2206 FAX 580-376-5498
dmcmillan@sosu.edu

Dr. Rodney C. Murrow, Assoc. Dean of Grad. Studies
Northwestern Oklahoma State University
709 Oklahoma Blvd.
Alva, OK 73717
580-327-8589 FAX 580-327-8514
RCMurrow@nwosu.edu

Dr. Sid Hudson, Interim Vice Chancellor for Research & Development
OSSHRE
655 Research Parkway, Suite 200
Oklahoma City, OK 73104
405-225-9114 FAX 405-255-9230
shudson@osrhe.edu
### Abstract Submission History, 1999-2007

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### Abstract Submission by Discipline

#### 2007

- **Arts & Music**: 4%
- **Business**: 17%
- **Education**: 10%
- **Liberal Arts**: 21%
- **Math & Science**: 48%
Special Guests of Honor

REGENT, BILL W. BURGESS, JR.

Bill W. Burgess, Jr. is chairman emeritus of the Board of Techrizon, LLC, chairman of the Board of Vortex, Inc., and is the Senior Partner of Burgess & Hightower Law Firm.

Burgess is the son of Sgt. (Ret.) Bill W. Burgess, Sr. and Betty Burgess. He graduated from Cameron University with a WA. degree, and received his jurist doctorate from the University of Oklahoma School of Law.

Burgess was appointed to the Oklahoma State Regents for Higher Education in the Spring of 1993 by the Governor of the State of Oklahoma for a term of nine years and was reappointed for a second nine year term in the Spring of 2002. The State Regents are the coordinating board for Oklahoma universities and are responsible for allocating university funding. He is one of the youngest State Regents to be appointed in the State’s history. Burgess served as chairman of the Citizen & Commission on the Future of Oklahoma Higher Education. He also served as chairman of the 1998 campaign for passage of State Questions 680 and 681, the “Two for Technology” campaign, on higher education technology transfer. Burgess was chosen as one of the Oklahoma Department of Commerce’s Oklahoma Stars for the “I Believe in Oklahoma” campaign. Burgess also serves on the Steering Committee for the Oklahoma EDGE (Economic Development Generating Excellence) project.

Burgess has served as chairman of the Oklahoma Business Roundtable, Inc., and serves on the Board of Directors of the Oklahoma State Chamber of Commerce. He has served as chairman of the board of the Lawton Chamber of Commerce and Industry, Inc. He is a graduate of Leadership Oklahoma and has served on the Leadership Oklahoma Board of Directors. Mr. Burgess has served as a member of the Governor’s Science and Technology Advisory Council, served as president of the Southwest Oklahoma Technology Association, and is on the Board of Directors of the Oklahoma Technology Development Corporation which operates the Oklahoma Technology Commercialization Center. He has been inducted by the United States Army into the Ancient Order of Saint Barbara. He has served as president of the Association of United States Army for Oklahoma. Burgess has served as president of the Boy Scouts of America—Southwest Oklahoma Council and is an Eagle Scout. He is a recipient of the Silver Beaver, Vigil Order of the Arrow, and God and Country Boy Scouts awards.

Glen D. Johnson, Chancellor
Oklahoma State System of Higher Education

Dr. Glen D. Johnson is the chief executive officer for the Oklahoma State System of Higher Education. Johnson leads a state system comprised of 25 state colleges and universities, ten constituent agencies, one higher education center and independent colleges and universities coordinated with the state system. He reports to a constitutional board whose nine members are appointed by the governor and confirmed by the Senate.

Johnson became 8th Chancellor of the Oklahoma state system in January 2007 after a national search. Before assuming the role of chancellor, Johnson served as the 16th president of Southeastern Oklahoma State University in Durant for ten years.

Johnson served as Director of Public Policy and Professor of Law at the University of Oklahoma, College of Law. Prior to his work at the University of Oklahoma, Johnson served in the Oklahoma House of Representatives from 1982 to 1996 and was Speaker of the House from 1990 to 1996. At the time of his election as Speaker he was the youngest sitting Speaker in the United States.

Johnson has been recognized both statewide and nationally as a strong, untiring advocate for funding for education, both secondary and higher education, in Oklahoma. His powerful political career was a model of success in leadership, as evidenced by the variety of his many major accomplishments not only for his own district 24 (Hughes, Okfuskee and Okmulgee counties), but also in major initiatives, funding and improvements for the entire state of Oklahoma as Speaker of the House and chair of important legislative committees.

Frank J. Waxman, Ph.D.
INBRE Principal Investigator

Dr. Frank Waxman is a Professor of Microbiology & Immunology at The University of Oklahoma Health Sciences Center. Dr. Waxman completed his undergraduate education at UCLA and received his Ph.D. in Microbiology from The University of Illinois Medical Center. He held faculty positions at Washington State University and Ohio State University and served as a Senior Staff Fellow at the NIH Rocky Mountain Laboratories. He is a patent holder, co-founder of a publicly traded biotechnology company, the author of more than fifty scientific publications, and the recipient of more than $30 million dollars in current research funding. Dr. Waxman previously served as the Vice President for Research at The University of Oklahoma Health Sciences Center.
Thank You to the Following Sponsors

Oklahoma State Regents for Higher Education (OSRHE)
Oklahoma Experimental Program to Stimulate Competitive Research (EPSCoR) – National Science Foundation
Oklahoma Center for the Advancement of Science and Technology (OCAST)
Oklahoma IDeA Network of Biomedical Research Excellence – National Institutes of Health (NIH)

Key to Abstract Numbers Table

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ARTS & MUSIC

01.01.01 COMMENTARY IN THE VISUAL ARTS.
Chris Gonzalez, Kinley Jones, Art Department, Southwestern Oklahoma State University, Weatherford, OK.
This research consists of the exploration of visual commentary in the history of fine arts. Commentary can be defined as anything serving to illustrate a point or prompt a realization, or a series of records of facts or events. For centuries, artists such as Francisco Goya, Pablo Picasso, Leon Golub, and Barbara Kruger have used visual media to comment on issues such as culture, politics, war, patriotism, religion, gender, sexuality, age, media, consumerism, alienation, the human condition, literature, and the history of art itself. Some artists’ works are simply recordings of events intended to provoke some kind of moral reaction that would cause one to reflect on their ideals in the world, while others strive to agitate the status quo with confrontational works designed to provoke outrage in an attempt to bring about change.

01.01.02 EMOTIONAL SEGUE EXAMINING THE TRANSITION FROM PURE MESSAGE TO EMOTIVE COMMUNICATION IN DESIGN EDUCATION.
Amy Johnson, Design, University of Central Oklahoma, Edmond, OK.
We, as design educators, focus on creating students who can design and execute a piece that uses a strong concept to clearly communicate a message to a targeted audience. In the early stages of the design student’s career they are often totally focused on message alone and fearful of the constraints they may face from clients. These projects will show the bridging of the gap between pure message and emotive communication through the creation of emotional magazines and books that impose strict constraints. In Segue students create a mind map and analyze the resulting diagram to determine it’s strongest and most compelling linkages that they must then utilize in the creation of their book. The Emotional Magazine forces students to explore beyond the obvious type image relationships by examining five facets of an emotion using a maximum of three self generated images, and no more than seven words per spread. This paper will discuss how the use of constraint and the generation of visual narrative sparked by methodological problem solving creates a student who is able to go beyond pure message and make an emotional connection with their target.

01.01.03 THE ROAD TO SAN VICENTE.
Linda Wright-Smith, Multimedia Design, Cameron University, Lawton, OK.
The villagers of San Vicente de Guanacaste Costa Rica are a mix of Indian, African and Spanish descendents. The women of the village maintained the ancient tradition of pottery making to this day. As ceramics became a viable working enterprise, the men of the village became the leaders in this home based business. Making and selling this handmade pre-Columbian Chorotega style pottery has become a cottage industry in this area and the major form of work for the villagers. Intermediate buy their ceramics at low price and sell them to tourists on the coast. Most of the people have few amenities. Their options are few and career opportunities in the village are non-existent if you do not work as an artisan. The village school (K-6th grade) has about 50 children. The main form of transportation into and out of the village is the twice daily buses from Nicoya or Santa Cruz. In the summer of 2006 and 2007, Dr. Linda Wright-Smith lived, worked, photographed, and conducted video taped interviews with the villagers. This data is being collated into a digital storytelling format to provide a social anthropological record of the villagers’ daily life through an intertwining of video, photographs, music, voiceovers and digital animation.

01.01.04 THE IMPACTS OF PAST AND PRESENT PRACTICES ON DESIGN FOUNDATIONS CURRICULA.
Rukmini Ravikumar, Design, University of Central Oklahoma, Edmond, OK.
The challenge of preparing design students to practice and compete in a global marketplace constantly necessitates an increase or re-evaluation of course content in design classes. There is also a startling disconnect in the minds of design students between the use of the practical skill sets acquired in art-based fundamental courses and the mental skill of creative problem solving. Art and Design have shared histories but their futures indicate separate paths. There is a fundamental difference between the definitions, philosophies, and intentions of the two disciplines. This paper examines and presents the impacts of past and present practices that has lead many universities to create a design foundations curriculum.

01.01.05 HAYSTACKMOUNTAINSCHOOL OF CRAFTS.
andrea gardner, art, University of Central Oklahoma, Edmond, OK.
In addition to the trip to Memphis, Tennessee, Andrea was given a grant to attend Haystack Mountain School of Crafts in Maine for a two week session in June. There, she took a fibers course called, “Rhizome Lab:
Growing Textiles.” Andrea learned the definition of a rhizome the symbolism of a rhizome, and how it affects people. It gave her a greater understanding of how art and art-making has an impact on everyone. Living at Haystack was enlightening for Andrea’s mind as well as her body. The cooking staff was careful to only serve healthy, organic food that always tasted good. Haystack is built in the middle of a lush green forest that grows right up to the coast of the Atlantic Ocean. The terrain is steep, so the facility is connected by many flights of stairs, which Andrea grew used to climbing every day. The air and water and earth is so pure and beautiful, like nothing she had ever experienced before. Haystack was a place that Andrea had been wanting to visit for quite a while, but she thought it would be years before she could afford it. With the help of the Graduate Division at the University of Central Oklahoma, Andrea embarked upon a life-changing journey to Maine.

01.01.06 SNAG CONFERENCE.
Heather Story, Andra Gardner, Art, University of Central Oklahoma, Edmond, OK.

In June of 2007, Heather Story, Lindsey Montgomery and Andra Gardner attended the Society of North American Goldsmiths conference in Memphis, TN. The funding for the journey was made possible by a generous grant from the Graduate Division at the University of Central Oklahoma. The students were privileged to experience four days of sideshow presentations and workshops where they had the opportunity to learn new methods. These presentations allowed the UCO students to learn new techniques, insights and to network with renowned metalsmithing artists.

Students were able to interact with artists that they had only studied at UCO. Talking with each one individually inspired the students to realize that they can also achieve the same kind of recognition if they are equally committed to their art.

Another feature of the conference was a special room set aside for schools offering graduate degrees pertaining to jewelry and metalsmithing. This exposed the students to previously unknown opportunities in the quest for seeking a Master’s of Fine Arts.

The students were provided with a wonderful opportunity to develop their skills and represent UCO in a way that was previously unobtainable thanks to the Jackson College of Graduate Studies & Research. This experience was a fine example of the way that UCO fosters the creative abilities of their students and helps develop their academic potential. Experiences like this are what make UCO a superior school to attend.

01.01.07 A NEW APPROACH TO ILLUSTRATION CURRICULUM DESIGN: USING BLOOM’S REVISED TAXONOMY AS THE FRAMEWORK FOR COGNITIVE AND PSYCHOMOTOR STUDIO OBJECTIVE.
Keith Webb, Design, University of Central Oklahoma, Edmond, OK.

In 1956 Benjamin Bloom introduced his theory of ‘Mastery Learning’ and authored the Taxonomy of Educational Objectives. His taxonomy identified three overlapping domains: the cognitive, the affective and the psychomotor. Although this tool has been embraced by many educational disciplines, studio coursework in art, design and illustration is still predicated by practices established in eighteenth century traditional psychomotor ‘see and draw’ instruction. Illustration calls for achievement in the mastery of hand skills and the ability to communicate a message to a predetermined audience. This study examines the cognitive achievement of beginning and advanced illustration students by using curriculum designed with Bloom’s Revised Taxonomy. Literature on the relevance of the cognitive learning environments was reviewed prior to a mixed qualitative-quantitative study. This study aims to provide evidence to support the application for this pedagogic method. The results of this study will benefit instructors considering the development of cognitive creative process of illustration students and their psychomotor skills.

01.01.09 COCA-COLONIZATION OF LATIN AMERICA: THE IMPACT OF COCA-COLA BRANDING IN THE LATIN AMERICAN CULTURE.
Jeanelle Echols, Design, University of Central Oklahoma, Norman, OK.

Coca-Cola, a leading global brand, is often accused of ‘westernizing’ and corrupting the culture of developing countries. Some have even accused Coca-Cola of being Latin American’s ‘second religion’. This paper presents an analysis of existing literature on different marketing approaches incorporated by the Coca-Cola Company to study the brand’s successful expansion throughout Latin America by using the ‘think global act local’ philosophy. Cultural sensitivity, cultural assimilation, localization and consumer perceptions with regard to the Coca-Cola brand are some of the themes discussed in this paper.

01.01.10 INCLUDING SPECIAL NEEDS CHILDREN IN ART ACTIVITIES: HOW ART TEACHERS ADJUST THEIR LESSONS TO MEET THE NEEDS OF SPECIAL POPULATIONS.
Isolete De Almeida, Art, University of Central Oklahoma, Edmond, OK.
This presentation provides an overview of research still being conducted on the adaptations and accommoda-
Students and faculty will include the use of some historical wind instruments. In the semester prior to the performance, students will study selected historical instruments in order to gain first-hand experience and expertise. The program selections for the concert include older works never published or long out of print. Thus, it is necessary to prepare critical performing editions for these compositions from primary source materials, both manuscript and early printed music. Under the guidance of the principal investigator, a student research assistant will participate in the editing process, thereby learning the basics of editorial method for historical critical editions of music.

**01.02.02 CD RECORDING INCLUDING TCHAIKOVSKY: TRIO FOR PIANO, VIOLIN, CELLO IN A-MINOR, OP 50, AND BEETHOVEN: VARIATIONS ON ICH BIN DER SCHNEIDER KAKADU, OP 121A.**

Dr Tess Remy-Schumacher, Dr Christopher Cooley, Judy Lee, School of Music, University of Central Oklahoma, Edmond, OK; Music, Phillips Academy, Andover/Boston.

Christopher Cooley and Tess Remy-Schumacher gave their debut performance at the Weatherfield Music Festival in Vermont in the summer of 1997. When describing their 2005 Carnegie Hall Recital, Edith Eisler of New York Concert Review wrote, “Her bow control and mastery of the fingerboard are complete, her intonation is excellent, her facility effortless.” She described Dr Cooley as “an excellent pianist and empathic partner...The two players’ rapport was close and unanimous, their ensemble excellent.”

Judith Lee and Tess Remy-Schumacher have collaborated since summer 2003. They played a great variety of chamber music on numerous recitals while teaching at Phillips Academy Summer Session in Andover/Boston.

In 2006 Judy Lee, Tess Remy-Schumacher and Christopher Cooley formed the Trio da Camera and as such they have performed numerous concerts in Florida, New York, Minnesota and Oklahoma, including at the University of Minnesota-Minneapolis, and the University of Central Oklahoma, Edmond, OK. The current creative/research project to record the Tchaikovsky Trio op. 50 in a-minor and the Beethoven Variations op.121a about Ich bin der Schneider Kakadu will be also the first published CD of the Trio da Camera in this formation.

**01.02.03 USING UNDERGRADUATE RESEARCH ASSISTANTS TO INCREASE RETENTION IN FRESHMAN MUSIC THEORY AND AURAL SKILLS CLASSES.**

Melissa Griffith, William Waldroup, School of Music, University of Central Oklahoma, Edmond, OK.
In the music world, Music Theory and Aural Skills pose the largest problems for music majors. Around 25% of the students enrolled in the first semester of Music Theory/Aural Skills do not continue on to the second semester. For struggling students, unfortunately, the course’s pace cannot be slowed to accommodate their individual needs. The sheer amount of information to be covered in these classes can be overwhelming, resulting in low conceptual comprehension rates and/or exam performance. In an attempt to raise the percentage of students that progress to the second semester of Music Theory and Aural Skills, two undergraduate research assistants, Melissa Griffith and William Waldrup, have been appointed Music Theory and Aural Skills tutors in the College of Arts, Media and Design’s Computer Lab located in the Music Building. As tutors, the undergraduate research assistants are to be available for students as posted by a printed schedule. Tutors are to actively participate in theory classes and workshops.

**01.02.04**  THE GENESIS OF “TANGO FLAUTO”.

Samuel Magrill, School of Music, University of Central Oklahoma, Edmond, OK.

My first experience writing a tango was in 2001, when Dr. Tess Remy-Schumacher asked me to write a tango for guitar and cello. I responded with a dance in 13-8 entitled “Tango Guitello”. I became interested in studying the tango and discovered the work of Astor Piazzolla and his “Tango Etudes” for solo flute as well as his “Grand Tango” for cello and piano. When Dr. Remy Schumacher asked for a tango for cello ensemble in 2002, I was better prepared. I knew the tango was an Argentinian blend of the habanera and the milonga, mixing the rhythmic percussive beat with a floating melodic line. This dichotomy of the earthy and the spiritual is what gives the tango its popularity, passion and intensity. “Tango Cellito”, a little cello tango, was the result, a more traditional 4-4 tango in ABACABA rondo form. The work has been performed by cello ensemble, with and without dancers, by chamber orchestra and by viola ensemble. When my daughter Mira joined a flute quartet, I adapted “Tango Cellito” for flutes. She then told me that she wanted a work conceived directly for flute quartet with alto flute. “Tango Flauto” is both a response to her request and a partner work to “Tango Cellito”. In 2007, “Tango Flauto” was performed by both the Clarke College Flute Choir in Dubuque, Iowa and the Vivace Flute Quartet (Christina Edewaard, Sasha Launer, Mira Magrill and Aaron Perdue) in Chile at the International Flute Festival in Frutillar and the University of Chile in Santiago.

**01.02.05**  BRONCHO BASSOON BAND ELEMENTARY SCHOOL MUSIC EDUCATION/OUTREACH PROGRAM.

UCO Broncho Bassoon Band, Andrew Baker, Arianna Findlay, Brady De Groot, Dr. Lori Wooden, Genise Morgan, Priscilla Gray, Zac Henthorn, School of Music, University of Central Oklahoma, Edmond, OK.

By assessing the skills and talents of the Broncho Bassoon Band members and with guidance from “Designing Arts Education Programs; A Workbook for Artists” the ensemble will present a musical program of 30 minutes in length to students in area elementary schools. The presentation includes the performance of musical numbers,demonstrations, the introduction of select musical concepts, and audience participation. Ensemble members are responsible for music selection, research and development, script writing, props, and bookings.

**01.02.06**  PIANO THROUGH SOLFEGE--AN EFFICACY STUDY.

David Forbat, School of Music, University of Central Oklahoma, Edmond, OK.

In the Fall of 2005, a new piano proficiency curriculum was introduced in the music department at the University of Central Oklahoma. Unique to the curriculum is the integration of moveable-DO solfege and music theory with keyboard skills and technique. Having received a Pedagogical Research Grant through the Jackson College of Graduate Studies and Research, Dr. Forbat, in the Spring 2006 semester, initiated a study of the efficacy of the first two semesters of new curriculum. Proficiency exams were captured on video and success/failure patterns were analyzed with the assistance of a student worker. In June 2007, Dr. Forbat presented the College Faculty Forum “Keyboard Functional Skills through Solfege” at the 2007 State Convention of Oklahoma Music Teachers Association. Also, a proposal entitled “Piano through Solfege” was accepted for poster presentation at the 2007 CMS International Conference in Bangkok, Thailand.

**Theater & Dance – 1.03**

**01.03.01**  A VISUAL RECORD OF THE CREATIVE PROCESS “FROM PAGE TO STAGE” OF AN ORIGINAL SCENE DESIGN FOR AN ORIGINAL PLAY.

Nathan Braniff, Theatre, Dance & Media Arts, University of Central Oklahoma, Edmond, OK.

THE THEATRE AREA COMMISSIONED ITS GRADUATE AND PROVEN PLAYWRIGHT, ELFORD ALLEY, TO CREATE AN ORIGINAL WORK TO FOCUS ON THE PROBLEM OF OUR SOUTHERN BORDER’S SECURITY. ELFORD DREW HIS

01.03.02 THE FIX, MY ROLE AS AN ASSISTANT LIGHTING DESIGNER FOR THE MUSICAL THEATRE PRODUCTION OF, THE FIX.

Brandi Mitchell, Angela Marks, Theatre, Dance and Media Arts, University of Central Oklahoma, Edmond, OK.

At the University of Central Oklahoma, undergraduate students are afforded an opportunity to participate as part of the Production Design Team for their main stage production season. In the beginning stages of a career focused as a Lighting Designer, it is of course, part of the process to begin within the introductory levels of that team. Currently we are in the beginning stages of the design process and in this stage we are discussing the groundwork for the production as a whole. The director’s conceptual image, or the unifying theme for the aesthetics behind all the design choices for the production is, “Rock and Roll”. My next step is to assist the Lighting Designer and begin down the path towards the realization of the design.
02.01.01 COMPUTER MEDIATED EXAMS: STUDENT PERCEPTIONS AND PERFORMANCE.
Richard Alltizer, Accounting, University of Central Oklahoma, Edmond, OK.
As technology improves and availability expands, there is a trend from traditional paper-and-pencil examinations to computerized exams. For example, in accounting, the Uniform CPA Exam is now computer based, allowing examinees to take the exam on demand. The field of education has researched examinee perceptions and outcomes reporting mixed results. Most of the published studies use questions from the GRE exam, ACT or other widely used data sets. This study expands on extant research by testing both student performance and perceptions in a discipline-specific setting using questions from the test bank which accompanied the textbook. The results of this study suggest that while students perceive a performance difference by exam mode, the actual results were unaffected by mode. In addition, students were generally indifferent on the issue of personal inconvenience concerning the time of exam delivery.

02.01.02 EXECUTIVES GET THEIR DUE: DOES SARBANES-OXLEY ALLOW THE ESCROW OF CERTAIN EXTRAORDINARY PAYMENTS DUE TO EXECUTIVES?
Jennifer Barger Johnson, Finance and Legal Studies, University of Central Oklahoma, Edmond, OK.
Eric Johnson, College of Pharmacy, University of Oklahoma Health Sciences Center, Oklahoma City, OK.

The collective fraudulent efforts of the corporate leaders from Enron, WorldCom, Tyco, Adelphia, Qwest, and HealthSouth within a relatively short time period created such an outcry from scorned investors that Congress felt compelled to enact legislation in an attempt to restore investor confidence and to shelter investors from future corporate scandal. This led to the Sarbanes-Oxley Act (SOX) of 2002. The Act created the Public Company Accounting Oversight Board which is charged with audit oversight of public companies, shielding investor interests, and overall furthering the public interest. The Act also has expectations of greater corporate responsibility by mandating that corporate executive and financial officers certify all financial reports filed under the Securities Exchange Act of 1934 are accurate to the best of their knowledge, and do not contain any untrue statements of material fact. Overall, SOX was designed to assist in deterring corporate wrongdoing by providing the SEC the necessary tools for detection and protection of investors. In most cases of reported fraudulent activity, the corporate officers have withdrawn with the ill-gotten gains before the case has proceeded to investigation. SOX’s section 1103 was designed to stop executives from benefiting from their own corporate misconduct. This poster and paper examines whether SOX gives the authority to the SEC to force such extraordinary payments into escrow pending investigation of company finances.

02.01.03 SYSTEM AND OPERATION ACCOUNTANTS.
Denkia Record, Accounting, University of Central Oklahoma, Edmond, OK.

Some people view the system accountants as computer scientists, information technicians, or anything but accountants. To help people understand what a system accountant is and what job duties they perform I conducted this research to explain what goes on behind the scene of the Delphi system. First, you will be given a brief description of what the Federal Aviation is, does, and how accounting plays a part in aviation. Second, you will learn the basis operation of federal accounting. Finally, you will learn what a system accountant is and what major job duties they perform. By the end of this research paper you should have a brief understanding of how the system accountants play a major role in the accounting world.

02.01.04 STUDENT PREPARATION AND PARTICIPATION ARE THE KEYS TO STUDENT SUCCESS.
Bambi Hora, Katherine Terrell, Mary Sheets, Robert Terrell, Accounting, University of Central Oklahoma, Edmond, OK.

No matter how phenomenal the professor, student success depends on students’ preparation before class because great teaching is helping students to learn. Active learners also learn more rapidly and retain information for longer periods of time than passive learners. Most students will prepare and participate only to the extent that the professor demands it. Successful teachers share a common trait of requiring students to prepare and offering opportunities to actively engage in the learning process. Participative learning leads to the intellectual empowerment and helps students develop a commitment to lifelong learning. The poster presenters have dedicated themselves to the pursuit of active learning and student engagement. Their experience indicates that interactive education produces better analytical thinkers with better developed interpersonal skills. In this pursuit they have developed a tool set to promote student preparedness, active participation, collaborative learning, student engagement, and
service learning. Participants will have not only the tool set, but also some locations where they can develop and extend these tools to match their own course needs, so that they can adapt them for their own use.

02.01.05 Accounts Payable Fraud.

Kerrie Cantrell, Accounting, University of Central Oklahoma, Edmond, OK.

The Association of Certified Fraud Examiners (ACFE) conducted a study of 1,134 cases of occupational fraud that were examined between January 2004 and January 2006 (ACFE Report to the Nation on Occupational Fraud & Abuse, 2006, 4). The results from the study were astonishing, revealing that approximately one-fourth of the frauds caused at least $1 million in losses, with the median loss suffered by each company of $159,000 (ACFE Report to the Nation on Occupational Fraud & Abuse, 2006, 9). Although on average it took nearly 18 months to detect fraud, results revealed that publicly traded companies had a higher rate of detection due to tips, internal audits, and internal controls, which are all mandates of the Sarbanes-Oxley Act (ACFE Report to the Nation on Occupational Fraud & Abuse, 2006, 32). Companies utilizing the anonymous hotline, fraud awareness/ethics training, internal audits, and surprise audits had a median loss of $100,000 less than companies that were not employing these measures (ACFE Report to the Nation on Occupational Fraud & Abuse, 2006, 35-38).

This project focuses on the various types of accounts payable fraud, including check fraud and billing-scheme fraud, and the methods to help prevent it. It will also explore the ways in which Sarbanes-Oxley Act of 2002 has affected the detection of fraud.

02.01.06 User Perspective Versus Traditional Method of Teaching the First Accounting Course.

Barbara Parrish, Kathereine Terrell, Mary Sheets, Robert Terrell, Accounting, University of Central Oklahoma, Edmond, OK.

This study compares the performance of students who took the user perspective approach in their first accounting course with that of students who used the traditional method (preparer approach) in their first accounting course to determine whether there is a difference between the two groups at the completion of the first intermediate financial accounting course. We expect the results to reveal a significant difference between the two groups of students.

02.01.07 Tax Filing Requirements for Tax-Exempt Organizations.

Christy Barron, Bambi Hora, Accounting, University of Central Oklahoma, Edmond, OK.

Many people believe that tax-exempt organizations have little, if any contact with the IRS. However, tax-exempt organizations have many tax compliance issues. The purpose of my research was to reveal the tax compliance issues that tax-exempt organizations face.

02.01.08 Body Shop Fraud.

Cassie Schoshke, Accounting, University of Central Oklahoma, Edmond, OK.

In criminal law, fraud is the crime or offense of deliberately deceiving another in order to damage them-usually, to obtain property or service unjustly. Acts which may constitute criminal fraud include: false billing; forgery of documents or signatures; taking money which is under your control but not yours; and false insurance claims. Body shops are increasingly experiencing fraudulent activity. Some examples of body shop fraud are: causing extra damage to a vehicle, which in turn gives the shop more business; stealing parts; using used parts and billing for new; and stating that new parts were used. Some people even stage accidents and give fake theft and vandalism reports. Fraudulent activity in body shops is beginning to dwindle down recently. The Sarbanes-Oxley Act of 2002 set forth increased standards for internal controls. Insurance companies have stepped up efforts to reduce insurance fraud. Well-trained management using a strong system of internal controls can detect fraudulent acts and prosecute the persons committing frauds.


Dimitrina Yaneva, Accounting, University of Central Oklahoma, Edmond, OK.

Considered one of the most powerful U.S. statutes after the Security Exchange Act of 1934, the Sarbanes-Oxley Act of 2002, also known as SOX, is a direct response to the numerous corporate scandals that caused the failure of companies such as Enron, Worldcom, Tyco International’s, it also ended their auditors’ careers. Prior to SOX, the accounting could be defined as self-regulated. This paper takes an in-depth look at the ethics policies of the Act and how these issues affect U.S. as well as foreign business organizations. It review a few of the ethical provisions within SOX. Moreover, the study concentrates on differences between the U.S. laws and international laws. Section I addresses the accountability of ethics since the Act was passed, Section II discusses the provision regarding the impact of the bill on the U.S. and international ethics level. Finally, Section III involves the protection policies for whistleblower employees worldwide.
02.01.10 SIMPLIFICATION OF FEDERAL GOVERNMENT PROCESSES BY THE CREATION OF AN ENTERPRISE SERVICE CENTER.

Lauren Lindsey, Accounting, University of Central Oklahoma, Edmond, OK.

Simply Your Work is the slogan of the Enterprise Service Centers (ESC) and that is what they do. Their purpose is to offer clients a wide range of services that the clients themselves do not wish to or have the ability to do. To receive the ESC title you must go through the one year application process and then be accepted. Because you are awarded this title you can also have it taken away due to any behavior that makes the ESC look bad. An ESC gives an unbiased party to perform strictly monitored processes and procedures that are often focus points during audits.

The Finance Center at the Federal Aviation Administration (FAA) in Oklahoma City is an ESC. Their employees skills and past experience in governmental accounting combined with the high standards and expectations of being an ESC allows them to provide financial services and assistance to twenty-five government agencies. The ESC has been successful because they take the time to learn about the client’s business processes and requirements. A team then puts together a specially designed integration strategy for the client. The ESC, their clients, and their communities benefit from their business relationship in many different ways.

02.01.11 SALES AND USE TAXES AND EXEMPTIONS IN OKLAHOMA.

Shela McLain, Accounting, University of Central Oklahoma, Edmond, OK.

The Oklahoma Tax Commission was created in 1931 to collect taxes and other fees from Oklahomans. Among these taxes are sales and use taxes. This paper outlines what sales and use taxes are, how they’re used and examples of items that are taxed. Along with these taxes are exemptions. Exemptions will be defined, and an explanation of how they’re applied and what items are exempt will be given. Following exemptions will be a description of how the Oklahoma Tax Commission operates and enforces these taxes and exemptions.

Since the creation of the Oklahoma Tax Commission, taxes and exemptions have been applied to almost every item and service available. Vendors always have to be aware of the everchanging taxes and exemptions. Some taxes, such as city and county, can change every month. Taxes and exemptions have become a very important part of doing business in Oklahoma and will continue to change the way business is done as more laws and statutes are brought about.

02.01.12 ACCOUNTING NEEDS OF OPTOMETRIC PHYSICIANS IN PRIVATE PRACTICE.

Jaime Elliott, Business, University of Central Oklahoma, Edmond, OK.

This paper explores the accounting needs of optometric physicians practices. Many of these practices are small and widely dispersed throughout urban and rural areas. The business side of healthcare has become more complicated, time consuming and challenging over the last few decades, which has resulted in a greater need for physicians to call in business and financial experts. The services that the accounting profession can provide that are the most relevant and crucial to the optometric profession are financial statement services, tax services, and business and financial consulting services. Increased third party billings and managed care contracts have especially increased the need for specialized areas of consulting.

02.01.13 THE ENTREPRENEUR SHIP: WILL IT SAIL WITHOUT YOU?

Mary Teal, Accounting, University of Central Oklahoma, Edmond, OK.

Ready, set, …sail! Come and experience a brief voyage on the Entrepreneur Ship. Here, you will journey through the progression of boarding, sailing and docking an entrepreneur ship. As a result, discovery reigns. Moreover, this ship is charted to sail; will it sail without you? Another side of entrepreneurship is revealed. Entrepreneurship is extracted from its current confines and examined in the academia context. It spans beyond untapped markets into the realms of the untapped mind. The ship’s purposed journey stems from learning and transitions into knowledge. For this ship, the destination is education.

02.01.14 S.M.I.L.E.- TECHNIQUES TO ENLIVEN EDUCATION.

Mary Teal, Accounting, University of Central Oklahoma, Edmond, OK.

The smile is the one human physical action that automatically generates the same expression in others. A smile leads to joy, gladness, and laughter. Imagine directing such positive response in the field of education to incite a love for learning. This simple expression, when shared with students, can bring a classroom to life.

Sometimes in teaching left-brained, rigorous subject matter, it is necessary to attack the heart of a matter. When a teacher inspires the heart, it also sparks the mind. Innovative teaching can create an excitement and eagerness to learn. Excitement creates a willingness in the student to pursue knowledge and understanding. Hence, teachers can easily issue intellectual challenges.
and students will readily accept them. The classroom becomes a limitless environment with no bounds other than those that are self-imposed. Seemingly, the smile serves selflessly in invoking self-confidence, self-respect, and self-determination.

A smile can be more than just a physical response mechanism. This panel will demonstrate how to use humor, fun, games, and student interaction to enliven the classroom in highly stressful, analytical subjects. If there is any doubt, just “S.M.I.L.E. — Sharing My Input Livens Exchange©”.

02.01.15  DEPARTMENT OF TRANSPORTATIONS FAA FEDERAL AVIATION ADMINISTRATION.
Micaela Williams, Accounting, University of Central Oklahoma, Edmond, OK.

THE DEPARTMENT OF TRANSPORTATIONS, (DOT), HAS AN OFFICIAL ACCOUNTING SYSTEM CALLED DELPHI, WHICH DOT USES FOR ALL OF ITS 13 AGENCIES. THIS MAKES THE DEPARTMENT OF TRANSPORTATIONS DIFFERENT THAN ANY OTHER ORGANIZATION. DOT IS PART OF THE GOVERNMENT AND THE ACCOUNTING PROCESS IS SOMEWHAT DIFFERENT THAN OTHER ORGANIZATIONS. ALL 13 AGENCIES HAVE TO ABIDE BY THE RULES AND PROCEDURES THAT THE GOVERNMENT SETS, AND WORK WITHIN THEIR BUDGET. THIS IS PROPER BECAUSE THE GOVERNMENT (CONGRESS), IS THE ONE THAT FUNDS THE DEPARTMENT OF TRANSPORTATION AND ALL OF ITS AGENCIES TO BETTER ALL WAYS OF TRANSPORTATION AND ALL THAT IT IS INVOLVED WITH TRANSPORTATION. DOT RECEIVES A CERTAIN AMOUNT OF MONEY EACH YEAR, AND EACH AGENCY, DEPENDING ON HOW LARGE THE AGENCY MIGHT BE OR WHAT THE AGENCY FOCUSES ON (TRANSPORTATION WISE), DOT DISTRIBUTES MONEY TO EACH AGENCY SO THAT EACH AGENCY CAN PERFORM THEIR DUTIES. CITIZENS CAN SEE HOW A SMALL PORTION OF THEIR TAX DOLLARS ARE PUT INTO USE AND BE PROUD TO BE PART OF DOT IN A DIRECT/INDIRECT WAY. IN OKLAHOMA CITY DOT HAS A FACILITY AT MIKE MONRONEY NEAR WILL ROGERS AIRPORT WHERE IT CONDUCTS THE MAJORITY OF THE ACCOUNTING BUSINESS. DELPHI IS A BIG PART OF THE DEPARTMENT OF TRANSPORTATIONS BECAUSE IT IS WHAT HELPS ACCOUNTANTS WITH EVERY ASPECT IN ACCOUNTING. IT IS A WAY TO LEARN AND BE FASCINATED WITH THE TOPIC OF “ACCOUNTING”.

02.01.16  I2E, OCAST, AND ANGELS: OKLAHOMA’S PRIVATE-PUBLIC COLLABORATION TO BOOST ECONOMIC DEVELOPMENT THROUGH TECHNOLOGY.
Sheets Mary, Spiva Craig, Accounting, University of Central Oklahoma, Edmond, OK.

i2E is a private, not-for-profit organization whose mission is to encourage the establishment and growth of advanced technology companies in Oklahoma. The name i2E represents a key theme of this mission: turning innovation into enterprises. i2E is funded through appropriations that come from the Oklahoma Center for the Advancement of Science and Technology (OCAST), which is an Oklahoma state government agency. The paper describes two programs administered by i2E. One program is the Oklahoma Technology Commercialization Center (OTCC). Its purpose is to connect Oklahoma companies, inventors, researchers, and entrepreneurs to funding and other specialized business services to take new technologies from concept to market. A second program is the OCAST Technology Business Finance Program (TBFP). This program provides qualifying clients with “pre-seed” loans to cover start-up costs such as business planning and equipment purchases. The clients are in the early development stage of commercialization in advanced technology.

The paper goes on to discuss the roles of angel investors and venture capitalists in economic development. The paper concludes with a description of two i2E clients that have used the springboard of state funding to establish connections with angels and venture capitalists to bring their high-technology concepts to market.

02.01.17  TAX SOFTWARE FOR PROFESSIONALS AND INDIVIDUALS: HOW THE TOP PACKAGES COMPARE.
Mary Sheets, Bambi Hora, Toni Northcutt, Accounting, University of Central Oklahoma, Edmond, OK.

Tax software is an essential component of an income tax professional’s office, and is becoming a necessary part of individuals’ tax tools as well. This paper discusses the most popular software choices for professionals and individuals, and compares the software packages for features, ease of use, and extent of technical support. Sources include surveys of tax professionals who are members of the American Institute of Certified Public Accountants and tax practitioners in the state of New York, as well as reviews of popular software brands for individuals. Survey results indicate high levels of satisfaction with most professional software. The software market for individuals preparing their own tax returns has narrowed to two dominating brands.
**General Business Administration – 2.02**

**02.02.01 WHAT BUSINESS DO IRB’S HAVE IN BUSINESS?**

1 John Garic, 2 Gregory Wilson, 1 Finance & Legal Studies, University of Central Oklahoma, Edmond, OK, 2 Biology, University of Central Oklahoma, Edmond, OK. This research explored the issue of Institutional Review Board (IRB) oversight of research in the disciplines in Business. Initially, the research generally outlined the historical roots of IRBs at colleges and universities in the United States. The research further explored the controversies involved between IRBs and various disciplines and then analyzed the role which IRBs can and should play in the disciplines in Business. This analysis concluded not only that the Business disciplines should fully participate and cooperate in IRB reviews but that the Business disciplines also stand to benefit significantly from the IRB review process.

**02.02.02 AACSB ACCREDITATION FOR UNIVERSITY OF CENTRAL OKLAHOMA COLLEGE OF BUSINESS.**

John Camey, Quratulain Siddiqui, College of Business, University of Central Oklahoma, Edmond, OK. An important input to the strategic planning process of the University of Central Oklahoma (UCO) is the use of aspirational “peer institutions” which serve as benchmarks against which UCO can be measured. This is of particular importance to the College of Business Administration as it moves toward seeking accreditation by the Association to Advance Collegiate Schools of Business. Over the past several months a new set of benchmark institutions has been identified. Although these institutions have apparent face validity as peers, this analysis set out to determine, based on quantitative date, the degree to which they are appropriate for use as peer benchmarks. Our findings indicate that UCO is NOT a peer to these institutions in many aspects. However, as benchmark these are institutions that set standards to which UCO should aspire.

**02.02.03 WHISTLE-BLOWING AS AN ORGANIZATIONAL OPPORTUNITY.**

Darrell Ford, Department of Finance, University of Central Oklahoma, Edmond, OK. This paper explores the concept of whistle-blowing from an organizational perspective. I reason that from the perspective of an ethical organization, whistle-blowing should not be viewed as a threat, but as an opportunity to ensure the continued ethical commitment of the organization. I introduce the concept of whistle-blowing and provide an operational definition. I identify the factors that influence a whistle-blowing event. I also examine the possible responses an organization might make with respect to the activity resulting in the whistle-blowing and the responses an organization might make toward the whistle-blower. Finally, I make recommendations for ethical reform on the part of the organization and recommendations for reform of the organizational design.

**02.02.04 THE DISAPPEARING PENSION: WHO WILL PAY?.**

David Alba, Business Administration, University of Central Oklahoma, Edmond, OK. Through the second half of the twentieth century, many people retiring from businesses and corporations were covered by defined benefit plans. Defined benefit pensions provided retired employees a set amount of money every month for the rest of their lives. However, to remain competitive, many businesses have stopped offering defined benefit pension plans to their employees. Instead, the burden has shifted from the business to the individual. Often the employee contributes to Individual Retirement Accounts (IRAs) and/or 401Ks. The idea of this approach was to shift more of the pension burden from the business to the employee. However, too many employees are not adequately providing for their retirement needs. This research paper will explore how individuals can be better prepared for their retirement.

**02.02.05 SMALL BUSINESSES IN THE USA...**

Jawad Hainer, Business, University of Central Oklahoma, Edmond, OK. A small business may be defined as a business with a small number of employees. The legal definition of ‘small’ often varies by country and industry, but it’s generally under 100 employees in the United States while under 50 employees in the European Union (in comparison, the American definition of mid-sized business by the number of employees is generally under 500 while 250 is for that of European Union). These businesses are normally privately owned corporations, partnerships, or sole proprietorships. Small businesses are common in many countries, depending on the economic system in operation. Typical examples include: convenience stores, other small shops (such as a bakery or delicatessen, hairdressers, tradesmen, solicitors, lawyers, accountants, restaurants, guest houses, photographers, small-scale manufacturing, etc.). Small businesses are usually independent. This paper leads to the growth of the LLC corporations in the United States recently in comparison to Europe, and shows different ways adapted by American businesses to succeed and grow and compete others to stay on top.


**Business Communications – 2.03**

02.03.01 BENEATH THE CLOAK OF CHRISTIANITY IN HANDLING DIVERSITY: UNDERSTANDING THE SELVES AND EMOTIONAL RESPONSES OF RACIOETHNIC IDENTITIES.

Jeanetta Sims, Omar Sosa, Marketing, University of Central Oklahoma, Edmond, OK.

Using Higgins’s self-discrepancy theory as a theoretical framework, this investigation explores the experiences and emotional responses of different racioethnic identities at a Christian university. Through multiple focus groups, the study aims to understand the significance placed on Christian values, conceptions of the self, and the emotional responses to self-discrepancies as they relate to an institution’s diversity efforts. Preliminary results reveal Black domestic and international students hold certain Christian values (e.g., family, honesty, love, faith, and serving people) as extremely important. In addition, domestic students have a higher magnitude of discrepancy than international students with international students having more matches between their actual selves and the university’s ideal self. Also, a number of emotional responses were found to accompany discrepancies.

02.03.02 EFFECTS OF ILLEGAL IMMIGRATION.

Ashley Moss, Caitlin Galbraith, Business, University of Central Oklahoma, Edmond, OK.

Illegal immigration is a present concern in the United States today. Most Americans know that illegal immigration is apparent, but they do not realize how it affects the economy. There are some positive and negative aspects involved with immigration. Several Americans look at immigration as a horrifying situation for the United States. Language barriers pose a major problem because in our society we are not required to learn a second language. This can cause a vast number of problems also in businesses. Therefore, communication is extremely important. Another downfall to illegal immigration is that American citizens have to pay taxes and make up for those immigrants who are not contributing in that aspect. There are two sides to the dilemma of illegal immigration and both sides will be discussed. Some positive effects of immigration include an increase of net economic benefits. Immigrants would probably flood the lower paying job market, primarily due to the requirements of a college degree. This would cause an increase in these job fields. Because people hire immigrants, it helps all those in small businesses. This in turn, benefits everyone since these businesses remain up and running. Many larger companies also benefit from immigration workers, such as Wal-Mart. No one wants to work at a low paying job for one’s entire life. People work at these jobs until they finish school and move onto the higher paying jobs. This paper looks at the weight the immigrants have on America’s businesses, both small and large. Remember the stories of families that first came to America? It is a never ending cycle.

02.03.03 IMMIGRANTS, A BLESSING TO THIS COUNTRY.

Matt DuCharme, Business, University of Central Oklahoma, Edmond, OK.

Throughout all of time, immigrants have been coming and going into America. In order to escape a communist society or to get away from there past?. Whatever the reason, immigrants have been in America and will continue to thrive throughout our country, for in the end, we are all immigrants. It is safe to say that Immigrant workers in America have helped mold our country for the better, as a more efficient working society. The good outweighs the bad when arguing the ?fact? ?effect? of illegal immigration ?into? ?on? American ?society?. Without the people who have migrated into our country, we would not be as strong as we are today. Though it is true that immigrants take away from our jobs, people have to look at both sides of the story. We should allow people into our country, but not to be taken advantage of. I know that America is becoming overpopulated by immigrants and many of them are here illegally, so in order for us to learn from the past, we must fight back now.

02.03.04 HURRICANE KATRINA: ALTERING THE DYNAMICS OF BUSINESS IN THE U.S..

Rachel Suffridge, Business, University of Central Oklahoma, Edmond, OK.

Hurricane Katrina has greatly impacted the dynamics of business in Louisiana and America as a whole. Following August 2005, approximately 80 percent of New Orleans was flooded. The direct damages suffered by the U.S. economy are estimated at over $200 billion dollars. The purpose of this study is to examine the types of businesses affected the most by the hurricane, and why the effect was so widespread. Furthermore businesses’ coping strategies during the aftermath of Hurricane Katrina, at both the local and national level, are evaluated.
02.03.05  HISTOCHEMICAL STAINING DEMONSTRATES RANDOMIZATION OF STRATIFIED EPITHELIUM BY H-RAS-OVER-EXPRESSING KERATINOcyTES.

Logan Agan, Amy Speligene, Capri Andrews, Melville Vaughan, Biology, University of Central Oklahoma, Edmond, OK.

Ras is a known oncogene that affects growth and invasiveness of cancer cells. Our goal was to see whether h-ras overexpressed in skin keratinocytes would show these effects when the cells were incorporated into skin equivalents. We used histological and immunohistochemical staining to address this question. Paraffin sections of previously-established skin equivalents were hydrated and stained, then mounted and photographed. Some proteins examined included proliferation markers (p63 and p16) and wound activation markers (keratin-17 and laminin-5). Results showed that h-ras keratinocytes produced an invasive, randomized epithelium compared to control skin equivalents. The most superficial layer maintained somewhat normal characteristics, however. These results demonstrate that h-ras overexpression can produce cancerous characteristics in skin keratinocytes. Future studies include long-term invasiveness studies and overexpression of other oncogenes and tumor suppressors. This model has already been modified to study breast cancer and may be modified to study other cancers as well.

Economics – 2.04

02.04.01  COMPARING THE EFFICIENCY OF THE FEDERAL AS OPPOSED TO STATE UNITIZATION STATUTES OVER THE PRODUCING LIFE OF AN OIL FIELD: THE AVOIDANCE OF EARLY WASTE VS. LATER ENHANCED OIL RECOVERY PROJECTS.

Stuart MacDonald, Finance, University of Central Oklahoma, Edmond, OK.

Unitization effectively reallocates property rights, in an efficient manner and overcomes the common pool resource problem evident in oil and gas production thus leading to the optimal rate of resource extraction. Oil production occurs on land subject to both state and federal regulation. The federal government has created a regulatory regime that tends to lead to early unitization, though a review of unitization agreements provides some evidence that these unitization agreements are often little more than spacing agreements. Efficient spacing agreements are often reached under state regulatory schemes without the transactions costs associate with unitization agreements. The state regulatory regimes have tended to produce unitization agreements later in a fields life, and an examination of the agreements tends to indicate that state sanctioned unitization agreements tend to contemplate more complex enhanced oil recovery projects. Thus while the federal regulation produces early unitization it may not in fact produce the most efficient overall recovery because it does not encourage enhanced oil recovery projects. Here logistic regression will be used to control for variance related to particular fields and a particular oil fields suitability for enhanced oil recovery programs.

02.04.02  NATURAL GAS RISK PREMIUM, STORMS, AND HEDGING.

Jeremy Oller, Zhu Zhen, Economics, University of Central Oklahoma, Edmond, OK.

Hurricane Katrina caused a significant price shock to the natural gas market in the late summer of 2005. It also increased awareness regarding the impact of such disasters on the market in subsequent seasons. In 2006 and 2007, natural gas prices for the summer seasons were initially much higher than previous years. However, significant tropical storms never materialized and the market was highly reactionary as prices declined significantly as the summers progressed. We intended to investigate whether this pattern of high initial prices followed by rapid deflation was attributable to the fears remaining from Hurricane Katrina. Since natural gas prices are a function of several factors such as weather and working gas in storage, we tried to isolate the summer price premium that began subsequent to Katrina. We find that there does appear to be a summer price premium and that the magnitude of that premium declined significantly from 2006 to 2007, which may imply that the fears of extreme weather conditions have subsided over time. We intended to provide some evidence related to the storm premium and draw some conclusions regarding the implication for hedging of the commercial gas users.

02.04.03  INEFFICIENCY IN HIGHER EDUCATION: AN EMPIRICAL APPLICATION TO REGIONAL UNIVERSITIES.

1 Susanne Rassouli-Currier, 1 Chetana Uprety, 2 Kevin Currier, 1 Economics, University of Central Oklahoma, Edmond, OK. 2 Economics, OSU, Stillwater, Ok.

Wage setting methodologies for university faculty may be merit/ market based or administered via a relatively inflexible “uniform” salary system. Failure to exploit the fact that faculty productivity depends on abilities and incentives such as wages results in inefficient use of university budgets. If such inefficiencies exist it suggests suboptimal productivity of the existing faculty and the inability of attracting new qualified faculty. In this study we base our analysis on a simple model of university faculty “output” maximization. Efficient budget allocation requires that faculty compensation be struc-
tured so that marginal productivities are equated across faculty. This paper examines the efficiency of several peer regional universities in the U.S. and attempts to isolate factors that may explain the differences in efficiencies among these universities. Acknowledgement: The authors wish to thank UCO Jackson College of Graduate Studies & Research for providing support for this project.

02.04.04 THE EUROPEAN UNION TURNS 50: AN EVOLUTION OF ECONOMICS, POLITICS, AND PEOPLE.
Mihai Nica, William Wardrope, Economics, University of Central Oklahoma, Edmond, OK.
As the largest bilateral trade partner of the U.S. and many other countries, the European Union (EU) enjoys a position of prominence in the world market today. Its modest beginning in 1957 with only six countries has evolved into a force of 27 countries which comprise the world’s largest organ of economic integration. The EU boasts its own currency, its own Parliament, its own multi-tiered court system, and a GDP of over $13 trillion. As of 2007, there were 23 million small- and medium-sized enterprises (SMEs) in the Union—over three times the number of SMEs in the U.S. The road to the EU’s success—which is still disputed by many economists—was not easy. The diversity of culture, language, political systems, geography, and economies still presents challenges today. To illustrate the complexities of the EU as it exists today, this presentation examines the demographics, economic factors, and political/regulatory structures that exist within the Union. An analysis of industries in the EU, each country’s role in the new combined economy, and issues related to integration will also be provided. Implications for doing business with companies within the EU will be explored as well.

02.04.05 USE OF AN R-SQUARED PROJECT IN TEACHING BUSINESS STATISTICS.
ROBERT CURLEY, ECONOMICS, University of Central Oklahoma, Edmond, OK.
I have been exploring the use of projects in teaching elementary business statistics. It has dramatically increased the level of interest of my students. Research in statistics education reveals that others have observed a similar effect. The objectives of business statistics involve the grasp of concepts including R-squared. I decided that it would be useful for my students to explore factors which affect the size of R-squared. I asked them to select two variables, a predictor and a predicted variable involving money which should have a high R-squared as possible. They must collect the data from a verifiable source. The topics vary considerably. One group used perceived customer age to predict size of tip at an area eatery. Another used temperature to predict sales of hot drinks at a set of eateries owned by a relative. Still another explored the relationship between percent of state residents lacking comprehensive health insurance and the number of alcohol related traffic deaths. One current group is exploring the relationship between the discount rate and money supply during economic downturns and is discovering that when using post’91 data they observe r-squares above .9 but when using earlier data see r-squares close to 0. As an incentive the students currently receive as their grade the maximum number of points the assignment is worth times the value of their r-squared. It has been a very interesting experience both for me and for many of my students.

02.04.06 WHICH SHOULD COME FIRST HA OR HO.
Robert Curley, Gabriel Rupp, Haissan Pourbabae, Joseph Johnson, Mohamad Shaaf, ECONOMICS, University of Central Oklahoma, Edmond, OK.
Hypothesis testing has been traditionally taught giving primary emphasis to the null hypothesis we wish to reject andsecondary emphasis to the research or alternative hypothesis which despite its name we wish to support. We raise the question of whether students might more successfully comprehend hypothesis testing if the primary emphasis were instead placed on the research (alternative) hypothesis. This research hypothesis is often part of the actual thesis of the investigator and will often be part of the topic sentence. If the results in our sample favor this part of our thesis the question is whether the probability of a result this extreme is sufficiently small (< a pre assigned value called alpha). If so then we affirm that our difference is real. This new approach uses the H subscripts in a play on words in order to help students learn. Students were invited to think of hypothesis testing in terms of two twin hypotheses Ha and Ho. Ask a question requiring a yes or no answer, and Ha will always answer “Ya”, and Ho will answer “No”. It places much less emphasis on the null hypothesis (Ho) and much more emphasis on Ha-the research hypothesis. Thus we emphasize the positive Ha (what we wish to support) as opposed to the negative Ho (which we wish to refute). The approach was informally and spontaneously tested with a group of UCO Principles of Statistics students. A short quiz (which will be displayed) was used to measure student understanding.

02.04.07 THE IMPACT OF TOURISM ON ECONOMIC GROWTH: THE CASE OF EASTERN EUROPE.
Emiland Skora, Susanne Rassouli-Currier, Economics, University of Central Oklahoma, Edmond, OK.
A strong tourism industry is closely related to a country’s economic development and thus a higher standard
of living of its nation. Rich countries, generally, have a strong tourism industry. Tourism has its base on natural resources i.e., climate, sea shores, mountains, etc. Historically, Europe has had a long list of “favorite destinations” for tourists. In the last several years new countries in Eastern Europe have been added to this list. As an example, after separation from the Yugoslavian nation, countries like Croatia and Montenegro have become the place to go on vacation for Americans and people around the world. According to a number of studies, Montenegro has seen an increase of eight percent on its GDP for 2004. However, this is not the case for Albania. Being on the Mediterranean coast and having a beautiful terrain has not done much for its economy. According to studies, Albania has much undeveloped infrastructure. Electricity and water supply are below any European standards. In addition, water pollution (sea water) and out dated waste management are serious drawbacks. The natural solution to such deficiencies is investing in the private sector, energy sector and infrastructure of such countries. However, the high level of corruption in the country (e.g., Albania) prohibits foreign investment. The purpose of this study is to identify factors affecting tourism industry in Eastern Europe using empirical methods and countries’ published statistics.

**02.04.08 THE RULING CLASS: THE LEGACY, INFLUENCE, AND ECONOMICS OF WEALTH.**

John Bourke, Economics, University of Central Oklahoma, Oklahoma City, OK.

This study investigates the dynamic between the rich and the poor and evaluates the social, political, and economic influence the wealth of the ruling class has over the poor and how they sustain their power. This is an important topic for discussion as the gap between the wealthy and poor continues to widen. One way the wealthy sustain their power is through control of the media. Public broadcasting is a source of knowledge accessible to everyone, rich or poor. Funding for public broadcasting is under fire from the current administration. One of the organizations facing a cut is the nation’s largest source of financing for public broadcasting, the Corporation of Public Broadcasting (CPB). Bush’s 2008 budget calls for a 25% cut to the CPB. If funding is cut, the CPB will have to either cut funding to their institutions, or they will be forced to turn to businesses and foundations for support. By accepting money, public broadcasting will have more influence, censorship, and bias from its revenue source, relinquishing more control over programming to the ideology of the wealth that supports the CPB’s funding. Based on the findings, the support of the federal government to the CPB has declined, while those of business and foundations have increased. The result of the CPB study displays the impact of proposed budgetary cuts in the 2008 federal budget. The findings of this study show the disproportionality of wealth in the minority and the implications it has on the poor.

**02.04.09 PRINCIPLES OF BUSINESS STATISTICS PROJECT: THE RELATIONSHIP BETWEEN THE SALE REVENUE OF HOODED SWEATSHIRT TO THE CHANGING TEMPERATURE FOR A YEAR.**

Christina Hirschman, Principles of Business Statistics, University of Central Oklahoma, Edmond, OK.

For our project we have chosen to determine the relationship between the sales of hooded sweatshirts to the change in temperature for an entire year. The type of hooded sweatshirt that we have chosen to analyze is the heavy sweatshirt that does not have any type of promotion on them. The sales information will be gathered from one store that specializes in the sale of hooded sweatshirts, t-shirts, and long sleeved t-shirts. From looking at some of the data that we have collected thus far we have not found any indication that the other types of shirt will be a factor in our research. In our decision to analyze the two variables we are confident that we can show a relationship, if not a direct relationship, between temperature changes and revenue changes. I have had a previous experience with the sale of hooded sweatshirts while working for a sporting goods company. I had noticed that the number of sales for hooded sweatshirts had increased as the temperature decreased. In sharing this information with the group we can reasonably believe that the relationship between the two variables will produce a high r factor. Also, while conducting our research we have found that temperatures varying from the low 40’s to the upper 60’s have produced more sales revenue than temperatures that varied in the lower 70’s to the upper 90’s. Even with the slight downfall in the sales during the warmer months the ratio never fell below .80. We expect this number to increase once all the data is collected.

**02.04.10 THE CORRELATION BETWEEN TEMPERATURE AND FIREWOOD SALES.**

Alyssa Kenworthy, Ashley Jantz, Jared Cadwell, Jason Shepard, Jessica McDonald, Matt Tennell, Tikka Pilapitiya, Business, University of Central Oklahoma, Edmond, OK.

Is their a correlation between temperature and firewood sales? This is the question our team is trying to answer. We believed there would be a strong correlation because when the temperature goes down outside people inside want to heat there house and curl around a warm fire. So when it is colder outside people burn more firewood.
02.04.11 DO HOUSING SUBSIDIES REDUCE EMPLOYMENT IN THE PRESENCE OF WORK REQUIREMENTS?
Mickey Hepner, Economics, University of Central Oklahoma, Edmond, OK.
This study examines the employment effects of housing assistance programs in the presence of TANF work requirements. Previous research found that public assistance programs generate significant (albeit small) employment effects. These studies, however, were conducted prior to the imposition of work requirements under the 1996 welfare reform law. This study uses caseload data from the State of Oklahoma to exploit the fact that TANF recipients who also receive housing subsidies face greater implicit tax rates (due to a greater loss of benefits as income rises) and greater total benefits than TANF recipients who do not receive housing subsidies. One complicating factor is that the receipt of housing subsidies is a potentially endogenous variable, which if uncorrected would generate biased estimates. To correct for this possibility the author uses a bivariate probit model to jointly estimate the decision to receive housing subsidies and enter into paid work. The results indicate that even in the presence of work requirements, the receipt of housing subsidies decreases the likelihood that recipients enter into paid employment.

Finance – 2.05
02.05.01 DOES CONVEXITY ENHANCE BOND RATING?: COMPARISON BETWEEN STRAIGHT BOND AND CALLABLE BOND.
Minje Jung, Stephen Black, Finance, University of Central Oklahoma, Edmond, OK.
Convexity is the bend, or curvature of the price-yield relationship of bond. Its magnitude indicates the degree of resistance of the bond price decline as interest rate rises. The larger the magnitude, the less the decline in the value of bond as interest rate rises. Bond rating agencies analyze various features of bond and financial health of issuing corporations before they assign rating to each bond. Bond rating is affected by default risk of issuing firms, and its change has significant effect on the market value of bond. The purpose of this paper is to examine the relationship between convexity and bond rating for two types of bonds: straight bond and callable bond. The price function for straight bond is strictly convex with respect to change in yield. The degree of convexity is reflected in the curvature of the function. Convexity of callable bond is less than that of straight bond due to its inferiority, i.e., call feature. Thus, as interest rate falls, its price rises less than that of straight bond, and its price falls more than that of straight bond as interest rate falls. Data collected from the Merger Annual Bond Report in year 2001 will be used in this empirical study to find any statistically significant difference existing between these two types of bond.

02.05.02 SAVINGS RATE AND FINANCES OF AMERICAN FAMILIES.
Vaidya Krishnan, Finance, University of Central Oklahoma, Edmond, OK.
Conventional wisdom and the popular media paint a picture of very unhealthy personal finance habits and an overall decline in the strength of American family finances. The typical problems alleged include: low to negative personal savings rate, high borrowing, lack of retirement plan and funds, and dependence on the value of home to finance current consumption. While some academic research has presented a more balanced view of family finances and personal financial habits, there are very few attempts at presenting a comprehensive picture of family or household finances. This research presents a comprehensive profile of the current state of American family finances as well as reviews the changes that have taken place since 1989. The research uses three different data sources: the National Income and Product Accounts, the Federal Reserve Flow of Funds, and the triennial Surveys of Consumer Finances. The research findings include household balance sheets and analysis of savings, consumption and investment habits. The analysis is conducted at the aggregate (national) level and by income and wealth quintiles. Preliminary findings indicate that family finances show a healthy and robust upward trend. While household net worth has risen across the board for all income levels, families headed by persons with higher education have done much better than families headed by less educated persons.

02.05.03 PREDICTABILITY OF A COMPANY’S EARNINGS: A DERIVATIVE OF ITS PROSPERITY.
Amadou Roufaye Ousmane Mahamane, Finance, University of Central Oklahoma, Edmond, OK.
The purpose of the study is to attempt to measure the predictability of a company’s earnings; it is not to predict earnings. Earnings happen to be what matters most to investors look when they want to invest in some stocks. As a matter of fact, when a company has no record of past earnings, conservative investors prefer to keep their money on hand until they see how well a company would perform in its industry, in the market, and with respect to its competition in the future. Our hypothesis was that the predictability of a company’s earnings is measurable given the fact that we can determine the variables that would affect its behavior. By taking a close look at a company’s past earnings, we came up with three variables that would influence
the predictability of a company’s earnings: the period the earnings represent (X), the number of declines in earnings (N), and last but not least the change in earnings over the period of study (SChange = ∑$increase - ∑$decrease). We not only found the function that expresses the predictability of a company’s earnings but also realized that one of its primitive is the Prosperity function. The predictability and prosperity functions are measured both quantitatively and qualitatively. Throughout the research, we analyzed how each of the three variables mentioned above affects each of those two functions. Finally, we concluded this research by stating that the predictability of a company’s earnings is, in fact, a derivative of its prosperity.

**Information Operations Management – 2.06**

**02.06.01 VIRTUAL TUTOR: A PEDAGOGICAL TOOL FOR E-TEACHING IN THE GLOBAL LEARNING ENVIRONMENT.**
Joselina Cheng, ISOM, University of Central Oklahoma, Edmond, OK.

E-teaching in the virtual classroom present pedagogical challenges for faculty members to address students' learning styles and satisfaction since many learning modules provided little interactivity to learners. E-teaching faculty members are often challenged to integrate instructional material with multimedia to enhance personalized knowledge construction, learning satisfaction, and effectiveness. The purpose of this study was to examine the casual effect of multimedia-based e-learning Virtual Tutor (VT) system on students’ learning satisfaction and learning effectiveness. Sixty undergraduate students were randomly assigned to a control group that received a PowerPoint (PP) lecture, and a treatment group that received an interactive Virtual Tutor learning module and a PP lecture. Pre- and post-tests were administrated to both groups to measure learning effectiveness. A learning satisfaction survey was administered to both groups to measure students’ learning satisfaction. T-Test was performed to test the significance for the hypotheses and the research questions that the study sought to answer. The findings revealed that students with access to VT learning module and PP lecture achieved slightly higher learning outcomes and satisfaction than those with PP lecture. Cross-disciplined faculty members can use innovative tool such as VT to address students’ audio, visual, and kinesetic learning styles and enhance pedagogy in the global learning environment.

**02.06.02 MANAGEMENT INFORMATION SYSTEMS HIGH SCHOOL STUDENT AWARENESS SURVEY**
Ravi Khanal, Dr. Lisa Miller, Information Systems and Operations Management, University of Central Oklahoma, Edmond, OK.

The Information Systems and Operations Management Department’s Management Information Systems major provides University of Central Oklahoma students with knowledge of business, technology and technology management. Feedback from current Management Information Systems majors suggests that high school students are often unaware of the Management Information Systems major. This survey will examine high school senior student awareness of the Management Information System major as a career preparation choice.

The University of Central Oklahoma’s Information Systems and Operation Management Department will use the survey findings to determine marketing strategies to attract high school students to The Management Information Systems major.

**02.06.03 COLLABORATIVE LEARNING FOR TRANSFORMING NOVICE PROBLEM SOLVERS INTO EXPERTS.**
I-Lin Huang, MIS, School of Business, Langston University, Langston, OK.

It is believed that there are two cognitive characteristics that account for the difference of cognitive abilities between novices and experts in problem solving: (1) reasoning processes, and (2) knowledge organizations that support the reasoning processes. In addition, the learning process is slow for novices to reach the expert level of reasoning processes and knowledge organizations. Therefore, the research question is how to help novices achieve better performance in problem solving with relatively inadequate reasoning processes and knowledge organizations.

This research proposes a theoretical model of collaborative learning environment for transforming novice problem solvers into experts on the basis of the findings from the research studies in novice-expert differences. The model explores three cognitive mechanisms for improving the success of novices in problem solving: (1) an example base as a tool for training novices in analogous thinking and solution planning, (2) a rule base as a tool for training novices in rule-based logical thinking, and (3) collaborative argumentation as the tool for training novices in critical thinking, team working, and interest and self-confidence building. By integrating solution planning, analogical thinking, logical thinking, critical thinking, and team working into novices’ problem solving process, novices can learn a problem solving behavior similar to experts and consequently can have better performance in problem solving.
MANAGERIAL LEVERS AND THE MEDIATING EFFECT OF EFFICACY ON SAFETY BEHAVIORS AND OUTCOMES: A CROSS-LEVEL STUDY.

Geoff Willis, Karen Brown, Greg Prussia, ISOM, University of Central Oklahoma, Edmond, OK. Management, Arizona State University, Tempe, AZ. Management, Seattle University, Seattle, WA.

In a survey of 918 employees distributed across 24 work groups in an electric utility, we found that safety efficacy mediates the influence of three managerial drivers (process improvement, safety goals, and group-level supervisory safety climate) on employees’ self reports of safe behavior and injuries. Self-reported injuries were corroborated at the group level with archival company injury reports from the 12 months preceding survey administration. Self-reported safe behavior was predictive of group-level injuries for the 12 months following survey administration. Managerial safety drivers, which represent specific elements of high-performance work systems, positively influenced customer-rated service at the work-site level of analysis.

INCLUDING EMOTIONAL INTELLIGENCE AND INTUITION IN INFORMATION SYSTEMS EDUCATION.

Mike Estep, PhD, Computing and Technology, Cameron University, Lawton, OK.

Information Systems (IS) textbooks in higher education commonly contain information regarding components such as: (a) hardware/software configuration and integration, (b) logic necessary for programming, understanding information processing, use of applications, systems design, and management of information, and (c) questions, problems, projects, and assignments to help students develop critical thinking skills. The purpose of such components is to prepare IS students to meet the information needs of business organizations. IS could not exist without such components. However, the author believes positive benefits could also be realized by including components of emotional intelligence and intuition in the IS learning process. Such benefits could include better interpersonal communication skills and increased proficiency with all of the above mentioned components. This paper will examine these matters in relation to personal observations and findings in the literature.

DEVELOPMENT OF A VISUAL APPLICATION TO GENERATE BLACKBOARD TESTS.

Kyle Smith, Chantell Shumake, Ernst Bekkering, IS and Technology, Northeastern State University, Tahlequah, OK.

Blackboard is one of the currently most used course support technologies. Many publishers of textbooks provide pre-made tests to go with their textbooks. However, if instructors want to provide their own version of a test, the process is very tedious using the tools that BlackBoard provides. One external tool that is very convenient to use is provided by Wytheville Community College. It accepts questions and answers on a website. Problems with this solution include the specific formatting used to generate the correct output, and the dependence on the website being available. As an extension of a class in Visual Basic programming, the authors will develop a program that can be installed on the local user’s computer. A working prototype of the program will be presented during Research Day.

INTEGRATING A MICROSOFT FINGERPRINT READER IN A CUSTOM VISUAL BASIC APPLICATION.

Elizabeth Reeve, Ernst Bekkering, IS and Technology, Northeastern State University, Tahlequah, OK.

Microsoft fingerprint readers are affordable and readily available devices to facilitate the authentication process based on biometrics rather than passwords. The authors will present a simple application developed in the Visual Basic programming language, as an extension of the material in the Visual Basic programming class. The application will let users register their fingerprint in the system. After the fingerprint has been registered and stored in encrypted form, the same application can be used to identify users based on their fingerprint. Use of the application and the source code will be shared with the audience on Research Day.

A TECHNIQUE FOR ESTIMATING THE MAGNITUDE OF SATELLITE THEFT.

Dr. David Noel, Ravi Khanal, Information Systems and Operations Management, University of Central Oklahoma, Edmond, OK.

Illegally receiving satellite TV signals is considered theft. Satellite pirates have developed devices and have broken codes that allow people to watch satellite TV without paying. This type of theft has caused millions of dollars in losses to DirecTV and Dish Network. DirecTV has filed more than 24,000 lawsuits nationwide against this type of theft. Satellite companies, movie studios and sports franchises that supply programming lose well over $1 billion a year in uncollected revenue from piracy. Many individuals think that satellite theft is socially acceptable. This is because of what it termed Free-to-air and Free-to-view. Free-to-air broadcasts are not unencrypted and can be picked up by any suitable receiver. Free-to-view is TV that is available without subscription but is encoded and may therefore be restricted. Although these channels are described as being free, viewers are required to pay for them. The example presented in this paper describes a practical approach
for evaluating the magnitude of satellite theft. The method demonstrated is a statistical technique that has been shown to be useful in eliminating evasive answer bias. Application of this technique will allow companies such as DirecTV and Dish Network determine a better estimate of the magnitude of the problem. This technique can easily be adapted to many situations where it is felt that respondents may not give truthful answers to sensitive questions such as admitting to theft.

02.06.09 MIS STUDENTS: WHAT KIND OF LEARNERS ARE THEY?
Tim Bridges, Quratulain Siddiqui, College of Business, University of Central Oklahoma, Edmond, OK.
MIS Students: What Kind of Learners Are They? There are many discussions now being held dealing with the teaching the student. The question that is not posed is whether or not our learning materials really address the way our students learn best. This study will review MIS students to determine what learning materials they respond the best to. Are they mostly visual, auditory, or manipulative learners? A survey vehicle will be used to collect data from a number of students to determine what the general preference of MIS students is.

02.06.10 A STUDY OF THE VARIATION IN THE VALUE OF US IMPORTS FROM INDIA IN THE PAST 10 YEARS.
Srinivas Kuppa, Saba Bahouth, Information Systems & Operations Management, University of Central Oklahoma, Edmond, OK.
India has become a major exporter of goods and services in this global economy. The Foreign Exchange (FOREX) reserve in India has increased from $29 billion to $151 billion over the past 10 years. During that same period of time US yearly imports from India have increased from $6.4 billion in 1997 to $20.9 billion in 2006. This study focuses on the variation in the value of US imports from India during the above mentioned period, and tries to establish a possible relationship between retail sales in the US market and the value of imports from India.

Management – 2.07

02.07.01 USING PERSONALITY TESTS TO UNCOVER POSSIBLE MENTAL PROBLEMS IN EMPLOYEES: DOES IT VIOLATE THE ADA?
1 Jennifer Barger Johnson, 2 M. Suzanne Clinton, 1 Finance and Legal Studies, University of Central Oklahoma, Edmond, OK. 2 Management, University of Central Oklahoma, Edmond, OK.
Employers use knowledge and personality tests in pre-employment screening. Companies now utilize more detailed psychological examinations for managerial positions or other positions of trust to determine stability, honesty, and reliability. Employers make sure that the exams are not so invasive that mental disabilities, such as depression, hypochondria, hysteria, paranoia, mania, or even psychiatric disorders, might be discovered. An appellate court ruling determined that when an employment-related personality examination is utilized to discover possible mental disorders in employees, the employer is in violation of the ADA even if medical personnel are not used for administration or interpretation of the exam. In this case, a portion of the required promotional examination was derived from the Minnesota Multi-Phasic Personality Inventory (MMPI). While other entities have found a similar adjusted use for the MMPI outside of the medical world, it is primarily designed to assess the symptoms of emotional difficulties in examinees. The results of this promotional exam were used to measure things like how well one would work in a fast-paced office. Unfortunately, from this exam, one could also glean whether or not the candidate suffered from a variety of mental disorders. The employer’s use of the MMPI portion of this exam was found to illegally exclude job applicants with disabilities, and the exam was deemed a “medical examination” for purposes of the ADA.

02.07.02 EMPLOYEE NOTIFICATION: A COMPARISON OF BUSINESS SIZE AND THE LIKELIHOOD OF GETTING IT WRONG.
Lee Tyner, Jennifer Barger Johnson, M. Suzanne Clinton, Management, University of Central Oklahoma, Edmond, OK.
The Government requires employers to prominently post all mandatory federal labor law postings and state-specific notices. The authors will provide results of a survey of employers in the Oklahoma City metropolitan area. The authors will discuss potential damages for non-compliance. Finally, the authors will compare and contrast requirements at the state and federal levels. The following propositions are for future research: P1. Less than fifty percent of small businesses will be in compliance. P2. Less than seventy-five percent of large businesses will be in compliance. P3. Compliance percentages will be better for businesses with an in-house human resources department or professional than for businesses without a human resource department or professional. P4. Compliance percentages for businesses with human resource professional support which is not on-site will be less than compliance percentages for businesses with an in-house human resources department or professional. P5. Compliance percentages will be reflected as follows: no human resource department or professional < human resource department or professional not on-site < human resource department or professional in-house.
**MATCHING CORPORATE UNIVERSITY MODELS TO THE APPROPRIATE MEDIA.**

1 M. Suzanne Clinton, 2 Kimberly Merritt, 3 Samantha Murray, 1 Management, University of Central Oklahoma, Edmond, OK. 2 Business, Oklahoma Christian University, Edmond, OK. 3 none, none, Lubbock, TX.

The knowledge literature suggests that transferring knowledge leads to synergistic cost advantages, better implementation of organizational strategies, and competitive advantage. One knowledge transfer tool that organizations are implementing is corporate universities. There is no standardized definition for corporate universities, but rather models that allow organizations to customize to meet their training needs. Building on recent work of managing the knowledge transfer process (Murray & Peyrefitte, 2007) and media richness theory (Daft & Lengel, 1986), we argue that given the generation of corporate university utilized, and the type of knowledge to be transferred, the appropriate media to transfer knowledge is necessary. The paper presents a model and propositions concerning relationships between type of knowledge to be transferred, generation of corporate university and appropriate media selection.

**THE MBA DEGREE: TO LEARN OR TO EARN? THAT IS THE QUESTION.**

Oleg Petrenko, Robert Epstein, Department of Management, University of Central Oklahoma, Edmond, OK.

Recent criticism of Master of Business Administration (MBA) programs by employers has prompted many universities to revamp their MBA curriculum in order to increase the value of their graduates to the companies. On the other hand, MBA applicants use their own distinctive set of criteria to determine the value of MBA. Many schools have adopted specialized MBAs, part-time MBAs, and integrated MBA programs to respond to the market demand. This year, MBA applicants use their own distinctive set of criteria to determine the value of MBA.

This study assesses how students evaluate MBA programs. It analyzes their preferences and expectations for different types of MBA programs. It also addresses what they perceive as the value and purpose of an MBA. Furthermore, the research addresses the question of whether the terminal goal of most students is the degree itself or the skills and knowledge learned in the process.

**HOW THE SUDDEN INCREASE IN OIL PRICE AFFECTS OUR ECONOMY NOW!**

Hiba Ulaby, Brandon Williams, Lee Ann Griffin, Business Administration, University of Central Oklahoma, Edmond, OK.

Oil is one of the most important and valuable resources available, but it is also a finite resource. The United States economy relies on gasoline for primary resources such as; automobiles, boats, and various equipment. Gas refined from crude oil accounts for 17% of the energy used in the United States. Lately prices have been skyrocketing, with the average price of gasoline rising from $1.78 per gallon to $3.07 per gallon (after hurricane Katrina) and today are $2.80. Everyone’s question is why and until when will gas prices rise? What about the future? Gas prices affect our economy in many ways. This report explains the importance of oil and gas for the U.S. economy as well as how the higher gas prices affect U.S. businesses. The future of gasoline and the possibility effects that alternative fuel may have on businesses is also discussed.

**THE DEVELOPMENT OF MORAL CHOICE.**

Renee Warning, Management, University of Central Oklahoma, Edmond, OK.

Ethics has once again emerged as an important issue among American business leaders. Grave concern exists not only at the senior management level but for employees at all levels. Therefore, this study addresses the academic preparation of business students as they enter the corporate world. The purpose of this study will be to investigate growth in moral judgment used in decision making due to an ethics educational program by utilizing a control and treatment group pre/postest design. The treatment group will receive an ethics education program of 15 minutes twice a week. This education program will be based on adult moral development theory as it applies to ethical dilemmas faced in business today. Growth in moral judgment will be measured by the Defining Issues Test (DIT)(Rest 1979). The purpose of data interpretation will to ascertain significant change due to the treatment variable by using P scores. Both pretest and postest data will be analyzed by means of t Tests.

**SKILLS IN THE OIL AND GAS INDUSTRY - PERCEPTIONS OF PROFESSIONALS AND STUDENTS.**

Jenna Allen, Business Administration, East Central University, Ada, OK.

This poster examines the perceptions of skills required for the Oil and Gas industry as well as evaluations of skills possessed by people entering the industry. This
poster is based on and expands work previously done by Stephen W. McDaniel and J. Chris White (1993) and uses modified versions of survey instruments they developed. The original study concerned the field of marketing while the present study is concerned with the Oil and Gas industry.

Approximately 30 professionals in the Oil and Gas industry and approximately 120 students were surveyed in a variety of business classes. Professionals and students indicated their perceptions of the importance of various skills. Professionals indicated their evaluations of the skills of entry-level people in the field while students evaluated their own skills. This poster compares gaps in professionals’ and students’ perceptions of skills needed. This poster also compares gaps in the professionals’ evaluations of skills of those who have recently entered the industry to students’ evaluations of their own skills.

The results of this study gives feedback regarding the most important skills or qualifications being sought by the Oil and Gas industry, the areas in which entry-level personnel are the weakest, and the differences in realities and perceptions of the students. It is hoped that this information will be of use to business educators and students considering a career in the Oil and Gas industry.

02.07.08 BEYOND ECONOMIC CONSIDERATIONS, WHAT FACTORS EXPLAIN WHO TRADES WITH WHOM?

Rama Subba Rao Appikatla, Mark Hillon, Department of Management, University of Central Oklahoma, Edmond, OK.

Trade alliances are often assumed to be formed on purely economic grounds. An abundance of evidence supports this contention, as firms of all sizes, types, and origins seek out the least costly materials and labor for production around the World. However, it is also a reasonable assumption that firms must often decide between suppliers who can offer extremely similar cost advantages. What then becomes the deciding factor? To explore this question, we have focussed on trade patterns that have developed between India and other countries, from India’s economic liberalization in 1991 to the present. This time period also corresponds with most recent era of globalization; thus, we are able to identify several industries that offered multiple low-cost suppliers.

Suppose that you could buy or source the components for your firm’s products at about the same price from firms in China, India, Poland, Mexico and many other countries or regions which relatively offer identical products and specifications that match your firm’s needs; then what factors if any, explain your selection of a particular supplier vis-a-vis another one. Is price really the lowest denominator that determines the formation of the strategic alliances or do we have some other latent factors driving the decision?

02.07.09 THE UNIVERSITY OF CENTRAL OKLAHOMA MANAGEMENT DEPARTMENT, THE PROPANE EDUCATION & RESEARCH COUNCIL, & LPGAS MAGAZINE DEVELOP NEW LPG INDUSTRY HANDBOOK...

Phillip Jeck, KJ Tullis, Lee Tyner, Mark Hillon, Suzanne Clinton, Management, University of Central Oklahoma, Edmond, OK.

The Liquid Petroleum Gas (LPG, Propane) industry is in need of a new handbook as the present edition was written in 1962. The University of Central Oklahoma, College of Business, Department of Management, has partnered with the LP Gas Magazine, and Propane Education and Research Council to publish a new Propane handbook.

The handbook will contain 19 chapters, each representing different areas within the Propane Industry. The University will collect data, and work with existing companies within the industry to provide the most current, up to date, information on Safety, Environmental Concerns, Production & Processing, Bulk Transportation, Storage, Retail Delivery, Cylinder Exchange, The LP Gas Retail Store, Regulation of LP gas, Risk Management, and General considerations for Usage of LP Gas as a fuel.

Residential, Commercial, Agricultural, Recreational, and Transportation applications and equipment will be discussed. Important contact information on industry and non-profit associations will be provided. This endeavor will require considerable research of all the aspects discussed above to insure the most current, complete, and accurate information available is provided to the industry.

The conclusion will focus on the LP Gas industry and it’s place in the future.

02.07.10 CLASSROOM MANAGEMENT IN AMERICAN BUSINESS COLLEGES: THE POTENTIAL FOR AND IMPACT OF GENDER ISSUES AND CULTURAL CHALLENGES.

Kelly Moyers, Barbara Ritter, Tim Peterson, Management, University of Central Oklahoma, Edmond, OK. Management, Coastal Carolina University. Management, Texas A & M University, Texas. Effective classroom management continues to be an increasingly important issue in American business colleges. From gender issues to cultural challenges, educators are faced with identifying the best and most effective methods to deal with the changes that both students and faculty are experiencing. This research will seek an-
swers to questions that focus on (1) effective methods to handle new issues and challenges in the classroom and (2) estimating causal effects on classroom behavior using observational data.

Marketing – 2.08

02.08.01 BUYER BEWARE: CODES OF CONDUCT IN THE APPAREL INDUSTRY.
Celia Stall-Meadows, Kimberly Jackson, Marketing, Northeastern State University, Tahlequah, OK.
The purpose was to investigate awareness of global labor practices among 3 levels of the marketing channel: Retail store buyers, showroom vendors, & suppliers/merchants, all conducting business in the World Trade Center in Dallas.

A survey was sent to 313 denim showroom vendors representing lines from global suppliers. The surveys were mailed in 11/06 with a follow up in 01/07. The response rate was 9.3%.

The results were: Most suppliers were in Asia, N.A, & Europe. Over 70% of vendors interacted more than 10 times/year with the supplier executives. Over 50% of the showroom vendors had awareness of human rights issues, while the rest had little/no information. 67% hadn’t discussed human rights issues with their suppliers. 75% of buyer clients hadn’t asked about human rights issues; nor were they offered information by vendors.

In conclusion, showroom vendors frequently communicate with their suppliers; but with little discussion about human rights issues. Similarly, showroom vendors have limited discussion with their retail buyer clients regarding human rights in factories. There are many supply chain levels creating distance between actual factories and the retail store. Factories, where violations occur, may be outside contractors hired to sew the denim. The suppliers don’t own factories; they simply hire independents to sew garments with the suppliers’ labels. Goods change ownership multiple times, making transparency difficult through supply chains.

02.08.02 THE CRUDE OIL MARKET: GASOLINE PRICING.
Rosalind Karlin, Accounting, University of Central Oklahoma, Edmond, OK.
In the United States people pay ever increasing prices for gasoline and other petroleum products. Generally people know the value of a barrel of oil, but not how that value is determined (API 2006). So how is the price of crude oil determined, and how is it affecting us as consumers? While there are several factors to consider, it is important to understand that the price of crude oil is the most significant factor for determining the prices we pay for petroleum products such as gasoline, and prices are a direct result of the supply and demand of crude oil on a worldwide basis (Grant, Ownby, & Peterson 2006). Crude oil is a global commodity and prices reflect a very complex “interaction of many different buyers and sellers, each bringing forth their respective knowledge and expectations of the demand for and supply of crude oil and petroleum products” (Grant et al., 2006), within markets. Also, the utilization of refining capacity and those costs associated with producing, transporting and marketing oil add to the price. Other factors to consider are unexpected losses in those areas from Hurricanes Katrina and Rita in 2005, which heavily impacted prices for crude oil and petroleum products today by limiting supply. Also, with countries like China expanding in economic growth, it has increased demand, reduced excess production and quality of crude available to the market. Higher prices for crude oil and other petroleum products are expected today and well into the future.

02.08.03 THE POTENTIAL OF INOCULATION IN PROMOTING RESISTANCE TO THE EFFECTIVENESS OF MULTIPLE COMPETITIVE ATTACKS.
1 Bobi Ivanov, 1 Kimberly Parker, 2 Michael Pfau, 1 Marketing, University of Central Oklahoma, Edmond, OK. 2 Communication, University of Oklahoma, Norman, OK.
This investigation introduced multiple competitive attacks in order to assess the effectiveness of inoculation theory to protect established attitudes in a natural setting. A four-phase experiment was conducted involving 433 participants. The results show the effectiveness of refutational inoculation messages to somewhat dissipate in the face of an additional attack. Still, refutational inoculation messages proved to be more effective than supportive, restoration, and no messages in protecting established attitudes in the face of multiple attacks. The content of the additional attack (the same ad the first attack or different) did not have any impact on the effectiveness of the inoculation refutational messages to confer resistance to competitive attacks.

02.08.04 SOURCE CREDIBILITY IN HEALTHCARE ADVERTISING: A COMPARISON STUDY OF MEDICAL AUTHORITIES AND CELEBRITIES.
Kimberly Parker, Bobi Ivanov, Marketing, University of Central Oklahoma, Edmond, OK.
This exploratory study attempted to discover which source is more effective to be used in healthcare related advertising: a medical authority or a celebrity. These two types of sources have been most widely used in healthcare related advertising; however, there is no evidence or research available that points out whether
or not one is more effective than the other. Initially, as this study indicates the trustworthiness seems to shape people’s attitudes toward the advertisement. The expertise dimension does not seem to be a significant factor; however, the relationship was positive as expected. As expected, trustworthiness seems to be a stronger factor associated with the attitude towards the advertisement than expertise when the message source is a celebrity. A surprising finding in this study was the relationship between the medical authority’s credibility dimensions and the attitude towards the advertisement. Contrary to expectations, the trustworthiness dimension, and not the expertise dimension, appears to be a stronger factor associated with the attitudes towards the advertiser when the message source is a medical authority. The findings indicate that identical to the celebrity, that trustworthiness is the dimension that is closer associated with the attitude towards the advertisement. A possible explanation to this finding may be sought in the job title, position, and hospital’s support, all of which may create an instantaneous sense of trust.

02.08.05 A COMPARATIVE STUDY OF THE FACTORS AFFECTING EMPLOYEE TURNOVER AND THE IDENTIFICATION OF BEST PRACTICES FOR RETENTION IN ITES ORGANIZATIONS OF OKLAHOMA.

Vidya Singh, 2 Lee Tyner, 2 M. Suzanne Clinton, 1 College of Business Administration, ST. JOSEPH’S COLLEGE OF BUSINESS ADMINISTRATION, Bangalore, India, OK. 2 Management, UCO, Edmond, OK.

The rate of employee turnover in the Information Technology Enabled Services (e.g., Call Centers and Business Process Outsourcing Units) sector has become a key concern among the HR leadership of strong offshore destinations such as India. In these high-growth markets, it is now easier for employees to change employment from one organization to the other, thus increasing the complexity and cost of retaining the right talent. The sample is ten ITES organizations in Oklahoma City, OK, and Bangalore, India. The research is a comparative study of the factors affecting turnover between the two cities. The research involves an investigation of the reasons for employee turnover, current retention practices, best practices, and proposes best practices for retention across the two geographies. The most common reasons for turnover in Oklahoma City were Job Monotony, Attendance Problems/ Absenteeism, and Work Time Schedule Problems/ Night Shifts. In India, turnover was a result of Better Prospects, Higher Studies and Relocation Problems, Better Salaries and Competition. Oklahoma City’s most common retention strategies were Enhancing the work culture, Educating managers on the impact of employee turnover, Building good employee-management relationships, and Employee Surveys. In Bangalore, retention strategies focused on Employee Engagement, Good Working Conditions, Good Compensation Packages, and Recruit the people the organization feels it can retain.

02.08.06 THE EFFECTS OF HIGHER DRINKING AGE LIMITS.

Casey Farris, Ben Caterlin, Kandace Badger, Kelsey Totten, Tiffany Atkinson, Department of Business, Northeastern State University, Tahlequah, OK.

America has one of the highest age limits for drinking in the world. Research has suggested that 20 percent of Americans will be involved in a drunk driving crash. France, Germany, and other European countries have lower drinking age limits and lower alcohol related incidents. In the U.S. over 65 percent of fatal single car accidents and 55 percents of all fatal highway crashes are alcohol related, the is compared to Europe’s 33 percent. The preliminary research has shown that higher drinking age limits is not the only determinant in predicting car crash rates. We hypothesize that drinking age is directly related to alcohol related incidents. We assume that the accidents will be less in countries with a drinking age limit of lower than 21, compared to the U.S. where the anticipation of alcohol consumption is built up.

02.08.07 THE AGRICULTURAL SECTOR IN GHANA AND THE ROLE OF UNITED STATES IN THIS INDUSTRY.

Ernest Hammond, Business, University of Central Oklahoma, Edmond, OK.

ABSTRACTS Agriculture plays a vital role in the economies of many countries. Agriculture has played an important role in the economy of Ghana since it gained its Independence (what year?). Cocoa was Ghana’s main export and it generated a lot of foreign currency for the country. Today, under the African Growth and Opportunity Act, oil and gas represents 80 percent of all African exports to the United States. On the other hand Agriculture contributes with only 1 percent. Although the energy sector generates revenue for Africa, it provides fewer jobs than the agriculture. The purpose of my research is to analyze the weaknesses of the Agricultural sector as well as the possible role of the United States in developing the agricultural sector in Ghana. The paper starts with a brief history of Ghana and its agriculture sector. After talking briefly about the traditional holders of lands and how this system can be changed to make lands more accessible for agriculture, insight on a possible modernization of agriculture (becoming a capital intensive rather than labor intensive sector) is offered. The paper also discusses the opportunities of developed countries like the United States to enter into agreement with the government in this sector.
02.08.09  HAVE FORD MUSTANGS SALES BEEN AFFECTED BY THE NON-PRODUCTION OF THE CHEVROLET CAMARO IN THE PAST FIVE YEARS?
Kyle Hayes, Callie Calico, Candace Peckham, Christine Cook, Jennifer Ricks, Lindsay Brown, Business, Northeastern State University, Tahlequah, OK.
A study is about to be underway by a group of students and Northeastern State University in an attempt to determine whether one vehicle in a certain market niche can affect sales of another in the same type of market, and in this particular case, the Ford Mustang and the Chevrolet Camaro. The purpose of this study is to determine selected variables affecting the sales of the Ford Mustang since its main competitor in the market, the Chevrolet Camaro, stopped production in 2002. These variables include increased or decreased production volume, increase or decrease in sales profit, and the selection of substitutions in the market segment. Our personal theory that we could best conclude is as follows. In the year of 2002 the only mass producers of mid sized sport coupes in the economical price range were the Chevrolet Camaro and the Ford Mustang. These two vehicles seemed to be aimed at teenagers and price-conscious buyers and the only other producers were foreign, luxurious, and more expensive. This leaves two main domestic companies to fill the niche. Chevrolet dropped the Camaros production in late 2002, thus leaving Ford with no competitors in this entry level sports car price range. Our hypothesis is that Ford Mustang sales have increased in the past five years due to the fact that there are currently no substitutions in this particular market niche. Our objective is to determine whether the non-production of the Camaro has affected the sales of the Ford Mustang.

02.08.10  BRAND EXTENSIONS: A MARKETING STRATEGY TO GROW MARKET SHARE AND SALES.
Jacqueline Williams, School Of Business, Cameron University, Lawton, OK.
The author analyzes the use of brand extensions as a marketing strategy for growing sales and market share. For the purpose of this presentation, the term brand extension is used as a generalization to include the various forms of brand extensions such as vertical and horizontal brand-line extensions, umbrella and flanker brands etc. In developing a conceptual model for considering a brand extension strategy, the author will discuss factors that determine the success of brand-line extensions in addition to opportunities and limitations of the strategy. The Coca Cola Company’s successful implementation of a brand extension strategy is presented as evidence of the effectiveness of the strategy in increasing market share and sales.
02.08.13  PERCEIVED INFLUENCING FACTORS ON THE COLLEGE CHOICE PROCESS OF STUDENTS ENROLLED AT ROGERS STATE UNIVERSITY.
Zachery Bacon, Benjamin Cody, Dana Gray, Schulz Eric, Susan Chirning, Trease Lindsey, Tyler Henderson, Business, Rogers State University, Claremore, OK.
College choice research for today’s students is generally dominated by factors such as cost of the education, proximity to residence prior to entering college, available degree programs, among other factors but most research identifying these influencing factors focuses on well-established medium-to-large public institutions. While the college choice process is similar influencing factors for students choosing a small young institution may be different. Rogers State University, a small public university with less than 5000 students, has only been a bachelors degree granting institution since 1999. While some influencing factors for choosing RSU have been identified this research will attempt to identify, verify, and quantify these factors. Rogers State University is in the unique position of being able to develop new policies and procedures that can lead to new traditions. Knowing the reasons the student population came to RSU can help focus these efforts. Research questions: What are the perceived influencing factors in the college choice process of students entering a relatively new and small public academic institution such as Rogers State University? When was the college choice decision process begun and when was it finalized? Are the perceived influencing factors on the college choice decision different for those entering small relatively unknown institution like RSU different than those for larger institutions?

02.08.14  OKLAHOMA'S NEED FOR A BOTTLE BILL TO HELP PRESERVE THE FUTURE GENERATIONS.
Zachary Knoll, Christian Jenkins, Elizabeth Youngquist, Jacob Wiles, Nick Hammers, MKT 4333, Northeastern State University, Tahlequah, OK.
There is a growing problem across the nation when it comes to recycling plastic water, and soft drink bottles. There were 15 billion bottles of water sold in 2002 and around 12 percent of those bottles were recycled. The purpose of this research was to determine if “A national bottle bill” would be something to consider when trying to remedy the environmental impact that the drilling and burning of fossil fuel to produce bottles would have on earth. Research shows that in states like Michigan where you receive a dime for every bottle recycled, the recovery rate for these bottles is 95 percent. This would be a large increase from the average 12 percent. Is this a bill that Oklahoma could benefit from? The study suggest that there is a way for everyone to benefit from recycling plastics including future generations. More results and their implications are discussed in our paper.

02.08.15  NEWS STATION MARKETING RESEARCH ABSTRACT NORTHEASTERN STATE UNIVERSITY GROUP # FIVE.
Matthew Kitch, Aaron Nance, Marketing, Northeastern State University, Tahlequah, OK.
Intro- The research products we are using are news stations. The topic and unique aspects of this research make this an interesting topic to study. Purpose of study- The group wants to study the market segments, as well as the demographics and psychographics that our local news stations might be targeting. We want to determine if the local news stations are specifically targeting certain segments of the markets to provide there service to. Also, we want to determine if the viewing audiences for certain stations have a specific reason for watching a particular station. Variables- There is multiple stations and different segments of people that watch the stations. Hypothesis- Our hypothesis is that certain demographic and psychographic segmentations will watch certain news stations. Also, we believe that the different news stations have a particular group that they are trying to market there channel to. Preliminary results – The station that might be geared towards the young age group is Fox. Our reports and studies so far have found KOTV might be geared towards older audience. The other main channels might geared toward a more generalized audience Detailed results – We think all of the stations have their own unique style of reporting but we want to find out if certain age groups or people from different sized towns are watching certain news stations and if they have a particular reason for doing so.

02.08.16  THE GROWING POPULARITY OF ONLINE COLLEGE COURSES CONTRIBUTING FACTORS AND DEMOGRAPHICS.
Tammy Shaw, Justin Fourkiller, LaWanna Summers, Madoka Inoue, Matthew Morrison, Business & Technology - Marketing, Northeastern State University, Tahlequah, OK.
Online courses have become popular with American universities. The purpose of this study is to investigate the relationship of enrollment in online courses versus the number of courses offered. Initial survey data has shown that enrollment in the campus setting has remained constant while enrollment in online education has grown tremendously. Findings also show that three variables: children in the home, number of hours worked per week, and distance from campus, are positively related to enrollment in online courses. Data analysis will show a trend of increasing popularity of online courses. Detailed discussion and results will be presented in our paper.
02.08.17 WILL TULSA’S NEW DOWNTOWN ARENA BE ABLE TO COMPETE WITH THE FORD CENTER IN OKLAHOMA CITY?
Amber McKnight, Cassie Chitty, Ema Downing, Josh Cranor, Megan Gaither, Zac Chappelle, Business Administration, Northeastern State University, Tahlequah, OK.

There is a showdown about to take place with Oklahoma City’s Ford Center versus Tulsa’s new downtown Arena. Which Arena will take the ultimate entertainment crown? The purpose of this research is to establish an idea if Tulsa’s new Arena will be able to compete with Oklahoma City’s Ford Center for revenue, and sustain the same type of quality entertainment at this facility. Many demographics of each city may go into comparing the two arenas, such as: income, age, and even location. The current hypothesis is that Tulsa’s new arena will be able to compete with the Ford Center, and the data to support this hypothesis will be collect through student surveys. Preliminary results, from a random sampling of individuals, agrees that the new Tulsa facility will be able to compete with the Ford Center, if not do better in generating revenue, and attracting more events. More detailed results shall be included in this study.

02.08.18 OKLAHOMA CASINO’S MARKETING STRATEGY.
Joshua Hagen, Jason Allison, Takashi Furusaki, William Hutson, Business, Northeastern State University, Tahlequah, OK.

Oklahoma casino’s are no different from any other business, they have a marketing strategy to maximize profits just like everyone else. The intent of this research is to provide evidence to the theory that casino’s are operating their business to target lower income individuals for regular customers. This research will analysis the income range of the gaming industry to see if this theory can be supported. In doing this, we will be able to better understand the process of obtaining market share that casino’s under go.
EDUCATION

**Curriculum – 3.01**

03.01.01 • WHAT ADULT ENGLISH AS A SECOND LANGUAGE LEARNERS SAY ABOUT IMPROVING GRAMMAR IN THEIR WRITING FOR ACADEMIC PURPOSES

Ally Zhou, English and Foreign Languages, Cameron University, Lawton, OK.

Linguistic accuracy plays an important role in the quality of written texts, yet whether the explicit teaching of linguistic form is needed to improve English as a second language (ESL) students’ writing has generated an ongoing debate. Furthermore, students’ voices about their learning are often ignored because they are perceived as not knowing what they need most. This poster presentation reports on an empirical study that explores adult ESL learners’ goals for improving grammar in their writing in order to understand their motivations and strategies for improvement. The study describes learners’ goals from an emic perspective based on semi-structured interviews and stimulated recalls. Fifteen learners enrolled in a pre-university intensive English for Academic Purposes program were asked to describe their goals for writing over a two-year period as they progressed to mainstream university courses. Learners were found to be motivated to improve grammar in their writing, but lacked the knowledge and resources to take effective action for improvement. Some learners had unrealistic expectations about their potential competence in using more sophisticated language. The study suggests that teachers should help learners (a) raise their awareness of achievable and unachievable goals, (b) identify the origins of their learning difficulties in grammar, and (c) select appropriate contexts for learning academic language.

03.01.02 • LITERACY AND COMPUTER-ASSISTED INSTRUCTION: DISCOVERING A NEW FORM OF PEDAGOGY.

Kristen Hodge, Department of Education, Cameron University, Lawton, OK.

As the use of the internet and computer software for learning purposes infiltrates our society, it is evident that as teachers we are compelled to find ways to utilize this resource in teaching and learning. One such debate is the use of computer-assisted instruction in the teaching of literacy. Students today are considered efficient information analyzers, decoders, evaluators and synthesizers. More and more, teachers are highlighting the abilities, and not the disabilities, of students by encouraging them to use the web in self-directed learning. Through the use of the internet, students can extend their thinking and achieve multiple objectives. Coupled with a reading skills program such as Accelerated Reader, Reading Counts! or FastForWord, computer-assisted literacy instruction promotes differentiated instruction for students of all ability levels. Additional uses of computer-assisted instruction include using e-books for students who are gifted and talented. E-books allow the use of alternative formats, scaffolds, and supports that are conducive to encouraging higher-order thinking skills in gifted readers. Although the use of computer-assistance for literacy instruction is challenging for some teachers to grasp, research indicates that students who are able to use the world-wide web and/or software to enhance their learning are improving their achievement scores and developing self-esteem along the way.

03.01.07 • ENGAGING ONLINE EXPERIENCES: CAPTIVATE E-LEARNING INSTRUCTION FOR ESL LEARNERS.

1 A. Johari, 1 Robyn D. Edmonds, 2 Lloyd Dawe, 1 Multimedia Design, Cameron University, Lawton, OK. 2 Psychology, University of South Carolina Aiken, South Carolina.

This presentation will report on the status of research on learning computer skills via Captivate (a Flash movie) procedural instructions with particular emphasis placed on learners for whom English is a Second Language (ESL).

Text-only or printed screens instructional procedures do not provide all of the instructional help required to accomplish tasks. Further, they cannot provide a real and engaging learning experience. Effects of such traditional instructions are often more negative on ESL learners. In contrast, Captivate (™) — a newly Macro media software that automatically records all REAL actions by creating interactive Flash instructional movies that are extremely rich in detail and completeness — provides engaging learning environments from which all learners may benefit.

Recent research has shown beneficial effects of captive instruction, but this research has been limited to engage English speaking learners. The following study explores the extent to which similar positive effects of captive instructions apply to ESL learners.

03.01.08 • UNDERSTANDING MINORITY STUDENTS’ IDENTITY AND MOTIVATION FOR ACADEMIC SUCCESS: CURRICULUM IMPLICATIONS.

Marco Columbus, Tanisha Billingslea, Education, Cameron University, Lawton, OK.

Previous research has shown that there are various forms of African American student identities and that those identities are related to the students’ academic achievement. Ogbu(1992; Fordham and Ogbu, 1986) described two African American identities, oppositional and race-
less. Oppositional students’ identities lead them to resist compliance with school goals and expectations because they represent those of the dominant culture. As a result, their academic achievement tends to be poor. Students with a raceless identity tend to oppose symbols and behaviors associated with African American culture, preferring a more ethnic/race neutral, identity. Raceless students typically perform more successfully in school. More recently, research has revealed students with a primary cultural identity, one in which students have a strong identification with their African American heritage and who view their success as a benefit to all African Americans (Sellers et al., 1997; Taylor et al., 1994; Columbus, 2000). If we are to help all students achieve academic success, including those identified as oppositional, we must find meaningful ways to connect with all students helping them develop an intrinsic motivation for academic achievement. A service learning curriculum geared towards motivating students with an oppositional identity to increase their academic performance is presented as one option to help educators to be more affective in working with this group of students.

**Education**

Gerontology – 3.02

**03.02.01 DOES GRANDPARENT DIVORCE AFFECT THE GRANDPARENT-GRANDCHILD RELATIONSHIP?**

Glee Bertram, HES, University of Central Oklahoma, Edmond, OK.

The grandparent grandchild relationship has the potential to be one of life’s most enduring and endearing relationships. One question that has received little attention is what happens to the grandparent grandchild relationship if the grandparents are no longer married but divorced? Will grandparents still play a vital role in the lives of their grandchildren? The purpose of this study was to examine differences in relationships between ever divorced and never divorced grandparents and their grandchildren. Survey data were collected from 101 grandparents. Statistical testing indicated that ever divorced grandmothers had significantly higher relationship quality with grandchildren than did ever divorced grandfathers. The saliency of the grandparent grandchild relationship was not related to divorce in the grandparent generation in this study. Likewise divorced grandparents were not found to have less shared activities or less contact with their target grandchild in this study of central Oklahoma grandparents. When the parent grandparent bond remained strong so did the grandparent grandchild relationship. The study implied that grandparental divorces can have an impact on family stability.

**03.02.02 DEVELOPMENT OF RESOURCES TO ADDRESS THE NEEDS OF ELDERLY AT NUTRITIONAL RISK PARTICIPATING IN A OKLAHOMA HOME DELIVERED MEAL PROGRAM.**

Tawni Holmes, Doug Reed, Human Environmental Sciences/OCTED, University of Central Oklahoma, Edmond, OK.

The purpose of this project was to determine the area(s) of greatest nutritional need among the homebound participants in Oklahoma county in the Oklahoma Home Delivered Meal program. Data were collected from an existing database of elderly in the Oklahoma Aging Agency Inc. nutrition program system who had completed the Determine Your Nutritional Health checklist between 2002-2005. Data analysis revealed several identifiers that allowed the identification of the target population at greatest nutritional risk among the sample and their three most frequently indicated areas of need. Follow up with individuals in the target population will be provided based on training and a resource packet developed for individuals working with this group. The packet contents will include, but are not limited to, guidelines for follow-up, resource and referral information, and suggestions for education specific to this area of need.

**Human Environmental Sciences – 3.03**

**03.03.01 COMPARISON OF AIRBORNE FUNGI SAMPLING METHODS IN RELATION TO TIME OF DAY AND GENERA.**

Rebekah Ritchie, Charles Biles, Marcos Souza, Michael Rosson, Terry Cluck, Biology, East Central University, Ada, OK.

Indoor mold (fungi) has become an increasing concern in regard to human health and building degradation. The methods of sampling for airborne fungi often give variable results. The first year (2006) of sampling was one of record low moisture (drought). In contrast, the second year of experimentation (2007) was a year of record high moisture. Two techniques were utilized to compare indoor and outdoor airborne fungal populations; a passive settling plate technique in which media plates were exposed to the air for 60 minutes and a modified single sieve plate technique in which 75 L of air was pumped over a media plate within a 3 minute period. Each technique was performed 3 times a day over a 3 week period in the summers of 2006 and 2007. Two common airborne fungal genera, Cladosporium and Epicoccum, were identified and quantified. Results indicated higher outdoor fungal counts than indoor counts in 2006 and 2007. In the 2006 and 2007 in-
door counts, there was no significant difference among morning, noon, and evening fungal counts. In 2006, the outdoor morning fungal counts were lower than the noon and evening fungal counts when all sampling days were combined. In 2007, the rainy year, no significant difference was observed among the outdoor morning, noon and evening sampling times. Cladosporium was the predominant genus observed in indoor and outdoor samples and found in higher number in the modified sieve plate technique.

03.03.02 SOCIAL WORK STUDENTS UNDERSTANDING OF SOCIAL PROBLEMS.
Darla Blakenship, Amy Yarbrough, David McKenzie, Kiley Azlin, Melissa Perry, Social Work, East Central University, Ada, OK.

The purpose of this study is to assess how informed social work students are about the more significant social problems professional encounter. A content analysis of the major social work journals will be performed to identify the major social problems in the profession. This will be compared to a student survey ranking the major social problems. The study hypothesis is that upper level students will be more informed than lower level students of social problems.

03.03.03 PERCEIVED CAREGIVER STRESS AND COMMUNITY CENTER INVOLVEMENT.
Mary Holmes, Evie Muilenberg-Trevino, Center for Applied Research for Non-Profit Organizations, University of Oklahoma-Schusterman Center, Tulsa, OK.

Caregivers for individuals with physical challenges often experience stress related to care giving duties, which may eventually affect quality of life for caregivers as well as impact the quality of care they are able to provide. Communities can provide support for individuals with physical challenges through community-based programs and services. This study examines the potential impact of involvement in a community center that offers programs and recreational activities for physically challenged individuals on perceived caregiver stress. A sample population of caregivers for physically challenged individuals involved in one such community center was surveyed to assess caregiver perceptions of their burden and stress. From the data gathered, a simple t-test was performed comparing perceived levels of caregiver stress both before and after center involvement, revealing that caregivers reported lower levels of stress after they and the individuals for whom they care became involved in the center than perceived levels of stress before involvement in the center. The results of this study suggest that involvement in community centers providing support for physically challenged individuals may indirectly alleviate perceived levels of stress in caregivers.

03.03.04 MP3 PLAYERS AND NOISE INDUCED HEARING LOSS.
Jeremiah Rice, Chris Moyer, Sherrill Sweet, Sylvia Wilson, Information Systems & Technology, Northeastern State University, Tahlequah, OK.

The purpose of this research was to assess the sound intensity from MP3 players in the Northeastern State University student population that may lead to Noise Induced Hearing Loss. The information obtained from students wearing the MP3 devices on campus included gender, type of device, ear piece type, amount of daily usage and genre of music. Noise levels were measured with a Metrosonics db-3070 Noise Monitor. Four sound level intensities were collected from each participant: a five and a ten second time weighted average, and a five and ten second peak intensity. Noise levels were measured at the volume each student was currently using. Results showed that the type of earpiece and genre of music listened to were the most significant factors in sound intensity. The research indicates that most participants were exposing themselves to potentially harmful sound intensity levels and were unaware of the cumulative effects of this risky behavior.

Kinesiology, Health Studies & Special Services – 3.04

03.04.01 HEALTH EDUCATION IN A MEXICO BORDER COMMUNITY: MAKING THE CASE FOR QUALITATIVE RESEARCH.
C. Diane Rudebock, J. Sunshine Cowan, Kinesiology & Health Studies, University of Central Oklahoma, Edmond, OK.

Medical and construction mission trips to Rio Bravo, Mexico are routinely undertaken through Volunteers in Mission (VIM). Beginning in the summer of 2006, Community Health faculty led students through a health education intervention, educating local residents on the importance of diabetes and hypertension prevention as well as oral and hand hygiene. During the pilot phase of this project, it was determined that quantitative pre- and post-testing was ineffective due to low literacy levels as well as the desire to provide socially acceptable answers when questions were asked aloud. Furthermore, due to cultural issues regarding time as well as appointments for clinic, it was seldom that classes began and ended with the same participants. This year, the faculty-led team asked a series of qualitative pre- and post-test questions as a measure of knowledge. Participation by class members in this way provided the team with a clearer understanding of the knowledge needs prior to teaching (where educators could dispel myths), and also provided insight into
what material was retained by those individuals who were present for the educational classes. By collecting data during this second year of expansion, VIM and the UCO Community Health program can learn how to better serve the residents of Rio Bravo and other border communities. Such information may enable better care and increased prevention in the future among border populations with health disparities.

03.04.03 THE EFFECTS OF INCREASED PHYSICAL EXERCISE ON BODY MASS INDEX IN ELEMENTARY SCHOOL-AGED CHILDREN.

1 David Dube, PA, MS, 1 C. Diane Rudebock, Ed.D., R.N., 2 Glee Bertram, Ph.D., 3 Cynthia Murray, Ph.D., 1 Kinesiology and Health Studies, University of Central Oklahoma, Edmond, OK. 2 Human Environmental Sciences, University of Central Oklahoma, Edmond, OK. 3 Mathematics and Statistics, University of Central Oklahoma, Edmond, OK.

Scope and Method of Study: This study was designed to compare the impact that increased physical activity had on school-aged children’s body mass index (BMI) to the BMI of those who received nutritional education only. The focus of this study was obese children and children at risk for obesity in K-5th grades. The intervention group consisted of 121 eligible school-aged children involved in increased physical activity. The control group consisted of 183 eligible school-aged children involved in weekly nutrition education only. The intervention group and the control group were located at separate schools in a large metropolitan area. Requirements were that participants be enrolled in grades K-5, age range of 5-11 years, and attend the same elementary school during the 2005 through 2006 school year.

Findings and Conclusions: A significant difference was observed in the pre and post data collected from the two groups during the 24-week study between schools for the mean BMI differences (post BMI-pre-BMI) in the 2nd, 3rd, and 5th grades. The mean BMI difference was significantly less than that of the intervention group only in the 3rd grade control group. The mean BMI difference for the 3rd graders of the intervention group was the largest (1.39). The largest range of differences (-2.61 to 5.56) was in the 4th grade of the intervention group. The findings of this study indicate that increased physical activity has a positive impact on BMI for school-aged children.

03.04.04 ACL RECONSTRUCTION REHABILITATION PROGRAM.

Lauren Kaufman, Athletic Training, Southwestern Oklahoma State University, Weatherford, OK.

The major emphasis was to follow a 20 year-old patient as he went through the various phases of rehabilitation. The patient was in the post operative phase for reconstruction of the Anterior Cruciate Ligament in his left knee. The mechanism of injury for the individual was turning the body while his foot was planted during a game of recreational basketball. The patient had no previous history of injuries in the left knee. A patellar tendon graft was used for the surgery. Using this graft, the middle third of the patellar tendon is used to reconstruct a new ACL.

Prior to starting a formal physical therapy program the patient was given instructions for home exercises. A protocol was set by the surgeon as an outline to follow in the progression of the patient through each phase. His first day of therapy was about two weeks post-op. The patient had his progress documented daily during his therapy sessions, which he attended three times a week. Goals for each phase were set by the clinician and discussed with the patient.

A biodex test was used during the third phase of the rehabilitation program to gage the patient’s progress and help determine the strength of the patient’s quadricep and hamstring muscles. Once the patient had an overall strength of 85% or above compared bilaterally the patient was released. Upon being released the conditions stated that when playing sports or doing physical activity the patient must wear his functional brace.
03.04.05  EXPLORING THE IMPACT OF EXERCISE ON MOOD STATES IN OLDER ADULTS.
Teri Lake, Kinesiology and Health Studies, University of Central Oklahoma, Edmond, OK.
The purpose of this study was to explore the impact of exercise on mood states in older adults. Participants (n=19) included eleven females and eight males over the age of 60 years. Each participant completed a 12-week group exercise program consisting of three 60-minute sessions per week. The exercise sessions included warm-up, balance training, strengthening exercises, flexibility training, and a cool-down. The Visual Analog Mood Scales (VAMS), an 8-item mood assessment tool, was administered prior to and following the 12-week program. The scales measured mood based on how the participants felt at the time of testing. The moods assessed included tired, afraid, confidence, sad, energy, happy, angry, and tense. Dependent t-tests were used to analyze the changes over time in each of the eight mood states (α=.01). The results indicate that there were no statistical differences in any mood state. Due to the small number of participants in this study, effect sizes were calculated for each mood state. Moderate effects were observed in four mood state scales, confused, tense, tired, and happy. Participants scored lower at post-testing on the confused (d=-0.46), tense (d=-0.41), and tired (d=-0.58) mood scales, while scoring higher on the happy (d=0.39) scale. These preliminary results indicate that an exercise program for seniors may improve certain mood states. Further study is needed with various types of exercise programs and a larger number of participants.

03.04.06  THE EFFECT OF PHYSICAL ACTIVITY ON SOCIAL FUNCTIONING OF WOMEN.
Maggie Zerger, Kristen Shurtz, Kinesiology and Health Studies, University of Central Oklahoma, Edmond, OK.
Physical activity has been positively associated with changes in social functioning. The purpose of this study was to gain a greater understanding of how physical activity affects social functioning. Subjects were volunteers from the United States Paralympic Men’s and Women’s Sitting Volleyball team (n=16:8 men, 8 women). Participants performed three swings at a volleyball set to them set distances from the net. Each trial was filmed and later analyzed through Dartfish TeamPro 4.5.2 software. Joint angles and ball net. Each trial was filmed and later analyzed through Dartfish TeamPro 4.5.2 software. Joint angles and ball height was calculated with the software from each distance. The data for men and women was entered and analyzed separately through a paired-sample T-test in SPSS 13.0. Men had a significant difference in shoulder and hip angles from the 100cm to the 300cm mark (p=.006). Women displayed a trend in differences in hip angle from the 100cm to 300cm (p=.092) and 200cm to 300cm mark (p=.068). Women in this study were able to successfully place the ball in the court significantly better than the male subjects (p=.003). This could be attributed to the experience level of the female and males sitting players who participated in this study. This study suggests that a difference in joint angles could affect success in the attack hit in sitting volleyball.

Professional Teacher Education – 3.05

03.05.01  MEDICATIONS AND THEIR SIDE EFFECTS: WHAT EVERY TEACHER SHOULD KNOW.
Donna Kearns, Special Services, University of Central Oklahoma, Edmond, OK.
The number of students taking medications has continued to increase over the past few years. Professionals in the schools are expected to have some knowledge of those medications and their side-effects as well as their legal responsibilities for administration of medications. This presentation will provide information for school
personnel on some of the more common medications used by children in schools today for issues including ADHD, asthma, cancer, depression, seizure disorders, etc.

### 03.05.02 ATTRITION RATES OF TEACHERS PREPARED THROUGH TRADITIONAL AND ALTERNATIVE PATHWAYS.

Bill Osborne, Education, East Central University, Ada, OK. This presentation examines attrition rates at the end of the initial year of teaching for groups consisting of alternatively certified and educators prepared through teacher education programs. The data reflects the period of 2002 through 2006. Comparative data reflect employment records for the period and notes those who successfully completed their initial year of employment, those who must complete a second year of licensure instead of receiving approval for a standard teaching certificate, and includes records of those who quit the profession during their initial year. The data for attrition rates were collected through annual surveys sent to deans of education at institutions of higher education in Oklahoma who direct Resident Year Teacher Assistance programs and establish committees to fulfill Oklahoma statutes that require all first-year teachers to serve an induction year under the guidance of a committee consisting of a mentor teacher from the district in which the teacher is employed, an administrator from the teacher’s home district, and a representative from an institution of higher education.

### 03.05.03 DEVELOPING INQUIRY BASED SKILLS - YEAR TWO.

April Adams, 1 Monica Macklin, 1 Renée Cambiano, 2 Natural Sciences, Northeastern State University, Tahlequah, OK. 2 Educational Foundations and Leadership, Northeastern State University, Tahlequah, OK.

This National Science Foundation funded research project is investigating the effect of a reformed inquiry-based science content course on Northeastern State University prepared elementary teachers. During the second year of the project, an observational rubric was developed. This observational rubric can be used to document teacher actions during inquiry based instruction. This empirically developed instrument is based on the essential features of inquiry and the review of video taped inquiry lessons in 1st through 9th grade classrooms. The Analysis of Inquiry Rubric will be presented as well as the categories of the documented observations. These categories may inform teacher preparation and the professional development of teachers.

### 03.05.04 TRANSFORMATIONAL BEREAVEMENT PEDAGOGY IN CYBERSPACE: STUDENTS BREATHING LIFE INTO GRIEF.

Angela Knight, Gabriel Rupp, James Stafford, James Hultman, Sandy Jenkins, Funeral Services/Psychology, University of Central Oklahoma, Edmond, OK.

Transformational or transformative learning is an emerging approach in current education praxis and research (McGonigal 2005; Fulmerfelt 2007; Portnow et al. 2007). Based in part on Paulo Freire’s critical pedagogy (Beach 2005), transformational learning researchers are finding that electronic pedagogy provides promising sites for extension of education beyond the confines of the traditional classroom (Pearson 2006). In light of this emerging intersection between transformational learning and electronic educational techniques, we are integrating transformative learning practices into bereavement /grief education at the University of Central Oklahoma. Specifically students enrolled in a bereavement class are creating a MySpace page where they employ a variety of media, from sound, to text, to static and moving images. Reflecting transformational pedagogy’s emphasis on student-defined and initiated learning practices, we gave the students deliberately open-ended instructions to create a page that either demonstrated/reflected grief generally or grief as they had experienced it in their own lives. At present, initial results have exceeded expectations, as students’ MySpace pages exhibit complex interplays of multimedia presentations, sophisticated representations of abstract psychosocial bereavement factors, and increasingly more detailed and thoughtful textual analyses.

### 03.05.05 AN EMPIRICAL EXAMINATION OF SELF-EFFICACY BETWEEN ELEMENTARY AND SECONDARY EDUCATORS.

Lynn Arnn, Education, Cameron University, Lawton, OK.

Teacher self-efficacy has been defined as teachers’ beliefs that even difficult and unmotivated students are able to learn and can be taught (Guskey & Pessaro, 1994). Teachers who are more efficacious about their abilities to complete tasks needed for effective teaching are more likely to use effective teaching skills, have more harmonious relationships with their students than teachers who have low self-efficacy for teaching (Ashton & Webb, 1986), and to exhibit affirmative behaviors that strengthen student self-efficacy and increase student learning (Pajares, 2002). Soodak & Poldell (1997) found secondary teachers felt less efficacious in general than elementary teachers. A study examined the effect of participation in an ongoing professional development program for teachers on efficacy for classroom management, student engagement, and instructional strategies. Responses revealed secondary teachers felt significantly more efficacious
only for instructional strategies when compared with elementary teachers. No significant difference in efficacy between the two groups was found for classroom management or student engagement. Further exploration could lead to better professional development on instructional strategies to raise elementary teachers' efficacy.

03.05.06 AN INVESTIGATION OF SCHOOL CLIMATE, MATH, READING, AND API SCORES: COMPARING OKLAHOMA A+ SCHOOLS WITH SAME-DISTRICT NON-A+ SCHOOLS.

1 Bryan Duke, 1 Diane Jackson, 2 Barry Nancy, 3 Charlene Dell, 3 Mike Raiber, 1 Professional Teacher Education, University of Central Oklahoma, Edmond, OK. 2 Curriculum and Teaching, Auburn University, Alabama. 3 Music Education, University of Oklahoma, Norman.

Oklahoma A+ Schools® is a school reform initiative seeking to promote the quality of education provided to students throughout the state of Oklahoma. This initiative utilizes the Eight Essentials of A+™: curriculum, multiple intelligences, collaboration, enriched assessment, experiential learning, infrastructure, school climate, and the arts. This longitudinal study, based on four years of data, (1) compares Oklahoma A+ schools’ math, reading, and Oklahoma Academic Performance Index scores with same-district, non-A+ schools’ scores, (2) specifically compares said scores between free/reduced lunch students at these respective sites, and (3) provides quantitative and qualitative data evidencing student and faculty reports of improved climate in schools engaged in the A+ process.

Psychology – 3.06

03.06.01 ARE INTERACTIVE VIDEO GAMES MORE AROUSING THAN PASSIVE OBSERVATION?.

Miles Johnson, Mary Lawless, Nolan Lawless, Paul Stermer, Shalisa McCarter, Department of Psychology, Southwestern Oklahoma State University, Weatherford, OK.

It is well documented that playing video games is associated with increased aggression and decreased prosocial behavior (Anderson et al., 2002). Numerous investigators have proposed that exposure to violence and the depictions of minority members in video games is especially dangerous because the increased interactive nature of video games may lead to a greater level of identification with the actions and attitudes portrayed in the game relative to more passive media such as TV and magazines (e.g., Shin, 2004). However, this assumption has not been formally evaluated. In the present study, we examined the physical and cognitive arousal levels associated with playing video games relative to viewing the video game content in a viewer only (TV) format. The content of the presentation was varied to include violent and non-violent game content. 124 undergraduates completed the study. We found no evidence for a greater arousal effect for playing a video game versus watching the same content. Future research needs to generalize these results to younger players and to examine the effect of greater exposure to video games.

03.06.02 SEE JANE FIGHT: VIDEO GAMES ARE DETRIMENTAL TO WOMEN’S SELF-PERCEPTIONS.

Paul Stermer, Georgia Miller, Kelanie Jones, Kelly Groves, Miles Johnson, Natalie James, Psychology, Southwestern Oklahoma State University, Weatherford, OK.

As video games become more popular, there is a corresponding rise in concerns about the portrayal of women within the games. Dietz (1998) found that when women were present, they were typically portrayed as one of two types: the classic, beautiful maiden needing rescue from some male or the evil, albeit highly sexualized, antagonist. Beasley & Standley (2002) found that in spite of the significant underrepresentation of female characters on the whole, they were 6 times more likely to have a low-cut neckline and 41% of those women whose busts could be seen were characterized as voluptuous. It has largely been assumed that these negative portrayals have negative effects on women. Work by Adams, Garcia, Purdie-Vaughns and Steele (2006) has demonstrated that even the mere hint of sexism can negatively impact both women’s perceptions of an academic setting and their own performance within that setting. We explicitly tested whether the negative portrayal of women in video games is detrimental to women’s attitudes and perceptions. 31 women played video games that varied in their portrayal of women as sexualized figures. Participants completed tasks designed to assess the activation of sexist/demeaning attitudes towards women; a measure objectification; and a measure of self-objectification. The most compelling results were that women did show a non-significant trend to self-objectify themselves more after briefly playing in the “sexy” condition.

03.06.03 CULTURAL DIFFERENCES IN THE PERCEIVED DIRECTION OF GAZE.

1 Julie Sawyer, 2 Roger West, 2 Thomas Salmon, 1 Mathematics & Computer Science, Northeastern State University, Tahlequah, OK. 2 Optometry, Northeastern State University, Tahlequah, OK.

Sixteen Western observers (USA residents with a Western appearance) and 16 Eastern observers (native Japanese) viewed the CRT-imaged heads of a Western and an Eastern gazer from one meter. As the heads gazed at
different locations along a horizontal meter stick just below the observers’ eyes, the observers judged the lateral direction of gaze for right, left, and both eyes. When the gazers’ heads were straight, Western and Eastern observers judged the direction of gaze with fewer differences between right and left eyes when the gazer had the racial appearance that the observers were used to viewing within their own country. When the gazers’ heads were turned, Western and Eastern observers judged the gaze of the Western gazer similarly, but both showed large differences in the perceived direction of gaze between right and left eyes for the Eastern gazer. Perhaps the eyes of an Eastern gazer with a turned head are more difficult to judge than with a straight head, but Eastern observers have little advantage over Western observers because eye contact with a turned head is more rarely seen.

03.06.04 EFFECTS OF CONTRAST ON RESPONSES TO SUBLIMINAL STIMULI DURING DRIVING SIMULATIONS.
Robert D. Mather, Patricia R. DeLucia, Psychology, University of Central Oklahoma, Edmond, OK.
Ethnic minorities are overrepresented in pedestrian-vehicle collisions (U.S. DOT, 1999). Is this due to drivers’ racial attitudes or to the contrast of a pedestrian’s skin color against the background? Participants viewed computer simulations of self-motion along a road. At an unpredictable time, a stimulus consisting of a person (White or Black race) or square control (white or black hue) was presented subliminally, followed by an obstacle. Contrast between stimulus and background varied. The participants pressed a button as soon as they saw the obstacle. Response time was measured. Although our person stimuli had been used previously to demonstrate effects of racial attitudes on performance in weapon identification tasks (Greenwald et al., 2003), such effects did not occur here. We obtained significant effects of stimulus contrast even though the stimuli were subliminal. The results have implications for the design of traffic safety aids and for previous studies that have reported effects of racial attitudes without controlling for contrast.

03.06.05 PREDICTING ATTITUDES TOWARD A SOCIAL INTERACTION USING THE INTERPERSONAL EXPECTANCY SCALE.
Robert D. Mather, Clayton McFarlane, Jamie L. Gill, Psychology, University of Central Oklahoma, Edmond, OK.
The current study examined the discriminant validity of the Interpersonal Expectancy Scale (IES; Mather et al., 2004). Participants (n = 80) watched a short video of a teacher giving a lecture and subsequently completed various measures of their attitudes toward the teacher, toward the audience, and toward the interaction between the teacher and audience. Several expected results were found. First, the IES predicted participants’ attitudes toward the interactions, but not toward the speaker or the audience, while the Future Events Scale (FES; Andersen, 1990) and the Motivation to Avoid Negative Interpersonal Biases Scale (MANIB; Naylor et al., 2006) did not. Second, the IES predicted participants’ ratings of positive (but not negative) aspects of the interaction, while the FES and IES did not. Third, both the IES and FES predicted the participants’ ratings of the teacher’s abilities and performance. These results suggest that the IES is a useful tool for predicting people’s construal of social interactions, which has implications for research on the social inference process.

03.06.06 SCHOOL-BASED METHODS TO COMBAT “CULTURE” LEARNING DISABILITIES.
Megan Bryan, Karen Farmer, Psychology, University of Central Oklahoma, Edmond, OK.
A research review was conducted to explore various school-based methods used to combat “cultural” learning disabilities. We investigated the effects of implementing instructional communication, differentiation, consultation teams, and the use of cooperative learning and class wide peer tutoring on the number of minority students referred for special services. The studies concluded when adjustments and accommodations were made in the school or in the classroom, and when competency of diversity was acknowledged, minority students improved academically reducing their recommendation for placement in special education classes. Our research extended to evaluating theory-based models for developing culturally competent schools by encouraging the staff to become collaborative partners in valuing diversity. This has to be established in order to accomplish cultural sensitivity enabling the staff to be more apt to have relationship that will enhance student learning and reduce overrepresentation of minorities in special services.

03.06.07 DO WE HAVE AN AUTOMATIC SOCIAL BIAS TOWARD NON-MUSLIMS?
Jessica Palos, Education, University of Central Oklahoma, Edmond, OK.
UCO undergraduates General Psychology completed the Go/No-go Association Task (GNAT) on a standard computer keyboard and monitor. The GNAT is a puritative measure of the ease of implicit associations. Participants responded to briefly presented words and pictures and rapidly categorized them into “GOOD” versus “BAD.” In the first block of trials, participants were to press the spacebar (go) when they saw a Muslim or a word with a positive meaning. The second task was opposite the first: to “go” when they saw a non-Muslim
or a word with a negative meaning and to “no-go” if they saw a Muslim or a word with a positive meaning. Muslim persons were more easily associated with the “BAD” than the “GOOD” category as reflected by participants’ “hit” and “false alarm” rates to the pictorial stimuli. Non-Muslim persons were more easily associated with the “GOOD” than the “BAD” category as reflected by participants’ “hit” and “false alarm” rates to the pictorial stimuli. These results support the hypothesis that these participants had an automatic, negative bias toward Muslims.

03.06.08 THE EFFECTS OF PRIMING ON VISUAL ACUITY BASED ON EMPATHY.

Tiffany Price, Alicia Milton, Christa Kelley, Erika Coyle, Jessica Womack, Psychology, University of Central Oklahoma, Edmond, OK.

The objective of this study was to assess the visual acuity of participants after priming them with stimuli of the elderly and testing them on empathy towards the elderly. We used 150 general psychology students (100 female and 50 male) with an average age of 20.8. The participants were randomly assigned to either experimental or control groups for priming on the Go No/Go Association task (Gnat). The experimental group was primed with elderly plus words (good and bad) and the control group was primed with fruit and bugs plus words. After priming, the participants were evaluated for their visual acuity using the Snellers Illiterate Tumbling E’s Eye Chart. Lastly the participants were administered an empathy questionnaire based on the 5pt likert scale. No significant differences were found between the experimental and control groups for visual acuity or empathy (all Fs

03.06.09 TRANSFORMATIONAL MENTORING: THE DEVELOPMENT OF A WEB BASED STUDENT JOURNAL.

Jerri Jones, Kelli Vaughn-Blount, Mike Knight, Ph.D., Psychology, University of Central Oklahoma, Edmond, OK.

Kathryn Portnow, et al., 1998, defines transformational learning as “learning that not only increases knowledge but, more importantly, leads to deep and pervasive shifts in the learner’s perspective and understanding” (p.1). Two years ago the University of Central Oklahoma Psychology based research group, Psyence Lab, began an ongoing exploration in to the world of journal publishing. This effort has resulted in the formation of the Journal of Scientific Psychology; a peer reviewed student run academic journal.

The Four Characteristics of Learning Centered Scholarship are mentorship, originality, acceptability, and dissemination. Publishing has allowed for collaborative interactions between students, faculty, professional reviewers and authors. Students are exposed to novel educational experiences including reviewing, editing, and marketing. The adoption of professional APA standards and techniques prepares the participating students for future academic and professional obligations. Ultimately, the student is offered not only the transformational learning experience but also the opportunity to provide and utilize a tangible product and contribution to the larger community.

03.06.10 ASSESSING COLLEGE STUDENTS’ KNOWLEDGE OF SOCIAL REJECTION.

Jessica Hacket, Mary Dzindolet, Shanda Thompson, Psychology and Human Ecology, Cameron University, Lawton, OK.

Baumeister and his colleagues have found that social rejection leads the rejected target to restore social bonds, reduce self-control, and experience decreased sensitivity. Using the survey method, the researchers examined the extent to which college students are aware of the effects of social rejection. One hundred sixty students read one of six scenarios in which a target (“you” or “Cameron University student”) was rejected in one of three ways (personality test indicated the target will be alone later in life, feedback that no one in a group wanted to work with the target, or a potential employer left the room after viewing the target’s interview tape) and indicated the rejected target’s likely responses. In addition, participants completed several personality tests. Results indicated that students were unaware of the effects of social rejection, and that individual differences did not affect knowledge. Interventions to offset the damaging effects of this ignorance are suggested for further investigation.

03.06.11 DISRUPTIVE BEHAVIOR DISORDERS: AN OVERVIEW OF ODD, CONDUCT DISORDER, AND ANTISOCIAL PERSONALITY DISORDER.

Shannon Evans, Psychology, Northeastern State University, Tahlequah, OK.

The purpose of this non-empirical presentation is to describe symptoms, diagnosis, statistical findings, and common treatments for Oppositional Defiant Disorder, Conduct Disorder and Antisocial Personality Disorder. The poster focuses on DSM-IV diagnosis parameters, age of onset, prevalence, co-morbidity, gender differences, and prognosis. An overview of each disorder is listed in order of severity.

03.06.12 WHAT DO WOMEN WANT? WOMEN’S ATTITUDES ABOUT BODY SIZE.

Melissa Hall, Crista Pollard, Melinda Burgess, Ronna Ward, Psychology, Southwestern Oklahoma State University, Weatherford, OK.

The research on body image has consistently demon-
strained that women are distressed about their own body size/shape following media exposure to the “curvaceous thin” ideal and that this distress is a contributing factor in the development of eating disorders. However, in recent years there has been more awareness and education regarding the distortion of media images aimed at young girls. The purpose of this study was to assess what college aged women think about various media images. Women were exposed to one of four sets of models (anorexic, curvaceous thin, the Dove campaign for Beauty or Plus size models) and rated each model in terms of attractiveness, how much they would like to look like that, what they believed the model did to achieve that particular look, and what they would be willing to do to achieve that particular look. Results will be discussed in relation to body image and disordered behavior.

03.06.13 THE INFLUENCE OF VIDEO GAMES ON DESIRED BODY SHAPE.
Georgia Miller, Debbie Colston, Kari Watkins, Kelly Groves, Melinda Burgess, Rachel Rowe, Whitney Kister, Whitney Kister, Psychology, Southwestern Oklahoma State University, Weatherford, OK.
A remarkable percentage of people play video games today. Previous research has indicated that games typically portray women in an unrealistic and hypersexualized manner, when they are even present. Given that a significant body of research has demonstrated that these types of portrayals are damaging to both men’s and women’s attitudes towards women, we questioned how playing these games would influence perceptions about women’s bodies. College students either served as no-play controls or played a popular fighting game about women’s bodies. College students either served as no-play controls or played a popular fighting game with a sexualized female character. They then completed a variety of measures assessing their desired body shapes/sizes for themselves and for significant others. Results will be discussed in relation to body image and attitudes towards women and relationships.

03.06.14 PRIMING MOTOR TASK WITH IMAGES OF THE ELDERLY.
Errin Willis, Psychology, University of Central Oklahoma, Edmond, OK.
Nine upper level undergraduate psychology students prepared an experiment for a class project that meets a requirement for graduation. One hundred undergraduate freshman students signed up to participate in the experiment as a class requirement and participation credit. The experiment was conducted in one of the university classrooms. Participants in the experimental group were primed with pictures and words that reminded them of elderly people, and participants in the control were primed with neutral pictures and words to determine by the speed of sorting tasks if there was a significant affect. In both group, each participant sorted three tasks: putting a puzzle together, categorizing marbles by color, and sorting American coins. The group primed with pictures that reminded them of elderly people was expected to be significantly slower than those participants in the control group. The experimental group was significantly slower than the control group.

03.06.15 ATTENTION FOR VISUAL MEMORY WITH AUDITORY DISTRACTIONS IN PEOPLE WITH PAST CONCUSSIONS.
Amanda Ford, Psychology, University of Central Oklahoma, Edmond, OK.
Concussions, also known as mild traumatic brain injury (MTBI), are gaining more widespread attention with increasing evidence of lasting problems after concussions. The current research examined persons with potential Post Concussive Syndrome (PCS) by the use of an Applied Science Laboratories eye tracking system (Model 504). The eye tracker recorded the eye scanning patterns from the Trail Making Test (TMT), Part A and B with auditory distractions intended to limit attention and visual memory. The researcher hypothesized that there would be a difference in TMT scores between the concussed and control group and those differences would be reflected in the experimental group’s scanning patterns. Participants were tested on visual memory using the TMT while recording their visual scanning movements. Participants were randomly assigned to one of three conditions: no noise, a noisy background of instrumental music, or human voice. Results showed that participants who were assigned to silent or voice backgrounds took longest to complete the task. Significant differences were found between the concussed and control group in the number of times observing the stimuli. This difference may be a result of scanning, interference with memory, or concentration problems. Accordingly, it appears that PCS effects can exist beyond the expected symptoms period, and attention and visual memory may be significantly impaired for those with PCS.

03.06.16 VISUAL PERCEPTION OLD-YOUNG.
Gabriel Muse, Psychology, University of Central Oklahoma, Edmond, OK.
Previous research has shown that people tend to associate the elderly as being competent and “cold” or incompetent and “warm”. The purpose of this study was to determine if there is non-cognitive implicit bias towards the elderly. By using the GNAT, we were able to have participants speedily categorize words and pictures into “good” and “bad”. The results suggest that undergraduate freshman are more likely to categorize pictures and words of young and “bad” rather than that
of young and “good” and less likely to categorize words and pictures of old and “bad” as opposed to “old” and “good”.

03.06.17 AN EVALUATION OF THE ZARIT BURDEN INTERVIEW.
Evie Muilenburg-Trevino, Chan Hellman, Human Relations, University of Oklahoma, Tulsa, Tulsa, OK.
Caregiver burden is defined as “the physical, psychological or emotional, social, and financial problems that can be experienced by family members caring for impaired older adults” (George & Gwyther, 1986, p. 253). The Zarit Burden Interview (ZBI) (Zarit, Reever & Bach-Peterson, 1980) is a 22-item self-report instrument that assesses caregiver burden. Empirical literature indicates a discrepancy exists as to the dimensionality of the measure. The purpose of the present study was to examine the structure components of the ZBI by computing principle components analysis and parallel analysis. Parallel analysis supports a two component structure; however, dual loadings remain regardless of rotation. Until these psychometric issues are resolved, caution is warranted in the use of this measure.

03.06.18 THE NATURE OF NATURE: PREFERENCES AND PERCEPTIONS OF NATURAL EXPERIENCES.
Deanna Langham, Brandt Ratcliff, Jill Devenport, Psychology, University of Central Oklahoma, Edmond, OK.
Despite reported universal preferences for natural scenes and environments, there is substantial individual variability in experiences and activities associated with nature and in behavior and commitment to preserving the natural environment. In order to understand this discrepancy, we surveyed college students about their preferences for natural and non-natural environments, the importance of nature in their daily lives, the extent of their nature experiences, and how restored and connected to nature they felt. Participants were randomly assigned to one of two groups, which viewed a slide show of either nature or urban scenes, following a cognitively demanding visual recognition task. We administered the PANAS mood scale before and after the slide show to measure whether exposure to the nature slides would counteract the cognitive fatigue of the task. Participants in both groups showed a decrease in negative mood following the slide shows but those who viewed nature scenes showed a significantly greater decline than those who viewed urban scenes. Further examination of the data indicated that there was variability in preferences and familiarity with natural environments. Those with higher preference scores had more knowledge, experience, and time spent in natural settings. These data confirm that even a brief exposure to natural settings has restorative effects and that several variables contribute to nature preferences.

03.06.19 IMPLICIT ASSOCIATIONS AND OUTGROUP STEREOTYPES.
Sheilah Davis, Evie Muilenburg-Trevino, Jeanette Muilenburg, Human Relations, University of Oklahoma, Tulsa, Tulsa, OK.
We investigated implicit associations and outgroup stereotypes. The three primary questions were (1) What types of biases and stereotypes are held about homosexuals? (2) Is right-wing authoritarianism and Openness to Experience related to specific stereotypes or bias intensity as measured by the Implicit Association Test (IAT)? (3) What is the relationship between scores on the IAT and the specific stereotypes of individuals? The sample was 31 graduate students at the University of Central Oklahoma. The participants completed the following instruments: the Implicit Association Test, the Image Survey, the Big Five Personality Inventory (BFI), the Right-Wing Authoritarianism scale, and the Balanced Inventory of Desirable Responding (BIDR). Investigators found positive correlations between right-wing authoritarianism, negative implicit biases, and the perceptions of homosexuals as barbarians and dependent persons.

03.06.20 FACTORS RELATED TO NURSE RETENTION.
Sheilah Davis, Evie Muilenburg-Trevino, Jeanette Muilenburg, Human Relations, University of Oklahoma, Tulsa, Tulsa, OK.
Hospitals across the United States are experiencing nursing shortages; undoubtedly, nurses play an important role in the healthcare profession. Because of the importance of nurses, administrators are interested in ways to increase nurse retention. In the present study, nurse attitudes were examined to understand factors that are related to nurse retention. Pearson correlations were computed to examine the relationship between intention to remain, nature of work, perceived organizational support, and communication. Significant correlations exist between intention to remain and all of the variables examined. In the current study, the extent to which nurses have positive evaluations of nature of work, perceived organizational support, and communication, is also related to their intention to remain. These findings have implications to administrators seeking to understand ways to increase nurse retention.

03.06.21 ADVANCES IN THE UNIVERSITY OF CENTRAL OKLAHOMA MENTAL HEALTH SERVICES: A RETROSPECTIVE LOOK AT ON-CAMPUS PSYCHIATRIC SERVICES AND DEPRESSION RATES OF STUDENTS.
Alaa Eddin Obeid, Bruce Lochner, Biology, University of Central Oklahoma, Edmond, OK.
Over the last several years, Student Affairs professionals have noted an increase in the severity of mental
Education

health problems among university students. This study seeks to explore whether or not depression rates among students at the University of Central Oklahoma differ when psychopharmacological treatment is made more readily available to them. To address this question, data from the American College Health Association - National College Health Assessment (ACHA-NCHA) survey will be compared across times that differed with respect to the availability of on-campus psychiatric services. Depression related risk over a 2 year period is estimated from a sample of 1907 participants from the university population. Ages ranged from 18 to 32 years. We evaluated overall depression rates and clinical services utilization across times one and two. The findings of this study might have implications for student health policy.

**03.06.22 THE RELATIONSHIP VIOLENCE BLAME SCALE (RVBS): BLAME DISTRIBUTION AND EXPERIENCES WITH RELATIONSHIP VIOLENCE IN OKLAHOMA.**

Tom Jackson, Cindy Farmer, Kathryn Sanders, Larry Bell, Linda Rubin, Marilon Morgan, Marilyn Guhl, Psychology & Counseling, Northeastern State University, Tahlequah, OK.

It has been empirically documented that up to 50% of all romantic relationships will experience some type of domestic or relationship violence over the tenure of the relationship. One aspect that has shown to have an impact on relationship violence outcomes is blame attribution. Assigning blame for relationship violence has long been known to be multidimensional, with societal, perpetrator and situational factors blamed most, and the victim never held completely blameless. Numerous studies, using relatively dated surveys or measures, sampling both professionals and the lay public have cross-validated these results as well as finding significant gender effects.

The present study utilized the Attribution of Rape Blame Scale and several demographic and experience questions to sample Oklahoma subjects. As a new state sampled, the results provide a relevant comparison group, suitable for inclusion in Oklahoma-specific assessment, treatment, prevention and education programs involving rape. Confirmatory factor analysis provided further support for the multidimensional nature of rape blame in Oklahoma. Further analyses revealed significant direct or indirect experiences of respondents with both rapists and victims. Similarities and differences in Oklahoma respondents’ data versus prior studies are presented.
**COMMUNICATION – 4.01**

**04.01.01 GRANTWRITING ASSISTANCE.**
Linda Mason, Grant Writing and External Funding, Oklahoma State Regents for Higher Education, Oklahoma City, OK.

The poster will provide information available through the Oklahoma State Regents for Higher Education about faculty assistance in seeking and writing grant proposals for Oklahoma Higher Education.

**04.01.02 DEVELOPING HIGHLY INTERACTIVE BASIC IMMIGRATION ENFORCEMENT TRAINING (BIET) FOR LOCAL, STATE AND TRIBAL LAW OFFICERS IN A VIRTUAL OFFICE ENVIRONMENT.**
Donald Aguilar, Brett Looper, David Mendez, Dorothea Kinsman, Jamie Crow, Oluwaseun Bamgbose, Shanti Redwine, Department of Multimedia Design, Cameron University, Lawton, OK.

Professional training development projects in corporate America require extensive research, intensive analysis of data, cognitive and artistic creativity, skill with software, and many hours of labor by a team of designer/developers housed within the same office. When the anticipated product is designed with high interactivity, the project becomes a more complex pursuit.

Six Cameron University interns undertook an advanced e-learning development project intending to spend the summer of 2006 in a highly intensive design and development project within Cameron University’s new Center for Emerging Technologies and Entrepreneurial Studies (CETES) building. A delay in the delivery of government furnished materials (GFI) delayed start of the project until late in the fall 2006 semester. This meant that students could work only four hours per week in CETES and had to work many more hours in various locations in Lawton and surrounding communities.

This poster documents the obstacles posed by the virtual office; the tools and techniques used to overcome those obstacles; a description of the implementation of Gagne’s events of instruction and Clark and Mayer’s e-learning principles; and the innovative combination of two instructional development tools to create an internet-accessible, highly interactive (Level 3) learning environment.

**04.01.03 AUTOBIOGRAPHY AND JOURNALING: MEANING MAKING IN THE STUDY OF MASS MEDIA ISSUES, ETHICS, AND LAW.**

1 Donna Gough, 2 Marsha Matthews, 1 Communication Department, East Central University, Ada, OK. 2 Communication Department, University of Texas at Tyler, Tyler, Texas.

This paper discusses the use of journaling and autobiography as tools to discover personal meaning and encourage critical thinking. Mass communication students are required to take courses, such as issues in mass communication and media law and ethics, which require critical thinking and analysis. Adult learners generally find lecture-only approaches dull and boring. Constructivist learning theory links the knowledge, beliefs and experiences of the student to the construction of knowledge and meaning (Daley, 2001; Lambert et all, 1995). Journaling and autobiography allow students to find touch points from their personal experiences that intersect with issues and concepts covered in mass communication courses. Meaning making is also a dialogic process. Matthews and Gough provide examples of ways in which students and instructors are able to use the journal entries as discussion starters and find personal meaning and connections to the topics studied.

**04.01.04 THE EYES HAVE IT: THE RELATIONSHIP BETWEEN EYE CONTACT, SELF-ESTEEM AND SUCCESSFUL JOB PLACEMENT.**
Julie Penn-White, Amanda Thompson, Michelle Breithaupt, Communication & Theatre, Southeastern Oklahoma State University, Durant, OK.

Vocational rehabilitation specialists are responsible in part for returning individuals to the work force; therefore, this research examined what these experts perceive the relationship to be between eye contact and self-esteem, and their significance to successful job interviews. Results from this study indicate that eighty percent of the vocational rehabilitation specialists surveyed agreed that self-confidence and self-esteem were highly associated with gazing (eye contact). Ninety percent reported that eye contact or lack of eye contact in a job interview would, in fact, determine if a person would or would not be offered the position. These responses indicate that vocational rehabilitation specialists are aware of the correlation between eye contact and self-esteem, and the subsequent impact upon successful job offers. These results further support the notion that what and how individuals communicate with their eyes can have a direct effect upon their success and/or relationships in the work place.

**04.01.05 THE IMPORTANCE OF NONVERBAL COMMUNICATION TO THE MEANING OF MESSAGE.**
Justin Faulkner, Matt Moyer, Communication & Theatre, Southeastern OK State University, Durant, OK.

This study shows the importance of nonverbal communication to the meaning of messages. This study was conducted through surveys at a local regional university in southern Oklahoma. Results from this study in-
dicate that the importance of nonverbal communication depends highly on the person taking it and what kind of educational background they have. Those surveyed from the school of business, teachers and communication put an emphasis on nonverbal communication, while those surveyed in safety courses put little importance on nonverbal communication. Women rate nonverbal communication at 57.8 percent while men rate it at 48.4 percent. This study shows the amount of meaning that has to do with nonverbal communication is 53 percent in comparison to earlier studies which showed 69 percent. Our research proved the results of surveys are dependent on who is taking the survey.

04.01.06 THE TRIALS AND TRIUMPHS OF A HEALTH CAMPAIGN.
Wayne Janoe, Communication & Theatre, Southeastern OK State University, Durant, OK.
Health promotion campaigns are a vital mode of communication which provide a vehicle for keeping the society safe and healthy. This health promotion campaign includes efforts to influence large numbers of people to engage in health-promoting behaviors. The purpose of this campaign is to educate college students about fitness and life choices and the implications of these choices. This campaign provided information to college students on various elements of unhealthy lifestyles, especially obesity. This analysis of a characteristic health communication focuses on real-life lessons in carrying out a campaign on a small college campus. To surpass the barrier of delivering a message where people have “heard it all before,” this study was presented in a new, fresh manner that originated from peers. This advertising and marketing program was extensive utilizing campus media outlets and various campus organizations. The goal of this campaign was to be an agent of change. While largely successful, the campaign featured shortcomings. Additional exploratory research is recommended to examine the suitability of the communication approach before developing full-scale campaigns.

04.01.07 HEALTH COMMUNICATION CRUCIAL TO MEDICAL MISSION.
Erin Sloan, Michael Wallace, Communication & Theatre, Southeastern OK State University, Durant, OK.
Medical Missions provides free medical services to low socio-economic patients who lack insurance and the financial means to obtain medical care. This study shows the increasing number of people who lack health insurance and do not receive governmental assistance. This study was designed to examine how Medical Missions influences health communication. Research was conducted in a volunteer capacity. The medical staff was professional and friendly, providing patients a sense of comfort from the moment they entered the door. This research proved that most of the people who see the medical staff at Medical Missions were of low socio-economic status. Patient response to a more relaxing and informal environmental was a sense of comfort and even laughter. This study shows a direct result of good communication between volunteering staff, when working with each other and while assisting patients. This research demonstrates the importance of health communication.

04.01.08 ADVERSE ADVERTISING.
Chelsea Ryman, Communication & Theatre, Southeastern OK State University, Durant, OK.
An estimated 73 million children under the age of 18 live in the United States. Studies show that watching television is the most popular activity for the majority of these children. The average child watches 27 hours of television a week. Advertising agents view children as an important target of the $894 million spent for general advertisements and the $36 billion spent for food advertisements. Excessive television viewing has been linked to obesity in children. Studies show up to 95 percent of food advertising during the prime of children’s television viewing time is fatty or surgery foods. This research was conducted in a health class of 25 fifth graders. This study was based on observing the contents of snacks and lunches over a three month period and asking children about eating habits at home. This research shows that fast-food advertisements have an affect on food choices. This research suggests a high correlation between fast-foods and the number of hours spent watching television. Based on the study group, students were not as affected by television advertisements as previous studies show.

04.01.09 EFFECTIVE LEADERSHIP IN SMALL GROUP SETTINGS.
Kendall Adams, Jesse Doyle, Justin Faulkner, Matt Moyer, Summer Magby, Communication & Theatre, Southeastern OK State University, Durant, OK.
Communication scholars identify communication and organization as essentials for effective leadership. This research team conducted a survey of 77 faculty members on campus. Members of the research team compiled information and compared data to previous studies. This research indicates that the leadership qualities deemed important by university faculty are the same leadership skills that general organizations find most important. Research and previous studies agree that communication, professionalism and organization are top leadership qualities. The results of combined studies support the findings that professionalism, communication and organization are vital to the leadership of small groups’ success.
Liberal Arts

04.01.10 VOICE VS. FACE VS. CONTENT.
Josh Cantrell, Chris Jamar, J.T. Proffer, Communication & Theatre, Southeastern OK State University, Durant, OK.
When in conversation, a listener must take into account all forms of verbal and nonverbal messages, in order to interpret what the speaker is trying to communicate. Previous studies show that facial expressions have the most impact on a listeners’ perception of a speaker’s attitude. Studies have also found that vocal cues have more impact than verbal messages when in conversation. In this study, we set out to determine whether the average adult believes they focus more on vocal cues, facial expressions or the actual content of the message when listening to a speaker. We conducted interviews with random adults, along with conducting a simple survey with straightforward questions about general conversation. Our results show that 60 percent of individuals pay more attention to facial expressions, followed by a vast difference of 25 percent who reported actual verbal messages to be the most influential. Vocal cues were perceived to be significant by 15 percent of the participants. This study supports the notion that facial expression is more influential than verbal content when interpreting messages; conversely, the present research does not support the notion that tone takes precedent over verbal codes.

04.01.11 “PROSPECTIVE STUDENT” WEBPAGES AS ADVERTISING: A THREE UNIVERSITY COMPARISON.
Elizabeth Bragg, Communication, East Central University, Ada, OK.
This comparative study focuses on the use of prospective student webpages as a form of advertising for three selected universities: East Central University in Ada, Oklahoma, Southeastern Oklahoma State University in Durant, Oklahoma and Cameron University in Lawton, Oklahoma. These universities were chosen for their similar sizes and competition between each other. The criteria for comparison include graphics, uniformity, navigability, accessibility and information. Graphics includes the following subcategories: fonts, color, layout and photos of current students, faculty/staff and campus grounds. Through the comparison of the three university’s prospective student webpages, East Central University has six out of eight of the criteria. Southeastern Oklahoma State University has five out of eight. Cameron University has four out of eight.

04.01.12 USING CRITICAL THINKING SKILLS IN FRESHMEN AND SOPHOMORE LEVEL COURSES.
James L. Heflin, Department of Communication, Cameron University, Lawton, OK.
This paper postulates the importance of communication and critical thinking in freshman and sophomore courses. The paper presents a critical thinking schemata for use in these 1000 and 2000 level courses. The paper & poster illustrates the use of the critical thinking schemata in communication courses. The paper also postulates the relevance of communication and critical thinking skill competence for all college students at the freshman and sophomore level.

04.01.14 THE INNOCENT MAN: ADA, OKLAHOMA’S PUBLIC RELATIONS RESPONSE TO JOHN GRISHAM’S BOOK.
Alisa George, Rebecca Gatz, Communication, East Central University, Ada, OK.
The publication of John Grisham’s first non-fiction book The Innocent Man in October 2006 was the talk of the town among the people of Ada, Oklahoma. While based on actual incidents, the townspeople felt that Grisham portrayed facts inaccurately. Through classroom discussions, the public relations class at East Central University studied public relations’ theories and selected image restoration and Fishman’s theory of crisis communication response to apply to the situation. The class completed a content analysis of local and national print media and conducted a survey to gauge the feelings of the townspeople. Overall, while the townspeople had heard of the book, most had not read the book and were unconcerned with the effect it may have upon the town’s reputation. Likewise, the city representatives felt no need to respond to the continuing controversy.

04.01.15 HOUSE OF CARDS: EFFECTS OF LEARNING STYLes ON GROUP OUTCOMES.
Rebecca Rowland, Amity Smith, Communication, Southeastern OK State University, Durant, OK.
In this research, we evaluate the effect of learning styles on group productive. The study focuses on three styles involving persons who prefer reading instructions, viewing pictures, or participating in activities (i.e., kinesics). In previous studies, Drago and Waner describe visual learners as persons who prefer to be provided with demonstrations, aural learners as those who learn by listening, and kinesthetic learners are those who learn by doing. In our research, we divided fourteen students from an communication class into two groups. Group 1 was given written instructions for building a house of cards. The group was given five minutes to read and discuss the instructions with each other. At the end of the five minutes, they were then given ten minutes to construct a three story, triangular card house. Group 2 was not given instructions, only a deck of cards and five minutes to discuss how to construct the house of cards. At the end of the five minutes, they were giving ten
minutes and a picture of a three-story card house as a guide for constructing the house. Group 1 was not able to construct any level of the card house, while group 2 constructed two levels (stories). Group 2 that used kinesics and the visual picture was more successful group 1 with only written instructions. We gave both groups a fourteen question survey over the activity. The questionnaire revealed that 91% of the subjects indicated visual and hands-on is most effective way to learn.

**04.01.17 MEASURING MEDIA USE IN A STUDENT-RUN PUBLIC RELATIONS CAMPAIGN.**

Dana Eversole, Rodney Osborne, Mass Communication, Northeastern State University, Tahlequah, OK.

This study grew out of a capstone campaigns class that was hired as the Public Relations agency to help Court Appointed Special Advocates (CASA) bring a three-

**04.01.16 NON-COMMERCIAL VERSUS ALTERNATIVE NEWS MEDIA: A COMPARATIVE ANALYSIS OF THE PBS NEWSHOUR AND DEMOCRACY NOW!.**

1 David Scott, 1 Mike Chanslor, 1 Jenny Dixon, 1 Communication Studies, Northeastern State University, Tahlequah, OK. 2 Communication, University of Missouri, Columbia.

In recent years the PBS NewsHour, public television’s flagship news program, has come under increasing criticism. It has been argued that corporate funding of the NewsHour illustrates how little difference remains between so-called public and commercial media. The media watch group Fairness & Accuracy In Reporting (FAIR) has documented that the NewsHour fails to provide either balance or diversity of perspectives — or a true public-minded alternative to its corporate competition. The FAIR data indicates a heavy over-reliance on official government sources and inside-the-beltway Washington think tanks, as well as favoring corporate business sources over citizen activists and non-corporate sources. However, FAIR has been described as a “liberal advocacy organization” and key aspects of their research methodology have not been disclosed or independently subjected to blind peer review. Our paper argues that issues of news content bias should be subjected to comparative analysis in relation to alternative models of news production. In that sense we can assess “balance” in a broader context and make reasoned arguments regarding what might be “missing” in the presentation of news. Our paper conducted a pilot test comparing the news content of the PBS NewsHour with the nonprofit alternative news program “Democracy Now!” (Free Speech TV: DISH Network channel 9415) which claims to offer an alternative perspective of political news that critics of the mainstream media say is ignored.

**04.01.18 EFFECTS ON AUDIENCE RECALL: A CONTENT ANALYSIS OF AUDIENCE RECALL OF CONFLICT IN TALK SHOWS.**

Yvette Webb, Carisa Owen, Communication, Southeastern OK State University, Durant, OK.

Mass media studies that investigate news awareness have found that many people are uninformed and misinformed about current events. In particular, studies have focused on audiences’ recall after exposure to news television programming. The purpose of our study was to conduct a content analysis of audience recall after viewing conflict occurring in a talk show. At first, we created two groups based on gender. We asked them to watch a ten minute segment of the show “The View.” Each participant was asked to recall information about the show after watching the segment. Most of the subjects had strong opinions about the topic of the talk show and recalled a great deal of information. We coded their recall into three categories: Evaluation of the program, interaction among the hosts, and content of the program. An example of evaluation of the program would be, “I think the video was horrible,” while an example of content of the program would be “Joy started the political talk by bringing up President Bush and Al Gore’s book about the President.” We also found that the conflict in the television show distracted from the content. The subjects viewed the show as a lot of arguing and no actual content or resolution in the debate. They believed the discussions were intense, but no actual facts were present.

**04.01.17 MEASURING MEDIA USE IN A STUDENT-RUN PUBLIC RELATIONS CAMPAIGN.**

Dana Eversole, Rodney Osborne, Mass Communication, Northeastern State University, Tahlequah, OK.

This study grew out of a capstone campaigns class that was hired as the Public Relations agency to help Court Appointed Special Advocates (CASA) bring a three-
04.01.19 MEDIA INVOLVEMENT DIFFERENCES AMONG MALE AND FEMALE CIRCUS GOERS.
Dana Eversole, Rodney Osborne, Mass Communication, Northeastern State University, Tahlequah, OK.
A convenience sample of one hundred and ninety-four circus goers was taken before two performances of the Carson and Barnes Circus on April 2007. The circus goers were asked to indicate on a 4-point scale “to what extent did they recall hearing/reading about the Carson and Barnes Circus from 15 different media and message sources.” The three-ring circus fund-raiser event was promoted by a student public relations campaigns class for Court Appointed Special Advocates (CASA). This study used the data generated from a media plan evaluation survey to look at just one aspect of the results. This study wanted to determine if there was a difference between male and female circus-goers involvement in the different types of media and information sources. T-test results indicate no significant differences between males and females and their use and involvement in the media and message sources except for one - Facebook/Myspace.

04.01.20 CONTENT ANALYSIS OF COMMUNICATION STYLES IN THE WORKPLACE.
Kieraney Rutherford, Carisa Owen, Yvette Webb, Communication, Southeastern OK State University, Durant, OK.
From subordinates to supervisors, organizational members work to improve communication situations that interfere with productive. The purpose of this study is to investigate the types of communication that is perceived to be most effective in the workplace. We first conducted a survey of college students from a regional university who were also employed in an organization. The subjects were randomly selected to participate. They were asked three questions: (1) how does your supervisor communicate with you (i.e., email, face-to-face, newsletter, etc.); (2) what is your supervisor’s gender; and (3) tell about a time when your supervisor communicated with you effectively. Responses from the survey generated stories about different ways that supervisors communicate with his/her subordinates. The stories dealt with conflict, promotion, praise, and discipline. The content analysis produced five categories (the types of communication used by the supervisor, gender of supervisor and subordinate, work setting, and interactions). Examples of types of communication included face-to-face interaction, meetings, telephone, sign/prayer, and notes. For type of setting, we were concerned with formal and informal settings. For interactions, we concentrated on conflict, promotion, discipline, and commentary. We found that face-to-face communication is most effective rather the supervisor is male or female. We also found supervisors and subordinates use similar communication strategies.

04.01.21 WIRELESS SENSOR NETWORK TEST-BED WITH APPLICATIONS IN INTRUDER DETECTION, LOCALIZATION AND TRACKING.
Victor Selvaraj, Qi Cheng, Electrical And Computer Engineering, Oklahoma State University, Stillwater, OK.
Autonomous intruder detection/localization/tracking is an important research issue in surveillance related applications. In this work, a test-bed with multiple networked sensor nodes are set up and data processing and information fusion, both centrally and locally, are considered. This architecture uses a ZIGBEE based sensor network which is a low power, low data rate wireless ad-hoc network protocol. Each node is equipped with a Retro-Reflective self-sustained IR sensor, a condenser microphone based audio detection unit, and the onboard ambient light sensor, thus could monitor sound levels or objects passing nearby. Multiple nodes in this network independently sense the surrounding and take in measurements and transmit compressed data through the network to the centralized controller. The controller then relays the data payload to a PC-Based GUI through an RS232 interface. The GUI implemented in VB .NET establishes handshake with the controller to get sensor node data and displays it. Algorithms of fusing information from multiple nodes are implemented at the central node for target detection and localization, where false alarm rate can be effectively reduced while detection performance can be enhanced. After detection and localization, control commands are sent back to sensor nodes via feed-back links, to instruct nearby stepper motors focusing IR sensors in the direction of target, and tracking algorithms are initiated.

04.01.22 THE CURRICULUM OF TECHNOLOGY: A NATIONAL SURVEY OF UNIVERSITIES’ COURSES IN BROADCASTING, JOURNALISM, AND COMPUTER-MEDIATED COMMUNICATION.
Gwen Olivier, Rozilyn Miller, William Wardrope, Mass Communication, University of Central Oklahoma, Edmond, OK.
Rapid advancements in communication technology are apparent in everyday life, ranging from changes in digital and high-definition television delivery systems, Internet features, telecommunications services, and desktop publishing capabilities. These new technologies have re-defined how societies communicate, both from a technical perspective as well as from a socio-cultural standpoint. To measure how technological changes have been reflected in the curricula of colleges and universities with programs in mass communication, broadcasting, and journalism, this study reports the findings of a survey sent to over 1,000 department chairs of communication departments across the United States. Respon-
Students were asked to identify the variety of courses their departments teach, both in traditional and “new” communication media, what courses are required for their majors, and any special challenges they face in providing state-of-the-art instruction in these areas. The study also reports the frequency of courses which deal with the social aspects of contemporary mass communication as they are taught within the curriculum.

04.01.23 THE EFFECTS OF PROVOCATIVE NONVERBAL ADVERTISEMENT.
Rachel Todd, Communication & Theatre, Southeastern OK State University, Durant, OK.
This study analyzed the different responses people have when determining the effectiveness of provocative nonverbal advertisements. Research involved 30 random surveys administered to the general public. Participants who completed the survey were 22 females and 8 males. Results showed that each male found these nonverbal ads to be a clever and effective way to advertise. While half of the females surveyed agreed with male findings, the remaining females found the ads offensive and inappropriate. Participants of the study agreed that they could easily detect what was being advertised nonverbally because the integration of sexually-oriented images and clothing are common advertising techniques. The 19 participants, who agreed the ads were clever, also agreed that these images were an effective way to advertise nonverbally because “sex sells.”

04.01.24 CONTENT ANALYSIS OF PARENTAL DISCIPLINE AND SCHOOL BEHAVIOR.
Jamie Carrick, Shea McFadden, Communication, Southeastern OK State University, Durant, OK.
This study investigates the relationship between children’s discipline at home and their behavior at school. Participants were given three open-ended questions asking them about how discipline at home is reflected in children’s behavior at school, about a time when their own discipline at home was reflected in their behavior at school, and what they consider proper discipline. Responses to the first question were categorized into lessons learned, positive effects, and negative effects. Forty-six percent said that they believed children learned positive lessons about work ethics and respect for others from parents. Fifty-four percent noted positive effects of parental discipline. Fifteen percent mentioned negative effects that came from a lack of discipline in the home. Responses on the second question were categorized into positive results, reinforcement of discipline, and fear/embarrassment. Thirty-one percent mentioned that good discipline in their home led to positive results at school. Fifty-four percent of the respondents said that if they got in trouble at school, they would be punished at home. Thirty-eight percent said they were motivated by fear to behave at school. For the third question, definitions of proper discipline were given. The three categories that emerged were type of punishment, behavior, and consequences. This study found that discipline received in the home is perceived as a major influence on behavior at school.

04.01.25 SAME SEX ADVERTISEMENT ACCEPTANCE.
Lance Coffman, B.K. Goodman, Dan Gurley, Communication & Theatre, Southeastern OK State University, Durant, OK.
The American media have become one of the wealthiest businesses in the world. The use of advertisement to sell ideas, meanings and products have consumed television, billboards, radio broadcasts and all other forms of communication. This study was developed to gain knowledge of the approval or disapproval of same sex marriage and the media’s involvement therein. Researchers for this project included a traditional college age, conservative Baptist, a nontraditional college age Methodist, both heterosexual, and a traditional college age, liberal homosexual. This study was designed to investigate the variance in cultural acceptance or refusal of same sex marriage in the media by means of advertisements and what, if any role, the media play in acceptance or rejection of controversial actions. Researchers shared ads with 30 people in varying cultural backgrounds and surveyed participants on their responses. Of those surveyed, 57% found the ads to be non-offensive, 30% found the ads modestly offensive and 13% found ads highly offensive. The implications of this study are that society is trying to understand the human condition and be more accepting of others and the lifestyle another chooses.

04.01.26 SURVEY ANALYSIS OF SELF ESTEEM.
Kieraney Rutherford, Heather Powell, Communication, Southeastern OK State University, Durant, OK.
This study was conducted to investigate how participants rated their self esteem. The research that we collected reveals how people rate themselves when they were asked open-ended questions compared to closed-ended questions. Ellis (2005) states that many psychologists preach the importance of self-esteem, but on a closer analysis the meaning of self-esteem often amounts to little more than basing our sense of self worth on the success of our achievements on relationships. For our original research, we created two surveys relating to self esteem and distributed them to fourteen participants. The first survey was four open-ended questions about how they felt about themselves. The second survey that was given was a thirty close-ended question-
naire on “How well do you like yourself.” The results that were received from both surveys revealed how they answered open-ended and closed-ended questions. The first survey that was given with the open-ended questions revealed that the participants have low to average self-esteem. When given the closed-ended questions based on interval choices that asked participants to rank how they ranked themselves in terms of self-esteem. With the closed-ended questions, they rated themselves as having a much higher self-esteem than with when responded to open-ended questions.

04.01.27 “A PICTURE IS WORTH A THOUSAND WORDS”.
Lynsey Dennis, Karl Safe, Meagan Searcy, Communication & Theatre, Southeastern OK State University, Durant, OK.

The purpose of this study was to analyze whether a religious organization would be more successful reaching people through an image on a billboard or a quotation on a marquee. Data were obtained by observing how people responded to the nonverbal messages and to the verbal ones. The data were compiled from random surveys taken by 18 males and 12 females. The method employed to obtain these data consisted of a three question survey. Our study indicates that religious images on billboards appeal to some people more than written messages on a marquee. The region where the study was conducted is broadly made up of the Southern Baptist religion, as indicated by the participants who identified with this faith. Therefore, based on the results of this study, this general culture is more susceptible to pictures than to catchy phrases. Despite religious variables, this research indicates that pictures speak volumes and are “worth a thousand words.”

04.01.28 IMAGE EFFECTS ON PROPOSING PARTIES.
Rusty Dye, J. Kade Kinghorn, Communication & Theatre, Southeastern OK State University, Durant, OK.

The United States has often been referred to as an imperialistic nation, taking what we want and too often involving ourselves in the affairs of other countries. The most recent example is the controversial issue of the U.S. involvement in Iraq. This study was conducted to determine what effects controversial photographs, pertaining to the U.S. involvement in Iraq, has on members of both Republican and Democratic Parties. Respondents in this study were males between the ages of 25 and 30, who worked in a manufacturing facility. Surveys based on five pictures and four questions were distributed to 20 participants; 10 were members of the Democratic Party and 10 were members of the Republican Party. Participants were asked to (a) evaluate how the pictures on the survey affected them, (b) state their position on the U.S. involvement with the reconstruction of Iraq, and (c) identify which political party they belonged to. Our data show that political viewpoints do not significantly alter an individual’s reaction to the photographs. Results may have been influenced by the limitations in this study that were limited to the social status of blue-collar workers who projects an apathetic approach to situations involving the government. Additional limitations in this project were the education levels and frames of reference. Nevertheless, the agreement between the participants from opposing political parties, in response to the same photographs, is significant.

04.01.29 CIVIC ENGAGEMENT: NATIONAL GUARD APPRECIATION DAY.
Larissa Copeland, Communication & Theatre, Southeastern OK State University, Durant, OK.

This study was to designed to examine small group dynamics while performing civic engagement. My small group volunteered to work at the Tulsa Zoo on “National Guard Appreciation Day.” During this annual event, Guard recruiting/retention and Family Readiness Groups set up information tables and provided face painting and several games for children on an inflatable course/slide and at the signing table. We also engaged in conversation with soldiers that have deployed or will deploy in the near future. Messages of encouragement were signed during the event to send to National Guard units serving overseas. Our group assisted in many areas, while working within the structural frame. Leadership roles were switched throughout the day among group members, from active listerners and information providers, while working at the signing tables, conversing with zoo guests, as social emotional leaders and monitoring the obstacle course while interacting with young children. The results of this civic engagement project proved beneficial and successful due to effective group communication and execution of individual roles.

04.01.30 SMILE BIG BROTHER, A NATION IS WATCHING YOU: HOW REALITY TV PROGRAMS REFLECT CULTURAL IDENTITIES.
Sarah Turner, Mass Communication, Northeastern State University, Tahlequah, OK.

Reality TV formats fill the airwaves throughout several countries around the world, including the United States, several European countries and Australia. There is a broad range of shows that constitute reality television, and this paper will argue that cultural aspects can be viewed within this type of programming, specifically using the British and American versions of the show Big Brother. While some research has been conducted on this subject, which will be reviewed in this paper,
there is still a need to focus on cultural norms audience members find within the programming. After reviewing and summarizing the existing research, I will propose further research to be done on the subject.

04.01.31 CIVIC ENGAGEMENT: HANDS OF HOPE FOOD BANK.
Emily Heath, Christine Hirst, Rebecca Rowland, Sabra Wheeler, Communication & Theatre, Southeastern OK State University, Durant, OK.
Civic engagement has been defined as “Individual and collective actions designed to identify and address issues of public concern.” This study was conducted to analyze how roles are assumed by individuals in small groups and to observe the communication process based on those individual roles. From a regional university, participants in this project were students enrolled in a group discussion course, and as part their civic engagement assignment, these participants chose to volunteer at a local food bank to examine the significance of small group communication. Volunteering as a group to help feed the underprivileged is a great cause and presented researchers the opportunity needed for this study. Never turning anyone away, “Hands of Hope” feeds approximately 540 families a week. This vast number shows the success of working in small groups and the effectiveness of communication when each person is assigned an area of responsibility based on individual abilities, talents and desire. The college students involved in this project completed ten hours of service over the course of two weeks. They collected data relative to the inner workings of the organization and small group competence, including decision making steps. While working as an integral part of the volunteer services, participants worked in several areas of the organization to compile data and compare experiences. Volunteering proved effective when communication and assigned roles are in place.

04.01.32 CIVIC ENGAGEMENT: STEW FOR THE SOUL AND EGGSTRAVAGANZA.
Lance Coffman, Amity Smith, B.K. Goodman, Chris Hicks, Dan Gurlay, David Odem, Kat DeCaire, Communication & Theatre, Southeastern OK State University, Durant, OK.
Stew for the Soul and Eggstravaganza allowed our group the opportunity to use our experience and training with small group communication. This project was a test of our ability to use effective communication outside the classroom. Our group volunteered to serve meals and coordinate an Easter Egg Hunt for those in need. Over a three hour period approximately 250 men, women and children were served stew, cornbread, crackers, hot dogs, chips, deserts, and drinks. This civic engagement project opened our eyes to see how a small group can make a big difference.

04.01.33 CIVIC ENGAGEMENT IN COLOR.
Andrea Barlow, Kristen Donahue, Meagan Searcy, Michelle Thomason, Paul Lankford, Communication & Theatre, Southeastern Oklahoma State University, Durant, OK.
The purpose of this study was to observe how individuals communicate in a small group while taking part in civic engagement. We volunteered to paint the children’s department of a local church. By engaging in this civic activity, our team brightened the learning environment and made it more appealing. Our group was able to apply our communication and team skills by working as a cohesive unit to improve the children’s work environment. As the task came to a close, we created a bond while furthering our knowledge and experience on how to communicate and organize.

04.01.34 DECOATING PETA.
Robert Aitkens, Colby Bryant, Rebecca Rowland, Sabra Wheeler, Communication & Theatre, Southeastern OK State University, Durant, OK.
Are People for the Ethical Treatment of Animals (PETA) getting their message across with controversial nonverbal advertisement? The answer to this question was researched by surveying 26 college students of various ages. This study examined five nonverbal advertisements produced by PETA to determine if the nonverbal messages being conveyed were the same messages being received by the audience. Participating students were given a 15 question, multiple choice survey concerning PETA’s nonverbal advertisements. Three questions gauged the clarity and offensiveness in relation to five of PETA’s most controversial advertisements. Of those surveyed, 56% found the advertisement offensive and 75.8 percent did not agree with the message the ad portrayed. This study concludes that if the public cannot see past the nonverbal message then the campaign cannot be successful. Research shows that nonverbal communication is a complex and ever-changing phenomenon. Studies suggest that nonverbal communication is culturally and regionally dependent and that there is no universal nonverbal language. Results from the survey indicate that PETA’s messages are not being received correctly because of their graphic nature.

04.01.35 “CLEANING UP” THROUGH CIVIC ENGAGEMENT.
Johnson Nathan, Communication & Theatre, Southeastern OK State University, Durant, OK.
As the class project for group discussion, I recently volunteered my time at a local church in north Texas. The purpose of this study, within the context of civic engagement, was to observe and analyze the effectiveness of working in small groups and the significance of competent communication. Six people were in my
group armed with shovels, rakes, hammers and other tools. Volunteers gathered trash, replaced boards on the church and many miscellaneous jobs. The aim of our group was to participate in making the community look better and to help the church look more inviting. I found that helping out in the community brings people closer together. Participating in civic engagement instills community action and enhances small group interaction as groups decide what projects will be completed and in what manner. Working with others in a volunteer capacity helps people feel more a part of their community through effective communication and achieving goals that would, otherwise, go unfulfilled. At the same time, they gain a sense of pride within organizations. After helping out at the church, I am more interested in working with small groups in the community and volunteering.

04.01.36 SHELDON STUDY.
Larissa Copeland, Amity Smith, B.K. Goodman, Deana Northern, Communication & Theatre, Southeastern OK State University, Durant, OK.

The aim of this study was to verify if Sheldon’s Survey of body types and personalitaies hold true today in a drastically different type of society than that of 1941. This study was performed to compare personality types of body shape as outlined in Sheldon’s study. Surveyed were 180 individuals, ages 18 and up, male and female, on how they view their personalities compare to the shape of their body as viewed by others. The results showed that a majority of individuals perceived themselves differently than that of their body type. This shows that as one gets older, his/her perception of him/herself either improves or remains the same as when the person is in his/her prime.

04.01.37 THE DIMENSIONS OF MEDIATED INTERPERSONAL COMMUNICATION.
Karen Maple, Communication & Theatre, Southeastern OK State University, Durant, OK.

The growth of communication technology is changing the way that people meet and relate to each other. This is a powerful platform that has changed the way we do business and opened a new form of human interactions through mediated interpersonal communication. A study conducted by Joseph Walther and Judee Burgoon found computer-mediated groups had stronger socially rich relationships than groups who communicated face-to-face. The move “You’ve Got Mail” shows the interaction of “shop girl” and “NY152” who develop some interest in each other through sharing non-personal incarnation about their everyday lives. They meet in person, and, unaware they are anonymous chat buddies, they share a mutual attraction. However, when Kathleen discovers he owns the new store that is putting her store out of business, their initial attraction ends immediately, and in a sense this brings the e-mail anonymous chat buddies closer. When she is no longer anonymous to him, NY152 sees himself through her eyes and decides to change her perception of him. At that point, in the mediated relationship, he decides to “tweak” their relationship by engaging her in a face-to-face relationship to win her over on a personal level before revealing his identity to her in their mediated relationship. I argue that the movie “You’ve Got Mail” recognizes the three dimensional relationship of communication showing it is not the mediated but the personal interaction that allows relationships to fully develop.

04.01.38 CIVIC ENGAGEMENT.
Kade Kinghorn, J.T. Proffer, Mike Smith, Communication & Theatre, Southeastern OK State University, Durant, OK. Since 1999, a few select volunteers of the Roberta Fire Department have shared time and efforts to serve and protect the community. We wanted to help volunteers who help others and chose this organization as a civic engagement project for our group discussion class in communication. Our goal was to make the job of the Roberta VFD a little easier. We accomplished our goal through cleaning, organizing and performing maintenance services on the vehicles. We found that it takes a lot of time and effort to keep that facility fully functional and learned the importance of community involvement. We gained a new respect for volunteer organizations, especially those who serve the community. In doing so, we came to understand through practical application in the community the significance of effective communication in small groups working toward a common goal in organizations.

04.01.39 INDUSTRIAL BOOM OF CELL PHONES IN PAKISTAN.
Usman Irshad, Sadaf Irshad, Business, University of Central Oklahoma, Edmond, OK.

This paper discusses the reasons behind the cell boom in Pakistan. Cell phones once used to be a status symbol for the upper class, but now have become a part of our daily lives. As the years have progressed, the mobile phone has come within the reach of anyone. Pakistan was one of those nations in which getting a cell phone was very difficult. Mobilink, an Egyptian company, launched the very first cell phone provider in 1994. From there onwards, the cell phone has boomed into a rapid industry growing at an exponential rate. Pakistan currently has six cell phone connection providers, with five of them being international companies. As a census carried out by Pakistan Telecom Authority in 2005, the total users in Pakistan at the time was 15 million. It was estimated that in three years time, the number would cross 30 million. In fact, as of March 31, 2007, there
were 55.62 million users in Pakistan. This is one-third of the total population. In reflection to this big boom, Nokia and Telenor (a provider from Norway) have extended their contract on the GSM network up to 2009. In this period of time, Nokia will deliver +2000 base stations to Telenor in addition to other services. As of recent surveys and estimates, it is anticipated that the total cell phone subscribers in Pakistan will cross 66 million by the end of this year. At the current rate of growth, this number might be achieved within the next month!

**English – 4.02**

**04.02.01** A COMMON BOND.
Tara Cole, English, University of Central Oklahoma, Edmond, OK.
This paper examines the some of the issues women’s literature has been investigating for hundreds of years. In the books Incidents in the Life of a Slave Girl and Animal Dreams the main characters lead very different lives. In Incidents, Linda Brent is a black slave, living in the southern United States, during the late 1800’s; whereas in Animal Dreams, Cosmia Noline, or Codi, is a white middle class westerner, living in Grace, Arizona, during the late 1900’s. Despite these differing situations in life, the issues they face concerning control, their memories of the past, and family are much the same. All three issues work to bring about freedom or bondage in the lives of Linda and Codi. Some of the issues affect them similarly; for instance, they both find freedom when they use or find their memories, and when they gain control. But curiously, family has adverse effects, to Linda it brings both freedom and bondage, but to Codi it brings total freedom.

**04.02.02** LIMINALITY PLUS PRECEDURALISM EQUALS SUBLIMITY (SORT OF): THE POEMS OF _FINISH YOUR SENTENCE_.
Hugh Tribbey, English and Languages, East Central University, Ada, OK.
The poems in _Finish Your Sentence_ were produced through a combination of liminal or intuitive composition and chance or algorithmic procedures as well as computer-generated permutations. One idea which informs my practice is Steve McCaffery’s concept of writing as a general economy, a writing devoted to “festive expenditures” and “sacrificial modalities of waste” (McCaffery 212). As a general economy this type of composition consists of “excessive energy [which] can be lost without the slightest aim, consequently without meaning” (Bataille qtd. in McCaffery 201). Writing and reading such works then become exercises in “nonutilitarian, hedonistic pleasure derivable from the nonproductive consumption of the text” (McCaffery 212). Critics and other writers typically characterize the effects of writing as a general economy as some form of sublimity, a breaking through or an overwhelming of the normal conditions of human consciousness. To McCaffery this consists of a process in which “the subject ‘forgets’ her writing as being a project of meaning, while writing itself annihilates the subject expressing [herself] through it” (219), thereby producing “sovereign” (as contrasted with “masterful”) moments “whose direction is toward breakdown and discharge rather than accumulation and integration” (210). For me the beauty of such writing lies precisely in the “scandal” of its waste, its singular ephemera, as a nonproduct which undermines Voice as a glamour commodity.

**04.02.03** I GOT A WORM IN MY HARD DRIVE: LINGUISTICS AND MISCONCEPTIONS AFTER A CEREBROVASCULAR ACCIDENT.
LouAnn Benfield, English, East Central University, Ada, OK.
This study was conducted to understand how the brain functions in the ability to pronounce words after damage has been done due to a cerebrovascular accident. This research was conducted after the speaker suffered cerebrovascular damage and then suffered an extended accident leaving the linguistic functions extremely difficult. This research shows both the Wernicke and the Broca areas were affected by the cerebrovascular accident and as such has affected the way that people react to the linguistic errors of the speaker.

**04.02.04** LIFE, LOVE AND BEAUTY IN THOMAS MANN’S DEATH IN VENICE.
Anika (Brandt) Rohla, English, Foreign Language and Humanities, Northwestern Oklahoma State University, Alva, OK.
In connection with my World Literature Class, I researched a topic of my interest within a novel, written by a world known author: Thomas Mann. Having read the novella Death in Venice in German and English, I was fascinated with its plot and the research possibilities it offered. I began my research at Northwestern Oklahoma State University’s Library, using a variety of sources, such as books, journals and databases. With the retrieved information, I developed an annotated bibliography. I also presented an oral report to my class. Finally, I wrote my paper with the title: “Life, Love and Beauty,” proofing my thesis: My paper will discuss and reflect the development of the protagonist Gustav Aschenbach, the signs and symbols that overshadow his death and the meaning of beauty and art, either bringing artistic fulfillment or ruin. The focus will be on Aschenbach’s contrasting personality and
relationship to Tadzio in order to answer the question if Aschenbach’s death comes as a punishment for his liaison with Tadzio, or if it is the price for finding the perfection of art.

**04.02.05 RECOLLECTIONS OF PAST DAYS: THE AUTOBIOGRAPHY OF PATIENCE LOADER ROZSA ARCHER.**

Sandra Petree, English, Foreign Language, and Humanities, Northwestern Oklahoma State University, Alva, OK.

Patience Loader Rozsa Archer (1827-1921) was a British domestic servant who emigrated to America in December of 1855 on the ship John J. Boyd as part of a company of Mormon converts. She crossed the American continent three times, once by rail and handcart (walking) and the second and third times by military wagon and rail. She participated in several historical eras and events: Victorian English, oceanic emigration, American westward migration, the American Civil War, and the beginnings of the mining industry in the western United States. Sometime after 1888 she sat down and wrote her memoirs, chronicling in first-person narrative her life story. This research project involved preparing her original manuscript for publication and engaging in historical research of the people, times, and places she speaks about. The book was published in March of 2006 by Utah State University Press.

**04.02.06 JACK LONDON AND THE NATURAL ORDER.**

Lisa Herning, English, Northwestern Oklahoma State University, Alva, OK.

This research project is based on an assignment for an American Literature class. Research was conducted using peer reviewed scholarly journals and texts. The research supports a thesis dealing with the idea that Jack London’s short fiction - specifically the stories “The Law of Life,” “Lost Face,” and “To Build a Fire” - emphasize the deterministic theory involved with the genre of naturalism in early twentieth century American Literature. Application to scientific objectivity and the idea that environment and heredity act as prime motivators of such fiction and London produced writings that treat fate as an irreconcilable determinant involved in the human condition. The conclusion states that London’s deterministic writings discredit the existence of the supernatural and emphasize the intrinsic role of the natural order.

**04.02.07 FROM THIEF TO SHEPHERD: FINDING GOD IN PULP FICTION AND RESERVOIR DOGS.**

Michaela Worcester, Caleb Holton, Department of English, East Central University, Ada, OK.

This project is an approach to the Quentin Tarantino films Pulp Fiction and Reservoir Dogs which utilizes deconstructionist literary critical methodologies to uncover the referential material to Biblical influences on the films with regard to character development, dialogue, film mechanics, themes, motifs, and symbols. We will also perform in-depth analysis of the film for these elements, connecting them with verses, passages, and stories from the Christian Bible (both the canonical Hebrew scriptures and New Testament), and reading film analyses from noted scholars in the field of the intersection of religion and film. Primary research will be conducted in order to gauge reactions of Christians. We wish to analyze the responses of those of faith with regard to the Christian influences: do they recognize the Biblical allusions, or do they merely detach themselves because of offensive language, violence, sexuality, and drug use? We also wanted to find differences and predispositions of our audience with regard to such key elements as denominational affiliation, sex and gender, marital status, age, overarching field of study, and how often they attend church services or other events driven by religiosity. In addition, we will select a control group of non-Christians and will review the data collected from their reactions to the films to determine if a dichotomy exists between believers and non-believers regarding morality, ethics, and forgiveness of betrayal.

**04.02.08 A TANGLED WEB WE WEAVE: ALLUSIONS IN T.S. ELIOT’S “THE WASTE LAND”.**

Michelle Kaufman, English, Northwestern Oklahoma State University, Alva, OK.

This research was conducted as part of an assignment for a world literature course. Research was compiled from adjudicated articles in various scholarly journals. The thesis of the paper, concerning specific allusions in “The Waste Land” and their overall effect on the poem, is supported by the research. T.S. Eliot’s allusions are complex and extensive, creating a labyrinth of imagery within the poem. The paper concludes with the idea that Eliot uses allusions from literary works of the past to make sense of the present world.

**04.02.09 HOMOSEXUALITY IN “SAVED!” AND THE BIBLE.**

Charlotte Weber, Lindsey Montgomery, English, East Central University, Ada, OK.

This project will look at Biblical satire and homosexuality in the movie “Saved!” Extensive secondary research shows two conflicting views of how homosexuality is portrayed in “Saved!” versus how it is treated in the Bible. A screening of specific scenes dealing with homosexuality will be shown to five groups of ten volunteer college students. A survey will be conducted after the clips to gather general demographic information as well as their history with religion and the Bible.
Open-ended questions will be used to gauge personal reactions to the clips and the topic of homosexuality. This is to show how Biblical injunctions concerning homosexuality affect their response to popular culture. The purpose of this project is to show how satire can reshape old ideas and how they are perceived through popular culture.

04.02.10 DO THE UNITED STATES PUBLIC SCHOOLS STAND BEHIND THE BIBLE?.
Loralei Smith, Holly Dunagan, English, East Central University, Ada, OK.
Administrators, teachers, and students involved in the public school systems throughout the United States have all either been influenced into, or gathered a personal opinion, based on whether or not the relevance of teaching the Bible in the secondary classroom is beneficial to the nation’s youth. Primary research will be gathered through anonymous on-line surveys from the three above mentioned groups, exploring questions involving personal attitudes and interests on whether or not the Bible should be taught as a form of literature. Secondary research will include court cases interested in the legalities of the Bible in the system, states’ support of the subject being included in the curriculum, and other relevant journal articles. The specific goal of this project is to determine if the Bible is still a sacred text of security within our nation, or can strictly be taught as a form of literature.

04.02.11 BUILDING GLOBAL AND CULTURAL COMPETENCY IN TODAY’S COLLEGE STUDENTS.
William Radke, Academic Affairs, University of Central Oklahoma, Edmond, OK.
This paper examines the validity of inculcating in college students the importance of understanding and internalizing the nuances of global and cultural competency. It details the initiatives at the University of Central Oklahoma and provides an example of how cross cultural sensitivities are imparted on the campus.

04.02.12 BIBLICAL REFERENCES IN FLANNERY O’CONNOR’S, “THE BREAD OF LIFE”.
Katie Beth Benson, Bobby Reed, English, East Central University, Ada, OK.
The aim of this project is to analyze the Biblical references throughout this piece of work and draw from the findings we receive on other individual’s ability to understand the deeper meanings throughout the story and overall. By way of multiple readings and research, we will identify the wide array of aspects within the story with blatant and less obvious ties to the Bible. After gathering a set of questions, we will then ask a few classes on the East Central campus to read the story and then answer these questions. This will not be forced upon individuals, and the hope is that by giving the story to multiple classes that the project will be made up of a diverse group of people. However, our results will be somewhat limited due to the fact that most of the participants will be from the same area, and that this particular part of the country is the South which is where the story is set. The survey will include multiple choice and open ended questions. From the survey, we will be able to gather if the readers were able to identify and understand the Biblical references, how many they were able to pick out and if they could make out the overall meaning of the piece. The findings will then be combined with outside research to make inferences about the connection between one’s personal religious background and understanding literature that has links to the Bible.

04.02.13 THE SENTIMENTAL NOVEL: A POLITICAL TOOL.
Sarah Combs, English, Northwestern Oklahoma State University, Alva, OK.
Based on an assignment for an American literature class, this research project explores the sentimental novel. Research for this project was conducted using peer reviewed journals and academic texts. The research supports that underlying the heightened emotion and didacticism of the sentimental novel is an appeal for social change. The paper examines the components of the sentimental novel, the history of the sentimental novel from the beginning to roughly 1865, and how the sentimental novel plays a meaningful part of American literature and the cultural context of the eighteenth and nineteenth centuries. The novels, The Power of Sympathy, The Coquette, Uncle Tom’s Cabin, and Incidents in the Life of a Slave Girl serve as examples of how the sentimental novel expresses humanitarian interest in the social issues of the time. These novels explore the roles of women in American society, discuss virtue, and examine the issue of slavery. The sentimental novel is an over dramatized and seemingly simple genre; however, upon further examination, the literary techniques
used by sentimental authors reveal strong messages calling for social action. In conclusion, the sentimental novel can be considered a political tool with significant cultural importance.

04.02.14 ANSWERING THE ARROW-MAKER: AUTOBIOGRAPHY AS A MODEL OF AMERICAN INDIAN LITERARY NATIONALISM IN THE WAY TO RAINY MOUNTAIN.
Stacy Pratt, English and Foreign Languages, Cameron University, Lawton, OK.

In recent years, scholars Craig Womack, Robert Warrior and Jace Weaver have developed the controversial critical theory of American Indian Literary Nationalism. At the center of AILN is the lived experience of the critic/reader in the tribe whose literature is being analyzed. My research examines how the autobiographical passages in Kiowa writer N. Scott Momaday’s The Way to Rainy Mountain function as a model of tribal interpretation in commenting on the Kiowa stories, both oral and historical/anthropological. The project also considers the centrality of literary interpretation to the book as an autobiography. Finally, it addresses the importance of story/literary interpretation to the Native identity as part of what Warrior defines as Native intellectual traditions.

History – 4.04

04.04.01 RICHARD NIXON’S TRIP TO CHINA IN 1972: FORCING AN INITIAL CRACK IN THE WORLD’S COLD WAR ARMOR.
Molly Mirll, History Department, University of Central Oklahoma, Edmond, OK.

This study concerns President Richard Nixon’s historic trip to the People’s Republic of China in February 1972. The announcement that he planned to make this journey surprised many Americans, as he had always espoused a vehemently anti-Communistic viewpoint. My research discusses the media presence during his weeklong adventure. A large press contingency, working eighteen-hour days, tried to follow the couple’s steps, but, because the Nixon administration loved its privacy, and the networks chose to send familiar personalities rather than knowledgeable Sinologists to cover this important story, Americans at home often listened to explanations of what they were witnessing from experts sitting in New York studios. While the presence of their favorite broadcasters may have potentially boosted ratings, I believe mistakes by both the Nixon administration and the leaders of the national media corporations led to average citizens having received poor quality coverage of this important event in world history.
04.04.04 UNLIKELY BEDFELLOWS: THE POLITICS OF ANTI-IMPERIALISM IN 1898.
Evan Martin, History, East Central University, Ada, OK.
The Spanish American War sparked a large debate on imperialism in American history. This research examines how different ideas and political and regional affiliations created division and dissension inside the Anti-Imperial Movement. Using the ratification of the Treaty of Paris (1898) as an example, the research focuses on how the Anti-Imperial Leagues attempted to influence U.S. Senators, and how political affiliations and the political climate affected the ultimate response. Many theories outline ideas on root causes of Imperialism. Some point to Manifest Destiny and others to Neo-Marxian ideas of economic forces. But this research suggest another, often largely ignored element: how this debate unfolded politically and how different ideas on Imperialism affected the outcome. The examination reveals clear examples that the Anti-Imperial League was regionally and economically biased, while many senators, on the contrary, held a more political bias in their decisions.

04.04.05 LAYERS OF ROME.
Amanda Snipes, History, University of Central Oklahoma, Edmond, OK.
The main function of the Layers of Rome presentation will be an overview of various historical sites visited by University of Central Oklahoma students during a summer 2007 trip into Rome for thirteen days. The layering of history within the same sites is the main focus of research. The Coliseum, Forum Romanum, Victor Emmanuel II monument, the Pantheon, St. Peter’s Square, Pompeii, and Ostia are all topics within the research done by University of Central Oklahoma students. The students relied on Rome’s archaeological remains, important churches, museums, and social spaces in order to make inferences about their research topics on-site. The main focus of study is the rise of the Roman republic, the Roman empire, the rise of Christian Rome, Renaissance Rome, and Rome during the Victorian Age. Students demonstrated their research through onsite oral presentations, journals, and essays all covering historical significance of various sites and evaluating historical layering (events taking place over time in the same location) of human activity from ancient times to the Renaissance.

Geography – 4.05

04.05.01 DETERMINING THE POSITION OF THE TAHLEQUAH AND SOUTH MUSKOGEE FAULTS AND UPDATING THE EXISTING GEOLOGIC MAPS OF THE AREA.
Paul Ellis, Environmental Science, Northeastern State University, Tahlequah, OK.
The current mapped position of the Tahlequah and South Muskogee faults was determined using data gathered by a joint project concluded in 1958 by the United States Geologic Survey, the Oklahoma Geologic Survey, and the Oklahoma University School of Geology. Since the conclusion of this project, new road cuts and exposures have made refinement and revision possible for the position of the faults. Using field research and surveying techniques to gather information, I have updated the data and corrected or confirmed the position of the Tahlequah and South Muskogee faults.

04.05.02 TOPOLOGIC CORRECTION AND ADJUSTMENT OF PARCEL BOUNDARY DATA IN CARTER COUNTY, OKLAHOMA.
Chloe Price, Cartography & Geography, East Central University, Ada, OK.
Property parcel maps are documents essential to county assessors. In today’s technological age, many assessor offices are creating and utilizing digital renditions of parcel maps that were formerly hand-drafted, thus were only available as hardcopy. The computerized version allows a greater variety of usage of the parcel information, but only if the data is constructed in a proper manner.

This poster presentation demonstrates a methodology for identifying and correcting parcel data that was found to be topologically invalid and whose boundaries were insufficiently accurate at scales used for assessment mapping. Among the topologic errors in the digital parcel data included unsnapped vertices, overlapping parcel boundaries, and gaps where boundaries should coincide. The establishment and implementation of topologic rules enabled such mistakes to be corrected. False topologic errors, such as the occurrence of road right-of-ways, were subsequently coded as exceptions. Lastly, the accuracy of parcel boundary locations was improved through the use of large scale Orthophotography. Visible fence lines, as well as transportation right-of-ways, were used to enable an improved placement of parcel boundaries.

04.05.03 DEMOGRAPHICS OF COLLEGIATE INTERNATIONAL STUDENTS.
Adam Milligan, Cartography/Geography, East Central University, Ada, OK.
During the fall of 2007, research was conducted for the
East Central Cartography Departmental Honors program regarding the impact international students have on Oklahoma’s universities. The research emphasized comparisons between various university programs and implications for State economic and cultural development as a result of international students coming to Oklahoma. Oklahoma universities face many cultural implications as more international students arrive on campuses. Many of these cultural implications are viewed to be positive within Oklahoma as diversity increases. The international student diversity raises many positive challenges to the universities. These challenges range from cultural to religious issues specific to the needs and concerns of each international student. International students strengthen Oklahoma in positive ways as the economy, population, and educational experiences is progressed by international students.

04.05.04 CREATING CUSTOM MAPS FOR USE BY VOLUNTEER FIRE DEPARTMENTS IN LOVE COUNTY, OKLAHOMA.
Thomas Creecy, Cartography & Geography, East Central University, Ada, OK.
Rural volunteer fire departments are extremely important for rural and small communities. The support of paid firefighters that are always available and waiting at the station for the call to help is very beneficial for those who live in or near larger cities. However, if someone lives outside of that area then those departments will not be able to reach them fast enough and therefore need assistance from an outside source. This is where the need of volunteer fire departments comes into play. Most volunteer fire departments use the majority of their limited financial resources to acquire new and better equipment such as trucks, tools, and fire/heat protection gear to help them save lives and valuable property. This doesn’t leave them with as much access to some resources that would be very useful to them such as aerial photography and detailed road maps.

Using powerful mapping software, this researcher was able to create a large custom road map that includes the locations of volunteer fire departments in Love County, Oklahoma. Aerial photography is also included for the particular area serviced by the Greenville Volunteer Fire Department. Such a map is useful to display at the fire halls, but is too large to use in the rescue vehicles. In order to meet map needs for field use, a multi-page map book was designed. This will enable firefighters to easily navigate to emergency sites while in transit, thus allowing them to reach their destinations in less time.

04.05.05 DEVELOPING WEATHER MONITORING PRODUCTS IN A GIS FRAMEWORK.
Michelle Stone, Maggie Schoonover, Meteorology, Weather Decision Technologies, Inc., Norman, OK.
Weather Decision Technologies, Inc. (WDT) routinely disseminates and displays unique weather products with the intent to inform clients of impending hazardous weather. In addition, WDT recognizes the need to develop GIS enabled weather products to allow WDT’s clients to view weather data as well as blend and apply their own proprietary data and tools with weather data in an industry standard GIS environment. Two product areas have been identified to compliment WDT’s growing suite of GIS enabled products: Lifestyles Weather Products and precipitation accumulation estimation and forecasts. The Lifestyles Weather Products will be suited for providing automated guidance within a GIS framework (e.g. ESRI ArcGIS, Google Earth, etc.) using a combination of meteorological data, geographical data and other data related to health and leisure activities to indicate, for example, conditions leading to a propensity for asthma or flu and favorable conditions for boating. In addition, a verification project will be conducted to evaluate the skill and accuracy of WDT’s GIS enabled Quantitative Precipitation Estimation/Forecasts (QPE/QPF) products to improve WDT’s unique QPE/QPF product. Several precipitation events occurring within geographically diverse regions and for varying event types will be analyzed.

A research and development plan including objectives, methodology, data sources, and, if available, preliminary findings and results will be presented.

04.05.06 UTILIZATION OF OVERLAY ANALYSIS FOR PIPELINE TAXATION BASED UPON SCHOOL DISTRICT
Erik Abrahamson, Cartography & Geography, East Central University, Ada, OK.
Public schools are funded from a variety of taxation revenues. One interesting financial source is based upon a geographic relationship. It turns out school districts may receive tax revenue from pipeline companies based upon company assets that occur within district boundaries.

The determination of the distribution of oil and gas equipment is a multi-step process. The locations of such assets first need to be inventoried and field-truthed. Existing pipeline maps are subsequently updated and their feature positions and characteristics converted into a digital format. It is required for the locations of the data to be captured in real-world coordinates, a process called georegistration.

At this point, the pipeline assets are digitally overlain with an existing school district data layer. This enables thematic maps to be designed and descriptive statistics
compiled detailing the types and amounts of pipeline assets occurring within each public school system.

04.05.07 DIGITAL CONFLATION OF THE U.S. PUBLIC LANDS SURVEY SYSTEM.
Adam Milligan, Gregory Plumb, Cartography & Geography, East Central University, Ada, OK.

The Chickasaw Nation is in the process of building and implementing an enterprise geographic information system (GIS), which in essence will enable its organizations and citizenry to share access to a wealth of digital map information. Among the challenges faced during this project is the proper alignment of digital geographic features acquired from a variety of sources.

This poster illustrates one such problem and solution: the alignment of sections comprising the U.S. Public Lands Survey System (USPLSS). More popularly known as Township and Range, the USPLSS has multiple uses, such as serving as legal descriptions of ownership properties, to providing a framework of rural road networks.

Existing USPLSS digital map data was found to be misaligned when compared to scanned large-scale topographic maps. Because the latter are stored in real-world coordinates, they proved to be invaluable to create a more positionally accurate data layer of sections. Rather than discard the misaligned data, which also contained important attribute information such as township, range, and section designations, editing tools enabled the existing data to be conflated, i.e., moved to be visually aligned, to the section lines shown on the topographic maps.

04.05.08 ENHANCING A DIGITAL ROAD NETWORK TO IMPROVE E-911 PERMOMANCE IN BRYAN COUNTY, OKLAHOMA.
Weston Jackson, Cartography & Geography, East Central University, Ada, OK.

Bryan County and the City of Durant (Oklahoma) are in the process of optimizing their fire, police, and ambulance services. One of the best and cost effective ways to achieve this goal is to incorporate a geographic information system (GIS) as a part of the E-911. A GIS, however, can only perform as well as the quality of data provided.

This poster illustrates how existing digital transportation data may be inadequate for optimal routing and how it is corrected. In this particular project, many of the county road segments and city streets were topologically invalid. Their real-world junctions either did not meet or incorrectly overlapped in the digital environment. There were also errors of commission, i.e., cases where roads were depicted where they in reality did not exist; and errors of omission, e.g., cases were roads missing from the digital database. Greater positional accuracy was also desired. Lastly, errors in the characteristics of roads and streets had to be identified and resolved. Of particular significance was address ranging, whereby transportation segments are coded with minimum and maximum “house numbers” occurring on each side of the segment. Values must not only be logically correct, for example, only 100 to 199 occurring within a “100” block, but odd versus even numbers coded properly on its side of the street and ascending in the correct direction.

04.05.09 INDEFINITE BOUNDARIES ALONG SHIFTING STREAM CHANNELS.
Corey Gillum, Cartography & Geography, East Central University, Ada, OK.

Surface hydrography is among the most evident natural elements of landscapes that are ever-changing. The shifting banks of creeks and rivers influence many natural and cultural features. With regard to the human landscape, political and property boundaries have often been defined in the middle or along a side of channels.

Problems ensue when a channel shifts, often resulting in ownership disputes. Does an entity, be it a property owner or county, state, or nation, gain or lose land or surface water as these features shift? Does the boundary move or stay the same? How does one determine the original location, since the stream has perhaps shifted many times since it was first used to define the boundary?

Such are the issues faced with indefinite boundaries, many of which occur within the Chickasaw Nation and are illustrated in this poster presentation.

04.05.10 SPANISH FOR FUNERAL SERVICE PRACTITIONERS.
Chris Burkey, Stacy Southerland, Funeral Service, University of Central Oklahoma, Edmond, OK.

No formal, accredited course for Spanish for funeral service providers and related practitioners exists locally, regionally, or nationally although their need for basic, profession-specific Spanish language skills has risen due to the number of clients that speak only Spanish or that have limited English proficiency and federal regulations requiring practitioners to ensure that this population comprehends service and product information. The Spanish-speaking population comprises 10% of the Oklahoma City’s population, according to the 2000 census, and continues to grow exponentially, but there is only one licensed Spanish-speaking funeral director in the metropolitan area. This interdisciplinary project, funded by a University of Central Oklahoma Research grant, entails the development of a web-based curriculum for Spanish for these practitioners and also holds the possibility of nation-wide and commercial delivery. The resulting course will benefit students currently
working toward a degree in funeral services from UCO as well as practicing funeral directors needing continuing education credits. It will provide a basic foundation in Spanish, including an introduction to basic Spanish grammar and vocabulary as well as vocabulary specific to assisting clients that speak limited or no English with funeral arrangements, and will increase cultural awareness of funeral customs and beliefs about death and dying that are unique to the Hispanic culture.

04.05.11 SPATIAL DATABASE DEVELOPMENT OF THE TISHOMINGO (OKLAHOMA) CEMETERY.
Lavonda Prather, Cartography & Geography, East Central University, Ada, OK.
Cemetery mapping is an esoteric form of cartography that has moved into the digital age. A computerized database of cemetery plots enables one to more effectively archive and subsequently manage not only plot status, but also genealogical, demographic, structural, and other data associated with the lots. This poster presentation demonstrates how such a database is constructed for the municipal cemetery in Tishomingo, Oklahoma. Sample products and applications are also portrayed.

Humanities – 4.06

04.06.01 ARE LEARNING SKILLS IN A SCENARIO-BASED SIMULATION MORE EFFECTIVE THAN LECTURE-BASED ONLINE LEARNING?.
Annette Moulder, Multimedia Design Department, Cameron University, Lawton, OK.
With the rise of broadband connection, simulations are now emerging as a viable component of e-learning. Typically, simulations allow educators and trainers to teach difficult and complex ideas, while allowing the learners to engage in an authentic and life-like instruction in a safe environment. This paper will address the relative instructional effectiveness of online scenario-based simulations compared to lecture-based online learning. Two groups of students were randomly assigned to one of two experimental groups within an online setting. One group of students will be exposed to an authentic replication of a sales event containing complex interpersonal skills and procedures in a simulation environment. The second group of students was assigned to a control condition where the identical set of skills and procedures was presented in a text format. The result of this experiment will provide insight to investigators and practitioners in the field of online learning.

04.06.02 ECHOES OF WAR: OVID’S FAMA.
Margaret Musgrove, Humanities and Philosophy, University of Central Oklahoma, Edmond, OK.
In Book 12 of his Metamorphoses, the Roman poet Ovid (43 BC - AD 17) begins to retell the venerable myth of the Trojan War, known to readers from many previous Classical texts, especially Homer’s Iliad and Vergil’s Aeneid. Instead of of invoking a Muse at the beginning of his story, Ovid invokes Fama, the goddess of Rumor, and thus implies that all those previous stories of the Trojan War were unreliable rumors. We first examine Ovid’s Fama as an extended allusion to Vergil’s depiction of the same goddess in Aeneid, Book 4. Then Echo, another unreliable storyteller from Ovid’s own work, is examined. Neither Fama nor Echo originates stories; each modifies stories and then passes them along. Ovid thus implies that all storytellers, himself included, can tell stories of dubious reliability. Finally, Ovid’s description of Fama’s house is examined; Fama’s dwelling is depicted as much like a Roman atrium-house, and the goddess herself like a Roman patron, receiving the stories as her guests and clients. This similarity makes Fama akin to Roman emperors and to Ovid’s depiction of the god Jupiter. With these allusions, Ovid suggests that his own power as a storyteller is on a par with the power of an emperor or a god.

Philosophy – 4.07

04.07.01 HEAD TO HEAD: A STUDY OF VALUES CONFLICTS FOR THE CHRISTIAN ATHLETE.
Angela Ingram, English, East Central University, Ada, OK.
Many of the central values of Christianity and sport appear to be in direct opposition to one another. This research project will examine both the complementary and positional values of sport and Christianity, the influence of Christianity on the history of sport in the United States, and the impact on the modern-day Christian athlete who tries to combine sport and faith. After a review of the literature, primary data will be collected through surveys of college and high school Christian athletes, with questions designed to reflect each athlete’s level of perception of these inherent values conflicts, as well as the strategies used to reconcile these differences.
Music provides the soundtrack for American politics. Songs have a long and enduring tradition of alerting the public to international issues and mobilizing public opinion with calls to action. Music has become a primary means of giving voice to patriotism and even its darker twin, nationalism. Music-based political movements have been forceful in protesting unpopular wars, providing debt-relief for third world nations, promoting human rights around the globe, countering apartheid and other oppressive policies, coordinating famine relief, and informing listeners about the global consequences of destructive environmental policies. Music even provides solace for Americans enduring the pain of such international events as the terrorist attacks of September 11. Through songs, Americans express their hope in the competence and justness of their government. And through songs, Americans communicate their concerns and criticisms over American policies played out in the wider global arena. International musical artists have leveraged their songcraft to redirect the parochial sensibilities that typically characterize the American public and bring attention toward issues of more international concern. This research examines the meaning and influence of particular popular songs in the realm of foreign policy.

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The research will explore and analyze various counties in Oklahoma and the effects of religion on economic development. We will examine specific, prominent, religious denominations in each county and look for correlations or associations between these religious groups, and the increase or decrease in businesses affecting local economies. In addition, we will look at county business patterns and compare these to the dominant denominations and note any increases or decreases in these patterns. We will also inquire if Max Weber’s theory concerning The Spirit of Capitalism is relevant to the state of Oklahoma.

This research explores some of the factors that have contributed to the pervasive anti-intellectualism in Oklahoma. Although anti-intellectualism is also an American phenomenon, it is particularly distinct in Oklahoma. This research explores relationships between education and anti-intellectualism and certain religious denominations. Data on both religion and education for counties within Oklahoma will be studied to find the relationship between religious denomination, education and anti-intellectualism. Anti-intellectualism is measured by studying the use of public libraries in the various counties of Oklahoma. Recent studies have shown that about half of Americans these days do not read a single book in a year. The 2003 “Read Y’all” campaign to improve literacy in Oklahoma was a response to the fact that 400,000 adults cannot read in the state. This research will explore the effects of the Read Y’all campaign. Richard Hofstader’s study is used as an inspiration for this research. Hofstader studied social movements in the US and argued that the democratization of education had altered its purpose and the
consequence of this was anti-intellectualism. He considers the historic tension between access to education and excellence in education. Congregational data from Glenmary Research Association and demographic and literary data from the US Census Bureau will provide the basis for correlations and regression analysis.

04.08.05 WHAT NOT TO WEAR: WOMEN’S FASHION AND POLITICAL CANDIDATES.
Christine Pappas, Political Science, East Central University, Ada, OK.

This experiment seeks to test the effects of fashion on a voter’s desire to support a political candidate. Students in Introduction to American Government classes will comprise various treatment groups. Each class will be shown a different photo of a female political candidate. They will then be asked to assess photographs of political candidates on a variety of measures, such as attractiveness, leadership qualities, and electability. Their responses will be compared statistically with the responses of the other treatment groups in order to draw conclusions about the role of fashion in politics. We hypothesize that women who dress in a more “professional” way will score are more electable than women who dress in ways that are more sexual or more nurturing.

04.08.06 THE AFFECT OF DENOMINATION CHOICE ON POLITICAL AFFILIATION AND PARTICIPATION IN OKLAHOMA.
Richard Neal, Gabriel Smock, Olanrewaju Adegoke, Political Science and Legal Studies, East Central University, Ada, OK.

Oklahoma has had a long tradition of combining religion and politics. In the words of John Stone, religion and politics often involve the same people with the same commitment. The Republican Party has had success in recent years in capturing the state house and gaining seats in the state senate. The religious right and social conservatism in most Christian denominations within Oklahoma have a commonality of principles with Republican ideology. The shared ideology in choice of Christian organizations and political party, therefore, may affect party registration and voter turnout. Is there a correlation between choice of religious denomination and political party which corresponds to higher rates of voter registration and electoral turnout? Correlation analysis and multivariate regression will be conducted to determine the effect of denominational rates of adherence on partisanship and electoral outcomes at the county level in Oklahoma. The study will utilize county-level demographic data from the US Census Bureau, county-level congregational data from the 2000 Glenmary Congregations study, and party registration and voting data from the Oklahoma Election Board.

04.08.07 THE POLITICS OF RELIGION AND RACE: AN EXAMINATION OF EVANGELICAL AFRICAN AMERICANS AT THE LOCAL LEVEL...
Matthew Nies, History and Government, Cameron University, Lawton, OK.

Religion and race have long been the subject of study in Political Science. Using qualitative and quantititative methods, this study examines both of these factors in the context of mid-sized cities, and their affects on the Evangelical African American Community’s political ideology, voting behavior, and party affiliation. The study hypothesizes that Evangelical African Americans in Lawton are more conservative, and therefore more likely to vote for Republican candidates, than their national counterparts. Major “gaps”, such as gender and income, are also examined within the study. Many of the findings help to support the hypothesis; however, it is evident that more case studies should be conducted to further this research.

04.08.08 FAMILIARITY WITH AND KNOWLEDGE OF THE BILL OF RIGHTS AMONG FIRST YEAR FRESHMEN COLLEGE STUDENTS.
Garrett King, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.

This study seeks to assess the ability of first-year college students to identify basic components of the first ten amendments to the United States Constitution. By posing simple, multiple-choice questions to first-year freshmen college students, inferences are made from the compiled data. Questions posed regarded each amendment seperately along with the collective amendments in the form of the Bill of Rights. Demographic variables of participating students that were examined included gender, age, race, ethnicity, and prior educational experiences. The data was analyzed using SPSS statistical package.

Sociology & Substance Abuse Studies – 4.09

04.09.01 AN ANALYSIS OF CLANDESTINE METHAMPHETAMINE LABORATORY SEIZURES IN OKLAHOMA.
Rashi Shukla, Elaine Bartgis, Omar Safi, Sociology, Criminal Justice & Substance Abuse Studies, University of Central Oklahoma, Edmond, OK.

This study examines the clandestine methamphetamine laboratory problem in Oklahoma during the specific time period when legislative restrictions on precursor chemicals used to manufacture methamphetamine were
implemented. Data on clandestine laboratory seizures in Oklahoma from 2001 to 2005 were analyzed to examine laboratory types, size, manufacturing processes and the geographical distribution by county. Thematic maps depicting the geographical location of clandestine laboratories by county will be presented.

04.09.02 TO BE A TIGER OR NOT TO BE A TIGER... THAT IS THE QUESTION? FACTORS INFLUENCING COLLEGE CHOICE.
Linsy Ingmire, Angela Scribner, Garry Jackson, JoAnna Schmidt, Laci Jones, Human Resources, East Central University, Ada, OK.
The purpose of this study is to identify the factors that influence students college choice. A cross-sectional sample of the student body in undergraduate classes will be utilized. Variables in this study are financial aid, legacy, life experience, professional path, proximity, and campus atmosphere. We predict that our findings will show that the cost and proximity will be the major influential factors.

04.09.03 DONATION HESITATION: FACTORS THAT INFLUENCE COLLEGE STUDENTS CHOOSING TO BE AN ORGAN DONOR.
Gerald Mason, Gary Spikes, Judy Fowler, Monda Russell, Robin Branum, Tandi Ray, Sociology, East Central University, Ada, OK.
This study will focus on the factors why college students choose to be an organ donor or not. It is hypothesized that common misconceptions about being a donor are the determinants in deciding, such as cost to family, less diligent life-saving efforts, and contrary religious beliefs.

04.09.04 THE ESSENTIAL FUNCTION OF POLICE COURTROOM TESTIMONY IN CRIMINAL CASES.
Jessica Palmer, Harrison Watts, Criminal Justice & Sociology, Cameron University, Lawton, OK.
The testimony of witnesses to include police officers in criminal court can make or break a criminal prosecution. To assist in the practice of good policing, police officers in Oklahoma receive training related to courtroom testimony in the basic police academy. Furthermore, police officers are offered the opportunity to receive additional in-service training related to courtroom testimony. This research analyzes the frequency with which police officers receive courtroom testimony training and put that training to actual practice. The data analysis was collected within the Oklahoma 5th judicial district.

04.09.05 TO CATCH A CRIMINAL: WHAT IT MEANS TO BE A BOUNTY HUNTER.
Robert Roller, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
Criminal Justice isn’t just federal and state agencies working in order to stop crime in the United States. There are many private companies that aid in supporting the criminal justice system. Bounty Hunters are a part of criminal justice that helps keep criminals off the streets. In depth information will be provided on what being a Bounty Hunter entails and the different types of people they catch.

04.09.06 STUDENT SUPPORT SERVICES - TRIO PROGRAM.
Crystal Mohamed, Jacqueline Mansker, Student Support Services, University of Central Oklahoma, Edmond, OK.
Our nation has asserted a commitment to providing educational opportunity for all Americans regardless of race, ethnic background or economic circumstance. In support of this commitment, Congress established a series of programs to help low-income Americans enter college, graduate and move on to participate more fully in America’s economic and social life. While student financial aid programs help students overcome financial barriers to higher education, TRIO programs help students overcome class, social and cultural barriers to higher education. The Student Support Services (SSS) program provides opportunities for academic development, assists students with basic college requirements, and serves to motivate students toward the successful completion of their postsecondary education. Student Support Services projects also may provide grant aid to current SSS participants who are receiving Federal Pell Grant. The goal of SSS is to increase the college retention and graduation rates of its participants and help students make the transition from one level of higher education to the next. Projects include: instruction in basic study skills; tutorial services; academic, financial, or personal counseling; assistance in securing admission and financial aid for enrollment in four-year institutions; assistance in securing admission and financial aid for enrollment in graduate and professional programs; guidance on career options; mentoring and special services for students with limited English proficiency (LEP); and college scholarships. Students in the TRIO Student Support Services program are more than twice as likely to remain in college than those students from similar backgrounds who did not participate in the program.

04.09.07 PRIVATIZATION OF PRISON MEDICAL FACILITIES. Tammie Moss, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
Privatization of prisons originated in the 1980’s with both the national and state governments contracting with private corporations to house and care for prisoners. Soon after the privatization of prisons came the
development of privatized medical care for inmates housed in these prisons. This research will analyze the privatization of medical care for private prisons by focusing on the following issues: Adequate staffing and medical supervision, dispensation of proper medication, administration of timely medical care, proper discharge planning, and the prevention of fraud caused by over-billing.

04.09.08 HOW COMMON IS SCHIZOPHRENIA?
Nathan Perez, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
This presentation is about schizophrenia, which is a severe mental disorder which causes people to have hallucinations, delusions and emotional blunting. This will describe characteristics of schizophrenia, as a type of deviance. Another main focus will be about how widespread it is among Americans.

04.09.09 GOVERNMENT HIRE OF PRIVATE CONTRACTORS FOR THE CONSTRUCTION OF CORRECTIONAL FACILITIES: PROCESS AND INTERVIEWS.
Tye Meyer, Social Science, Southwestern Oklahoma State University, Weatherford, OK.
This study evaluates the process in which local and state governments choose to hire private companies to build correctional facilities. The factors involved in the study are the bidding process, the actual construction and sub-contracting, and all other processes involved. The study particularly focuses on the recent expansion to the Northfork Correctional Facility in Sayer, OK, and the new Custer County Jail in Arapaho, OK.

04.09.10 IS DEVIANCE RELATED TO REGION.
Glynn Cobb, Department of Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
Deviance is defined in many ways, but could it be related to region? Could regions like the “Bible Belt” spark more deviance due to the more conservative values of the area, while other more liberal areas have less deviance due to the less restricting values and moral code? Areas such as the “Bible Belt” seem to search harder for deviance in people’s lives, so that in turn could make the people in these areas better at hiding their deviance.

04.09.11 CRIMESTOPPERS.
Glynn Cobb, Department of Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
Crime is a nation-wide problem. Do programs such as Crimestoppers result in crime rates being affected in all regions? Do Crimestopper programs work in all urban settings? Crimestopper programs are designed to deter crime, and when crime does happen it is there to help find the criminal who perpetrated that crime. Even with the anonymity provided by the Crimestoppers hot line, some people are still reluctant to give up information on certain crimes.

04.09.12 DRUG TESTING IN SCHOOLS.
Kenzie Skinner, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
My project will be over drug testing in schools and its advantages and disadvantages. I want to determine whether the testing is beneficial to the school and students. Part of my research will be about the process of random selection and how the test is administered. I will also look into whether or not it should be the choice of the school or the government’s responsibility to have drug testing.

04.09.13 BECKHAM COUNTY JUVENILE DETENTION CENTER.
Heather Wright, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
The Beckham County Juvenile Detention Center in Elk City, Oklahoma is a short-term facility for Oklahoma juvenile offenders. This study will determine what type of offenders are being held and types of treatment available for the juveniles. The study will also examine the private contract with Western Plains Youth and Family Services and the facility’s involvement with the Office of Juvenile Affairs.

04.09.14 THE ROLE OF PERSONAL COMPUTERS IN STUDENTS’ ACADEMIC SUCCESS.
Halla Powers, Corry Kendall, Jessica Floyd, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
The purpose of this study was to identify rates of computer ownership and quantity and quality of computing activities among undergraduate students at Southwestern Oklahoma State University. This research explores both leisure and academic usage. The method of data collection involved a Likert Scale questionnaire given to approximately 100 students enrolled in general education courses during the Fall 2007 Semester. Data was analyzed using SPSS.

04.09.15 EATING DISORDERS AMONG COLLEGE STUDENTS.
Lauren Lohman, Carly McKinnon, Jennifer Elumeze, Robert Roller, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
The purpose of this study was to examine the relationship between participating in college athletics and developing an eating disorder. The method of research involved a Likert Scale questionnaire given to approximately 100 students participating in athletics at South-
western Oklahoma State University. The data was analyzed using SPSS.

04.09.16 MATE SELECTION AND COLLEGE STUDENTS: INFLUENTIAL FACTORS.
Bigyan Koirala, Tammy Moss, Tye Myer, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
This study examines the relationship between college students and their choice of mate selection. Significant to this study are influences such as religion, race, socio-economic class, physical attractiveness, and parenting. Data was collected from approximately 100 students using a Likert Scale questionnaire. The data was analyzed using SPSS.

04.09.17 POLITICAL INVOLVEMENT OF COLLEGE STUDENTS AT THE LOCAL, STATE, AND FEDERAL LEVEL OF GOVERNMENT.
Sarah Duke, Cody Cooksey, Floyd Sanders, Tommy Searcy II, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
The purpose of this research is to explore the political involvement and views of college students at the local, state, and federal levels of government. Factors examined include, party affiliation, reasons for or against involvement, and voting history. Data was gathered using a Likert Scale questionnaire administered to approximately 100 students. Data was analyzed using SPSS.

04.09.18 ATTITUDES AND OPINIONS TOWARD AGGRESSIVE ANIMAL BREEDS IN THE COMMUNITY.
Heather Edler, Allen Moss, Ryan McAdory, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
This research explores the attitudes and opinions of college students toward aggressive breeds of dogs in a community environment. Approximately 100 students were surveyed using a Likert Scale questionnaire. The data was analyzed using SPSS.

04.09.19 PERCEPTIONS OF STUDENTS REGARDING TOBACCO BANS ON UNIVERSITY CAMPUSES AND THE LIKELIHOOD OF INCREASED DEVIANT BEHAVIOR.
Brian Chandler, Brittanii Ogle, Mindi Shepherd, Wesley Gray, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
This study examines the relationship between college tobacco bans and the possible increase in student deviant behavior. Approximately 100 students were surveyed using a Likert Scale questionnaire. The data was analyzed using SPSS.

04.09.20 THE PERCEPTION OF COLLEGE STUDENTS TOWARD INTERRACIAL DATING.
Mesha Kumar, Crystal Stewart, Maria King, Social Sciences, Southwestern Oklahoma State University, Weatherford, OK.
This research examines the perception of college students at a rural university regarding interracial relationships. Historical and religious factors will be explored as possible sources of stigma. Approximately 100 students were surveyed using a Likert Scale questionnaire. The data was analyzed using SPSS.
PRELIMINARY INVESTIGATIONS OF INVERTEBRATES INHABITING WATER-FILLED BRACKETS OF HELICONIA CARIBAEA IN SABA.

Courtney Bass, David Bass, Biology, University of Central Oklahoma, Edmond, OK.

The aquatic invertebrates living in water-filled bractts of Heliconia caribaea were studied on Saba, a small island in the northeastern Caribbean Sea. All inflorescences that were sampled had invertebrates living in the water held by their bracts. These inflorescences contained an average of 449 individuals and 5.2 species. Immature dipters and acarins composed the most abundant groups found in the inflorescences. Based on these samples, a confidence interval of 449 plus/minus 284 individuals for each inflorescence was estimated. A total of 14 species were collected from the H. caribaea samples, 11 of which were previously unknown to exist in Saba.

ANALYZING THE INTERACTIONS OF RAF1 KINASE WITH PROTEIN SERINE/THREONINE PHOSPHATASES 2A AND 5”.

Leethaniel Brumfield, Biology, Langston University, Langston, OK.

It is becoming increasingly clear that multiprotein complexes play important roles in modulating cellular signaling events. Interestingly, some of these multimeric complexes contain both protein kinases and phosphatases. Protein serine/threonine phosphatase 2A (PP2A) is a major cellular phosphatase that has been found to associate with several protein kinases, including CaMKIV, IKK, p70S6K, and Raf1. In previous studies, we and others established that PP2A and PP5 positively and negatively regulate Raf1, respectively, thereby controlling the three-tier Raf-MEK-ERK cascade, which plays an important role in cell growth, proliferation, differentiation, migration, and survival. We are investigating the regulation of Raf1 by both PP2A and PP5, as the specificity of how and when these proteins interact remains largely unknown. To characterize the association of Raf1 with these two phosphatases, human embryonic kidney (HEK) 293FT cells are being transiently transfected with various combinations of epitope-tagged Raf1, PP2A, and PP5. Subsequent immunoprecipitation (IP) of the multi-protein complexes followed by Western analysis allows us to monitor Raf1-phosphatase interactions. At present, we are utilizing this strategy to examine stimulus-dependent changes in the interaction of Raf1 with PP2A and PP5. We anticipate that these studies will increase our understanding of the regulation of the Raf-MEK-ERK signal transduction pathway and may suggest novel therapeutic targets for diseases characterized by defects in this pathway.

DEVELOPMENT OF A METHOD TO MAP CHROMATIN ARCHITECTURE IN YEAST.

Miranda Knight-Brown, John de Banzie, Nick Hardgraves, William Murry, Natural Sciences, Northeastern State University, Tahlequah, OK.

Current methods to map chromatin organization within the nucleus give relatively low resolution data. We are attempting to develop a method that will provide a more detailed picture of the spatial relationships between specific sequences. We are exploring the many variables in the method in a search for an effective combination.

DEVELOPMENT OF A SNP-GENOTYPING ASSAY ON THE LUMINEX 100.

Joyce Mann, Dr. David Ralph, Dr. Eldon Jupe, Dr. Sharmila Manjeshwar, Biology, Oklahoma City Community College, Oklahoma City, OK. Research and Development, InterGenetics, Inc., Oklahoma City, OK.

In the United States breast cancer in Caucasian women is prevalent with approximately 216,000 new diagnoses and 40,000 deaths each year. Complex interactions of genetics, lifestyle and environmental exposures influence the risk of developing breast cancer. Important approaches to increased survival include managing breast cancer risk and early detection. One potential method of improving individual risk prediction is to identify common genetic variants, such as single nucleotide polymorphisms (SNPs) that influence breast cancer either alone or in concert with personal history measures (PHMs) and/or other SNPs. An integrated model (OncoVue) using both SNPs and PHMs has been developed at InterGenetics to predict age-specific breast cancer risk. The goal of the present study was to identify additional SNPs that might improve the performance of the model by developing a new multiplexed SNP genotyping assay on the Luminex 100 platform. Thirty candidate SNPs (described in the literature to play a role in breast and/or other cancers) were chosen to be multiplexed. Our results indicated 21 of 30 SNPs gave moderate to robust results and 9 SNPs failed to genotype. Two assays were created (Assay 1 of 11 SNPs with robust signals & Assay 2 of 10 SNPs with moderate signals). In a pilot study on 48 clinical breast cancer cases and controls, all SNPs were successfully genotyped in both assays.
06.01.05  REPRODUCTIVE HABITAT PREFERENCES OF THE ENDANGERED AMERICAN BURYING BEETLE.

Amy Smith, Craig Clifford, Natural Sciences, Northeastern State University, Tahlequah, OK.

The reproductive habitat preferences of the endangered American burying beetle (Nicrophorus americanus) were examined at nine established habitat types at Camp Gruber Army Training Center in Muskogee County, Oklahoma. Four 200 gram carcasses (Rattus norvegicus) were made available for burial at two replicate locations for each of the nine habitats (18 total) during May 2006 and 2007. Buried carcasses were covered with a mesh enclosure to trap departing N. americanus parents and newly eclosed offspring. Thirty-nine carcasses were successfully buried at ten different habitat locations. N. americanus moved carcasses an average of 30.5 cm before burial at an average depth of 15.9 cm (depth to bottom of burial chamber). Adults emerged 12-22 days after burial. The developmental time of offspring was 31-60 days. The burial of a carcass varied significantly with soil compaction (P=0.003), total nitrogen (P=0.04), potassium (P=0.005), and clay (P=0.019). Burial was more likely when each of these soil parameters were low. Subsequent emergence of beetles varied significantly with the depth of the chamber (P=0.03) and beetles tended to emerge when carcasses were buried at depths of 23 cm or greater. It appears that soil parameters influenced burial of carcasses. Once buried, competition with flies and N. marginatus may impact N. americanus reproductive success.

06.01.06  FEEDING RATES AND NEST ATTENTIVENESS IN SWAINSON’S WARBLERS (LIMNOPTHLYPIS SWAINSONII).

Mia Revels, Jenna Curry, Mouse Rebekah, Natural Sciences, Northeastern State University, Tahlequah, OK.

Swainson’s Warblers are one of North America’s most poorly studied migratory bird species. Due to the difficulty of locating and monitoring their nests, very little is known of their breeding biology, particularly nesting behavior. This study was initiated in order to document adult behaviors at the nest, including nest attentiveness and feeding rates of both male and female Swainson’s Warblers. Nest were located by systematically searching known male Swainson’s Warbler territories. Nest with nestlings were videotaped until fledging or predation occurred. Videos were viewed and the arrival and departure times for both the male and female at the nest were recorded for the length of the tape. We also recorded the number and time of feeding. 81 hours of videotape were analyzed. On average, males spent only 44 seconds at the nest per trip, whereas the female spent and average of 45 MINUTES at the nest during each visit. Male Swainson’s Warblers fed nestlings more frequently (120/179, 67%) than females (59/179, 33%). Overall, the feeding rate was 1.13 parental feeding trips per nestling per hour. Prior to this study, very little was known about the parental care of Swainson’s Warblers. Brook Meanley reported on behavior at a single nest for a 7 hour period. This study provides analysis of over 81 hours of breeding behavior for the very cryptic and difficult-to-study species. This information will be valuable for the conservation and management of Swainson’s Warblers.

06.01.07  A NEW SPECIES OF TRICHOLOMA FROM COSTA RICA.

1 Clark Ovrebo, 2 Karen Hughes, 3 Roy Halling, 1 Biology, University of Central Oklahoma, Edmond, OK. 2 Ecology and Evolutionary Biology, University of Tennessee, Knoxville, TN 37996. 3 Institute of Systematic Botany, The New York Botanical Garden, Bronx, NY 10458.

Collections of an undescribed species of Tricholoma sect. Genuina were made in the oak forests of Costa Rica. The fungus is characterized by the light yellowish brown, viscid pileus, very pale yellow lamellae and stipe, and by crowded lamellae. DNA was extracted using a modified CTAB buffer followed by alcohol precipitation. Primers ITS1F and ITS4 were used for PCR of the ribosomal RNA ITS region. Dideoxy sequencing was primed with ITS5 in the forward direction and ITS4 in the reverse directions with alignment and trimming done manually. Parsimony analysis was performed in PAUP using 1000 bootstrap replicates. A monophyletic clade of nine Tricholoma collections resulted. A second clade appeared as a sister to the first clade, the latter containing two collections deposited in GenBank as Tricholoma ustale and T. ustaloides respectively, but with poor bootstrap support. Two additional collections comprise a third clade which is basal to the putative T. ustale/T. ustaloides clade. Collections in the first clade represent a hitherto unnamed species of Tricholoma apparently related to the second white-gilled clade from California. Collections in the third clade differ in ITS sequence from the first clade by only 1.52%. The third clade may represent a sibling species or all three clades may represent a single large species complex which has diverged over distance and time.

06.01.08  THE RELATION BETWEEN ALARM PHEROMONES AND CORTICOSTERONE LEVELS IN WESTERN DIAMOND BACK RATTLE SNAKES (CROTALUS ATROX).

Stephen An, Zoology, Northwestern Oklahoma State University, Alva, OK.

Several studies assessed the function of the cloacal scent gland secretions in snakes. This experiment focuses on the possibility that these secretions act as alarm pheromones, according to the study done by Graves and Du-
vall in 1988. Adult Western Diamond-backed Rattlesnakes (Crotalus atrox) were individually exposed to dichloromethane extracts of cloacal scent gland secretions from conspecifics to determine whether it has an effect on plasma corticosterone level. Blood was collected from each snake after 30 minutes of exposure. Preliminary RIA results indicate that the alarm pheromone from the cloacal scent gland secretions increase plasma corticosterone levels, conspecifics are able to metabolize stored energy to react appropriately (i.e., flee or flight) when confronted with threatening stimuli such as a predator.

06.01.09 MOLECULAR GENETICS OF CYSTIC FIBROSIS.
Joy McKillip, E.J. Phares, Biological Sciences, Southwest- ern Oklahoma State University, Weatherford, OK.
Cystic fibrosis (CF) is an autosomal recessive genetic disorder which affects 1 in 2500 children born in the United States each year. Cystic fibrosis occurs when there is a mutation in the cystic fibrosis transmembrane conductance regulator (CFTR) gene. The CFTR gene is found on chromosome 7 at the q31.2 locus. CFTR is a type of protein classified as an ABC (ATP-binding cassette) transporter or traffic ATPase. These proteins transport molecules such as sugars, peptides, inorganic phosphate, chloride, and metal cations across the cellular membrane. CFTR transports chloride ions (Cl-)-ions across the membranes of cells in the lungs, liver, pancreas, digestive tract, reproductive tract, and skin. About 70% of mutations observed in CF patients result from deletion of three base pairs in CFTR’s nucleotide sequence. This deletion causes loss of the amino acid phenylalanine located at position 508 in the protein; therefore, this mutation is referred to as delta F508 or F508. People who are homozygous for delta F508 mutation tend to have the most severe symptoms of cystic fibrosis due to critical loss of chloride ion transport. People who are heterozygous for delta F508 mutation will exhibit no symptoms of cystic fibrosis, but will be carriers and potentially pass this trait on to their offspring.

06.01.10 SYSTEMIC SALT LOAD CAUSES COMPARABLE INCREASES IN PLASMA OSMOLALITY IN OVARIECTOMIZED RATS WITH OR WITHOUT ESTROGEN.
1 Megan Buford, 2 Alexis Jones, 2 Kathleen Curtis, 1 Biology, Northeastern State University, Tahlequah, OK. 2 Pharmacology and Physiology, Oklahoma State University Center for Health Sciences, Tulsa, Ok.
Objective: Previous studies from our laboratory have shown in rats, estrogen decreases the latency for water intake in response to a systemic salt load. This estrogen effect may be caused by altered renal function such that plasma osmolality (pOsm) increases more rapidly. Possibly, estrogen may enhance the ability of rats to detect a salt load. We wanted to determine which possibility accounted for the previous findings. So, we measured pOsm after a systemic salt load in female rats with/without estrogen. Methods: Adult female rats were bilaterally ovariectomized (OVX), allowed to recover, and were inserted with chronic, indwelling femoral venous catheters. After recovery, rats were injected with estradiol benzoate or the oil vehicle for two consecutive days. The rats were then infused intravenously with 2.0 M NaCl or 0.15 M NaCl at 35 ul/min. Rats were sacrificed and trunk blood was collected to determine pOsm, hematocrit (hct), and plasma protein concentration (pPro). Results: As expected, pOsm increased in OIL- and EB-treated rats during 2.0 M NaCl infusion; however, EB did not affect the increase or pOsm after 0.15 M NaCl. There were no differences in plasma volume, as indicated by hct. and pPro. Conclusion: These results show that a systemic salt load increased pOsm comparably in OIL- and EB-treated OXV rats. We propose that EB decreases the latency for water intake in response to a salt load by enhancing the sensitivity to increased pOsm.

06.01.11 CLONING OF THE NOVEL TRANSPORTER BOCT1.
Kelly Fine, muatasem ubeidat, Biology, Southwestern Oklahoma State University, Weatherford, OK.
BOCT1 and BOCT2 are novel transporters that are part of the Organic Cation Transporter (OCT) family. OCT’s transport a wide variety of positively charged organic substrates including many drugs. BOCT1 has not been well characterized and the function of BOCT 2 is unknown. By recombinant expression of those genes in cells, their function can be examined. The expression vector of choice is pcDNA 4/TO, a tetracycline inducible plasmid. pcDNA clones of BOCT2 and the characterized transporters OCT1 and OCTN2 were previously constructed. A pcDNA clone of BOCT1 was needed. In this project the BOCT1 – FLAG DNA sequence was cloned into the tetracycline inducible expression vector pcDNA 4/TO. The results showed that the optimum concentration of Zeocin for HEK transfections is 200 µg/mL. BOCT1, BOCT2, OCT1, and OCTN2 pcDNA 4/TO constructs were transfected into HEK–293 cell line.

06.01.12 SEQUENCING OF ALKALINE PHOSPHATASE GENE FROM DICTYOSTELIUM DISCOIDEUM.
Richard Adijiboy, Muatasem Ubeidat, Yimfor Djufo, Biology, Southwestern Oklahoma State University, Weatherford, OK.
The project objective is to study the function(s) of alkaline phosphatase by studying the effect of mutations
in specific amino acids in the protein. Therefore we attempted to accurately sequence alkaline phosphatase gene. We attempted to clone alkaline phosphatase gene in pUC19 for sequencing using IRDye800 and IRDye700 labeled primers. The gene was amplified from pET32a by T7 promoter and T7 terminator primers, and then digested with BamHI and ligated to BamHI site in pUC19. Clones were obtained and being analyzed. NEN Model 4300 DNA Analyzer was installed recently in our lab at SWOSU. We attempted the sequencing of part(s) of pUC19 vector to optimize the sequencing procedure. The results showed improvements of the sequence quality when vector specific IRDye labeled primers were used. Therefore, we focused on cloning the gene in pUC19 to be able to use the labeled vector specific primers. Surveying the literature and our own sequencing experience showed that optimizing the conditions for sequencing an AT-rich gene is very difficult and needs several attempts to get the right conditions. Funding was provided by NIH-INBRE grant 20RR016478-07

06.01.13 POPULATION PERSISTENCE OF THE BROWNSVILLE COMMON YELLOW-THROAT.

Kimberly McBride, Christopher J. Butler, Biology, University of Central Oklahoma, Edmond, OK.
The Brownsville Common Yellowthroat (Geothlypis trichas insperata) is an isolated subspecies of the widespread Common Yellowthroat and was restricted to the Lower Rio Grande Valley of Texas and adjacent Tamaulipas, Mexico. Believed to be extinct by the mid-1950s, it was rediscovered in 1988 and the population was estimated to consist of approximately 250 birds. During 2005-2007, surveys were carried out to determine its habitat requirements and to estimate the density of this bird in suitable habitats. We then used the program RAMAS GIS to model the persistence of this population on the landscape.

06.01.14 COLLARED LIZARDS DECREASE TESTOSTERONE LEVELS IN RESPONSE TO STAGED TERRITORIAL INTRUSIONS: A TEST OF THE CHALLENGE HYPOTHESIS.

1 Jennifer L. Curtis, 1 Troy A. Baird, 2 Diana K. Hewes, 1 Biology, University of Central Oklahoma, Edmond, OK. 2 Ecology and Organisimal Biology, Indiana State University, Terre Haute, Indiana.
The challenge hypothesis (CH) has been useful in explaining patterns of androgen responsiveness to staged territorial intrusions in birds. However, there have been fewer studies in other vertebrate taxa. We tested the CH in territorial male collared lizards. Theoretically, breeding season levels of testosterone (T) should be at maximum, and thus males will not elevate T in response to challenges. Males at our site are territorial, but rarely engage in aggression. Thus, we hypothesized that males may not maintain T levels at maximum during the breeding season, therefore allowing males to respond hormonally to challenges. For a trial on day 1 we collected blood samples to obtain ‘baseline’ T concentrations. To determine changes in behavior and T, on day 3 we conducted initial 30 min focal observations to obtain ‘baseline’ levels of behavior. We then tethered a conspecific male near a resident for 15 min, followed by a second focal observation after which we immediately obtained a blood sample. Following challenges, males increased the frequency of distant display, and proximal display used during male-male conflict. Interestingly, challenged males decreased the number of proximal encounters with and the frequency of proximal displays to females, suggesting that territorial advertisement was a higher priority. In contrast to our hormonal predictions, territorial males reduced plasma T following challenges compared to baseline levels. There was no change in T for controls.

06.01.15 DEFINING HOW CALCIUM SIGNALLING IS PERTURBED IN EARLY-ONSET ALZHEIMER’S DISEASE.

Kendra Vann, Chemistry, Langston University, Langston, OK.
The intensifying research of many scientists has driven a vast amount of progress in understanding how neurodegenerative diseases affect the brain. However, the relationship between Ca2+ signalling and Amyloid Precursor Protein (APP) mutations that cause early-onset Alzheimer’s disease (EOAD) is not yet clear. Alzheimer’s disease (AD) is an incurable, progressive degenerative disease of the brain, which leads to cognitive and behavioral impairment and produces two hallmark abnormalities: Amyloid-β(AB) plaques, and intracellular neurofibrillary tangles. Aβ is a fragment of a protein that is snipped from APP. In AD, the fragments accumulate to form hard, insoluble plaques. The objective of this research was to gain insight of how EOAD-causing mutations impact Ca2+ signals. I investigated the APP mutant T714I and V717L, which are considered to be aggressive EOAD, and used genetically-encoded fluorescent sensors to measure the concentration and localization of cellular Ca2+. The central hypothesis was that the EOAD APP mutants T714I and V717L will cause Ca2+ dyshomeostasis. I discovered that the EOAD mutant V717L had a significant (P < .05) effect on the resting Ca2+ levels in the ER compared to the APP wild-type, where the mutant caused a decrease in resting Ca2+ levels, while the APP mutant T714I did not. When g-secretase was inhibited V717L showed a
significant increase \( (P > .005) \) occurred in the Ca2+ ratio. The g-secretase inhibition data also reveals a significant decrease \( (P > .005) \) in T714I. These results support experimental use of APP mutants as a useful tool for understanding the mechanisms of Ca2+ dysregulation in Alzheimer’s disease.

06.01.16 THE DEVELOPMENT AND APPLICATION OF A PLANT BIOASSAY TO ELUCIDATE TOXIC PRINCIPLES DIRECTED AT WATERMELON BY FUSARIUM OXYSPORUM F. SP. NIVEUM.

1 Kelli Baze, 2 Benny Bruton, 3 Wayne Fish, 1 Chemistry, Southeastern OK State University, Durant, OK. 3 SCARL, USDA-ARS, Lane, OK.

Formae speciales of Fusarium oxysporum cause wilt and death to numerous agronomic crops worldwide. The objective of this research was to develop a bioassay for Fusarium toxins directed toward watermelon. Watermelon seedlings were grown to the two leaf stage; the roots were washed and trimmed. Two seedlings were placed in a 7 ml vial that contained the appropriate medium. Four plants were utilized for each treatment and control. Light was provided 15 cm above the plants at a temperature of 20 to 25°C. Plants were evaluated and photographed daily over a period of 4 to 7 days. Cotyledons, leaves, stems, and roots were individually assigned a rating from 1 (healthy) to 5 (dead) in order to quantify plant response. A dose response experiment employing the bioassay was performed with the use of fusaric acid, a mycotoxin believed to be associated with some Fusarium wilts. Rates of seedling wilt/death were observed to be proportional to the concentration of fusaric acid to which the plants were exposed. Two highly pathogenic isolates of F. oxysporum f. sp. niveum were each grown in shake flask culture. The results from fusaric acid analyses and bioassay of the mycelia/spore-free media demonstrated that one of the races produced fusaric acid as a primary toxin while the other produced a different toxic principle(s). Using the results from developmental and bioassay directed toward watermelon, fusaric acid, a mycotoxin believed to be as well. The results from developmental and bioassay directed toward watermelon, fusaric acid, a mycotoxin believed to be associated with some Fusarium wilts, were used to develop a bioassay that can be applied to Fusarium toxins directed toward watermelon plants.

06.01.18 CARAPACAL VASCULAR INTERACTIONS WITH THE SCUTE LAYER IN THREE TESTUDINE FAMILIES.

Kyle Ingram, Elizabeth Hall, Kenneth Andrews, Biology, East Central University, Ada, OK.

The shell of Testudines is covered by a keratinous material known as scutes. The function of scutes is to provide the shell with more protection. These structures are continuously grown and replaced, much like fingernails. Different species of turtles have scutes of differing shapes, patterns, and designs. There are even disparities in the scutes of individual turtles of the same species. However, there is a dearth of information on how scutes are provided nutrients. Scutes are completely lacking in vascularization. These structures are continuously being grown and replaced, and they must obtain materials for regeneration from some vascular network. The objective of this research is to determine what mode of vascularization scutes utilize. This study used carapace samples from three species of extant turtles: Trachemys scripta elegans; Sternotherus odoratus; and Apalone mutica. From each species, five samples were extracted: neural, left peripheral, right peripheral, anterior, and posterior carapace samples. These samples were decalcified using the formic acid decalcification method. The samples were fixed and stained using H&E staining. These specimen samples were then examined to determine bone/sub-scute interactions within vascular structures. Vascular networks within the carapace were examined to determine their precise interac-

06.01.17 COMPARATIVE ENDOCHONDRAL OSSIFICATION OF THE CARAPACE AND PLASTRON IN THREE FAMILIES OF TESTUDINES.

Elizabeth Hall, Kenneth Andrews, Biology, East Central University, Ada, OK.

Turtles have always been described by the presence of their shell. Current literature documents the embryological development of the shell for several species including the common snapping turtle (Rieppel, 1993), the alligator snapping turtle (Sheil, 2005), the spiny soft-shelled turtle (Sheil, 2003), and the Australian side-necked turtle (Alibardi and Thompson, 1999). Although Trachemys scripta elegans is the most commonly studied testudine in herpetological research, currently, there are no documented embryological studies of this species. This study compared endochondral ossification of the carapace and plastron of Chelydra serpentina with published records of this species (Rieppel, 1993) and close relatives (Sheil, 2005), then, examined and compared the endochondral ossification of representatives from two unexamined families of testudines (Trachemys scripta elegans and Sternotherus odoratus).

Twenty-eight embryos were examined after they had been fixed, cleared, and stained. Results were staged using Greenbaum and Carr (2003) staging criteria for each specimen. The specimens were then examined to determine sequence of ossification of nuchal bone, vertebrae, ribs, plastron, and scute formation. The ontogeny of these vertebrates does recapitulate their phylogeny for the nuchal bone ossification and scute formation. An inverse relationship was observed for vertebrae ossification. No pattern could be discerned for rib and plastral ossification.
tion with scutes. These vascular networks interact with the scute for nutrition as well as thermal control of the organism.

06.01.19 MAMMARY GLAND EXPRESSION TAG (EST) IN GOAT.
1 Kanyand Matand, 2 Kariel Ross, 2 Jun Luo, 2 Xuefeng Han, 1 Ning Wu, 1 Department of Biology, Langston University, Langston, OK. 2 College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, P. R. China. 3 Departments of Research & Extension, Langston University, Langston, OK 73050.
Goat is a major source of income and animal nutrients. It is also an important animal research bio-system; however, genomic studies and information are scarce on this species. This has resulted in a lower pace for genomic resources generation that could be pertinent for goat improvement and by-products development. This study was designed to construct and assess the functional quality of goat mammary gland primary cDNA library and clones. The results showed that the primary cDNA library was of high quality and contained 1.4×10⁷ colony forming units with an average insert size of 1000 bp and recombinant rate of 96%. Sequencing analysis of 115 randomly selected clones revealed that about 55.7% of sequenced clones were redundant, whereas 25% of them or 56.9% of the clone clusters represented novel genes. Functional analysis also showed that, although milk protein related genes which included beta-lactoglobulin, beta-casein, a2-casein, kappa-casein and prealpha-lactalbumin were the most abundant, other genes involved in ribosomal structure, metabolism, immune response, and translation were also identified through sheep, cow, and human cross-species comparison. The results also showed that 75% of studied clones were successfully identified by using resources from other species, which indicated that genomic resources that had been generated across species are potential powerful tools that can be used to enhance molecular understanding of less genomically studied species.

06.01.20 INHIBITION OF DROSOPHILA MELANOGASTER DEVELOPMENT WITH FUNGAL EXTRACTS.
Justin Sylsberry, Charlie Biles, Terry Cluck, Biology, East Central University, Ada, OK.
Many fungi synthesize insecticidal compounds. Drosophila melanogaster were used as a model system in these experiments because of their known susceptibility to many toxins. Alternaria tenuis, Aspergillus niger, Epicoccum purpurascens, Geotrichum candidum, Microsporeum gypseum, Mucor genevensis, Penicillium expansum, P. notatum and, Stachybotrys chartarum were cultured from the fungal collection at East Central University and Boletus sensibilis was collected from the field. All fungi were ground in liquid nitrogen then mixed with sodium acetate buffer. After centrifugation, the supernatant served as the fungal extract tested for insecticidal properties. The extracts were mixed with fly food, and two adult females and one adult male were added to each vial. Two types of food were used: one with methylparaben (mold inhibitor) and one without. The number of adult flies produced in each vial were compared to controls. Methylparaben with A. niger significantly decreased the number of flies produced. M. gypseum caused a significant increase in the flies produced. No other fungal extracts produced a significant change in fly production. In extracts without mold inhibitor, P. expansum significantly reduced the number of flies, however, G. candidum and B. sensibilis significantly increased the number of flies. Methylparaben appears to influences insecticidal properties of extracts on D. melanogaster.

06.01.21 EFFECTS OF FLOODING ON LIMNOLOGICAL CONDITIONS AND PHYTOPLANKTON IN CROWDER LAKE.
Steven O’Neal, Alexis Verplank, Alyssa Cannon, Ashley Hardman, Holly Ladymon, Immanuel Suleiman, Jessica Redd, Lacey Penland, Savannah Powell, Department of Biological Sciences, Southwestern Oklahoma State University, Weatherford, OK.
Oklahoma experienced its wettest June on record in 2007. Heavy and persistent rains during the spring and early summer produced stream flooding and rapidly rising lake levels across Oklahoma. The goal of this study was to determine how the rapid input of large quantities of runoff affected limnological conditions and phytoplankton in Crowder Lake, a 158 acre reservoir on Cobb Creek in Washita County. Four sites, representing riverine and lacustrine regions, were sampled on July 18 & 25, 2007. Water samples collected from a depth of 0.5m were processed for chlorophyll-a, conductivity, pH, turbidity, ammonia, nitrate, soluble iron, and total phosphorus. Water temperature, dissolved O2, and Secchi depth were also measured at the sites. Depth profiles of temperature and dissolved O2 in the water column were determined at the deepest site located near the dam. Parameters measured were compared to similar measurements made in the summer of 2001.
Concentrations of chlorophyll-a and nitrate were significantly higher in 2007. Secchi depths indicated higher turbidity levels. At the deep site, dissolved O2 dropped to near zero at a depth of 2-3m compared to 7-8m in previous years. Results suggest that heavy runoff had a significant effect on the reservoir. Anoxic lake sediments may have been mixed into the water column reducing O2 levels, increasing nutrient levels, and stimulating phytoplankton growth.
06.01.22 INVESTIGATION OF ATP BINDING CASSETTE TRANSPORTER G2 (ABCG2) TRANSCRIPTIONAL STRUCTURE IN LACTATING GOAT MAMMARY GLAND.
1 Ning Wu, 2 Huijuan Wu, 3 Jun Luo, 4 Kanyand Matand, 4 Kariel Ross, 1 Departments of Research & Extension, Langston University, Langston, OK. 2 College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, P. R. China. 3 Department of Biology, Langston University, Langston, OK 73050.

The ABCG2 gene codes for a trans-membrane proteins superfamily that mediates the ATP-dependent translocation of a variety of lipophilic substrates. The effect of ABCG2 on milk yield and composition has been reported in other ruminants such as cattle. However, there is limited information on this gene’s structure, expression or functional analysis in goat. This is the first investigative report on goat ABCG2 gene’s coding region nucleotide sequence and expression during lactation. The full length coding region, which was sequenced and deposited into the GenBank (accession No. DQ904356), consisted of 1977 nucleotides that encoded 658 amino acids. The results also showed that there were 96%, 89% and 85%, and 96%, 85% and 79% of goat’s ABCG2 nucleotide and peptide sequence similarities with bovine, human, and mouse homologs, respectively. Further bioinformatical analyses predicted coil-helix structures and optional motifs species specific differences. During the study, Real-time Reverse Transcription-Polymerase Chain Reaction was applied to explore the gene’s expression profile during lactation. The results showed a five-fold increase in expression level during peak stage, compared with that at the onset of lactation. This suggests that ABCG2 might play a major role in goat milk secretion.

06.01.23 BIBLIOGRAPHY OF OKLAHOMA MAYFLIES (EPHEMEROPTERA).
Joy McKillip, Peter Grant, Biological Sciences, Southwestern Oklahoma State University, Weatherford, OK.

Mayflies (Ephemeroptera) belong to an order of aquatic insects that are ubiquitous in freshwater habitats and thus are important components of aquatic food webs. Throughout Oklahoma there are over 224,000 lakes and farm ponds and over 12,294 stream miles. Despite these extensive freshwater habitats, no comprehensive study of mayflies has been conducted for the state. Currently there is no single key to identify mayfly larvae and adults to species for Oklahoma, and publications needed to identify species are widely scattered in the scientific literature. Our goal, then, was to gather these papers that discuss Oklahoma mayflies to compile a bibliography.

06.01.25 HISTOLOGICAL ANALYSIS OF PARASITES FOUND IN TRACHEMYS SCRIPTA ELEGANS OF OKLAHOMA.
Charles Jantzen, Jacob Barney, Kenneth Andrews, Biology, East Central University, Ada, OK.

Testudines are a heavily parasitized group of poikilotherms and are commonly host to multiple species infections. There is a paucity of current data on the helminth parasites of Oklahoma testudines. Much of the available data is in excess of fifty years old. Our findings will add to the information available on parasites of Oklahoma testudines. Fifty Red-Eared slider turtles (Trachemys scripta elegans) were collected in southern Oklahoma. These testudines were dissected; sex and size information recorded, and all organs were analyzed for parasites. Anatomical structures found with cysts, eggs, or embedded parasites were preserved for histological screening. These tissues included: small intestine, large intestine, stomach, kidney, bladder, heart, esophagus, lungs, liver, and spleen. Tissues were fixed in 10% formalin, and larger tissues were sectioned to less than 3cm to ensure proper processing and paraffin embedding. Slides were stained with a standard H&E stain. Histological evaluation of slides will include locating, typing, and determining life stage of parasites. A morphological evaluation of the host tissues as well as the modification or destruction of the same tissues was performed. It is hoped that this data increased the knowledge of the life cycles of these poorly known parasites within Oklahoma.

06.01.26 A PCR ASSAY TO DETECT CHICKEN FECAL POLLUTION.
Daniel Owen, Cindy Cisar, Nebojsa Kezunovic, Natural Sciences, Northeastern State University, Tahlequah, OK.

Fecal pollution of water resources is a serious problem. Remediation of fecal pollution is simplified if the source of contamination is known. One method for identifying the source of contamination utilizes PCR amplification of 16S rRNA gene (rDNA) sequences from a class of obligate anaerobic bacteria (order Bacteroidales) that are abundant in the gut of warm-blooded animals. Bacteroidales from humans, ruminants, pigs, and horses can be distinguished using this method. Poultry farms are a potentially significant source of fecal contamination in northeastern Oklahoma. However, no method is available to specifically detect Bacteroidales from chicken feces. In this study, chicken Bacteroidales strains were examined for their potential use as specific indicators of chicken fecal contamination. Bacteroidales 16S rDNA sequences from chicken feces were compared and two subsets of putative chicken feces specific sequences identified. Three sets of primers were designed and tested for specificity in PCR assays. One primer pair specifically amplified chicken fecal DNA, but did not
amplify wild turkey, cat, or deer fecal DNAs. The data from these experiments indicates that the PCR assay based on this primer pair is specific for chicken feces. Future plans include determining the detection limit of our PCR assay.

06.01.27 FOOD ITEMS OF THE SHORT-EARED OWL (ASIO FLAMMEUS: STRIGIFORMES: STRIGIDAE) IN OKLAHOMA.
Ariehsa Wilbert, Paul Wilson, William Caire, Biology, University of Central Oklahoma, Edmond, OK.
This checklist summarizes prey items of Asio flammeus (Short-eared Owl) in Oklahoma. The checklist is based on prey items identified in 4,276 Short-eared Owl pellets collected from 1982-2005. It also lists prey items reported in the literature. The pellets contained 4 species of birds and 9 species of mammals. A large percent of the pellet collection contained remains of small mammals (Sigmodon, Microtus, Reithrodontomys and Peromyscus). Our results combined with those in the literature produced a list of 19 different prey items for the Short-eared Owl in Oklahoma.

06.01.28 DO WE COMPLETELY UNDERSTAND STEM CELLS?
Lynn Wright, Kasandra Gurtner, Biology, Southwestern Oklahoma State University, Weatherford, OK.
Stem cells are unspecialized cells that give rise to similar stem cells as well as more specialized cell types. Stem cells are classified into three different categories: totipotent, pluripotent, and multipotent. Totipotent stem cells include embryonic stem cells because they are derived from the inner cell mass of a blastocyst. Pluripotent stem cells are the descendants of totipotent cells and can differentiate into cells derived from any of the three germ layers. Adult stem cells are an example of pluripotent stem cells because they help with tissue repair or renewal. Lastly, multipotent stem cells can only differentiate into a limited number of types of cells. Cord blood stem cells are multipotent stem cells because we only have a small amount of stem cells that circulate in the blood stream. Because there are three different categories of stem cells we would like to clear up the controversial issues related to some of them.

06.01.29 THE ROLE OF NUCLEOTIDE EXCISION REPAIR IN XERODERMA PIGMENTOSUM.
Stephanie Johnson, Biology, Southwestern Oklahoma State University, Weatherford, OK.
One speculated cause of skin cancer and aging is damage to our DNA. This could be from ultraviolet radiation damage cause by the sun. Several DNA repair mechanisms exist to protect us from defects in our DNA. One of these repair mechanisms is the NER or Nucleotide Excision Repair system. This system is involved with the repair of at least 30 proteins. Mutations in 11 of these proteins have been associated with at least eight overlapping phenotypes. There are three rare recessive diseases where these mutations occur: Xeroderma Pigmentosum, Trichothiodystrophy and Cockayne Syndrome. These diseases have similar clinical features but also specific differences. NER is involved in the repair of sunlight induced DNA damage. XP patients have a 1000-fold chance of developing skin cancer, but patients with CS and TTD have normal chances of developing skin cancer. Somatic growth and development are also affected by several of the NER genes. These pertain to the TTD and CS disorders. Progressive sensorineural deafness is an early feature of XP and CS. These clinical diseases are also associated with developmental delay and progressive neurodevelopmental degeneration. The main neuropathology of XP is a primary neuronal degeneration. In contrast, CS and TTD patients have reduced myelination of the brain. CS and TTD patients exhibit wide varieties of neurodevelopmental abnormalities. TTD is associated with ichthyosis and brittle hair. This poster will discuss the NER process and th
06.01.31 SICKLE CELL ANEMIA.
Eric Anangfack, H. Nicole Hanselman, Biology, Southwestern Oklahoma State University, Weatherford, OK.
Sickle cell anemia is an autosomal recessive genetic disorder caused by a defect in the HBB gene, which codes for hemoglobin. Beta globins are a major component of adult hemoglobin. The gene for beta globins is located on chromosome 11. One of these variants, sickle hemoglobin (Hb S) is responsible for sickle cell disease. Individuals who possess one copy of the normal beta globins’ gene (Hb A) and one copy of the sickle variant (Hb S) are heterozygous carriers and are resistant to malaria. Sickle cell disease is inherited in an autosomal recessive manner and therefore, either two copies of the (Hb S) variant or one copy of the (Hb S) variant plus one copy of another betaglobin variant (such as Hb C) are required to express the disease. The molecular nature of this hemoglobin variant is a substitution of valine for glutamic acid at the sixth amino acid position in the beta globin gene. The carrier state for sickle cell disease is often referred to as sickle cell trait. Although individuals with sickle cell trait do not express sickle cell disease, they are at increased risk for exercise-related sudden death.

06.01.32 POLLINATION BIOLOGY OF PSORALIDIUM TENUIFLORUM (PURSH) RYDB.
Clifford Pelchat, Gloria Caddell, Biology, University of Central Oklahoma, Edmond, OK.
Little has been published on the pollination biology of the perennial herb Psoralidium tenuiflorum (Pursch) Rydb. This study provides information regarding morphology, phenology and the breeding system for this common prairie legume. Plants were studied at Arcadia Lake and Hafer Park in Edmond, Oklahoma. Phenology was determined using field and laboratory observations. Pollinators were collected, identified to family and examined for types of pollen carried. Breeding system treatments for mechanical self-pollination (autogamy), self-compatibility (geitonogamy) and gametophytic agamospermy were carried out on 9 individual plants. Flowers open between sunrise and midday from the bottom of the inflorescence at the rate of 2-4 flowers/inflorescence/day. The flowers are protandrous and self-compatible, but rarely autogamous. Exclusion of pollinators significantly reduced seed-set compared to open-pollinated flowers (x^2=7.57;df=1;P<0.01). Treatments for gametophytic agamospermy resulted in no seed-set. Taken together these results suggest an outcrossing breeding strategy. We suggest that a dry stigma, requiring rupture by a pollinator, may be a mechanism to promote outcrossing in this species. Bees are the most frequent visitors and both pollen and nectar are the primary attractants.

06.01.33 WEIGHT LOSS OF HIBERNATING MYOTIS VELIFER (CHIROPTERA: VESPERTILLIONIDAE) IN WESTERN OKLAHOMA.
Lynda Loucks, William Caire, Biology, University of Central Oklahoma, Edmond, OK.
This study characterizes the weight loss of Myotis velifer over seven consecutive hibernation seasons (October through March) in a natural population in western Oklahoma. From 1979 to 1986, samples of bats were weighed once a month. Because females are significantly heavier than males, male and female weights were analyzed separately. The mean weight for females entering hibernation was 15.5g while males entered hibernation at a mean weight of 14.4g. Mean weight of females and males at the end of hibernation was 11.9g for females and 11.5g for males. The change in mean weights for all seven seasons were 20.5% loss for males and 22.5% for females.

06.01.34 FIBRILLIN 2: A CANDIDATE GENE FOR CANINE HIP DYSPLASIA.
Zhu Lan, Statistics, Oklahoma State University, Stillwater, OK.
Canine hip dysplasia(CHD) is characterized by hip laxity and subluxation that can lead to hip osteoarthritis. Following a genome-wide screen with 470 microsatellites in a cross breed pedigree of 159 dysplastic Labrador retrievers and unaffected greyhounds, chromosomes 11(CFA11) was identified as harboring putative significant(p<0.01) quantitative trait loci(QTL) by Todhunter et al. The objective of this paper is to refine the QTL location on CFA11. We genotyped 257 dogs in acrossbreed at 111 informative single nucleotide polymorphism(SNP) loci along CFA11. The distraction index(DI,a measure of maximum passive hip laxity) and Norberg angle(NA,a measure of hip subluxation) were studied here as phenotypes of CHD that predict whether a hip joint will or will not develop osteoarthritis. Multipoint linkage analysis showed significant evidence for QTL contributing to hip laxity with one or two major loci at region 16.2~21cM on CFA11 with 95% posterior probability (19.1~20.1cM with 99% posterior probability) which explains about 15-18% of the total variance in the DI. A subsequent association study of 70 additional Labrador retrievers showed that, after accounting for a dog’s body weight, dogs with an AGC haplotype were significantly more likely to develop hip dysplasia than those with a GAT haplotype in intron 32 of a gene called fibrillin 2 which is located on the above narrowed region. Further RT-PCR showed that fibrillin 2 is expressed in canine coxofemoral joint capsule.
06.01.35  HISTOLOGICAL ANALYSIS OF THE MORPHOLOGY OF THE CLOACAE OF PLETHODONTID SALAMANDERS (AMPHIBIA: CAUDATA: PLETHODONTIDAE).

Brittany Patnaude, Daryl Baquera, Kenneth Andrews, Biology, East Central University, Ada, OK.

Cloacal anatomy of members of salamanders (Amphibia; Caudata) are limited to some brief reports on gross morphology (Sever, 1987; Kingsbury, 1895; and Licht & Sever, 1991) and one report on a three-dimensional reconstruction of cloacae in seven salamanders (Sever, 1992). A comparative histological analysis of salamander cloacae has not been reported in the literature. This gland controls the majority of the reproductive effort in salamanders. It is astounding to believe that it has not been intensively studied because of this important utlilage. Five cloacae from specimens of the Plethodon glutinosus complex and three cloacae from specimens of Plethodon cinereus (Plethodontidae) were extracted, fixed in 10% formalin, embedded in paraffin, and stained with H+E. The specimens were then examined for comparative morphology of the cloacae within this family. Structures of interest are the glands that produce the spermatophore in the male and the receptive surfaces of the female for the spermatophore. This data will significantly add to the knowledge of the variability of this organ within the Plethodontidae family of salamanders.

06.01.36  TERRAPENE MORPHOMETRICS: INVESTIGATING EVOLUTIONARY AND FUTURE RELATIONSHIPS FOR THIS GENUS OF CRYODIRAN TESTUDINES.

Jonathon Isaacs, Carson Thetford, Kenneth Andrews, Robin Armstrong, Tyler Mackey, Biology, East Central University, Ada, OK.

The evolutionary relationship between species within the genus Terrapene is unclear (Milstead, 1969). Members of the genus have undergone several nomenclatural revisions (Boulenger, 1889, 1895; Carr 1940; Milstead, 1967; Smith, 1939; and Stejneger & Barbour, 1933). Milstead (1969) proposed a phylogeny for the genus based on 16 characters including paleontologic data and morphometrics of interplastral scute ratios. Minx (1996) proposed a phylogeny based on 32 morphological characters including skeletal structures, extremity variation, and shell characters. A series of measurements have been taken from testudine specimens within the genus Terrapene. Data was used for investigation into the evolutionary relationships within taxa as well as possibilities of interbreeding between taxa. Statistical analysis was performed by Discriminant Function Analysis, Principal Component Analysis, and Cluster Analysis. This research will yield valuable information about the constancy of these species within an evolutionary context. A hypothesis of hybridization will be tested. If the hybridization hypothesis is supported, the species would appear to be in a state of flux that could possible yield new species and/or reduction in the population sizes of current species. If the hybridization hypothesis is rejected, then variability of the members of this genus is more than currently thought and would need more research into this highly variable genus.

06.01.37  UV RADIATION SENSITIVITY OF FOUR SPECIES OF MAT-FORMING FILAMENTOUS ALGAE.

Steven O’Neal, Alexis Verplank, Alyssa Cannon, Ashley Hardman, Holley Ladymon, Immanuel Suleiman, Jessica Redd, Lacey Penland, Savannah Powell, Department of Biological Sciences, Southwestern Oklahoma State University, Weatherford, OK.

Filamentous algae often form floating mats on the surface of lakes and ponds where they are exposed to maximum levels of visible and UV radiation from the sun. This study examined four species of filamentous algae (Mougeotia, Pithophora, Spirogyra, and Zygnema) to determine whether species differences exist in UV tolerance and whether UV tolerance is affected by prior acclimation to high or low levels of visible light. Experimental mats of the algae were grown at low (15 μmoles x m-2x s-1) and high (150 μmoles x m-2x s-1) levels of visible light. Initial biomass and chlorophyll-a content were determined after 7 days of growth. The mats were then exposed to UV radiation (18 μW x cm-2) or control conditions (0 μW x cm-2) for 7 days. After exposure, the UV treated and control mats were evaluated for damage symptoms, growth rate, and chlorophyll-a content of the filaments. Mats of Mougeotia and Zygnema pre-acclimated to low levels of visible light were more sensitive to UV exposure than mats of Pithophora or Spirogyra. UV induced symptoms included chlorosis and reduction in growth rate. Pre-acclimation to high levels of visible light reduced the negative effects of subsequent UV exposure for both Mougeotia and Zygnema.

06.01.38  CONSTRUCTION OF EXPRESSION PLASMIDS OF PROTEIN PHOSPHATASE 5 (PP5) FOR USE IN STUDIES EXAMINING CELLULAR RESPONSES TO STRESS AND TUMOR DEVELOPMENT.

Shelena Thomas, Abhiseck Shrestha, Rebekah Molina, Teresa Golden, Shelena Thomas, Southeastern OK State University, Durant, OK.

Both genetic studies and studies using natural chemical inhibitors of protein phosphatases indicate that like kinases, protein phosphatases play an important role(s) in the regulation of cell cycle progression and processes implicated in tumor promotion. Serine/threonine phos-
Phosphatase 5 (PP5) belongs to the PPP-family of enzymes, which also includes PP1 and PP2A. PP5 has been shown to play a negative regulatory role in a p53-mediated signaling cascade leading to G1/S-phase growth arrest. Since neoplastic transformation often involves the loss of G1-cell-cycle control, it is possible that aberrant PP5 activity contributes to the development of human cancer. Further, the expression of PP5 is responsive to estrogen and hypoxia inducible factor-1 (HIF-1), which are both positive factors in the development of human breast cancer. Finally, the constitutive over expression of PP5 converts MCF-7 breast cancer cells from an estrogen-dependent into an estrogen-independent phenotype. Thus, altered PP5 activity may contribute to tumor development. Studies in progress indicate that over expression of PP5 also promotes cell survival during oxidative stress (low oxygen state common in tumors). To facilitate these over expression studies we are constructing PP5 expression plasmids with altered catalytic domains to further test hypotheses addressing PP5’s role in cancer cell survival.

06.01.39 THE EFFECTS OF PHYSICAL EXERCISE ON COGNITIVE MENTAL-TASK-INDUCED BRAIN ACTIVITY (USING EEG ANALYSIS) IN SEDENTARY INDIVIDUALS VERSES FIT INDIVIDUALS.

Kenny-Joe Wallen, Natural Science, Northwestern Oklahoma State University, Alva, OK.

The purpose of this research was to observe if brain wave activity during a cognitive mental task, before and after a period of exercise, changes more in sedentary individuals compared to physically fit individuals. Published research has shown physical exercise decreases brain activity more in physically fit individuals performing a visual mental task than in sedentary individuals. Other research has shown no significant difference between the two fitness groups before and after exercise while performing language skills tests. This experiment is a variation of these studies. This study records EEG activity during a mathematical mental subtraction task before and after physical exercise (stationary cycling) on groups of sedentary and physically fit college age males. Each individual’s fitness level was assessed prior to experimentation, using a version of a submaximal exercise test (cycle ergometer test). Heart and respiratory rate were also measured during the fitness assessment and during the exercise portion of the experiment. Frontal lobe EEG was recorded using the BIOPAC interface module and software. The four brain wave frequencies (alpha, beta, theta, and delta) were analyzed for changes in wave amplitude (µV) during the mental task periods (pre-exercise and post-exercise). Initial analysis of the data indicates that there is more change in wave amplitudes during mental-task-induced brain activity in sedentary individuals compared to physically fit individuals.

06.01.40 DOES THE TRANSLLOCATION OF A-TRANSUDCIN DEPEND ON ITS AMINO ACID SEQUENCE?.

1 Lisa Pham, 2 Lily Wong, 2 Steve Sezate, 3 James McGinnis, 1 Biology, University of Central Oklahoma, Edmond, OK. 2 Ophthalmology, OUHSC, Oklahoma City, OK. 3 Ophthalmology & Cell Biology, Dean McGee Eye Institute, OUHSC, Oklahoma City, OK.

The translocation of α-transducin (Tα) in mammalian rod photoreceptors is thought to protect rods in the light and to increase sensitivity of rods in the dark. Our overall objective is to identify that moiety of Tα which is needed for translocation. The coding sequence of Tα was divided into three parts and subcloned into expression vectors. Specific to this project, the carboxyl terminus one-third and the full length cDNA of Tα were examined. Corresponding cDNAs were amplified by polymerase chain reaction, recombineered, and transformed into DH5α Escherichia coli. The plasmid DNA was isolated from positive colonies, the inserts excised, and then successively ligated into two different expression vectors. The first vector was designed to fuse an epitope tag (c-myc) to the Tα protein and the second to express the Tα-myc fused protein simultaneously with enhanced green fluorescent protein in mammalian cells. Successful transfections of a human embryonic kidney cell line (HEK293) were confirmed by Western blots and fluorescent microscopy. The expression of the carboxyl end of Tα and the full length Tα were successful in HEK293 cells.

06.01.41 MULTIPURPOSE SOLUTION EFFICACY AGAINST PSEUDOMONAS AERUGINOSA BIOFILM UNDER COMPLIANT AND NON-COMPLIANT CONDITIONS.

Debbie Murman, Fred Lee, Optometry, Northeastern State University Oklahoma College of Optometry, Tahlequah, OK.

Patient non-compliance with contact lens care is strongly associated with lens and/or lens case microbial contamination and possibly microbial keratitis. Microbial contamination of contact lenses is often seen as a biofilm, which has been shown to form regardless of how compliant a patient is with their lens care. Our study analyzed the presence of P. aeruginosa biofilm on the surface of silicone hydrogel lenses under compliant and non-compliant conditions. Biofilm analysis was performed by utilizing crystal violet staining, spectrophotometry and gross observation. We had difficulty in obtaining consistent stain uptake by the contact lenses. The multipurpose solutions may
have changed the binding properties of the lenses and affected their interaction with the stain. Experimental lenses exhibited varying degrees of deposition staining assumed to be bacterial biofilm since it was present among all experimental groups, but not on control lenses. This assumed biofilm deposition was present regardless of the level of compliance. Deposits were most apparent on the Opti-Free® RepleniSHTM experimental lenses and least apparent on the Equate® experimental lenses. These results indicate a need for multipurpose solutions to be tested against bacterial biofilm and for developing effective ways of inhibiting biofilm formation on contact lens products. This may help decrease the risk of microbial keratitis among contact lens patients.

06.01.42 DUCHENNE MUSCULAR DYSTROPHY (DMD).
Ashley Price, Kari Robison, Biology, Southwestern Oklahoma State University, Weatherford, OK.
Duchenne Muscular Dystrophy (DMD) is a fatal genetic disorder characterized by progressive voluntary muscle weakness and atrophy of muscle tissue. It is caused by an abnormal gene for dystrophin. A normal dystrophin gene has a protein responsible for the connection of muscle fibers to the extracellular matrix through a protein complex containing many subunits. In DMD this absence of a dystrophin protein permits excess calcium to penetrate the sarcolemma. This creates oxidative stress and damages the cell wall giving more openings for calcium, which ultimately kills the cell. A DMD mutation occurs when the Xp21 region located at the distal p21 band of the short arm in the X chromosome is deleted. Mapping has shown the DMD gene is extremely large, exceeding 2 million base pairs. Since this gene has 24 regions of 109 amino acids similar to each other, there is an opportunity for misalignment at the mitotic synapase, which can form frameshift mutations and an untranslatable gene. This happens in a frequency of about 1 in 1,000. There is no known cure for Duchenne Muscular Dystrophy although recent stem-cell research is showing some ways to replace damaged muscle tissue. Treatment is aimed only to control symptoms and increase the quality of life.

06.01.43 HUNTINGTON’S DISEASE.
Tyler Miller, Bobby Abernathy, Biology, Southwestern Oklahoma State University, Weatherford, OK.
Our research project is being conducted over Huntington’s disease (HD) with an emphasis of its genetic characteristics on a molecular level. Huntington’s disease is a rare inherited neurological disorder which causes a degeneration of neuronal cells, especially in the frontal lobes, the basal ganglia, and the caudate nucleus of the brain. This is one of several polyglutamine diseases. The HD gene has been mapped on the short arm of chromosome 4, and the responsible gene is known as IT15. This mutation results in a characteristic expansion of a nucleotide triplet repeat (cytosine, adenine, guanine) in the DNA that codes for the protein Huntingtin, which is regulated, controlled, and encoded by the IT15 gene. The greater the number of CAG repeats, the earlier the onset of symptoms. People who have this genetic triplet repeat always suffer from HD because this mutation causes a gain-of-function, in which the mRNA or protein takes on a new property or is expressed inappropriately. Huntington’s disease is autosomal dominant, needing only one affected allele from either parent to inherit the disease. This means that the trait appears equally in both sexes, and is always passed to offspring who are homozygous dominant or heterozygous with the affected dominant allele. Although certain medications and care methods can be administered to delay the disease’s progression, there is no treatment to fully arrest the succession of the disease. Our overall target...
noran mud turtles, Kinosternon sonoriense, in the Pel-
ocillo Mountains, New Mexico. Despite early accounts of its natural history, Sonoran mud turtles are highly ter-
restrial. Our study population has thrived despite several years in which the study area was completely dry. Even when water was available, individuals were often in ter-
restrial microhabitats, so that a small percentage of the marked population occurred in aquatic microhabitats at any time. Here, we describe two new contexts for ter-
restrial activity in mud turtles: terrestrial flight response and interpopulational migration. Sonoran mud turtles in certain aquatic microhabitats exhibited terrestrial flight responses when disturbed. In six trials, we captured turtles by hand in shallow stock tanks. In each trial, turtles left the tanks within 30 min. of being released. Sam-
ppling on subsequent days suggested that near complete emigration of turtles had occurred. Sonoran mud turtles occasionally migrated long distances from one drainage to another. Of 305 individuals, 10 (3%) are known to have made interpopulational migrations. This minimum rate of migration should be sufficient to maintain gene flow between neighboring canyons. Given the proclivity of Sonoran mud turtles for terrestrial microhabitats, conservation efforts should be as focused on manage-
ment of terrestrial habitat surrounding aquatic habitat as on maintaining water levels in aquatic habitat.

06.01.46 CHARACTERIZATION OF NEU-
ROBLASTOMA AMPLIFIED GENE (NAG) EX-
PRESSION.

Carla Guthridge, Phillip Price, Leslie Wiggins, Biological Sciences, Cameron University, Lawton, OK. 1

Biology, Oklahoma City Community College, Oklahoma City, OK. 2

The NAG gene, co-amplified with MYCN in neuroblas-
tomas, contains 52 exons and codes for a 7.3 kb mRNA. The 7.3 kb mRNA is differentially spliced into 4.4 and 4.5 kb variants. The 7.3 and 4.5 kb variants are ubiqui-
tously expressed. The expression pattern of the 4.4 kb variant has not been determined. The 7.3, 4.5, and 4.4 kb mRNAs are thought to encode 268, 153, and 160 kDa proteins, respectively. Our objective was to com-
pare the expression of these three mRNA variants in multiple cell and tissue types and to determine whether the predicted NAG protein isoforms were expressed in cells. Total RNA was harvested from various cell lines and converted to cDNA by reverse transcription. cDNA from different tissues was purchased from Clontech. Expression of NAG mRNA variants was determined by PCR using variant specific primers. Total cellular protein was isolated from cell lines and analyzed by SDS-PAGE and Western Blotting using anti-peptide antibodies specific for NAG proteins. All three mRNA variants of NAG were ubiquitously expressed, although at varying patterns and levels in the cells and tissues tested. Initial results suggested that the 268kDa isoform of NAG is expressed in cells, but expression of the 153 and 160kDa isoforms was not conclusively demonstrat-
ed. The significance of differential NAG expression has not been determined.

06.01.47 COMPARISON OF THE MTDNA OF CAROLINA CHICKADEES (PEOCILE CAR-
OLINESIS) TO DETERMINE THE EXTENT OF GENETIC VARIATION BETWEEN FLOCKS IN
THE OK REGION..

Thalia Douglas, Dr. Sue Katz, Tony Smith, Department of Biology, Rogers State University, Claremore, OK.

Differences between the Carolina Chickadee (Peo-
cile carolinesis) and Black-Capped Chickadee (Peo-
cile atricapillus) are minimal, displaying only slight differences in mensural and plumage differentiation. Hybridization may occur in regions where the Caro-
linia Chickadee and Black-Capped Chickadee come in contact. Hybrids, however, are not believed to exist in Oklahoma. Current research suggests that chickadees are permanent residents, but results are inconclusive. If movement between populations is minimal, then there likely exists a reduction in gene flow between popula-
tions. In this research, two mitochondrial gene regions were analyzed (the Cytochrome-B and Control Region) for Carolina Chickadees from two locations. DNA samples were taken from feather follicles of 14 chicka-
dees, 2 wrens, and a willow tit. Samples were digested, PCR’d, electrophoresed, and analyzed. Differences in DNA fragment lengths allowed us to determine the ge-
etic relationship between and among populations tested. Chickadees between populations were genetically dissimilar, while those within populations were similar; thus, the suspected sedentary lifestyle is supported. Ev-
edence suggests that a Hybrid Chickadee was captured and analyzed; if so, it will be the first documented Hy-
brid to be found in Oklahoma. More samples and popu-
lations need to be tested to provide more conclusive re-
sults. Further, sequencing of the DNA fragments would provide for a more accurate and detailed analysis.

06.01.48 MONITORING WATER QUAL-
ITY OF THE TOWN BRANCH CREEK IN CHER-
OKEE COUNTY.

Danielle Henrie, April Adams, Natural Sciences/At-
tention: April Adams, Northeastern State University,
Tahlequah, OK. 1

Natural Sciences, Northeastern State University, Tahlequah.

As a service learning project of SCI 4214: Science in the Elementary School, undergraduate pre-service el-
ementary teachers are monitoring the water quality of the Town Branch Creek in Tahlequah near the North-
eastern State University campus. The project is part of the Blue Thumb Project which is a citizen water qual-
ity monitoring program of the Oklahoma Conservation Commission’s Division of Water Quality. Initial findings indicate that the creek is within acceptable levels of dissolved oxygen, chloride, ammonia nitrogen, nitrate, and nitrite concentrations. In addition, the creek pH is neutral and E. Coli contamination is low. However, the orthophosphate phosphorus concentrations are above the acceptable limits set by the Scenic Rivers Commission for streams in the Illinois River watershed.

06.01.49 MODEL FOR ASSESSING THE EFFECTS OF NEST PREDATION AND BROOD PARASITISM ON SEASONAL FECUNDITY IN PASSERINE BIRDS.
Joseph Grzybowski, College of Mathematics and Science, University of Central Oklahoma, Edmond, OK.
A model developed by Pease and Grzybowski (1995) for assessing the consequences of nest predation and brood parasitism on songbirds was placed on a platform for ready use by researchers. Seasonal fecundity combines the results of multiple nesting attempts to obtain a season long estimate of young produced per female. Both nest success and seasonal fecundity were poorly estimated in many previous studies. The current model resolved several frequency and rate issues in translating nest success to seasonal fecundity. In addition, the model addresses an effect not previously modeled—nest parasitism by brood parasites such as Brown-headed Cowbirds (Molothrus ater), thus impacts the species. Baker parasitoid parasites have seasonal fecundity and consequent population dynamics of these songbirds. The basic version of the model already has been used by a number of researchers, but required users to locate supportive software. The current version now can be run as a single stand along process on any PC, combining previous separate programs under one umbrella. The Pease-Grzybowski model still provides the only mathematical solution to separating effects of brood parasitism from nest predation. It can thus also be used to predict effects of brood parasites or their control that can be important in management decisions for songbird populations.

06.01.50 INHIBITION OF CHAETOMIUM GLOBOSUM ON GYPSUM BOARD USING POTASSIUM CHLORATE.
Kara Sneed, Charlie Biles, Michael Rosson, Terry Cluck, Biology, East Central University, Ada, OK.
Indoor mold has become a very important health issue as more people complain of “Sick Building Syndrome”. Many factors can contribute to indoor environmental health factors including carbon dioxide levels, dust, animal dander, smoke, humidity, pollen, fibers, and mold. Chaetomium globosum is a fungus placed in the phylum Ascomycota, family Chaetomiaceae. In media, the fungus produces a conspicuous ostiolate perithecium with long hairlike appendages. These species are cellulolytic and are commonly found on building materials that have been damaged by water. Previously, our laboratory showed that Chaetomium globosum perithecia can be inhibited when agar media is amended with low levels of potassium chlorate. C. globosum was grown for approximately 2 weeks on potato dextrose agar. A range of potassium chlorate concentrations (0 to 100 mM) was applied to gypsum board (sheetrock/wallboard) squares in glass Petri dishes. After 24 hr, 1 mL of the fungal spore concentration (100,000 spores per mL) was applied to the middle of the gypsum board in each dish. Treatments were replicated 4 times. Results indicated that potassium chlorate inhibits C. globosum on sheetrock at very low concentrations (1 mM) and that light plays a role in the inhibitory effects. Further experiments will investigate the interactions among light, chemical inhibitors, and perithecia synthesis.

06.01.51 POPULATION GENETIC STRUCTURE OF THE TEXAS MOUSE (PEROMYSCUS ATTWATERI) BASED ON CONTROL REGION SEQUENCE DATA.
1 Vagan Mushegyan, 1 Gregory Wilson, 2 Russell Pfau, 1 Biology, University of Central Oklahoma, Edmond, OK.
2 Biological Sciences, Tarleton State University, Stephenville, TX 76402.
The Texas mouse, Peromyscus attwateri, occurs in portions of Missouri, Kansas, Arkansas, Oklahoma, and Texas. As compared to other species of the genus Peromyscus, the Texas mouse is thought to be more habitat specific and exhibits a more discontinuous and patchy distribution throughout its geographic range. To elucidate how historical and contemporary factors impact patterns of population genetic structure of P. attwateri, we used mtDNA sequence data from the control region from individuals from several populations across the entire geographic distribution of P. attwateri. Preliminary results reveal a large number of closely related haplotypes within each population. The majority of genetic variability is due to variation within populations (74.5%), whereas lower levels of variability are attributed to differences among populations (25.5%). AMOVA results indicate significant population structure (ΦST = 0.255; P < 0.001) throughout the range of P. attwateri. Populations from central Texas exhibited the greatest amount of percent sequence divergence, whereas populations from northeast Oklahoma and northern Arkansas exhibited the least amount. Mismatch distribution of haplotypes strongly suggest population expansion. These findings suggest that individuals might have resided in a refugial population on the Edwards Plateau in Texas for extended periods of time during the Pleistocene and subsequently expanded their distribution northward.
06.01.53  **A TALE OF TWO ISLANDS: NECTAR FLOW AND POLLINATOR GUILDS OF A PLANT SPECIES NATIVE TO GREECE AND INVASIVE IN THE UNITED STATES.**

Meredith Clement, 1 John Barthell, 2 Amy Savitski, 3 John Hranitz, 3 Harrington Wells, 4 Adrian Wenner, 5 Robbin Thorp, 6 Daniel Song, 7 Theodora Petanidou, 1 Biology, University of Central Oklahoma, Edmond, OK. 2 Biological and Allied Health Sciences, Bloomsburg University of Pennsylvania, Bloomsburg, Pennsylvania. 3 Biological Sciences, University of Tulsa, Tulsa, Oklahoma. 4 Ecology, Evolutionary and Marine Biology, University of California at Santa Barbara, Santa Barbara, California. 5 Entomology, University of California at Davis, Davis, California. 6 Environmental Sciences, University of California at Berkeley, Berkeley, California. 7 Geography, University of the Aegean at Mytilene, Mytilene, Greece.

We examined pollinator guilds and nectar flow patterns of yellow star thistle, Centaurea solstitialis, at two island locales: Lesvos (Greece) and Santa Cruz Island (USA). This non-native species is a noxious weed in the United States and receives much of its pollination activity and resulting seed set from non-native bees. The pollinator guild on Lesvos was more diverse, with 41 putative species collected over a five-day period relative to Santa Cruz Island where 25 species were recorded during an earlier study. We discovered lower levels of nectar flow per floret in Greece; this depression in flow is perhaps a result of higher levels of herbivory (e.g., aphids). Less nectar was therefore available to pollinators on Lesvos during the hours we monitored our study plants. However, early morning nectar flow and standing crop data suggests that a segment of the pollinator guild, arriving earlier in the day, may not have been detected during our study. The honey bee, Apis mellifera, was not recorded on C. solstitialis during our monitoring periods on Lesvos; instead they visited nearby Mediterranean Shrubs, Vitex agnus-castus. Our results reflect differences in plant communities containing C. solstitialis in native and non-native habitats, with more competition for large-bodied pollinators, including honey bees, in Greece.

06.01.54  **FUNCTION OF DEX-S AND TRE-R IN MUTACIN I PRODUCTION IN S. MUTANS.**

Vagan Mushegyan, 2 Felicia Qi, 1 I-hsiu Huang, 1 Biology, University of Central Oklahoma, Edmond, OK. 2 Oral Biology, University of Oklahoma Health Science Center College of Dentistry, Oklahoma City, OK 73104.

Streptococcus mutans is a common member of the human oral microflora, primarily associated with dental caries. The production of the peptide antibiotic mutacin I is important in the establishment and competition of S. mutans in the multispecies biofilm within the oral cavity. To understand the mechanism of S. mutans mutacin I production, random insertion mutagenesis was performed in the previous studies, revealing the association of 25 genes. Among them was the gene pttB, which encodes for IIBC component in the phospho-enolpyruvate: sugar phosphotransferase systems. The gene is under the control of the same operon as another gene downstream – dexS – dextran glucohydrolase and it is preceded by the gene treR, a putative repressor for the pttB and dexS gene expression. However, it is possible that the mutacin I deficient phenotype resulted from the polar effect of pttB mutation on dexS. Thus, it is unclear which of the two genes is associated with mutacin I production. To assess the role of dexS and treR in mutacin I production, the genes were inactivated by single-crossover recombination using a suicide vector pFW5-luc. Mutacin production was determined by a plate assay using S. sobrinus as an indicator. We hypothesized that dexS knockdown will have decreased mutacin I production, while treR knockdown will result in greater mutacin I production.

06.01.55  **ETHANOL SYNTHESIS UTILIZING WASTE STREAM SUGARS FROM WATERMELON Lycopene Extraction.**

Joshua Redmond, Charlie Biles, Biology, East Central University, Ada, OK.

Ethanol for fuel energy is having a major impact on agriculture and our dependency on foreign oil. Corn has been the primary focus for fuel ethanol, however, the overall efficiency of converting corn sugars into ethanol is very low. One possible alternative sugar is from a waste stream derived from watermelon extracted lycopene. Dr. Wayne Fish (USDA, ARS, Lane, OK) has developed a novel method of lycopene extraction from watermelon. Lycopene has been shown to have antioxidant capabilities and may reduce the risk of many diseases. Our laboratory has taken the waste stream that contains approximately 12% sugar and fermented the juice with various yeast. Experiments were conducted by placing the watermelon juice, water controls, and sugar controls in fermentation tubes. The amount of carbon dioxide synthesis was measured every 24 hours. Initial investigations indicate that Saccharomyces cerevisiae ferments the watermelon juice much more efficiently than sugar and water controls. Four different yeasts have been compared for their fermentation capabilities. Further investigations will compare sterile extracts with non-sterile, and extracts with watermelon rind included in the substrate.

06.01.56  **TELOMERASE EXPRESSION INHIBITS COMPLETE POTENTIAL DIFFERENTIATION OF MYOFIBROBLAST.**

Won-Hee Kim, Melville Vaughan, Biology, University of Central Oklahoma, Edmond, OK.

Telomerase uses its integral RNA component as a template in order to synthesize telomeric DNA. Most
normal human cells lack telomerase activity; as a result, telomere shortening counts divisions and eventually induces a growth arrest. The cytokine transforming growth factor-β1 (TGF-β1) can be considered a direct inducer of the myofibroblast differentiation because it is capable of upregulating α-sm actin in fibroblasts both in vitro and in vivo. The objective of this study is that Dupuytren’s fibroblasts can be induced to become myofibroblasts by TGF-β and telomerase should not interfere with this function. We used cells from Dupuytren’s disease, where contraction of the palmar fascia results in irreversible contracture with loss of function of the digits. Cells were plated on coverslips treated with or without TGF-β and stained for α-smooth muscle actin. The percentage of cells expressing α-sm actin was determined by counting cells. The results showed that both cell types treated with TGF-β increased α-sm actin. However, telomerase-treated cells showed slightly less α-sm actin expression than control. Thus telomerase expression somewhat affected the myofibroblast presence, but not the ability for the cells to respond to TGF-β. Fibroblast immortalized with telomerase will provide an inexhaustible supply of cells for studying diseases such as Dupuytren’s contraction. Text in vitro.

06.01.57 CROSS REACTIVITY OF IMMUNOGLOBULIN G ANTIBODIES TO WEST NILE VIRUS AND ST. LOUIS ENCEPHALITIS VIRUS IN SELECTED FARM ANIMALS IN CENTRAL OKLAHOMA.

Riaz Ahmad, Jeff Burke, Biology, University of Central Oklahoma, Edmond, OK.

This study examined seroprevalence of WNV specific IgG among 5 different farm animals species cattle goat sheep pig and chicken. 20 samples were collected at 3 different time periods from each species totaling 300. MarchMay were grouped as the spring JuneAugust the summer& SeptemberNovember being the fall collection. These groupings closely reflect fluctuation in Culex species, which are the main vectors for WNV Seroprevalence, was determined using ELISA. A Kruskal-Wallis One Way Analysis of Variance suggested a significant difference of WNVIgG titrations among species (P=0.009). A Tukey multiple comparison test could not determine which species were significantly different (P=0.05). However chickens had the largest amount of samples positive for WNVIgG. The ANOVA also suggested a significant difference among collection periods (P=0.033) but the Tukey test could not determine which collection periods were different (P>0.05). However the summer collection recorded the largest number of positive samples. Attempts to use diagnostic tests to detect the presence of antibodies specific to a particular flavivirus have been plagued by cross reactivity. To determine if WNV was the antigen responsible for the IgG detected by ELISA we also ran an ELISA with St Louis Encephalitis Virus antigenA. Wilcoxon signed rank test revealed that antibody to WNV antigen were significantly different than antibody to SLEV antigen (P<0.001). 11 of 16 testing positive for WNVIgG showed cross reactivity with SLEV. Of these 11 all but 1 showed a 4 fold difference or greater in end point titration to WNV in comparison to SLEV. The exception a 2 fold diff. Strongly suggest antigen responsible or IgG immune response. Coinfection with SLEV not ruled out.

06.01.58 CELL SHOOT-DETERMINATION IN PEANUT EMERGENCE.

1 Kariel Ross, 1 Kanyand Matand, 2 George Acquaah, 3 Ning Wu, 1 Department of Biology, Langston University, Langston, OK. Department of Agriculture and Natural Resources, Langston University, Langston, OK 73050. 3 Department of Research and Extension, Langston University, Langston, OK 73050.

In vitro adventitious shoot development can be achieved in plants via plant organs such as leaf, stem, cotyledon, and petiole, etc. In addition to those standard organs, it can exceptionally also be achieved in peanut through trichome-like structure, emergence. In effort to determine the molecular mechanisms that control shoot formation in this unusual structure, cell shoot-determination study was initiated using auxin, cytokinin, or both in a single culture medium. Partial results showed that all plant hormones tested induced shoots in emergence tissue. However, differential induction period, which was observed, was plant hormone type dependent. In general, it was also observed that molecular activation occurs prior to visible morphological changes in the target tissue.

06.01.59 DENSITOMETRIC QUANTIFICATION OF INSECTICIDAL CRYSTAL PROTEIN FROM BACILLUS THURINGIENSI S STRAINS IN A MIXED CULTURE.

Eric Paul, Allied Health Sciences, Southwestern Oklahoma State University, Weatherford, OK.

Insects cause global losses of over $90 billion and $30 billion in the United States annually. Control technology is critically needed to increase food and fiber production. Resistance and environmental problems with conventional insecticides have catalyzed the search for bio-rational alternatives. Over the last several decades insect pathogens such as bacteria, viruses, and fungi have been explored for the development of alternative “bio-rational” pesticides. Insecticidal delta endotoxins or insecticidal crystalline proteins (ICPs) from the bacterium Bacillus thuringiensis (Bt) provide a safe and
environmentally effective alternative for pest control. Enthusiasm for Bt as a biological pest control agent has been tempered, by the appearance of Bt-resistant insects. Multiple toxins working through several distinct mechanisms will keep resistance in check and constitute powerful components in an integrated pest management arsenal. This research aims at co-culturing two different strains of Bacillus thuringiensis (kurstaki and aizawai) in an attempt to produce different toxins against the same Lepidopteran pests. The ratio of the two strains in the mixture will be determined by densitometry and confirmed using polymerase chain reaction. Preliminary results indicate that the two strains are not antagonistic. The final product after 24 hours of co-culturing consisted of 40% ICP from Bt kurstaki and the rest from Bt aizawai.

06.01.60 DOES MALE DISPLAY ADVERTISE TO MATES OR COMPETITORS? A COMPARATIVE FIELD TEST IN COLLARED LIZARDS.
Troy Baird, Biology, University of Central Oklahoma, Edmond, OK.
In systems characterized by sexual selection, displays given by males when they are distant from conspecifics may advertise to same-sex competitors and/or female mates. Recent studies on territorial male collared lizards have suggested that male display advertises body size independent performance traits that influence the outcome of agonistic contests with same-sex competitors. I tested the function of distant displays by comparing the frequencies of these acts during five seasons when the ratio of male competitors to mates varied markedly. If distant display functions to advertise to competitors, then the frequency of displays should increase when there are large numbers of competitors relative to the number of female mates. By contrast, if distant display functions to advertise to females, display frequency should increase if the relative number of mates is diminished. At my study site in 2006, the ratio of females to male competitors was 4-5 times lower than that during four other seasons (1997-2000). Distant display frequency of 2006 males was only one-half those during the other four years. Similar responses by territorial males to experimental intrusions in 2006 and 1999 indicated that this result was not merely a result of 2006 males being less aggressive. Instead, my results support the hypothesis that distant display functions to advertise to females rather than to competitor males.

06.01.61 RNAI KNOCKOUTS OF TWO CHOLINE ACETYLTRANSFERASE ISOFORMS IN C. ELEGANS.
1 Mathew Marlin, 1 Callie Mosiman, 1 David George, 1 Dennis Frisby, 1 Michael Landoll, 1 Reece Capps, 2 Jim Rand, 1 Biological Sciences, Cameron University, Lawton, OK.
2 Molecular, Cell and Developmental Biology, Oklahoma Medical Research Foundation, Oklahoma City, OK 73104.
The cha-Igene in C. elegans encodes choline acetyltransferase (ChAT), which is required for acetylcholine biosynthesis. Along with the unc-17 gene, which encodes the vesicular acetylcholine transporter (VACHT), cha-1 is expressed from a shared promoter as a member of the cholinergic “operon”. In addition, we have previously identified a second, cha-1-specific promoter. Expression from this promoter produces a ChAT protein isoform (called CHA-1B) that has an alternative N-terminus (the isoform expressed from the upstream shared promoter is called CHA-1A). The N-terminus CHA-1B is more hydrophobic, more basic, and more conserved than the CHA-1A N-terminus. Although we have strong evidence that both isoforms are present in neurons, the contribution of each isoform to cholinergic function is not understood. We are using RNAi techniques to construct functional knockouts of both cha-1A and cha-1B. Isoform-specific sequences have been cloned in tandem into the Andy Fire vector, pPD129.36, and the resultant constructs were transformed into E. coli. We are using the “feeding” protocol developed by Timmons and Fire (1998) to produce the RNAI knockouts in C. elegans.

06.01.62 GENERATION OF 4.5 AND 7.3 KB NEUROBLASTOMA AMPLIFIED GENE YELLOW FLOURESCENT PROTEIN EXPRESSION VECTORS.
1 Philip McGhee, 1 Carla Guthridge, 1 Dewey Binns, 2 Miranda Josey, 1 Biological Sciences, Cameron University, Lawton, OK. 2 Physical Sciences, Cameron University, Lawton, OK.
The NAG gene, containing 52 exons is expressed as both 4.5 and 7.3 kb mRNAs. The 4.5 and 7.3 kb mRNAs are thought to encode 153 and 268 kDa proteins, respectively. Western blot analysis indicated the 268 kDa NAG protein is expressed in neuroblastoma cells; however, the expression of the 153 kDa isoform has not been demonstrated. The function of the NAG isoforms has not been elucidated, however, yeast two-hybrid analysis indicated the common COOH terminus of NAG proteins can interact with interleukin-1 receptor antagonist type I (IL-1RaI). The significance of the interaction with IL-1RaI is not understood. It is our objective to generate molecular tools for studying the function of NAG proteins and their interaction with IL-1RaI. Total RNA was isolated from IMR-32 cells, which express both the 7.3 and 4.5 kb NAG variants.
The RNA was reverse transcribed into cDNA using oligo d(T) primers. The cDNA was used as a template to amplify 7.3 kb and 4.5 kb NAG coding sequences, which were cloned into the TopoXL expression vector. The junctions of the NAG/vector inserts were confirmed by sequencing. The NAG inserts were shuttle cloned into the pZsYellow1 and pEYFP fusion protein expression vectors to generate NAG/yellow fluorescent protein expression vectors. Future studies will include analyzing the expression and localization of the NAG/yellow fluorescent fusion proteins and confirming their interaction with IL-1Rα.

**06.01.63 CLONAL ANALYSIS OF MYOFIBROBLAST DIFFERENTIATION.**

Edana Robinson, Melville Vaughan, Sarah Chukwuma, Tara Stevenson, Biology, University of Central Oklahoma, Edmond, OK.

Alpha-smooth muscle actin (α-sma) is an identifying protein in myofibroblasts. Specifically it is found in stress fibers of these highly contractile cells that participate in normal wound healing and in Dupuytren’s contracture. We have observed that cells cultured from Dupuytren’s diseased tissue contain a mixed population of fibroblasts, including 10-20% myofibroblasts. It is important to note that the cells obtained for research are made up of various cells from the donor tissue. The basis of this research was to determine if these myofibroblasts are genetically predisposed by isolating single cells and growing clonal populations. If the cells are genetically predisposed then the clonal populations should have 0% or 100% myofibroblasts. The Dupuytren’s clonal cells will be cultured, fixed, and immunostained to determine how much α-sma they possess. Contraction studies will also be performed by placing cells in collagen lattices and determining their rate of contraction. The information we obtain will be compared to characteristics of normal populations.

**06.01.64 THE EFFECTS OF ECTOPARASITES ON THE FORAGING ABILITIES OF MEXICAN FREE-TAILED BATS.**

Thomas Maslen, Biology, Rogers State University, Claremore, OK.

The Mexican Free-tailed Bat plays an important role in crop pest control by consuming tons of flying insects per night. One of their favorite food sources is the Corn ear worm, a major crop pest to corn growers across Texas, Oklahoma, Kansas. The purpose of this study is to understand a correlation between parasite infestation on the Mexican Free-Tailed bats and their foraging efficiency. In this study 1,200 Mexican Free-tailed bats were inspected and given a ranking for Ectoparasites on their muzzle, ears and tail membrane. Body mass, forearm length and fecal samples were also collected on each bat. A Spearman’s rank correlation was used to test fecal weight versus parasite load and body mass versus parasite load. A reduction of fecal material or body mass with an increase of parasite load could suggest a negative effect on foraging. Using this statistical analysis there was no correlation between body mass and parasite load or fecal weight and parasite load.

**06.01.65 ANALYSIS OF THE CYC1 PROMOTER IN CANDIDA ALBICANS.**

Tomica Blocker, Biology, Langston University, Langston, OK.

The yeast species Candida albicans is detrimental to those with compromised immune systems. Little is known of C. albicans, yet with exploratory research, treatment may be possible. In analyzing the CYC1 promoter in C. albicans we have deleted portions of it. Each truncated portion is inserted into the base plasmid pDM659. Using the Renilla luciferase system, we find how effective each deletion of CYC1 is.

**06.01.66 ROLE OF UPSTREAM REGULATORY SEQUENCES ON CHA-1B TRANSCRIPTION IN CAENORHABDITIS ELEGANS.**

1 Andrea Brock, 1 Dennis Frisby, 2 Jim Rand, 1 Biological Sciences, Cameron University, Lawton, OK. 2 Molecular, Cell and Developmental Biology, Oklahoma Medical Research Foundation, Oklahoma City, OK 73104.

cha-1 is the structural gene for choline acetyltransferase (ChAT), required for acetylcholine biosynthesis. Although we have strong evidence that two CHA-1 isoforms (CHA-1A and CHA-1B) are present in neurons, there is, to date, no evidence of the individual contributions of each isoform to cholinergic function. We have previously identified a CHA-1B specific promoter nested in the second intron of cha-1A. A PCR fragment containing the entire intron was fused to gfp. The fusion exhibited expression in about 25 of the more than 100 cholinergic neurons. Our objective is to determine whether CHA-1B is only expressed in these 25 cells, or if known upstream regulatory sequences (for the unc-17-cha-1A promoter) are necessary for expression of CHA-1B in the remaining cholinergic cells. Long range PCR from N2 chromosomal DNA is being used to construct an in-frame gfp reporter fusion with CHA-1B as described by Oliver Hobert. The construct places all of the known upstream regulatory sequences for the unc-17-cha1A promoter in context with the cha-1B specific promoter. PCR fragments of the appropriate sizes have been obtained and purified. By placing the upstream regulatory sequences in a genomic context with a cha-1B promoter- gfp reporter fusion it will be possible to examine whether they influence cha-1B expression.
06.01.67 GLUCOSE MEASUREMENT BASED ON FÖSTER RESONANCE ENERGY TRANSFER BETWEEN CONCANAVALIN A-FLUORESCENIN ISO ThiOCyanate AND DEXTRAN/GOLD NANOPARTICLES.
Felicia Ekpo, Felicia Ekpo, Langston University, Langston, OK.
Diabetes affects approximately 16 million people in the United States and over 100 million people worldwide. Numerous diabetics prefer a painless method to measure their blood glucose levels in order to manage the fluctuation of their levels more effectively. The goal of the experiment is to develop a new glucose sensor that will act effectively with the fluorescent light in order to be sensed through the tissue after excitation from an internal or external source by the Föster resonance energy transfer (FRET). If the goal is accomplished there will be a great possibility to develop biocompatible materials for assay encapsulation. If results are sufficient, the ideas of implantable glucose-sensitive microspheres will be more feasible. During experimentation, the concentrations of the dextran, gold nanoparticles, and ConcanavalinA-Fluorescein Isothiocyanate (Con A-FITC) solutions were established and several tests were run to ensure accurate results. The results proved that the .6 µM of ConA-FITC at the fluorescence intensity at 520 nm would be most effective when testing because the concentration is neither too high nor low and demonstrated that the effects were consistent with the Föster Resonance Energy Transfer.

06.01.68 COMPARISON OF AMDRO AND EXTINGUISH IN MANAGING RED IMPORTED FIRE ANT POPULATIONS.
Lindsey Pruitt, Biology, East Central University, Ada, OK.

The invasion of red imported fire ants (Solenopsis invicta) into the United States has greatly impacted populations of small mammals and ground nesting birds. Evidence for the negative impacts of fire ants was gathered through a review of sources in various wildlife journals. The project will focus on controlling fire ant populations through two kinds of treatments with different modes of action. Three one acre plots were flagged off with a grid pattern of test site flags placed in the center of each plot. The first plot was treated with Amdro, which stops energy production through the chemical hydramethylnon. The middle plot was left as a control for the experiment. The last plot was treated with Extinguish, which affects the insect endocrine system with insect growth regulators. Over the course of eight weeks, the test sites will be monitored every two weeks for ant populations using corn chips as a bait. The end results will compare the two modes of control and determine which one is best for managing fire ant populations.

06.01.69 THE EFFECT OF THE ANTIOXIDANT CURCUMIN ON MYOFIBROBLASTS.
Andrea Bryan, Kiya Harrison, Melville Vaughan, Biology, University of Central Oklahoma, Edmond, OK.
It has previously been demonstrated that the addition of the antioxidant N-acetyl cysteine (NAC) to fibroblast cells reduces the production of alpha smooth muscle actin (α-sma)-containing myofibroblasts, cells that are present in pathologies such as Dupuytren’s contracture. We hypothesize that the addition of the antioxidant curcumin will produce similar results. We plan to conduct our experiments using cells from a Dupuytren’s contracture and from foreskin. We will make coverslips containing a control group of cells with sterile BSA, a group of cells with the myofibroblast-inducing substance transforming growth factor-beta (TGF-β), and a dependent variable group with TGF-β and curcumin. We will then fix the coverslips, after up to five days of incubation, then stain the coverslips using the α-sma antibody, and a Rhodamine DAPI mixture. The α-sma antibody recognizes the α-sma and binds to it. The Rhodamine/DAPI mixture is the staining agent used to see the nuclei and stress fibers under the fluorescent microscope. From there we take pictures and quantify the results to determine if curcumin had the predicted effect. Successful inhibition of myofibroblasts by antioxidants in culture experiments may lead to new treatments for Dupuytren’s contracture.

06.01.70 THE SEARCH FOR A BIOCONTROL/BIOHERBICIDE FOR GREENBRIER (SMILAX SP.).
Brad Horn, Bryson Vann, Charlie Biles, Biology, East Central University, Ada, OK.

Greenbrier (Smilax sp.) is a weed that commonly grows in gardens and wooded areas in Oklahoma. The tough stems and thorns deter travel through wooded areas. The growth habit of the plant will often take up the canopy of more desirable tree species. Removal of the plant is difficult due to the tenacious attachment to the tree it is growing on and over. Our laboratory has started preliminary screening for pathogens that grow on Greenbriers. Greenbriers were collected from several locations around Ada, OK. The plants were examined for lesions and the lesion areas excised from the plant, placed in 10% clorox for 3 minutes and then plated on potato dextrose agar (PDA). After 7 days, fungi that were observed growing from the stems and leaves were subcultured onto water agar, malt extract agar, and weak PDA, and PDA. Approximately 30 different filamentous fungal isolates have been examined. Genera identified include Stemphyllium, Colletotrichum, Pestalotia, and Aspergillus. These isolates will be inoculated to non-infested Greenbrier leaves and stems. Pathogenicity and
virulence will be observed and quantified. Eventually, a virulent species specific to Greenbrier may be found and utilized as a bioherbicide.

**06.01.71 DEVELOPMENT OF A PORTABLE, TENSION-MAINTAINING DERMAL EQUIVALENT.**

Tiffany Palmer, Melville Vaughan, Won-Hee Kim, Biology, University of Central Oklahoma, Edmond, OK.

An in vitro model to study wound healing is needed. The purpose of this study is to develop a dermal equivalent that will maintain tension and can be transported. We will use plastic mesh rings to help prevent collagen contraction and maintain tension. Rings of different sizes and depths will be made and dermal equivalents, composed of human fibroblasts and collagen, will be incubated in the presence or absence of the rings. After incubation, dermal equivalents will be prepared for morphological analysis. Tension maintenance will be determined by the presence of stress fibers and other structures associated with tension, like focal adhesions. Once a model with tension and portability is successfully developed we will further develop this dermal equivalent into a skin equivalent by incorporating epithelial cells. Models such as these will be an important tool to study mechanisms of wound healing and may be useful for scientists to study skin aging and cancer progression.

**06.01.72 THE EFFECTS OF MECHANICAL WOUNDING ON THE METABOLOME OF ARABIDOPSIS THALIANA.**

Brittanie Atkinson, Biology, Langston University, Langston, OK.

We wanted to answer the question: Is there a difference in the metabolome of Arabidopsis thaliana when comparing wounded and unwounded tissues and what type of compounds cause the difference? Responses to wounding have been studied in plants. In Arabidopsis, many genes have been shown to be induced by mechanical wounding, which affects the metabolome. 10 stage 8 Arabidopsis plants were used. 5 of 10 were wounded using a hemostat across the midvein. All plants were sampled. Samples were immediately frozen in N2 and lyophilized. Pulverized tissue was collected from each sample. Nonpolar fractions were dissolved in chloroform, docosanol as the standard. Polar fractions were dissolved in water, ribitol as the standard. 1ml of each fraction layer was collected. Analysis began using ESI-Q-TOF and FT-ICR-MS. Pulverized tissues were used for extraction and derivatization. Polar fractions were methoximated. Nonpolar fractions were hydrolyzed to improve chromatography. Fractions were derivatized with the addition of MSTFA+1% TMCS. Derivatized samples were analyzed using GC/MS. Results concluded there’s a difference in wounding Arabidopsis thaliana when comparing wounded and unwounded plant metabolomes of the species. Tentative identification of compounds remains to be confirmed, there is an opportunity to enhance the database for Arabidopsis. Changes in polar compounds were small. Wounding induced signals not involved in changing “normal” metabolism.

**06.01.73 DEVELOPMENTAL REGULATION OF VAMPS IN THE LUNG.**

Anna Bell, Lin Liu, Peng Sun, Physiological Sciences - College of Veterinary Medicine, Oklahoma State University, Stillwater, OK.

Lung surfactant is composed of phospholipids and surfactant proteins A, B, and C. The major function of lung surfactant is to reduce surface tension and to prevent alveoli from collapsing. Lung surfactant is synthesized in alveolar type II cells and stored in lamellar bodies. Surfactant is secreted from lamellar bodies via exocytosis resulting in the fusion of vesicles with the plasma membrane. Previous studies from our laboratory have shown that VAMP-2 and VAMP-8 are expressed in alveolar type II cells and are present in lamellar bodies. They are likely involved in surfactant secretion. This study further examines the cellular localization of VAMPs in the lungs at various stages of development. Immunohistochemistry was utilized for this purpose. The results showed that VAMP-2 and VAMP-8 were localized in lung epithelial cells and were highly expressed at prenatal stages. Our results provide insights for mechanisms of lung surfactant secretion.

**06.01.74 DETERMINING ALTERED GENE EXPRESSION BY OXIDATIVE STRESS AND REDUCED INSULIN SIGNALING IN FEMALE IGFR1+/− MICE.**

Dennis Lai, Biology, Northeastern State University, Tahlequah, OK.

Objective: Female Igfr1+/− mice are known to live ~33% longer and resist oxidative stress more efficiently than WT mice. Foxo1 and PGC-1α genes are transcription factors related to insulin. Our objective is to measure effects of decreased insulin/IGFI signaling and oxidative stress on Foxo1 and PGC-1α gene expression in Igfr1+/− mice.

Method: Total RNA was extracted from kidney and liver tissues of 9-11 month-old females, WT and Igfr1+/− (Igfr129/B6-F1) mice with and without diquat treatment (n=3). Clean up and DNase I digestion of the total RNA was performed, followed by reverse transcription to synthesize cDNA. QRT-PCR was performed using the cDNA with Foxo1 and PGC-1α primers. Statistical analysis was done to determine the effects of reduced IGFI signaling and diquat (DQ) on the expression of Foxo1 and PGC-1α.
Results: In kidney, WT without DQ vs. WT with DQ produced -1.05 and 1.50 fold change values for Foxo1 and PGC-1α respectively. WT without DQ vs. Igflf-/- without DQ produced 1.32 and -1.49 fold change values for Foxo1 and PGC-1α respectively. In liver, WT without DQ vs. WT with DQ produced 1.59 and 1.17 fold change values for Foxo1 and PGC-1α respectively. More data is being processed as it is still an ongoing study.

Conclusion: It seems reduced insulin signaling affects differentially in these genes. DQ influences expressions of Foxo1 in liver and PGC-1α in kidney but not the expressions of Foxo1 in kidney and PGC-1α in liver.

06.01.75 IN-VITRO MODELING OF EARLY EMBRYONIC HEMATOPOIESIS.
Rebecca Cote, Timothy Lyden, Biology, University of Wisconsin - River Falls, River Falls, WI.
Hematopoietic stem cells have the ability to differentiate into the blood and immune cells of the body and through self-renewal provide a constant source of these cells. By creating a functional model of in vitro hematopoiesis using chick cells, the methods necessary to isolate and culture hematopoietic stem cells can be better understood. To create this model, natural three-dimensional collagen scaffolding was used to support the growth of hematopoietic stem cells isolated from early chick embryos. The yolk sac (YS) and liver from chick embryos were used as potential sources of hematopoietic stem cells due to their respective roles in development of the hematopoietic system in the embryo. The YS is the first source of blood and therefore the earliest site of hematopoietic stem cells in the embryo. In mammals, the liver, after being seeded with hematopoietic stem cells, takes over as the major hematopoietic organ shortly after establishment of the embryo.

To test this role in avian species, the liver was included in the current study. Cells from the YS and liver were grown in culture on natural collagen scaffolding for approximately two weeks before the appearance of stem-like cells were seen. These cells and resulting artificial tissues have been characterized using light microscopy and Scanning Electron Microscopy (SEM). Additional studies will further evaluate these cells and artificial tissues using stem cell labeling with CD34 and Sca-1.

06.01.77 DEVELOPMENT OF ARTIFICIAL-TISSUES (ATS) FROM EARLY AVIAN EMBRYONIC CARDIAC TISSUES STRONGLY IMPLIES A CONTRIBUTION FORM FETAL STEM CELL POPULATIONS.
Travis Cordie, Chris Wenig, Rebecca Cote, Timothy Lyden, Biology, University of Wisconsin - River Falls, River Falls, WI.
In these studies, avian cardiac tissues were harvested and introduced to natural 3-D collagen scaffolding for growth in culture. These samples were maintained for up to 12 months in continuous culture. During this period, significant expansion and development of cardiac ATS were observed and monitored morphologically. The culture began with explanted heart tissue adhering within the first 24-48 hours, followed by extension and expansion. Initially and for up to 29 days following explant the tissue fragments maintained a regular and organized beat. These contractions continued as the tissue shifted its shape to fit the scaffolding and then resolved into what appeared to be a continuous state of relative contraction that eventually compressed the architecture of the scaffolding itself. The cells making up these ATS showed morphology consistent with the cardiac differentiation lineage. Given the expansion of these tissue fragments to perhaps 5-10 times their original volume, it is evident that fetal stem cell populations have been transferred with the tissue fragments. Further studies are continuing to address this question by detecting "stem-like" populations within these ATS structures and to identify potential stem cell "niches" associated with our scaffolds. Additional labeling studies are planned to qualify the nature of the overall cell populations observed and these will be augmented with SEM studies to further define the actual ATS structural details.

06.01.78 THE STUDY OF EARLY AVIAN THORACIC NEURAL CRESCENT CELLS AND NEURAL TUBE REGION TISSUES IN 3-D ARTIFICIAL TISSUE (ATS) CULTURES.
Chris Wenig, Travis Cordie, Rebecca Cote, Timothy Lyden, Biology, University of Wisconsin - River Falls, River Falls, WI.
In this presentation we report on the development of complex composite ATS from the dorsal mid-thoracic region of early chick embryos. Our specific target in these studies was to examine the migration and/or differentiation of neural crest cells within the context of ATS cultures. In a series of studies, we have successfully produced complex thoracic ATS that have often contained clear populations of neural crest cells. When successfully harvested, the samples have presented populations of neural crest cells that engage in classic migration, penetration and induction events related to this region of the embryo. In one such study, these cells expanded out from localized nodes of pigmented tissue near the neural tube and eventually penetrated adjacent ectodermal tissues with a network of cells that extended from deep inside the ATS to near the actual surface. During this period of network development, the adjacent ectodermal cells clearly underwent differentiation-related morphological changes. In addition to pigmented neural crest cell migration and consistent with our observations in other neural tissues, many of
these samples also developed significant secondary tissue features during extended culture periods. These included relatively thin “nerve-like” sprouts of tissue. Further studies are ongoing to examine the fetal stem cell populations present as well as to better define the nature of the secondary structures observed.

06.01.79 ARTIFICIAL TISSUE DEVELOPMENT IN 3D CULTURES LEADS TO STABLE PHENOTYPIC CHANGES IN TROPHOBLAST CELLS.
Timothy Lyden, Biology, University of Wisconsin - River Falls, River Falls, WI.
During the course of normal human placental development, the major cellular interface between fetus and mother is made up of a lineage called the trophoblast. This critical cell type has its developmental origin in the outer surface of the pre-implantation embryo which is the first cell type to differentiate in the embryo. Eventually these trophoblast cells give rise to a pair of distinctive cell lineages, the villus and extra-villus trophoblast pathways. In this presentation we report on recent studies which sought to evaluate the effect of 3-dimensional substrates and basic tissue engineering methods on trophoblast cells in vitro. This work has revealed that two distinctive cellular phenotypes result from growth of trophoblast cell lines on each of two 3-D conformations. On branching tubular scaffolds, BeWo cells (a trophoblastic model cell line) form clearly villus-like structures and cells harvested from these scaffolds form distinct colonies with villus trophoblastic characteristics. This differs considerably from results obtained with planar collagen sheet scaffolds where BeWo cells behave very differently and eventually digest the scaffolding in a unique display of extra-villus phenotypic behavior. Colonies harvested from these cultures display several distinctively extra-villus characteristics.

06.01.80 A COMPARISON OF VASCULAR PLANT COMMUNITIES ON GRAZED AND UNGRAZED GYPSUM OUTCROPS IN THE CIMARRON GYPSUM HILLS, NORTHWESTERN OKLAHOMA.
Kristi Rice, Gloria Caddell, Biology, University of Central Oklahoma, Edmond, OK.
Gypsum outcrops are an understudied habitat of arid to semi-arid ecosystems (Meyer and Garcia-Moya, 1989; Romao and Escudero, 2005). They have been characterized as a stressful environment that can be unfavorable to plant establishment (Escudero et al., 2000) and growth (Barber, 1975). They support unique plant communities (Parsons, 1976) of which some species, called gypsophiles, are restricted to gypsum substrates. We are conducting a study to analyze the plant communities on gypsum outcrops throughout the Cimarron Gypsum Hills (CGH) of northwestern Oklahoma, and to evaluate how climate and grazing affect community composition. Average annual precipitation in the study area decreases 15 cm from east to west. The land is generally unsuitable for growing crops, but it is commonly used as ranchland. The impact of grazing is well-established for other types of grasslands in the region, but not for the unique type of grassland on gypsum outcrops. At thirteen sites in five counties, we established three 10 x 10 m plots near the center of representative gypsum outcrops. Plots were sampled in the summer and fall of 2006, and in the spring and summer of 2007. We will compare vascular plant community composition among currently-grazed, recently-grazed, and long-ungrazed outcrops for the four seasons. Preliminary results indicate high similarity coefficients among the three different community types and a low number of introduced species.

06.01.81 CHEMICAL SYMPATHECTOMY INCREASES SUSCEPTIBILITY TO HERPES SIMPLEX VIRUS TYPE 1 INFECTION.
1 Amanda Templeton, 2 Dan J.J. Carr, 1 Biological Sciences, Cameron University, Lawton, OK. 2 Department of Ophthalmology and Microbiology and Immunology, University of Oklahoma Health Sciences Center, Oklahoma City, OK 73104.
The immune system is influenced by the nervous system through “hard wiring” of organized lymphoid tissue via sympathetic/parasympathetic and sensory nerves as well as through chemical neuropeptide hormones and hormone receptors. The current objective was to determine if innervation of organized lymphoid tissue influenced the host response to our prototypic pathogen, herpes simplex virus type 1 (HSV-1) in an ocular mouse model. Age (6–8 week old) and sex (male and female)-matched C57BL/6 mice were treated daily with either vehicle or 6-hydroxydopamine (6-OHDA, 80 mg/kg, i.p.) for three days. The last day of treatment, mice were infected with 1000 plaque forming units/cornea HSV-1 (strain McKrae). Virus load in infected tissue was determined by plaque assay at times day 3 – day 7 post infection. In addition, recruitment of leukocytes was evaluated in infected tissue by flow cytometry. Chemical sympathectomy using 6-OHDA resulted in a time-dependent increase in viral titers recovered in the nervous system but not the cornea of treated mice. However, flow cytometric analysis revealed no change in the percentage or absolute number of leukocyte sub-populations recruited to the infected tissue. Chemical sympathectomy increases susceptibility of the host to HSV-1 corneal infection. However, the defect in monitoring HSV-1 infection is independent of the recruitment of effector lymphocytes.
# Math & Science

**06.01.82 CYTOTOXIC EFFECT OF FULLERENE AGGREGATED ON HEP G2 CELLS.**

Cherie Ognibene, Biology, Langston University, Langston, OK.

Fullerenes have great promise for drug delivery and a variety of other medical applications. Fullerenes and their derivatives have a significant tendency to aggregates, however upon interaction with water to form colloidally-stabilized suspensions. We hypothesized that the toxic potential of these fullerene aggregates is influenced by the method of synthesis. Our objective was to compare cytotoxicity of exchange (F-SON), the-tahydorfuran and acetone to water solvent exchange (F-TTA), and sonication-assisted toluene to water solvent exchange (F-SON). Human HepG2 cells were plated at a density of 2.5 x 106.

**06.01.83 EFFECT OF ETHANOL WITHDRAWAL ON ACOUSTIC STARTLE RESPONSE: C57 VS. DBA MICE.**

Via'ney Price, Biology, Langston University, Langston, OK.

After chronic ethanol exposure, a sudden decrease in ethanol intake may lead to symptoms of withdrawal. In the current experiment, the effects of chronic ethanol treatment on the anxiety level of C57 and DBA strain mice was studied by measuring an Acoustic Startle Response. Our objective was to develop an animal model that illustrates the anxiety increase measured by acoustic startle and to determine how long the anxiety period lasts. An additional goal was to determine the difference between the two strains of mice that differ in initial ethanol sensitivity. Six-week old male C57 & DBA mice were exposed to ethanol by vapor inhalation for two 4-day cycles of 16 hours of vapor exposure each day with 3-days of withdrawal between each cycle. Subject animals received a priming dose of ethanol and the alcohol dehydrogenase inhibitor pyrazole each day and were then placed in chambers with a constant mix of air and vaporized ethanol. As expected, there was an increase in startle for the ethanol-treated mice when compared to naïve mice that lasted 3-5 days post-withdrawal. While the naïve DBA mice had a lower startle response, DBA mice showed a greater increase in startle after ethanol withdrawal compared to C57 mice. This model of ethanol exposure does result in heightened anxiety levels as measured by acoustic startle following ethanol withdrawal. Because of their high sensitivity to ethanol, the DBA mice show a larger increase in anxiety than do the C57 mice.

**06.01.86 COMPARATIVE PHYLOGEOGRAPHY OF THREE SPECIES OF PEROMYSCUS IN OKLAHOMA AND ADJACENT STATES.**

Gregory Wilson, Amy Cluck, Chris Dunn, Emily Bowles, Kimberly Koppari, Miranda Hintergard, Sarah Smith, Tiffany Cloud, Vagan Mushegyan, Biology, University of Central Oklahoma, Edmond, OK.

Phylogeographic theory has been used to assess processes governing geographic distributions and population genetic structure for a diverse array of species. The majority of such studies focused on intraspecific relationships for single species, usually over a broad geographic area. Relatively few studies have compared gene genealogies of multiple, co-distributed species. In these studies, a lack of concordance among species suggests differences in levels of gene flow, responses to geographic barriers and climatic change, and other molecular, ecological, and demographic factors. Thus, comparative phylogeography, together with knowledge of geological history and life-history differences among species, provides a rich base of information for interpretation of biogeography. We used DNA sequence data for a rapidly evolving portion of the control region of the mitochondrial genome (mtDNA) to investigate genetic and phylogeographic structure in populations of the white-footed mouse (Peromyscus leucopus), deer mouse (Peromyscus maniculatus), and the Texas mouse (P. attwateri) collected from localities throughout Oklahoma and adjacent states. We will discuss how contemporary and historical factors have impacted the observed distribution of mtDNA haplotypes. In addition, we will discuss if phylogeographic structure was congruent for these 3 species throughout south-central portion of the United States.

**06.01.87 DEVELOPING BIOMARKER-BASED TESTS OF DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS.**

Michael Centola, Arthritis and Immunology, Oklahoma Medical Research Foundation, Oklahoma City, OK.

Rheumatoid arthritis (RA) is an autoimmune disease that affects approximately 1% of the worldwide population; 2.1 million people in the US have been diagnosed with the disease, and 78,000 new cases are diagnosed each year. Treatment of rheumatoid arthritis within the first months of symptom onset results in significantly improved outcomes. Moreover, disease activity changes over time, requiring careful monitoring and often changes in treatment throughout a multi-decade disease cycle. Unfortunately, most patients do not receive optimal treatment within this narrow window of opportunity resulting in poor outcomes, irreversible joint damage, and increased health care costs, in large part because of the limits of current laboratory tests. Rigen develops new tests to help physicians optimally...
treat RA patients. To do this we obtain patient blood samples from patients prior to and during treatment. In these samples we monitor the expression of nearly all human genes in the immune cells. We also monitor a large number of hormone-like molecules in serum, called cytokines that regulate the immune response. In this way, we identify new markers of disease activity. Tests developed from these allow a physician treating RA to quantitatively and mechanistically track therapy response. This so called “evidenced-based” approach to RA treatment reduces the time a patient is on the wrong therapy, which improves outcomes while reducing overall cost of care.

06.01.88  THE EFFECTS OF QUAD-BAND GSM RADIATION ON HARNESSED AND FREE-FLYING HONEY BEES.
Timothy Mixson, Psychology / Zoology, Oklahoma State University, Stillwater, OK.

The purpose of this experiment was to investigate the effect of quad-band GSM (Global System for Mobile Communications) radiation on honey bee behavior. This research was stimulated by recent media reports suggesting that exposure to mobile phone radiation is a possible cause of colony collapse disorder. Three subspecies of honey bees were investigated including Apis mellifera carnica, A. m. caucasica, and A. m. syriaca. Four experiments were conducted in both free-flying and harnessed situations. In the first series of experiments, possible effects of radiation on antenna stimulation and feeding was investigated. The question of interest in these experiments was whether the mobile phone radiation would inhibit their natural response to sucrose stimulation. The results indicated no effect on proboscis extension or feeding responses in any of the three subspecies. A second series of experiments were performed in which free-flying foragers flew from the hive to an experimental situation. In the first experiment of this series, the effect of quad-band GSM radiation on flight navigation was investigated. In the second experiment, GSM-induced aggression was investigated. The results of both experiments indicated no effect of the radiation. This study represents the first investigation of quad-band GSM radiation on honey bee behavior. Our findings suggest that the frequencies utilized in quad-band GSM technology are not a contributing factor in colony collapse disorder.

06.01.89  PLACEMENT OF THE NEWLY REDISCOVERED MYOTIS PLANICEPS WITHIN THE MYOTIS PHYLOGENY.
Michelle Haynie, Biology, University of Central Oklahoma, Edmond, OK.

Until recently, Myotis planiceps (flat-headed myotis) was known from only 3 specimens collected from 3 different sites in Coahuila, Nuevo Leon, and Zacatecas, Mexico. The last specimen was collected in 1970 and in 1996 the species was listed as extinct. During a 2004 expedition, 8 specimens were captured and the species was re-listed as critically endangered. Members of this species have a conspicuously flattened cranium, speculated to be an adaptation for living in crevices; however, very little is known about the biology of this bat and little work has been done on their phylogenetic relationship with other members of the genus Myotis. In order to elucidate the placement of M. planiceps within the Myotis phylogeny, we sequenced 1140 bp of the mitochondrial cytochrome b gene from 12 samples collected from 4 different localities in north-central Mexico. We found 4 different haplotypes that differed by 0.3% mean sequence divergence. Maximum parsimony, maximum likelihood, and Bayesian analyses were performed, comparing these haplotypes with Myotis sequences available on GenBank. All reconstructions placed M. planiceps within a strongly supported clade including several Nearctic Myotis (M. volans, M. lucifugus, M. thysanodes and M. evotis), which pertain to two proposed subgenera, Myotis and Leuconoe. Remarkably, M. planiceps appears to be closely related to M. volans (2.98% mean sequence divergence), despite the striking differences in skull morphology. Our results

06.01.90  A BRIEF HISTORY OF MEDICINE: WHERE EAST MEETS WEST.
Vishal Ganta, Sophmore at the University of Oklahoma, Norman

There is growing interest in the history of medicine and also ancient Chinese and other alternative medicine among people in America. History of Western medicine consists of Prehistoric medicine, medicine in ancient civilizations, and medicine through the known ages. These ages were: Greek and Roman medicine, Renaissance, and the age of Scientific Revolution. Supernatural was thought to be imminent in all things affecting health, livelihood, and social activities.

Earliest known regulations of medical practice found in the code of Hammurabi (c 1700 BC). Galen writings influenced medicine for the next 1500 years. Da Vinci (1452-1519), Michaelangelo (1475-1564), Vesalius (1514-1564) made major contributions to the field of human anatomy. During 17th and 18th centuries there were several instruments developed and were the ages of scientific Revolution. During 19th and 20th centuries, Anesthesia and pain relief significantly altered the course of modern medicine, and there was a continued emphasis of medicine toward technology.

Classic Chinese medicine based on works ascribed to three legendary emperors: Fu His (C2900 B.C.), Shen Nung, Red Emperor (C 2800 B.C.), and Yu Hsiung, Yellow Emperor
There was landmark discovery of penicillin to control several diseases in 1929. Acupuncture continued to develop Chinese medicine and throughout the dynasties many texts were written. President, Richard Nixon’s trip to China in the 1970’s peaked western interest in Chinese culture and medicine. Since that time, western medicine has taken a new look at acupuncture. There are several alternative medical therapies have been established in modern medicine.

In this presentation a brief review of medical advancement through the ages of Greek, Roman along with theories and philosophies of Hippocrates and Galen including Chinese acupuncture and other alternative therapies will be described. And also important events in medical discoveries will be highlighted.

06.01.91 A JOURNEY THROUGH ANESTHESIA: (THE HISTORY OF ANESTHESIA, ITS FOUNDATION HOW IT AFFECTED AMERICA.)

Deepika Ganta, Senior at Casady School, Oklahoma city, Oklahoma.

There are several publications about the history of anesthesia. In this presentation I have reviewed the significant contribution made by the American Anesthesiologists during twentieth century.

Anesthesia is probably considered the greatest discovery so far in medical history. Since 1846, when anesthesia was first publicly demonstrated in America by the dentist, William Thomas Green Morton by the anesthetic ether, it has greatly affected the history of anesthesia by relieving pain. It is very interesting to know the evolution and progress made all these years in the field of anesthesiology. Anesthesiology was slow to develop as a medical specialty, consequently, the use of anesthesia in human medical surgeries took place afterwards in the twentieth century. The two world wars stimulated both surgery and anesthesia. As surgical techniques developed during this time there was equivalent demand for specialties in the area of anesthesia. Many anesthesiologists continued their work and learnt under service conditions and they had great influence on the development of the specialty in everyday life. Several dental surgeons were encouraged and they practiced and revolutionized the devices to optimize the pain relief for their patients.

In this poster presentation a list of important events in anesthetic discoveries and some pictures of devices in anesthesiology will be reviewed and displayed. The pioneers in American history will be emphasized and described in the form of simple charts and pictures.
Chemistry – 06.02

06.02.01 A PATHWAY SCREEN: IDENTIFYING NATURAL PRODUCT EXTRACTS THAT TARGET THE RHO PATHWAY.
Cammi Valdez, Chemistry, Southwestern Oklahoma State University, Weatherford, OK.

Rho GTPases regulate diverse cellular processes, including cytokinesis. Cytokinesis occurs very rapidly only after the DNA has separated during mitosis. The underlying mechanisms by which Rho GTPases coordinate cleavage furrow formation, ingression, and cytokinesis completion remain poorly characterized. Small molecules act quickly and enable high temporal control over protein function. We developed a phenotypic screen that uses chemical genetics and partial inhibition of Rho to identify Rho pathway-specific small molecules. This approach is analogous to a classical modifier screen, but cells are perturbed by chemicals rather than mutations. Rho inhibition results in binucleate cells, which is a consequence of failed cytokinesis. I screened 3,500 natural product extracts in human HeLa cells. During the development of my image based screen, an intermediate Rho Inhibitor phenotype was acquired that would produce both the enhancement of binucleate cells and a slightly disrupted actin phenotype. The cell permeable Rho Inhibitor, C3 Exoenzyme, causes the partial inhibition of Rho, which sensitizes the cells to small molecule treatment. Natural product extracts that target the Rho pathway were identified using automated microscopy and visual analysis. Misregulation of the Rho pathway has been implicated in many types of cancers. Therefore, Rho pathway-specific small molecules have promising therapeutic potential.

06.02.02 OPTIMIZATION OF AN ELECTROLYTIC HYDROGEN FUEL CELL FOR A TURBO DIESEL MOTOR.
Jeffery Havard, Armstrong Isiaho, Chemistry, University of Central Oklahoma, Edmond, OK.

An electrolytic hydrogen fuel cell has been constructed for the production of Hydrogen to be used in a modern internal combustion engine. By optimizing the conditions of electrolysis, a sufficient supply of Hydrogen can be produced in situ to power a turbo diesel motor. The benefit to this approach is the absence of hydrocarbon emissions while providing the same power and torque characteristics of modern petrol fueled motors. The retention of the tooling used in motor production results in less change in the manufacturing process providing less risk for the production of fuel cell vehicles for modern auto manufacturers.

06.02.03 KINETIC ANALYSIS OF THE HYBRIDIZATION OF DNA OLIGOMERS.
Jeffery Havard, Aaron Martin, Armstrong Isiaho, Biochemistry, University of Central Oklahoma, Edmond, OK.
The demonstration of a simple method using a Avidin surface for monitoring the kinetic hybridization between a biotinylated DNA oligomer and its complement strand was performed using SensiQ,a dual channel SPR-based instrument for accurate kinetic and affinity analysis. Two strands, 1 with 3'-biotin tag and base pair structure 5'-CTTGACGTAC-3' was analyzed against strand 2, 5'-GTACGTCAAG-3'. The kinetics were determined for the oligomer pair and the method was validated for the capture of the biotinylated oligomer.

06.02.04 INVESTIGATIONS INTO ORGANIC DYE BINDING ANTIBODY SINGLE-CHAIN VARIABLE FRAGMENTS THROUGH BACTERIAL EXPRESSION SYSTEMS.
1 James Henderson, 2 Gordon Rule, 1 Chemistry Department, University of Central Oklahoma, Edmond, OK.
2 Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA.

Antibody single-chain variable fragments (scFvs) are recombinant antibody fragments consisting of only variable light chain (VL) and variable heavy chain (VH) domains covalently linked by means of a polypeptide chain. Antibody single-chain variable fragments that bind common organic dyes such as fluorescein and thiazole orange (TO1) have been explored as potential biosensors. When these dyes bind to the antibody fragments, the complex experiences either an increase or decrease in the intensity of fluorescence. My research has focused on the expression of organic dye binding scFvs through E. coli rather than S. cerevisiae as previously documented. A bacteria based expression system will ultimately lead to a higher production of functional antibody fragments since E. coli growth is rapid and inexpensive, and the ease with which the bacteria can be genetically manipulated. An affinity matured gene sequence for the TO1 binding scFv (AM2-2) was amplified and inserted in a bacterial plasmid by TOPO Cloning. With an isolated TOPO vector, SfiI restriction enzymes were then used to cleave the scFv encoding region. The resulting DNA fragment was ligated into the pAK400 plasmid; consequently, the plasmid encoded for a periplasmically secreted scFv that binds TO1. Isolation and purification of the scFv was conducted by metal-chelation chromatography. NMR spectroscopy was also utilized in the structure determination of the antibody fragment.
06.02.05  DIFFERENTIAL DYNAMIC RESPONSE OF ATP-GRASP DOMAINS WITHIN CARBAMOYL PHOSPHATE SYNTHETASE.
Serena Hageman, Jason Johnson, Chemistry and Physics, Southwestern Oklahoma State University, Weatherford, OK.

Carbamoyl phosphate synthetase (CPS) catalyzes the production of carbamoyl phosphate for assimilation into either arginine or the various pyrimidines. The enzyme is a heterodimer, with gene duplication giving rise to two ATP binding domains that are separated by over 40Å, have 40% sequence identity, and exhibit strong structural overlap. During the catalytic mechanism of CPS, the ATP-binding domains act in tandem, but promote different reactions and respond to unique allosteric signals. At the N-terminal domain, one equivalent of ATP reacts with bicarbonate to generate carboxyphosphate, signaling the hydrolysis of glutamine and release of ammonia from the small subunit. Attack by ammonia on carboxyphosphate generates carbamate, which then tunnels into the C-terminal domain to react with a second equivalent of ATP and produce carbamoyl phosphate. Separate binding sites also exist for the allosteric activator ornithine and inhibitor UMP, each impacting nucleotide affinity and turnover uniquely at the two ATP active sites. How the conformations of the two ATP-grasp domains differentially respond to such synchronizing and regulatory signals has to this point been unknown. Here, we introduce tryptophan probes into parallel positions within the two active sites and report their unique steady-state and time-resolved fluorescence response to the binding of substrates, products, and regulators. Supported by INBRE Grant #P20RR016478-04.

06.02.07  SYNTHESIS AND CRYSTALLOGRAPHIC STUDIES OF A SERIES OF XYLYL BICYCLAM ANALOGUES.

1 Tim Hubin, 1 Abid Khan, 1 Chris Empson, 1 Leigh Madden, 1 Randall Maples, 1 Stephen Archibald, 2 Graeme McRobbie, 1 John Greenman, 1 Chemistry, Southwestern Oklahoma State University, Weatherford, OK. 3 Chemistry, University of Hull, Hull, UK. 1 Medical Research Laboratory, University of Hull, Hull, UK.

Xylyl bicyclams, such as the patented compound AMD3100, as well as certain derivatives of the complex including those containing configurationally restricted and/or metal encapsulating macrocyclic rings, have previously been identified for their inhibition activity and binding specificity in relation to a number of diseases including Human Immunodeficiency Virus (HIV). The antiviral properties of AMD3100 and its various analogues are found in its binding the cell surface chemokine receptor CXCR4, thus preventing interaction between the viral envelope glycoprotein (gp120) and the co-receptor. Our research includes the synthesis and characterization of a variety of configurationally restricted and/or metal-encapsulating macrocyclic rings, as the allosteric response manifested within the amidotransferase domain purportedly involved in active site coordination. In future studies, ligand-induced changes in the fluorescence properties of these probes will highlight dynamic motions correlated with synchronization signals. Supported by INBRE Grant #P20RR016478-04.

06.02.06  ENGINEERING PROBES TO ASSESS SYNCHRONIZATION MECHANISMS IN AMIDOTRANSFERASE-CONTAINING PROTEINS.
Garrett Scott, Candace Benda, Jason Johnson, Chemistry and Physics, Southwestern Oklahoma State University, Weatherford, OK.

The glutamine amidotransferase (GATase) family of biosynthetic enzymes shares in common the ability to catalyze the coordinated removal of ammonia from glutamine and subsequent transfer to a substrate to form a new carbon-nitrogen group. Exemplifying these proteins is carbamoyl phosphate synthetase—it coordinates five substrates and three intermediates between three active sites that are inter-connected via 100Å of tunnels to produce carbamoyl phosphate. The reaction of ATP and bicarbonate within the first active site of the large subunit represents the rate-limiting step and the stimulus for an inter-subunit, allosteric signal promoting glutamine hydrolysis in the small subunit. The conformational changes accompanying carboxyphosphate formation at the nucleotide binding site, as well as the allosteric response manifested within the amidotransferase domain, have thus far escaped experimental characterization. In this study, we have engineered via site-directed mutagenesis a series of nine fluorescence probes potentially sensitive to these synchronizing movements. Specifically, we have substituted tryptophan for various hydrophobic amino acids in structural elements around the ATP binding and the GATase domains purportedly involved in active site coordination. In future studies, ligand-induced changes in the fluorescence properties of these probes will highlight dynamic motions correlated with synchronization signals. Supported by INBRE Grant #P20RR016478-04.

06.02.08  A COMPUTATIONAL STUDY OF ENERGETICS OF ETHYLENE POLYMERIZATION MEDIATED BY NON-BRIDGED ZIRCONOCENE SYSTEMS.

Paritosh Das, Danny McGuire, Physical Sciences, Cameron University, Lawton, OK.

Employing DFT/B3LYP methodology, we have computationally studied the reaction energetics of chain propagation and termination steps of ethylene polymerization mediated by several highly substituted non-
bridged zirconocene systems, namely, (X5-Cp)2ZrR+, X = H, F, Cl, and CH3. In comparison to the methylene bridged zirconocenes that we had studied earlier, the reaction energetics of the non-bridged systems are found to be very sensitive to the steric hindrance imposed by the Cl and CH3 substituents (on Cp ligands). In particular, the complexation of ethylene with (Me5-Cp)2Zr-CH2CH2CH3+ is nearly thermoneutral. This suggests that this highly congested catalyst system may verywell be ineffective in catalyzing ethylene polymerization, unless the solvent effect favors the ethylene/active-catalyst-species complex formation. Under the latter condition, however, the catalyst would be very efficient in producing high-molecular-weight polyethylene. With F substituents, the electronic effects from the electron-withdrawing F’s dominate and render the corresponding catalyst less effective in polymerizing ethylene (compared to the parent, unsubstituted catalyst system).

**06.02.09 C-C BOND CLEAVAGE IN 1,1,2,2-TETRAPHENYL ETANE VIA PHOTINDUCED ELECTRON TRANSFER SENSITIZATION.**
Paritosh Das, Douglas Cyr, Physical Sciences, Cameron University, Lawton, OK.

By 337.1 nm laser flash photolysis in acetonitrile at room temperature, the radical cation [Ph2CH-CHPh2]+ has been generated as a transient species via photoinduced charge transfer involving singlet excited 1,4-dicyanonaaphthalene (acceptor) and 1,1,2,2-tetraphenyl ethane (donor). The radical cation undergoes fragmentation to Ph2CH+ cation and Ph2CH, radical on the nanosecond time scale (k = 4.1x106 s-1 at 24 oC). Based on an Eyring plot, the activation energy for C-C bond cleavage in [Ph2CH-CHPh2]+ has been determined to be 23.0 kJ/mole.

**06.02.10 THE WATER SWITCHGRASS EXTRACTION OF COMPOUNDS THAT INHIBIT LOW DENSITY LIPOPROTEIN OXIDATION.**
Jason Chandler, Chemistry, Langston University, Langston, OK.

Switchgrass is a perennial grass that is native to North America and Canada. Switchgrass is scientifically significant because the ethanol extracted from it can be used as an alternative energy source that could safely rival the fossil fuels being utilized today. Policosanols and vitamin E are other value added products that can be extracted from switchgrass. Policosanols are mixtures of long-chained primary alcohols. Policosanols can be extracted from beeswax, sugar cane, and other waxy materials. Policosanols are important because they exhibit significant cholesterol-lowering effects. They supposedly inhibit the oxidation of low density lipoprotein (LDL). Previous studies have shown that LDL oxidation leads to a degenerative accumulation of lipid-containing plaques on the innermost layer of the wall of an artery. Currently we have performed many copper mediated LDL assays. The logistics behind the assay is to figure out what substance inhibits LDL from oxidizing.

**06.02.11 4H-1-BENZOPYRANS BY A TANDEM SN2-SNAR REACTION.**
1 David Rogers, 2 Richard Bunce, 3 Scott Bryant, 3 Takahiro Nago, 1 Department of Chemistry, East Central University, Ada, OK. Department of Chemistry, Oklahoma State University, Stillwater, OK.

Treatment of 2-fluoro-5-nitrobenzyl bromide with active methylene compounds in the presence of excess potassium carbonate in acetone leads to the formation of highly functionalized 4H-1-benzyopyrans by a tandem SN2-SNAr reaction sequence. The reaction works well with △-keto esters, △-keto sulfones, △-keto phosphine oxides, △-keto phosphonates and △-keto nitriles. With the exception of dibenzoylmethane, △-diketones were found to give significant quantities of O-alkylation products and active ketones such as phenylacetone and deoxybenzoin gave only monoalkylation at carbon. The reaction is simple to perform and affords products in 50-92% yields. The synthesis of starting materials will be described and a mechanism for the reaction will be presented.

**06.02.12 VAPORIZATION STUDIES OF TRANSITION METAL OXIDES AT HIGH TEMPERATURES.**
Alisha Shepherd, Dwight Myers, Chemistry, East Central University, Ada, OK.

As part of a larger program of studies of metal oxide stabilities in corrosive and high temperature environments, we are studying the volatility and reactivity of several transition metal oxides at elevated temperatures. Cobalt sesqui oxide (Co3O4), tungsten(VI) oxide (WO3), zinc oxide (ZnO), and titanium(IV) oxide (TiO2) have been heated at elevated temperatures (ca. 1273 K) for extended periods of time. In the case of the cobalt and tungsten oxides, some evidence has been observed for vapor transport by water vapor from the furnace atmosphere. Fourier-Transform Infrared Spectrophotometry measurements have been performed to look for evidence of adsorbed water. Results to date will be presented.

**06.02.13 THERMODYNAMICS OF THE ZINC-OXYGEN-HYDROGEN SYSTEM.**
Audrey Myers, Dwight Myers, Chemistry, East Central University, Ada, OK.

Formation of volatile hydroxides at elevated temperatures is an important mechanism for corrosion of metal
alloys or oxides in combustion environments. We are studying the vaporization of zinc oxide in flowing gas streams. Our ultimate goal is to study the reaction of zinc oxide with water vapor in the temperature range 900-1200 K. Zinc oxide is placed in a quartz transpiration apparatus and a flowing stream of oxygen or nitrogen gas is passed over the sample. Volatile zinc oxide species are transported downstream and collected in the cooler collection tube for analysis. Variation of the partial pressure of oxygen allows the determination of the vaporizing species. By adding water vapor to the gas stream, volatile zinc hydroxide species can also be formed. Measurements over a range of temperatures will permit determination of the enthalpies of the important reactions at the average temperature of the experiments. Initial results will be discussed.

06.02.14 PROPERTIES OF YTTRIUM-BARIUM-COPPER OXIDE SUPERCONDUCTOR DOPED WITH COBALT.

Jesse Redden, Dwight Myers, Chemistry, East Central University, Ada, OK.

It is well known that addition of small amounts of other transition metals to the yttrium-barium-copper oxide (YBCO) superconductor increases Tc and ultimately eliminates superconductivity in YBCO. We have prepared YBa2Cu3-xCoxOy superconductor samples doped with Co at levels up to x = 0.2. From the composition at which superconductivity ceases, one can calculate the average distance between cobalt atoms in the Cu-O chains, and therefor the effective Cu-O chain length for the superconductor. Preliminary results will be presented.

06.02.15 DOES INCREASING THE TEMPERATURE INDUCE DNAPL MIGRATION?

1 James Brown, 2 Dr. Eva Davis, 1 McNair Scholars Program, East Central University, Ada, OK. 2 KerrResearch Center/United States Environmental Protection Agency, Ada, OK.

Tetrachloroethylene, trichloroethylene, and chlorobenzene have been identified as contaminants in groundwater and are sometimes called Dense Non-Aqueous Phase Liquids (DNAPL). Thermal methods for remediation of contaminated soils and groundwater rely on raising the temperature of the subsurface to mobilize organic contaminants so that they could be brought back to the surface. Questions often arise as to whether organic liquids that are present as a separate phase ganglion will be mobilized downward before the liquid is vaporized. To make this determination, properties of these DNAPLs as a function of temperature had to be determined. A literature search was done on density and surface and interfacial tensions were determined using a Fisher Surface Tensiometer Model 20. Using equations developed for the entrapment of liquids in soils, potential mobilization could be determined. Also, because surface and interfacial tension can be altered by contact with soil, measurements were also taken post contact. Interfacial tension did not show significant differences between pure compounds and compounds that had been contacted with soil or sand. Surface tension did show a significant difference between the two. Downward mobilization from raising the temperature would not be expected to occur.

06.02.16 EPA-REGISTERED ALGAE-CIDE DEVELOPMENT.

Joe Willis, Chemistry, Oral Roberts University, Tulsa, OK. Winston Company Inc. focuses on all-natural, environmentally friendly bacteria/enzyme products. This project, “Advanced Applications of EPA-Registered Algaeicide,” builds on Winston’s recently acquired approval from the Environmental Protection Agency to market its product Algae-Off Pro85. Current applications for this product include water gardens, koi ponds, fountains, and statuaries. In an aqueous environment, sodium percarbonate, the active ingredient in this product, degrades into water and oxygen, making it a safe and environmentally friendly alternative to existing antibacterial products on the market such as quaternary ammonia, chlorine (hypochlorites), zinc chloride and others. Research indicates that the oxidative nature of this chemical could render it highly efficacious in a number of other uses which are to date unregistered. These uses include control of moss, mold, mildew, fungus and bacteria. Further, additional algaeidal applications include treatment of winery retention ponds, golf course ponds, and drinking water supplies.

06.02.17 OPTIMIZATION OF NOBLE METALS IN AUTOMOTIVE CATALYSTS.

Joe Eby, Chemistry, University of Tulsa, Tulsa, OK.

Delphi manufactures automotive catalysts that are used throughout the world. At present, new process developments are required to create an improved catalyst coater. The catalysts are typically precious metal (Pt and Pd) laden solid structures that are used to clean exhaust streams. The catalysts will remove unburned mixtures of hydrocarbons, carbon monoxide and nitrogen oxides. These are the gases responsible for creating smog, high ozone and air pollution. The precious metals of the catalyst are dispersed on a mixture of high surface area oxides which are then coated onto a porous ceramic honeycomb structure called a monolithic substrate. Automotive exhaust gases emitted by the engine pass through the coated substrate, a device with no moving parts, and are essentially converted to carbon dioxide, nitrogen gas and water.
06.02.18 EXPRESSION AND PURIFICATION OF VIRAL ASSEMBLY PROTEINS.

1 Stephanie McCarty, 2 Stacy Benson, 3 Megan Bershirs, 1 Chemistry, East Central University, Ada, OK. 2 Chemistry, Oklahoma State University, Stillwater, Oklahoma. 3 Chemistry, Oklahoma State University, Stillwater, Oklahoma.

The Tectiviridae family of viruses is comprised of dsDNA icosahedral bacteriophages. Included within this family are Bam35, which infects the gram-positive bacterium Bacillus thuringiensis, and PRD1, which infects a broad-range of gram-negative bacteria. Bam35 and PRD1 display similarities in their viral and genomic organization; however, they exhibit differences in their sequences. There is also evidence that the major coat protein, P3, of Bam35 is equivalent in structure to PRD1. The known structure of PRD1's major coat protein also showed strong similarities to those included in the Adenoviridae, Phycodnaviridae, and Iridoviridae families, which infect eukaryotic hosts and that of the Sulfolobus Turreted Icosahedral Virus (STIV), an archaeabacteria. Thus despite the differences between Bam35, PRD1, and the other viral families, the overwhelming similarities of the structures lead to and support the divergence theory. The divergence theory states that structural integrity is maintained while genome sequence and host preferences differ. Our proposed lineage, the double barrel trimmer lineage, seems to have arisen from a common ancestor. My group is continuing to research the Paramecium bursaria chlorella virus, PBCV-1. The capsid protein for PBCV-1 has already been solved. We are interested in exploring other areas to support the divergence theory, such as the special vertex. Confirmation of this structure and other viruses’ will further support our lineage.

06.02.19 POLARIZED INFRARED SPECTROSCOPIC MEASUREMENTS OF STRETCHED PEO-LiTFS ELECTROLYTES.

Lauren Woods, Christopher M. Burba, Chemistry, Northeastern State University, Tahlequah, OK.

Polarized infrared spectroscopy is used to assess the degree of polymer chain alignment in uniaxially stretched PEO-LiTFSO3 thin films (PEO = polyethylene oxide). The composition of the polymer electrolyte is fixed at a 20:1 mole ratio (EO:Li), and each sample is stretched to a fixed distance, up to a 3-fold elongation. The average of the second Legendre polynomial, which is calculated from the dichroic infrared spectroscopic measurements of stretched samples, is used to quantitatively measure the orientation of the polymer chains. When possible, vibrational modes are selected to discriminate between the crystalline pure PEO and crystalline PEO3LiCF3SO3 phases that are present in the samples. Thus, orientation effects will be compared for the two different phases in the sample. Two dimension-al infrared correlation spectroscopy is also employed to gain further insight into the alignment mechanism for stretched PEO20LiCF3SO3 electrolytes.

06.02.20 COPRECIPITATION OF ARSENATE AND ARSENITE WITH GREEN RUST MINERALS.

1 Charity Holder, 2 Chunming Su, 1 Chemistry, East Central University, Ada, OK. 2 Kerr Research Center, United States Environmental Protection Agency, Ada, OK.

The objectives of this experiment were to evaluate the extent and nature of arsenic co-precipitation with green rusts and to examine the influence of arsenic incorporation on the mineralogy of formed solid phases. Stoichiometric green rusts were obtained by coprecipitation of ferrous and ferric ions in both carbonate and sulfate-containing solutions spiked with arsenate or arsenite. The batch tests showed that As removal ranged from 90-100% by carbonate green rust with As(V) and As(III). We observed partial oxidation of As(III) in the system to As(V) when As(III) was the added As species. The oxidation of As(III) is advantageous because As(V) is less toxic and less mobile than As(III) in the environment. We observed sulfate green rust form at 0.05 M As(III) at a pH of 6.34. We observed that other iron oxides removed both As(V) and As(III) efficiently.

06.02.21 EVALUATION OF CARBOHYDRATE LEVELS IN SWEET SORGHUM FOR BIOFUELS PRODUCTION IN SOUTHEASTERN OKLAHOMA.

Heather Marshall, Jeff B. Hill, Kati Ducker, Michael C. Pilkington, Nancy L. Paiva, Chemistry, Southeastern OK State University, Durant, OK.

Sweet sorghum was traditionally grown in Oklahoma as a source of sucrose-rich juice which was converted to sorghum molasses or crystallized sucrose, primarily for human consumption. Existing cultivars and cropping strategies were developed to satisfy processing needs relating to flavor, texture, and maximizing sugar content at a single harvest. This sorghum juice could serve as a rich source of readily-metabolized carbohydrates for production of ethanol and other products, just as sugarcane juice is used in tropical countries. This work evaluated 8 sweet sorghum lines and 8 preliminary line selections for juice carbohydrate levels during 2007 in SE Oklahoma, and explored different cropping strategies (such as multiple cuttings and harvests). The highest sugar content observed to date was 22.7% (w/w) in Northern Sugar Cane in raised-bed plantings, but this line had very poor germination. In pot-grown plants, Rio (TAMU) was the best of 6 lines at 19.5%, and White African was second at 18%; 4 other standard lines (Dale, Topper, Theis, M81) ranged from 13 to 17%. Seeds from 8 White African plants with high til-
ler (side shoot) production in 2006 were replanted, and progeny plants exhibited good regrowth after removal of primary shoots. In mid-summer, sugar contents of young tiller shoots was 30-60% that of primary shoots harvested, but levels should increase as tillers mature. Funding provided by NSF-EPSCoR OK Educational Outreach EPS-0132534 and NIGMS-SCORE 5S06-GM008003.

06.02.22 DIFFERENTIAL PULSE ANODIC STRIPPING VOLTAMMETRY (DPASV) FOR THE DETECTION OF BARIUM AND LEAD FROM GUNSHOT RESIDUE (GSR).

1 Curt Woolever, 1 Anthony Allison, 1 Brooke Shockey, 1 Kara Doughty, 1 Matt Williams, 1 Ross Lane, 1 Tanner Buffington, 2 Estefany Guzman, 1 Chemistry and Physics, Southwestern Oklahoma State University, Weatherford, OK. 2 University of Central Oklahoma, Differential pulse anodic stripping voltammetry (DPASV) has been applied for characterization and quantitative detection of barium and lead from gunshot residue (GSR). Previous electrochemical techniques have detected antimony and lead from GSR, however barium has never been detected. This technique allows for simultaneous detection of barium and lead that is simple, fast, and nondestructive.

06.02.23 BIOASSAYS OF THE REPELLENT PROPERTIES OF ESSENTIAL OILS FROM MONARDA SPECIES IN OKLAHOMA AGAINST DROSOPHILA MELANOGASTER.

Tucker Harrison, Jeff B. Hill, Nancy L. Paiva, Chemistry, Southeastern OK State University, Durant, OK. Native American tribes were reported to use Monarda punctata and Monarda citriodora plant preparations to repel insects and for medicine. Previous studies in our lab indicated that Monarda extracts were highly effective as a mosquito repellent. A modified bioassay was developed to determine if these same extracts would repel other insects with different life cycles. Drosophila melanogaster (fruit fly) is a popular model organism, and behaves much like the common house fly, which can be a nuisance and spread disease-causing pathogens while feeding. The apterous (wingless) mutant strain of D.melanogaster was used because its lack of flight greatly simplifies the transfer of insects. To feed and lay eggs, the flies must crawl on moist food for long periods. A bioassay chamber was set up that allowed flies to choose between dishes containing control diet or diet supplemented with plant extracts or compounds at different dilutions. Bioassays indicated that diets containing as low as 10uL of a 32-fold dilution of essential oil per gram of diet were highly repellent to the flies. GC/MS previously revealed that the essential oils contained high levels of thymol and isothymol, and these were also found to be highly repellent at low concentrations. Monarda extracts compared favorably to DEET and non-DEET commercial insect repellents in preliminary tests. Funded by NSF-EPSCoR OK Educational Outreach Program EPS-0132534 and NIGMS-SCORE 5S06-GM008003.

06.02.24 CONCENTRATION DETERMINATION OF ASPIRIN AND ACETAMINOPHEN BY RAMAN SPECTROSCOPY: COMPARISONS OF BRAND NAME DRUGS AND GENERIC DRUGS.

Diana Lopez, chemistry, University of Central Oklahoma, Edmond, OK. The objective of this experiment is to determine the accuracy of commercial drug labels in their claiming of the amount of active ingredient contained in their product. Raman Spectroscopy will be used to determine the concentrations of active ingredient in the tablets and compare the purity of commercial aspirin and the difference between brand name aspirin and generic aspirin. This technique will also be applied to compare the purity of commercial acetaminophen and the difference between Tylenol tablets and Walgreens(generic) acetaminophen tablets. The comparisons of the above will be done by determining the concentrations of each using a Beers Law plot made by the points attained from selected peaks of the Raman Spectroscopy waves. The results desired will be those of concentrations within the accepted range of the amounts listed in the labels for each drug used, to demonstrate the accuracy of the drug labels and to also show with confidence the accuracy of the Raman Spectroscopy technique.

06.02.25 DEVELOPMENT OF A DUAL COATED (RUPTURABLE) MATRIX SYSTEM FOR TARGETING DISTAL INTESTINE AND COLON.

Rahmat Talukder, Pharmaceutical Sciences, Southwestern Oklahoma State University, Weatherford, OK. Purpose: Design and development of a dual coated matrix system with controlled onset and release rates for targeting the ileocecal regions and colon. Methods: A matrix system of 5-aminosalicylic acid was developed employing wet granulation technique with low methoxylated pectin, MCC, and HPMC. The tablets were subjected to two layers of coating: the first one was soluble-rupturable in pH over 5.5 and the outer one was permeable-rupturable membrane containing soluble pore forming material. Dissolutions were carried out in USP-25 apparatus-I using hydrochloride buffer at pH 1.5 and phosphate buffer at pH 6.8. Results: In the dissolution media at pH 6.8, the core tablets released over 90% of their contents in about 6 hours. When the first coat of a pH dependent material was applied on
the core at a level of 5% weight gain, no drug release was observed in pH 1.5. The system started releasing drug within an hour in pH 6.8. When a second coat (5% weight gain) was applied without any pore forming agents in it, no drug release was observed in 12 hours. The second coat was then modified by adding different levels of pore forming materials to obtain optimum release characteristics from the systems. Conclusions: Modulation of release kinetics was possible by changing the amount of coating agents in both layers applied on the core and the amount of soluble agents added with the outer coating materials.

06.02.26 ISOLATION AND CHARACTERIZATION OF SIDEROPHORES PRODUCED BY MARINE FUNGUS CUNNINGHAMAMELLA ELEGANS ATCC 36112.
Brian Holinsworth, Cynthia Gandhi, Jessica Martin, Krista Beth Dudley, Natural Science, Northeastern State University, Tahlequah, OK.
Iron is required for growth of most microorganisms. The insolubility of iron at near neutral pH under aerobic conditions is thought to limit growth of microorganisms in vast areas of the oceans. Like their terrestrial counterparts, the marine bacterial species studied thus far have been shown to produce low-molecular-weight iron(III)-binding compounds called siderophores to acquire iron. The three published studies of marine fungal siderophores report production of iron-binding compounds by these strains, but did not structurally characterize the putative siderophores. Thus, this project seeks to identify the structures of siderophores produced by marine-derived fungi. Reported here are the initial results from the marine fungus Cunninghamella elegans ATCC 36112.

06.02.27 NON-VIRAL GENE DELIVERY TO THE RETINA WITH COMPACTED-DNA NANOPARTICLES.
1 Joel Kardokus, 2 Muna Naash, 2 Shannon Conley, 1 Chemistry, Southwestern Oklahoma State University, Weatherford, OK. 2 Cell Biology, University of Oklahoma Health Sciences Center, Oklahoma City, OK.
Objective: The goal of this project is to test the ability of two compacted-DNA Nanoparticles to transfect the developing and mature mouse retina. The long term goal is to use the data from the two vectors to develop a non-viral gene therapy that can be used for gene supplementation in humans with inherited retinal diseases.
Methods: Our compacted-DNA nanoparticles (VMD2-EGFP and CMV-EGFP) are between 8-20 nm in diameter and contain a single molecule of plasmid DNA. We have chosen to use a plasmid vector with the EGFP reporter gene and either the CMV (ubiquitous) or VMD2 (RPE specific) promoter. One eye was injected at either postnatal day 5 or 30 with nanoparticles, saline, or naked plasmid DNA, while the control eye was left uninjected. Eyes were collected at post injection days 2, 7, and 15 to observe differences in expression levels and localization. Gene expression was detected by qRT-PCR and localization was detected by immunofluorescence microscopy.
Results: At P5 injections, high levels of EGFP expression were seen after 2 days in all ocular cells with CMV-EGFP vector and was silenced by 7 days. Unexpectedly, VMD2-EGFP vector drove expression in both photoreceptor cells and RPE cells after P5 and P30 injections.
Conclusion: Significant EGFP expression was detected in eyes injected with both nanoparticles. This work suggests that nanoparticles may be excellent vectors for patients with inherited retinal diseases.

06.02.28 TRIHALOMETHANE FORMATION POTENTIAL–RESULTS FROM A SIMULATED CHLORAMINE CONVERSION SYSTEM.
Adam Imel, Melissa Kindhart, Todd Brewer, Ph.D, Principal Investigator, Chemistry, University of Central Oklahoma, Edmond, OK.
This study tested levels of trihalomethanes (THM) formed from rechlorinating previously disinfected water in a chloramine system. Higher doses of chlorine are required to convert chloramines to a free chlorine residual. Since trihalomethanes are formed in water when chlorine reacts with organic carbon, it is reasonable to assume that the higher dose of chlorine required to convert the chloramines may also lead to increased production of THMs. The Environmental Protection Agency (EPA) regulates the standards for the THM’s because they have been found to be carcinogenic. About one hundred fifty, 60 mL vials were filled with tap water from Hefner Water Treatment Plant. The bottles were initially dosed with 0, 3, 6, and 9 ppm of chlorine and stored at room temperature in the dark over a period of ten days. Levels of THM’s, free chlorine and total chlorine were measured. The methods used were the EPA method 624, EPA method 551.1 and the colorimetric methods. Free and total chlorine was measured using the Hach instrument and compared to formation of the THM’s. The results of the experiment have concluded that chlorination of previously treated water will create levels of THMs that are above the regulations set by the EPA.

06.02.29 RESEARCH AND DEVELOPMENT OF AN ANTIBODY BASED BIOSENSOR FOR THE IDENTIFICATION OF VIRUSES.
1 John Bowen, 2 Drayton Ganz, 2 Kaley White, 2 Lena Rhia, 2 Barry Lavine, 3 Marya Kim, 4 Nikhil Mirjankar, 4 Patrick Sullivan, 3 Jim Mecham, 1 Chemistry, University of Central Oklahoma, Edmond, OK. 2 Edmond North High School,
Edmond, OK.  

Preliminary research into the development of a fast and facile method for the identification and differentiation of closely related viral strains in humans and animals is presented. The goal for this study was to determine if an immobilized antibody based biosensor could easily individually identify between two closely related viral antigens. The antigens chosen were from Bluetongue Virus (BTV) and Epizootic Hemorrhagic Disease Virus (EHDV) which are closely related serogroups of orbiviruses. The biosensor surfaces consisted of antibodies for either BTV and EHDV isolated by the USDA Arthropod Borne Disease Laboratory and were immobilized to the surface in a patented procedure. Surface Plasmon Resonance (SPR) spectroscopy was used to interrogate the surface with results found in less than eight minutes. The biosensors were found to identify the target viral antigen but were unresponsive to the non-target antigen. Additional data regarding a SPR interrogated flow-through sandwich assay for the viral antibodies will be addressed.

06.02.30 TRINITRORESORCINOL SYNTHESIS FOR FUTURE PRODUCTION OF LEAD STYPHNATE.
Jasin Palmer, Jody Buckholtz, Natural Sciences, Northeastern State University, Tahlequah, OK.

Lead styphnate is a primary explosive component in a primer mix. Primer mixes (which contain a primary explosive, fuel, and an oxidizer) are the explosive component of a primer which ignites the gunpowder in ammunition. Lead styphnate will be incorporated into an injectable primer mix designed to increase its physical consistency for a superior product. Since lead styphnate, like its precursor trinitroresorcinol (TNR), is difficult to purchase in small quantities that are pure enough for research, it is required to produce TNR as the initial step in this research. To achieve a pure and reproducible product of TNR, the previously published methods have been modified to attain a method of sulfonation followed by nitration suitable for this research.

06.02.31 ASSESSING CHAIN ALIGNMENT IN UNIAXIALLY STRETCHED POLY(ETHYLENE OXIDE) THIN FILMS.
Amber Warren, Christopher M. Burba, Natural Sciences, Northeastern State University, Tahlequah, OK.

Polarized infrared spectroscopy is used to assess the degree of polymer chain alignment for uniaxially stretched poly(ethylene oxide) (PEO) thin films. Each PEO sample is stretched a fixed distance, up to a 3-fold elongation, and polarized infrared spectra are collected at various degrees of elongation. The dichroic infrared spectra are then used to quantitatively assess polymer chain orientation in the stretched materials by averaging the second Legendre polynomial. When possible, vibrational modes will be selected to discriminate the crystalline and amorphous domains that are present in the PEO. Thus, it may be possible to explore relative rates of orientation for the crystalline and amorphous PEO domains as a function of elongation. Temperature-dependant relaxation rates of the stretched samples are also measured for stretched PEO samples.

06.02.32 USING A ROTATING RING-DISK ELECTRODE FOR DETERMINATION OF HYDROGEN PEROXIDE FORMATION DURING OXYGEN REDUCTION ON NAFION-COATED GOLD WITH FE PARTICLES.
Heather Fulkerson, Jody Buckholtz, Natural Sciences, Northeastern State University, Tahlequah, OK.

The electrochemical reduction of dissolved oxygen has been of tremendous interest lately due to the popularity of fuel cells for potential power supply. A lot of the fuel cell research today focuses on finding catalyst for the reduction of oxygen. One such catalyst examined in previous work is silane-coated magnetic iron particles suspended in Nafion on a gold electrode. The work here hopes to determine whether, or not, the hydrogen peroxide intermediate is formed during the reduction of oxygen using this catalyst membrane layer. The rotating ring-disk electrode was chosen as a means to answer this question.

06.02.33 SINGLE WALLED CARBON NANOTUBES AND POLYSTYRENE TO FORM COMPOSITES.
Brian Holinsworth, Natural Sciences, Northeastern State University, Tahlequah, OK.

Pristine single walled carbon nanotubes (SWNT) were initially dispersed in N,N-dimethylformamide (DMF). As well, nitric acid oxidation was used to create functionalized SWNT. The pristine and oxidized nanotubes, dispersed in DMF, were mixed with styrene and radical initiator, to polymerize the styrene, to get a solution of nanotubes (NT), grafted nanotubes , and polystyrene (PS). The oxidized and PS functionalized nanotubes were pressed and evaluated by the measurement of electrical conductivity, showing quantitatively the nature of dispersed nanotubes over varying compositions. Each step involving SWNT was characterized by at least one of the following: visible-IR absorption spectra, TGA, AFM, and SEM. The study of this composite was chosen to investigate polymer family electrical conductivity.
6.02.34 OPTIMIZING THE CONDITIONS FOR THE PREPARATION OF 1-BUTYL-3-METHYLIMIDAZOLIUM TETRAFLUOROBORATE.

Christian Brown, Spence Pilcher, Natural Science, Northeastern State University, Tahlequah, OK.

Due to the overwhelming amount of waste caused by traditional organic solvents, industry and academia are turning to “greener” alternatives, such as ionic liquids, for answers. Much as the name suggests, ionic liquids are room-temperature liquid salts that offer advantages over traditional organic solvents due to their non-volatile and non-flammable nature and their reusability. One disadvantage in using ionic liquids in organic syntheses is the cost of the commercial material. Another option would be to prepare the ionic liquid which often requires long reaction times resulting in low yields. The use of microwave irradiation in organic syntheses has been shown in many cases to reduce the reaction time and increase the purity and percent yield of the desired product. Ionic liquids are highly susceptible to the generation of heat from microwave irradiation through a conduction mechanism. In this study, the reaction conditions using both conventional and microwave heating methods to synthesize 1-butyl-3-methylimidazolium tetrafluoroborate ([BMIM][BF₄]) were examined in an effort to find a procedure with a realtively short reaction time and increased yield.

6.02.3 LASER-INDUCED PHASE CHANGES IN ORTHORHOMBIC IRON(III) PHOSPHATE.

Jasin Palmer, Brian Holinsworth, Christopher M. Burba, Natural Sciences, Northeastern State University, Tahlequah, OK.

Raman spectroscopy has been proven as an excellent technique for probing lithium intercalation reactions in a wide variety of lithium ion battery electrode materials. In particular, Raman spectroscopy is very useful for compounds containing polyatomic anions, such as LiFePO₄, because the intramolecular vibrational modes of the PO₄³⁻ anions yield intense bands in the Raman spectrum that are sensitive to the presence of Li⁺ ions. It is well known that the intense lasers used as excitation sources in a Raman spectroscopic experiment can cause phase transitions in solid-state samples. In this work, we show that exposing orthorhombic FePO₄ (space group Pnma) to high power settings (>10 mW) of a 532 nm laser is sufficient to destroy the crystal structure of the compound, producing amorphous FePO₄. After the laser is turned off, the amorphous FePO₄ crystallizes in the trigonal phase of FePO₄ (\(\alpha\)-FePO₄, space group P3121) overnight. The \(\alpha\)-FePO₄ phase is thermodynamically stable at room temperature compared to orthorhombic FePO₄; thus, the original phase is not recovered.

6.02.36 THE OXIDATION OF BENZOIN TO BENZIL USING MICROWAVE IRRADIATION.

Spence Pilcher, Tabatha Woods, Natural Science, Northeastern State University, Tahlequah, OK.

Many organic reactions require heat to convert reactants to products. Traditionally, this is accomplished with a hotplate, heating mantle, or oil bath. Heating with microwaves is an alternative heating method that is rapidly becoming more commonplace due to the dramatically reduced reaction times and higher product yields often seen when using this technology. The benefits arising from the use of microwaves in organic reactions can be attributed to thermal or non-thermal effects. Thermal effects may come from superheating or more uniform heating of the reaction mixture or a “pressure-cooker” effect and many literature examples of microwave-promoted organic syntheses can be credited to these effects. Non-thermal effects are effects specifically inherent to microwaves. This study compared the oxidation of benzoin to form benzil using microwaves to heat the reaction mixture with a conventional method of heating. The temperature and pressure were kept constant in both methods. The yields at various time intervals were approximately the same for both microwave and conventional heating. The purity of each sample was assessed by visual inspection, melting ranges, and infrared spectroscopy. The microwave-promoted reaction product was of a higher purity when comparing the 30 minute trials but was comparable in purity when comparing the 60 minute trials. The reaction was incomplete at the 5 and 15 minute time intervals using either heating method.

6.02.37 EXPRESSION OF AND MEASUREMENT OF THE BINDING AFFINITY OF ISOTOPICALLY-LABELED CDC42 WILD TYPE AND CDC42(F28L) WITH A MINIMAL BINDING DOMAIN PEPTIDE OF A P21-ACTIVATED SERINE/THREONINE KINASE.

Karole Blythe, Chemistry, Langston University, Langston, OK.

Cdc42 (cell division cycle 42) belongs to the Rho subfamily of the Ras superfamily of G proteins (guanine nucleotide binding proteins). The ultimate goal of this research is to study the solution structure of an oncogenic mutant of Cdc42, Cdc42(F28L), bound to an important effector peptide that regulates Cdc42-induced cell signaling activity using NMR Spectrometry. Both wild type and mutant Cdc42 were expressed using an Escherichia coli expression system, and purified using immobilized metal affinity chromatograph (IMAC). The binding affinity of wild type and mutant was tested by performing a protein pull down assay with PBD46, a minimal binding domain peptide of 46 amino acids.
of PAK (p21-activated serine/threonine kinases). The results showed that both the Cdc42 and Cdc42(F28L) were both successfully expressed in the minimal media containing the isotopic label, 15N-Nitrogen, which is necessary for NMR studies. Pull down assays were performed to determine whether the presence of the 15N-isotopic label affected binding of the PBD46 peptide.

06.02.38 THE PREPARATION OF PHENYTOIN USING MICROWAVE IRRADIATION.
Spence Pilcher, Starla Hayward, Natural Science, Northeastern State University, Tahlequah, OK.
Microwave irradiation has been used in many organic syntheses to heat reaction mixtures. In many cases, the use of microwaves has shown to decrease the reaction time required for the synthesis, increase the purity of the products by reducing the number of side-products, and improve the overall yield of the reaction. However, there has been some debate within the scientific community on whether the benefits of using microwave irradiation come from a thermal effect (for example, the reaction reaches a higher temperature due to an increased pressure) or if a specific “microwave effect” exists. In this study, microwave irradiation and a conventional heating method were used to synthesize phenytoin, a commonly used anti-convulsant medication marketed using the trade-name Dilantin, keeping all other conditions (temperature and pressure) the same. The average yields of two trials using both heating methods were obtained at 5, 10, 15, 30, and 60 minute reaction times. Yields ranged from 70-80% regardless of reaction time or heating method. The syntheses using microwave irradiation produced products with melting point ranges closer to the literature melting point of phenytoin which may indicate a higher purity of these products.

06.02.39 A NOVEL ZIRCONOCENE CATALYST.
Sylvia Chavana, Dr. Danny McGuire, Physical Sciences, Cameron University, Lawton, OK.
From previous calculations conducted by Das et al. at Cameron University, it was shown that placing electron withdrawing groups onto the cyclopentadienyl ligands coordinated to zirconium would significantly increase the activation barrier for propagation and decrease the activation barrier for termination. The calculations show the possibility of designing a catalyst that could be used to produce varying types of oligomeric to high-molecular weight polyethylene. The present research involves the synthesis and characterization of zirconocene complexes containing cyclopentadienyl ligands with electron withdrawing substituents. The compounds of interest are bis(pentachlorocyclopentadienyl)zirconium dichloride and bis(pentabromocyclopentadienyl)zirconium dibromide. These complexes will be compared to other zirconocene catalytic analogs to experimentally determine the efficacy of this catalyst toward ethylene polymerization. These results will determine future exploration toward synthesizing other zirconocene dichloride analogs containing electron withdrawing groups and their catalytic activities.

06.02.40 EVALUATION OF THE IMPACT OF HUMAN ACTIVITIES ON SHEEP CREEK WATER QUALITY.
James DeJarnett, Elizabeth Cookson, Felix N’gouan, Environmental Health Science, East Central University, Ada, OK.
Past and present Oklahoma land use practices have impacted water quality in the State. Two areas of particular concern are salt-water releases associated with historic petroleum production, and fecal contamination from humans and domestic animals. As a portion of a multi-year study on human impacts on Oklahoma waters, ECU students have evaluated samples from 14 sites on the Sheep Creek watershed for salt content, pH and fecal coliforms. Sheep Creek in southern Pontotoc County is associated with southern extent of the Fitts Field, which is located 20 miles southeast of Ada. Residents of this area have long expressed concerns about salt-water related damages to soil and surface water. Residents of the area predominantly use private septic systems to treat human waste. Since 2005, ECU students have monitored the salt content in Sheep Creek, using conductivity measurements, from the headwaters to the confluence of Clear Boggy Creek. Beginning in 2007, microbiological characterizations were also included. Attempts to associate the observed conductivity profiles and bacterial numbers to human activities are continuing and multi-year trends were assessed.

06.02.41 PURINE-PURINE AND PRYMITINE-PRYMITINE MISMATCHES CAN CONTRIBUTE THERMODYNAMIC STABILITY TO SMALL RNA OLIGOMERS.
Koree Clanton-Arwood, Susan Schroeder, Chemistry and Biochemistry Department, University of Oklahoma, Norman, OK.
Small interfering RNA (siRNA) effectiveness and specificity depends on the thermodynamic stability of the helix formed between the small RNA oligomer and the mRNA target. Non-canonical base pairs can have enough stability that a small oligomer may bind at off-target sites on other mRNA messages and reduce gene expression. The additional stability of purine-purine and prymidine-prymidine mismatches at then end of a duplex stem can be measured using UV optical melting experiments. Up to four additional nucleotides at the end of a helix can increase the thermodynamic stability. This new data contributes to existing databases.
that are used for secondary RNA structure prediction algorithms and can help predict the stability of the next generation of siRNA therapeutics.

06.02.42 COMPARISON OF OIL FEEDSTOCKS FOR BIODIESEL (B100) PRODUCTION: PROCESSING PARAMETERS AND FUEL PROPERTIES.

1 Micah Sampson, 1 Joshua Brown, 1 Justin Dodds, 1 Nancy L. Paiva, 1 Ricardo Lemus, 2 Jimmy Stephens, 2 Ron Workman, 3 Miguel J. Dabdoub, 1 Chemistry, Southeastern OK State University, Durant, OK. 2 Earth Biofuels Inc., Durant, OK 74701. 3 Department of Chemistry, FFCLRP, University of São Paulo, Ribeirão Preto, Brazil.

Biodiesel is generally produced via a transesterification process that transforms the triacylglycerides in vegetable and animal oils into fatty acid methyl esters (FAME mixtures, or B100 biodiesel), lowering the viscosity of the fuel and providing other properties closer to those of petrodiesel. In theory, any triacylglyceride source can be used to generate biodiesel, but the fatty acid composition of the oils and levels of natural contaminants can vary widely depending upon the source, and could potentially impact both biodiesel fuel properties and the process economics. The initial project focus (begun mid-2007) was to compare the conversion of several commercially available oils into biodiesel. Fuel properties and processing data for soy, corn, canola, safflower, sunflower, palm kernel and peanut oil will be presented. Oil samples were converted to crude biodiesel which was further purified under lab conditions mimicking parameters used at a commercial, continuous-style production facility. The cloud points (using ASTM D2500-05) of the biodiesel samples were strongly correlated with the degree of unsaturation and chain lengths of the component fatty acid methyl esters (using GC-MS). Levels of free fatty acids (oil contaminants) were measured by base titration, and examined for their effects on requirements for catalyst or wash water volumes. This project was partially supported by OCAST R&D Partnership award AP071-i19 and the NASA Oklahoma Space Grant Consortium.

06.02.43 ANALYSIS OF FATTY ACID COMPOSITION OF CENTAUREA AMERICANA, AN OILSEED SPECIES NATIVE TO OKLAHOMA.

Kati Ducker, Amanda Brock, Drew Crawford, Jared Andrews, Jeremy O’Gorman, Michael C. Pilkington, Nancy L. Paiva, Chemistry, Southeastern OK State University, Durant, OK.

Centaurea americana (basket flower, American star-thistle) is a wildflower native throughout Oklahoma and the central US, and has been cultivated somewhat for ornamental purposes. The plant produces numerous thin-shelled seeds, which are rich in an oil of previously unreported composition. GC-MS fatty acid methyl ester (FAME) analysis of 50/50 chloroform/Methanol extracts from bulk samples of purchased seeds revealed that the major fatty acids were linoleic (C18:2; 50-55%) and oleic (C18:1; 30-35%), with lower amounts of palmitic (C16:0; 9-10%) and stearic (C18:0; 3%) and traces of arachidic and linolenic acids. Approximately 15 to 17%(w/w) of hexane-extractable oil was obtained from multiple bulk seed samples from 2 commercial suppliers. Another 10%(w/w) of viscous oil and fats were extracted subsequently using 50/50 chloroform/Methanol.

To test for possible variations in oil composition due to genetic variation or environmental differences, seeds were collected from wild populations in 12 locations around S.E. Oklahoma and are being analyzed using a newly-developed single-seed screening method. The fatty acid profile of Centaurea oil is very similar to soybean and corn oils suggesting it may have been a nutritious source of essential fatty acids for early Americans. It could also serve as an excellent alternative to soy oil for modern production of biodiesel. (Funded by NSF-EPSCoR OK Educational Outreach Program EPS-0132534 and NIGMS-SCORE 5S06-GM008003.)

06.02.44 SHOTGUN PROTEOMICS OF MEDICAGO TRUNCATULA CULTURE CELLS USING MONOLITHIC CAPILLARY LC/MS/MS.

Mohamed Bedair, Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK.

Legumes are among the most economically valuable crops in the United States. Proteomic studies of Medicago truncatula (a legume model) are essential for understanding the biochemical mechanisms of legumes. In this study, shotgun proteomics was used to analyze the proteome of M. truncatula cell culture. Utilizing a 750x0.1 mm silica monolithic capillary column, 1D nano-LC as well as 1D-PAGE followed by nLC were evaluated in terms of the number and functional classifications of proteins identified by each method. Gel free nLC-MS/MS analysis of the tryptic digest of M. truncatula cells yielded a total of 337 significant proteins with unique accession numbers based on 1 missed cleavage and two or more peptides identified. A 1D-PAGE of M. truncatula proteins was cut into 9 bands and the proteolytic digest from each section was analyzed by the nLC-MS/MS. This yielded a total of 406 significant proteins with unique accession numbers. Increasing the resolution of the 1D-PAGE analysis to 18 bands increased the identified proteins to 607. The functional classifications of proteins identified by each procedure will be compared to the results obtained from the comprehensive 2D-PAGE proteomic mapping of M. truncatula suspension cell culture previously published. Results indicate the
complementary nature of each approach as the protein identified with the highest score in both LC/MS/MS procedures was sucrose synthase (MW 118464) which was not identified in the 2D study.

06.02.45 OPTIMIZING THE MECHANICAL PROPERTIES OF LAPONITE GELS.
Danny Terry, Chemistry, Langston University, Muskogee, OK.
The study of laponite clay and its properties is the focus of this paper. Laponite is used in many products such as emulsions, masks, make-up, nail varnishes, shampoos, toothpastes, and other household products (7). The reason we are testing this gel is to see how it compares to water in baby teethers. We wanted to test and see if replacing water with this Laponite gel would work better. We need to test various parameters of this gel such as, if it would stay cold longer than water. We also needed to test how long it took for the clay to become a gel from the time it is mixed with water to the time it is fully gelled, for production purposes. Also, we needed to test the properties of the actual gel i.e. at what concentrations is the gel strong enough for production and the amount of time for the gel to “recover” after it has been destroyed or had an outside stress applied to it. Most of these were tested in the rehometer.

06.02.46 GENERATION AND CHARACTERIZATION OF FERROCENYLPHENYLKETENE.
Michael Henderson, Michael Ferguson, Chemistry, University of Central Oklahoma, Edmond, OK.
Ketenes bearing one substituent are highly reactive and cannot be isolated. On the other hand, disubstituted ketenes are far less reactive. Some, such as diphenylketene, can actually be isolated. The ferrocenyl group is larger than the phenyl group, and so we expect that ferrocenylphenylketene, like diphenylketene, should be relatively stable and potentially isolable. Photochemical Wolff rearrangement of an appropriate diazoketone precursor should produce ferrocenylphenylketene. Once formed, the ketene should behave in similar fashion to diphenylketene, readily reacting with water and other nucleophiles. In addition, ferrocenylphenylketene should be sufficiently stable to allow direct observation by IR and/or NMR spectroscopy. The results of these studies are presented.

06.02.47 STUDIES OF THE REACTION OF FERROCENYLKETENE WITH KETENOFILES.
Jason Wallace, Michael Ferguson, Chemistry, University of Central Oklahoma, Edmond, OK.
Ferrocenylketene is the simplest ketene bearing an organometallic moiety. Ketenes are well known for their ability to undergo [2+2] cycloaddition reactions with a variety of ketenophiles. We have investigated the reactions of ferrocenylketene with dihydropyran and other ketenophiles. Analysis of the products by NMR spectroscopy can be used to determine the regiochemistry and stereochemistry of the reactions. Comparing our results to published studies involving other ketenes can provide useful information concerning the influence of the ferrocenyl substituent on the reactivity of the ketene group.

06.02.48 OPTIMIZATION OF BIODIESEL SYNTHESIS (UCO SURE-STEP SUMMER BRIDGE PROGRAM 2007).
Jason Wallace, Becky Ta, Cassie Birdwell, F. Albahadily, Krystal Mai, Samantha Leissner, Stormy Walkup, Tucker Malone, Chemistry, University of Central Oklahoma, Edmond, OK.
The demand for alternative fuels is increasing due to growing concerns about energy dependence and the environment. Transesterification of plant and animal triglycerides has been used to produce biodiesel since the mid-1800s. Although the procedure for producing biodiesel is known, the ratio of reactants need to produce biodiesel in the most economical fashion has not been reported in the literature. Methanol is the most costly reagent utilized in biodiesel production, lessening its amount required per unit volume of biodiesel produced is the most obvious way of reducing production costs. Biodiesel absorbs noticeably in the near infra-red portion of the electromagnetic spectrum at 1665nm but, triglycerides (cooking oils) do not absorb appreciably. A calibration curve (Beer’s law plot) using absorbance at 1665nm as a function of the percentage of biodiesel in solutions prepared by mixing vegetable oil with biodiesel prepared from the same oil in varying amounts. Biodiesel was then synthesized using various ratios of methoxide (methanol with sodium hydroxide) to oil and the percent conversion was determined via the Beer’s law plot. Based on the data collected, biodiesel can be prepared using ratios of methoxide to triglyceride from 1:2 to 1:5 with comparable conversion.

06.02.49 FIRST PRINCIPLES CALCULATIONS OF DNA DISPERSAL OF CARBON NANOTUBES.
Calvin Hawkins, Chemistry, Langston University, Langston, OK.
The purpose of my research is to predict the best sequence of single DNA strands to recognize and wrap around the most common carbon nanotube (the 10, 10), to form a unique structure and to use these results to develop rules that can allow on to estimate the best sequences for other sizes of nanotubes. PolyA, PolyC, PolyT, PolyGT DNA single strands were used to ex-
We report the coordination of Thiosalicylic acid (2-SALICYLATE COMPLEXES. GANESE, COPPER AND PLATINUM THIO
TION AND BIOLOGICAL ACTIVITY OF MAN
06.02.52 SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL ACTIVITY OF MANGANESE, COPPER AND PLATINUM THIO
SALICYLCAYTE COMPLEXES.
Fazlur Rahman, Anh Tran, Crystal Lamptey, Tara Sarathi, Chemistry, Oklahoma School of Science and Mathematics, Oklahoma City, OK.
We report the coordination of Thiosalicylic acid (2-sulfanylbenzoic acid) with various metal ions (Mn, Pt, Cu and Au). A number of platinum (II) complexes containing chelating thiosalicylate dianion ligands have been prepared from Pt(trpy)Cl, Pt(en)Cl2 with thiosali
cylic acid in the presence of silver oxide. Reaction of Mn(CO)5Br with thiosalicylic acid with NaBPh4 gave a structurally characterized complex. The structural features of these complexes and some of their biological activity will be discussed during the presentation.

06.02.50 UNDERSTANDING THE MECHANISM OF TRICHLORACETIC ACID-INDUCED PRECIPITATION.
Charles Loftis, Chemistry, Langston University, Langston, OK.
Protein aggregation is a widespread phenomenon that occurs during protein folding in vivo and in vitro. Understanding the mechanism of protein aggregation is important in solving the problem of formation of inclusion bodies during overexpression of recombinant proteins in host vectors and also in the prevention and cure of various human diseases (including Alzheimer’s disease). 2, 2, 2-trichloroacetic acid (TCA) is a well-known protein precipitating agent. In the present study, we attempt to understand the mechanism by which TCA induces precipitation of proteins, using various biophysical techniques. The TCA-induced protein precipitation curves are observed to be U-shaped and maximum protein precipitation is observed between 5% to 45% (w/v) of TCA. TCA-induced protein precipitation curve does not significantly depend on the nature and size of the protein. However, in the presence of increasing concentrations of urea (denaturant), the amount of protein precipitated is significantly decreased. It is observed that the protein-precipitate-inducing effects of TCA are due to the trichloro group. Using acidic fibroblast growth factor (aFGF), as a model protein, we attempt to understand the molecular basis for the TCA-induced effects. We demonstrate the aFGF is in a partially structured “molten-globule” state in 5% (w/v) sodium trichloroacetate (STCA). It appears that TCA-induced protein precipitation occurs through coalescence of partially structured state(s) of the protein.

06.02.51 DEVELOPMENT OF AN INTERACTIVE SPECTRAL PROBLEM SET FOR INCREASED UNDERSTANDING OF VARIOUS SPECTROSCOPIC TECHNIQUES.
Dallas New, Adam Stephens, Chemistry Department, University of Central Oklahoma, Edmond, OK.
Proficiency in spectroscopic analysis have classically relied on redundancy of mundane, trivial problem sets designed to educate by emphasis of certain characteristic traits given by the respective instrument. The students are typically required to identify unknown compounds through recognition of spectral patterns produced by each compound. By incorporating simple multimedia applications, an increased understanding in their analytical techniques can be achieved. Digitization of data compiled from a variety of instrumental techniques can be easily formulated into Hypertext Markup Language, thereby allowing for unlimited variances and interactivity. Spectra can be integrated with animations, dialogue, and various other responses, which further enhance understandings of complex spectra. Interactivity of the various spectral peaks produces responses unique to the compound of interest, which increases the students’ comprehension, and facilitates learning rather than memorization. This application could become a helpful aid for students by providing an alternative to textbooks, which offer limited resources and explanations of some commonly misunderstood spectral traits.

Computer Science – 06.03
06.03.01 IMPLEMENTING THE MVC ARCHITECTURE AND ADHERING TO STANDARDS FOR A WEB SERVER.
Josh Bavari, Hong Sung, Computer Science, University of Central Oklahoma, Edmond, OK.
The objective of this project was to implement an MVC Architecture for a web application and adhere to the World Wide Web consortium standards for XHTML and CSS for the Department web pages. There are three components to be used for the MVC architecture: a model, a view, and a controller. The model is made up of Java classes that have an exact abstraction of a
database table. The view is a JSP page that consists of XHTML with special JSP markup that enables you to display dynamic content. The controller is abstracted by a special Java class called a Servlet. Each piece of the MVC works together to implement the web application. This abstraction separates business logic and data access logic from the user interface. In the MVC architecture, a submitted request by a user is handled by a Servlet. The Servlet takes any parameters as passed by it and logically determines what needs to be done. Some requests may require some database access to populate the model to be displayed by the view. The view takes the model objects and uses special Java tags to display the objects in a way web browsers can display them: XHTML. The standards set by the W3 consortium unify all browsers so that the markup provided will display properly. This standardization simplifies the work needed to be done by browsers by assuring the markup provided is in correct format. This leaves the task of the browsers having to best guess how the page ‘should’ look. The standardization of XHTML is backwards compatible with all previous versions of HTML as well as providing support for future versions of XHTML or HTML.

06.03.02 TRAVEL AND LEARN GAME: SIGHTSEEING AROUND JAPAN (KANKOU).
Rad Alrifai, Ayako Shiina, Satsuki Katsube, Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

Interestingly, video games are culturally oriented and popular games vary widely among different cultures. “The Momotaro Dentetsu” is a unique Japanese video game where players aim at achieving predetermined goal by going through various stations and buying properties at each station. The players can get money from the sale of these properties. Subsequently, they advance to the next station based on the random outcome of rolling a dice.

The “Momotaro Dentetsu” game represents an easy method for teaching players about the various regions in Japan. The game involves two players who compete at achieving their destination. However, in this project, instead of buying properties, the players can get points by answering questions at each station. The questions presented to the players are related to the culture, famous places, or the industry associated with different region in Japan, where each region is represented as a station in the game.

06.03.03 FINALLY FITNESS WEBSITE.
Rad Alrifai, Stephanie Sprinkle, Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

Although websites dedicated to fitness and weight loss abound, many popular sites are hindered by their use of confusing navigational schemes and their lack of accessibility to information that people might find helpful. Even though some websites may contain the information that a person needs to begin living a healthy lifestyle, this information is often buried under a hodgepodge path of hyperlinks and advertisements.

This project introduces a fully interactive website. Furthermore, the website does not suffer from any of the navigational problems founds on some of the other fitness websites. It introduces a clear, simple navigation scheme that is expandable to support a full-scale fitness website.

This project was written in HTML, PHP and MySQL.

06.03.04 JAPANESE INFORMATION WEBSITE (NIPPON CHA-CHA-CHA!!).
Rad Alrifai, Taisuke Nishida, Yusuke Isono, Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

The developed website is intended to provide users with information about Japan. It aims at promoting Japan and the Japanese culture to people around the world. Hoping that people who are interested in Japan will use this website to talk to each other and to exchange information about the Japanese culture by simply placing messages that are managed by a database.

The software is created using a combination of HTML, PHP, and MySQL database software. Website users can interact with the website by executing SQL statements that retrieve, create, update and delete the values of the various fields in the database. The database enables the users to search and display messages posted by the community of users who share common interests about Japan.

06.03.05 KENJONG.
Rad Alrifai, Kenji Ohmuro, Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

A game called “Mahjong” was originally developed in China then it became a very popular game in Japan. However, the game has been changed tremendously after it came to Japan. In the original game, players use special tiles that typically available only in Japan. Thus, the game remains inoperable where the special tiles are unavailable. Sharing the enjoyment of playing this game with others from around the world was the primary motivation for creating software where “Mahjong” can be played on computers rather than over tiles.

The game was developed in Microsoft Visual C#.Net and some APIs for playing BGM and event sounds. Microsoft Visual C#.Net provided the right tools for both developing the graphics needed for the game and for coding the algorithm.
**06.03.06**  **TICKET TRACKER.**  
Rad Alrifai, Jim Burton, Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

This project is aimed at designing user friendly and economical software to effectively track requests and responses for technology support services. The developed software is simple, yet robust, web-based application for tracking information related to needed support services. The software is capable of tracking services ranging from the initial logging of service request tickets through the process of updating and closing those tickets. Ticket Tracker provides a service portal to enable end users to, conveniently, submit new requests or check the status of their open requests. It also enables the technicians to update ticket status and to enter additional information. The software time stamps the event each time a ticket is updated.

Ticket Tracker developed using Microsoft Visual Basic, ASP.NET, 2.0 and Microsoft SQL. The software design is based on the client - server architecture where the database resides on a server, and the internet browser runs on the client.

**06.03.07**  **INVENTORY DATABASE SYSTEM.**  
Rick Matzen, Michael Adsit, Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

Northeastern State University’s Hardware Technician needed help to keep track of inventory. Currently there is no software or method being used to inventory that office or that position. While other software and other methods were available, they either did not meet the needs of the position or were costly. What was needed was an easy way to enter in items, view inventory, and keep track of when items were used. The goal of this project was to create an inventory program that an easy to use interface, store inventory, and keep track of when items leave or return to the office. The program was Developed using C# in Microsoft Visual Studio 2005, TextPad was used to view and format the Transaction File, and Microsoft Access was used to build the database.

**06.03.08**  **EXTENDING THE SEARCH INTERFACE FOR LIBRARY CATALOG.**  
Rick Matzen, Jason Gonzalez, Department of Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

For world wide web users it is not convenient to navigate from a web page to check Muskogee Public Library’s (MPL) catalog web page for availability. For example, it is helpful to view the correct spelling of an author’s name while manually searching for the name. The MPL Search Bar add-on for Firefox allows users to perform a MPL catalog search without initially navigating from the page they are viewing. The MPL Search Bar provides a customer friendly experience and ideally promotes use of emerging library technology. The program code for Mozilla’s Firefox (open source) is freely available to the public so modifications can be made thus providing a platform for the MPL Search Bar. The MPL Search Bar is comprised of three programming languages: XUL, JavaScript, and CSS. A shareware text editor (TextPad) was used for entering the code. The photo manipulation tool GIMP (open source; freeware) was used to create some of the search bar’s aesthetics. WinZip (shareware) packaged the MPL Search Bar code for user installation. The MPL Search Bar provides individuals the ability to search the library’s online catalog via author, title, subject, or the combination of the three at one time. Public libraries all over the world are presently immersed in a significant transitional phase regarding co-existence with the World Wide Web. Having the capability to create easy to use interfaces for library resources which are continually visible within a Web browser can be an invaluable resource for public libraries as they face viability in an increasingly technological savvy world.

**06.03.09**  **A STUDENT STUDY IN DIRECTX 3D GAME PROGRAMMING.**  
Rick Matzen, Chaparne Harjo, Department of Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

This is a study in DirectX programming to explore the dynamics of 3D game programming. DirectX was chosen as the graphics API because it contains many features of modern 3D rendering. The project is a single player action simulation game, in which the object is to race a car against a computer opponent around a track to complete laps. The purpose of this project is to expand a working knowledge of the DirectX API and its components, upon a Windows-based platform. Specific tools to develop this project were Visual Studio .Net using C# with managed DirectX code.

**06.03.10**  **ACTIVE DIRECTORY USER AND COMPUTER MANAGEMENT TOOLKIT.**  
Rick Matzen, David Green, Department of Mathematics and Computer Science, Northeastern State University, Tahlequah, OK.

Active Directory is a software tool used to manage users, computers, groups, printers, and other network objects on a Windows domain-based network. Most networks today use Active Directory extensively. Georgia-Pacific is one of countless organizations that uses Active Directory across the entire company. They employ over 50,000 people at more than 300 locations in North America, South America, and Europe. At the Muskogee Mill, there are over 1,500 employees and contractors
who require approximately 1,300 user accounts and 700 computers. Often times, employees leave the company, but their account is left in Active Directory, or a current employee has an account they never use. Both situations incur additional costs to the company and pose potential security threats. Similarly, computers are replaced, moved, or renamed but their account in Active Directory remains active. The built-in management tools for Active Directory are not robust enough to deal with these situations. This project is a tool kit to provide better management and reporting capabilities for Active Directory. This will allow large organizations to better manage their computers and users in Active Directory. This management software provides more information to the user in an interface that allows easy searching, sorting, reporting, and editing of users and computers. One of the goals of the project was compatibility with any Windows network environment.

06.03.11 PERFORMING COMpletely ACCURATE ARITHMETIC ON VERY LARGE NUMBERS.

Emit Lowe, Mike Morris, Computer Science, Southeastern OK State University, Durant, OK.

We understand the limitations of regular arithmetic as performed by all microprocessors and wondered how it might be possible to add, multiply, subtract and divide larger numbers than a typical computer would handle. We then wrote C++ programs that mimicked the “normal” process used by most humans to do arithmetic. Instead of using the math processing units in the computer we made everything character-based and performed all operations symbolically. The results were that we could do arithmetic on any size of numbers, with the limits based solely on the memory and speed of the machine on which our programs were running. The largest pair of numbers each had 1,000,000 digits. That’s a pretty large number when you remember that it only takes a number with 80 or so digits to represent the estimated total number of atoms in the known universe. We then pondered the problem of convincing the casual observer that our calculations were accurate and we do have a method that indicates 100% accuracy, although it is not a rigorous mathematical proof.

06.03.12 XML IN E-COMMERCE APPLICATIONS.

Suman Adhikari, Math and Science, University of Central Oklahoma, Edmond, OK.

Nowadays, computer networks are evolving rapidly facilitating people to exchange information through the Web. It not only gives people an easy way to access information but also becomes one of the best means for doing trade between people and business. In today’s world of challenging business, e-commerce is significantly influencing the field of trade since it has become one of the convenient ways to do business electronically through the web. To make e-commerce application more effective, more emphasis should be given in the information exchange. This paper explores the efficiency of using XML in e-commerce application for the effective data manipulation and data exchange. Storing the data in XML format provides the ease of storing, processing and exchanging the data through the e-commerce application. XML permits the developer of the web page to define their own tags for data, such as product, price and quantity allowing web pages to function like database records. Hence, the result is more efficient in exchanging the data and has become a key point for integrated e-commerce.

06.03.13 BULK-LOADING THE ND-TREE IN NON-ORDERED DISCRETE DATA SPACES.

1 Gang Qian, 1 Alexander R. Oswald, 2 Hyun-Jeong Seok, 1 Qiang Zhu, 1 Department of Computer Science, University of Central Oklahoma, Edmond, OK. 2 Department of Computer and Information Science, The University of Michigan, Dearborn, Dearborn, MI.

Applications demanding multidimensional index structures for performing efficient similarity queries often involve a large amount of data. The conventional tuple-loading approach to building such an index structure for a large data set is inefficient. To overcome the problem, a number of algorithms to bulk-load the index structures, like the R-tree, from scratch for large data sets in continuous data spaces have been proposed. However, many of them cannot be directly applied to a non-ordered discrete data space (NDDS) where data values on each dimension are discrete and have no natural ordering. No bulk-loading algorithm has been developed specifically for an index structure, such as the ND-tree, in an NDDS. In this paper, we present a bulk-loading algorithm, called the NDTBL, for the ND-tree in NDDSs. It adopts a special in-memory structure to efficiently construct the target ND-tree. It utilizes and extends some operations in the original ND-tree tuple-loading algorithm to exploit the properties of an NDDS in choosing and splitting data sets/nodes during the bulk-loading process. It also employs some strategies such as multi-way splitting and memory buffering to enhance efficiency. Our experimental studies show that the presented algorithm is quite promising in bulk-loading the ND-tree for large data sets in NDDSs.
06.03.14 CONVERTING A TEXT BASED ENTRY SYSTEM FOR THERMODYNAMICS INTO A GRAPHICAL USER INTERFACE.
1 Derrek Bond, 1 Eli Pope, 1 Clay Carley, 1 Chemistry, East Central University, Ada, OK. 2 Computer Science
This paper concerns converting the text based data entry portion of SOLGAS, a thermodynamics application. The original data entry is cumbersome and time consuming. Any mistakes cause one to “finish” the entry, exit the application, and restore the original data from a backup file.

The intent is to create a graphical user interface (GUI) for SOLGAS to improve data entry and manipulation.

Some of the requirements included:
1. the ability to run the application essentially “on any platform,”
2. use a GUI so that data can easily by changed and modified, and
3. that specific data formats were supported so that other applications can share it.

06.03.15 TWO DIMENSIONAL DATA REPRESENTATION FROM MESSAGES USING OTHER THAN BINARY CODING.
Clay Carley, Computer Science, East Central University, Ada, OK.

Binary representation of data is ubiquitous to computer technology and telecommunications. However, there was a time that work had been done using ternary numeric representation instead.

The focus of this paper is to explore the ability to take a message encoded in some number system other than binary and render it into a two dimensional picture.

One possible application would be to translate some incoming Interstellar message.

06.03.16 VIDEO REDUCTION OF ALPHANUMERICS USING ARTIFICIALLY INTELLIGENT ANALOG TO INFORMATION CONVERSION.
1 Pavan Kayathi, 1 Abhishek Parajuli, 2 Casey Hughlett, 1 Narayana Ganta, 4 Jay Hanan, 1 Computer Science, Oklahoma State University, Stillwater, OK. 2 Zion Labs, Inc., Edmond. 3 Management Science and Information Systems, Oklahoma State University, Stillwater. 4 Mechanical and Aerospace Engineerin, Oklahoma State University, Stillwater.

A new system was demonstrated and tested as a general solution for accurate conversion of Forward Looking Infra-Red (FLIR), Through Sight Video into key information. As a first step in this process the analog data was converted to textual information (A to I) through a process of reading alphanumerics displayed in the video. Reading is performed by a simple neural network which may be implemented directly in hardware. For these tests the hardware was simulated by a software implementation and the analog data was digitized using a High Speed Data Recording System (HSDRS), which offers a range of frame rate and compression settings. The performance of the A to I conversion was tested through multiple frame rates, feature extractors, and compression ratios. Some simple filtering methods were also tested to determine possible improvements in recognition. Eight modifications of feature extraction based on horizontal and vertical profiles were analyzed to test the change in recognition accuracy. Compression ratios down through 50% based on JPEG were tested.

In addition, a Gaussian filter, median filter, bilateral filter, mean shift, and edge detection were applied to the images in an effort to explore resulting improvements in information conversion. While optimum settings often depend on user needs, the minimum useful settings were indicated by this study. Automation of this selection as well as future application to symbols and gunner targets was also explored.

06.03.17 GRID COMPUTING FOR UNDERGRADUATE EDUCATION AND RESEARCH.
Anil Pereira, Entrepreneurship and Computer Systems, Southwestern Oklahoma State University, Weatherford, OK.

Grid Computing supports the coordinated sharing of data and resources among different organizations. With Grid Computing technology, a virtual supercomputer can be created from existing computational resources and networks. We propose to build a Grid across the Southwestern Oklahoma University campuses at Weatherford and Sayre. Based on the project’s success, we will explore the possibility of expanding the Grid to other universities. We will use the Globus toolkit, a widely used software for building Grids. Globus provides Grid services and interfaces for security, process and resource management, communication, and data access and integration. We plan to initiate several undergraduate research projects such as the creation of image rendering software for the Grid using the open source version of Pixie. The software will be used in the parallel rendering of realistic images and animations. Rendering is the process of generating an image through computer programs from a mathematical or graphical model that describes 3-D objects. Rendering is a computationally intensive process, and parallel processing is required to complete rendering jobs in reasonable time. Various departments in the university, for example Physics, will benefit from the availability of super computing like processing power at low cost, to run their computation and data intensive applications. We will design a course on Grid Computing to introduce students to basic concepts and familiarize them with Globus.
06.03.18 DISCUSSION ON PAGE REPLACEMENT ALGORITHMS.
Chao Zhao, Feridoo Moinian, Computing & Technology, Cameron University, Lawton, OK.
An important issue in the virtual memory management is to find an appropriate algorithm to provide an efficient way in the page replacement to establish a working set of pages associated with a process quickly and to avoid system thrashing. In this paper, different page replacement algorithms including the least recently used (LRU), the first come first out (FIFO), the not recently used (NRU), the random page replacement, the not frequently used (NFU), and the theoretically optimal (OPT) in page replacement are studied. Our study indicates that the token-Ordered LRU, a variant of the LRU, probably is a better algorithm among the studied algorithms in preventing system thrashing. Key Words: page replacement, LRU, token-ordered LRU, working set, system thrashing

06.03.19 PROPORTIONAL INTEGRAL DERIVATIVE CONTROL FOR COMPLEX SYSTEMS CONTROL VARIABLES.
Warren Moseley, Goree Chris, Goree David, Entrepreneurship and Computer Systems, Southwestern Oklahoma State University, Weatherford, OK.
Holding a process constant involves continually adding energy that equals the system’s losses exactly. If the system’s losses were constant, the process control would be as simple as applying one steady state level of drive. However, the factors that affect a process do change. They change in unpredictable magnitudes and at unpredictable rates. Compounding this problem is that a system has reaction delays that must be understood. An instant change in losses due to a disturbance is not felt immediately, and the change in drive to a system is not either. With PID control, 3 separate drive evaluations are performed to calculate the final drive to the control element. Bias drive is used to estimate the drive needed to sustain a setpoint under nominal conditions. Proportional drive acts by adding an amount of drive in proportion to the amount of error that exists between the setpoint and the actual value. The higher the proportional gain the greater the controller’s response, though overshoot and oscillations are more likely. Some error must exist for proportional drive to act, often resulting in a stable but offset condition. Integral drive acts by integrating a long error over time and taking action based on the total error. Integral is used to drive away error conditions that persist over a period of time. Integral control is also a good choice for a very slow approach to a setpoint when long system settling times are needed and overshoot is undesirable.

06.03.20 OK-RMSP-2006-COP: LINKING THE OKLAHOMA RURAL MATH AND SCIENCE PARTNERSHIP’S COMMUNITY OF PRACTICE TO TOM P. STAFFORD AIR AND SPACE MUSEUM.
1 Warren Moseley, 1 Matt Thomason, 2 Brian Campbell, 1 Entrepreneurship and Computer Systems, Southwestern Oklahoma State University, Weatherford, OK. 2 Chemistry and Physics, Southwestern Oklahoma State University, Weatherford, Oklahoma.
This poster expands the evolving pattern in the development of the state of practice in distance learning and electronic collaboration in rural Oklahoma in Math, the Hard Sciences and the Computing Sciences The Oklahoma State Department of Education through the Darlington Public Schools sponsored a program called OK-RMSP: Oklahoma Rural Mathematics and Science Partnership. The program focus is to increase content knowledge, expand the information technology readiness, the creation of standards-based mathematics and science lessons for K-12 teachers in rural western Oklahoma. The Tom P. Stafford Air and Space Museum offers a wealth of information about space that is pertinent to K-12 teachers in Western Oklahoma. However, before this project this information was not available to the OK-RMSP-COP. This partnership repository includes an electronic community dedicated to exchange of ideas and teaching support for math, chemistry, biology, physics and exercise science right along with computer science. This expansion has been evolving for several years now, but the focus of this part of the expansion was Space. The OK-RMSP COP was enhanced by including information about Space for K-12 teachers. The starting point for this expansion was the Tom P. Stafford Air and Space Museum in Weatherford, Oklahoma.

06.03.21 CONTROLLING MULTIPLE HETEROGENEOUS AUTONOMOUS ROBOTS USING MICROSOFT ROBOTICS STUDIO.
Warren Moseley, Sulav Regmi, Pankaj Mohan Mishra, Vaibhav Pandya, Entrepreneurship and Computer Systems, Southwestern Oklahoma State University, Weatherford, OK.
Microsoft Robotics Studio makes it possible to provide PC base station support for any and all autonomous robots. In this experiment we demonstrate robotics control, web monitoring, web control, very large data logging capacity, and the ability to code complex algorithms for the robot with Microsoft programming languages such as Visual C# and VB.Net. In addition to PC communications the robots can communicate with cell phones and PDA. These devices can be easily carried by some of the autonomous robots and this can even further distribute network control and computation-

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ally intensive calculations. Microsoft Robotics Studio can communicate with and control a number of robots, including the Parallax Boe-Boe Bot Robot and the Lego Mindstorms NXT. Instead of relying on a serial cable the Bluetooth module communicate with Microsoft Robotics Studio on the PC wirelessly. In this experiment we allow for the autonomous control of multiple robots using Bluetooth wireless technology as well as simultaneous interactions with a PC base station Simultaneous operation of autonomous robots for simple task are usually handled with the robots own computer however computationally intense activity require base station support. Communication to and synchronous control of multiple robots by PC control off-loads the computational load to the PC in real-time.

06.03.22 HIGH RESOLUTION PHOTO-REALISTIC IMAGERY IN 3D VIRTUAL WORLD ANIMATIONS AND INTERACTIVE DIGITAL STORYTELLING.
Warren Moseley, Jesse Johnson, Ryan Lutz, Entrepreneurship and Computer Systems, Southwestern Oklahoma State University, Weatherford, OK.
Digital Storytelling is beginning to infiltrate all aspects of our undergraduate education. It is fun and provides immediate feedback which leads to a very satisfying experience to most students. There always seems to be a group of students that are not satisfied with the low-resolution graphics of the characters. The Alice Project at Carnegie-Mellon has provided a stimulus long needed for the introduction computer programming. However, until the next generation of Alice the characters will remain low resolution and not easily expandable. This research attempts to combine the High Resolution Capability of programs such as Vue, Poser 6, and Daz Studio to create 3d Animations. In addition to providing the tools for more realistic images this research explored a team-based approach to the construction of storyboarded scenarios for building digital storytelling.

Forensic Science – 06.04

06.04.01 A RAPID METHOD FOR THE ANALYSIS OF 12 BENZODIAZEPINES IN BLOOD USING GAS CHROMATOGRAPHY/MASS SPECTROMETRY.
Janel McMahon, D. Ritter, David von Minden, Kristi Thompson, Mike Angier, Randy Johnson, Russel Lewis, Forensic Toxicology Research Laboratory, Federal Aviation Administration, Oklahoma City, OK. 1 Forensic Toxicology Research Laboratory, Federal Aviation Administration, Oklahoma City, OK.
A gas chromatographic/mass spectrometric (GC/MS) method was developed for the simultaneous quantitation of 12 benzodiazepines in whole blood. This procedure solid phase extraction (SPE) techniques followed by derivitization with BSTFA w/1%TMCS and analysis by GC/MS in the SIM mode. Five ions were monitored for each benzodiazepine, three were used for quantitation and confirmation and two were available as back-up ions. The method described is highly selective and sensitive with limits of detection (LOD) ranging from 1.56-6.25ng/mL. The SPE provided sufficient sample extraction yielding recoveries of 25-37% and 47-76% at 20 and 200ng/mL respectively (n=5 for each group). Furthermore, the developed procedure provided superb accuracy and precision. This procedure showed intra-day (within day) relative errors between 1-16% and relative standard deviations (RSD) less than 3% for both the 20 ng/mL and 200 ng/mL control groups (n=5 for each group). Using whole blood controls stored at 4°C the inter-day (between day) relative errors for the 20 ng/mL control group were between 3 and 17% for days 2 and 6, respectively (n=5). Relative errors for the 200 ng/mL control group were between 2 and 13% for days 2 and 6, respectively (n=5). The RSDs were < 4% for both control groups over the 6-day period. The method developed proved to be rapid, reliable and sensitive for the identification and quantitation of 12 benzodiazepines in whole blood.

06.04.02 DEVELOPMENT OF MICRO-WAVE-ASSISTED DERIVATIZATION TECHNIQUES FOR THE QUANTIFICATION OF DRUGS OF ABUSE.
Faith Musko, David von Minden, Chemistry, University of Central Oklahoma, Edmond, OK.
In the analysis of drugs of abuse by gas chromatography/mass spectrometry, it is often advantageous to form volatile derivatives of the analytes in order to improve their gas chromatographic characteristics or to increase the number of intense fragment ions in their mass spectra. Historically, these derivatization reactions occur at high temperatures (80-100 degrees Celsius) for extended periods of time (30-45 minutes). A new technique of using microwave radiation to facilitate these derivatization reactions is presented. A comparison of using traditional methods and the microwave technique is given, showing decreased reaction times and increased yields for the preparation of pentafluoropropionate derivatives of amphetamines and opiates, as well as trimethylsilyl derivatives of opiates.

06.04.03 EFFECTS OF FLEXIBLE HETEROROTINOIDS ON PKC ACTIVATION.
Alysha Rauhauser, Forensic Science, University of Central Oklahoma, Edmond, OK.
Background: Retinoic acid (RA) regulates cell growth in cancer cell lines by inducing differentiation and
apoptosis. However RA has high toxicity leading to adverse side effects in human trials. To increase the therapeutic ratio of these drugs, a heteroatom was added to the arotinoid ring of the retinoid structure to form a new series of compounds, heteroarotinoids, which have a 1000 fold decrease in toxicity compared to RA and still retained the inhibitory effects of retinoid treatment. Both retinoids and heteroarotinoids reduce cell growth through a receptor mediated response. Another class of compounds was synthesized that produce effects similar to that of retinoids but work through a mitochondrial pathway instead of activating receptors. These compounds, flexible heteroarotinoids (Flex-Hets), include a urea or thiourea linker which increases the flexibility of the structure. Hypothesis: Flex-Hets induce activity of PKC isoforms and down stream effector molecules such as p38 mitogen activated protein kinase (MAPK).

Methods: Cancer cells will be treated with Flex-Hets and retinoids over a range of concentrations and time. Cell extracts will be evaluated by Western blot to measure drug effects on PKC and MAPK. Kinase activation will be identified by increased levels of the phosphorylated kinase form relative to the non-phosphorylated form. Discussion: This study will determine if Flex-Hets possess the retinoid activity of PKC activation.

06.04.04 DETERMINATION OF OPIATES IN POSTMORTEM BIOLOGICAL SPECIMENS UTILIZING GAS CHROMATOGRAPHY/MASS SPECTROMETRY.

1 Kacey Cliburn, 1 David von Minden, 1 Rattan Sara, 2 Phil Kemp, 1 Chemistry, University of Central Oklahoma, Edmond, OK. 2 Forensic Toxicology, Office of the Chief Medical Examiner of Oklahoma, Oklahoma City, OK.

A gas chromatography/mass spectrometry method is described for identification and quantification of seven opiates: codeine, morphine, 6-monoacetylmorphine (6-MAM), hydrocodone, oxycodone, hydromorphone, and oxymorphone. The method employs solid phase extraction followed by the addition of hydroxylamine to make the keto-derivatives (hydrocodone, oxycodone, hydromorphone, and oxymorphone) form oxime derivatives. The final step involves derivatization with BSTFA to form a trimethylsilyl-derivative. Samples are quantitated with deuterated internal standards using selected ion monitoring. The linear range for the analytes is determined to be: codeine, hydrocodone, and oxycodone- 50 ng/mL to 1600 ng/mL; morphine and 6-MAM- 25 ng/mL to 800 ng/mL; and hydromorphone and oxymorphone- 12.5 ng/mL to 400 ng/mL. The analytes were completely resolved with no apparent interferences and a run time of less than 12 min. A comparison of glass and plastic autosampler vials was performed to identify the possible effect of these surfaces on the final analytical concentration.

Mathematics & Statistics – 06.05

06.05.01 SOLUTION AND PARAMETER ESTIMATION IN GROUNDWATER MODEL.

Robert Ferdinand, Mathematics, East Central University, Ada, OK.

The model presented takes the form of a coupled system of two nonlinear PDEs which describes dynamics of contaminated groundwater flowing through fissures (cracks) in a rock matrix leading to contaminant traveling and diffusing along length of fissure and also into surrounding rock matrix. A finite difference scheme is used to approximate model solution and the scheme is further used to estimate infinite-dim model parameters using an inverse method procedure. Convergence results for solution and parameters are theoretical proved and numerical examples are provided which graphically illustrate accuracy of the analytic results. These illustrations are generated computationally using the MATHEMATICA software.

06.05.02 AUGUSTUS DE MORGAN: ACTUARY, LOGICIAN, & FRIEND.

Jesse Byrne, Charlotte Simmons, Mathematics & Statistics, University of Central Oklahoma, Edmond, OK.

Augustus De Morgan was a nineteenth century mathematician whose contributions to mathematics are not fully appreciated by historians. “His mathematical output,” says historian Adrian Rice, “hardly merits the term ‘great.’” We explore the significant contributions made by De Morgan from “behind the scenes.” De Morgan was a close friend and correspondent of Sir William Rowan Hamilton and George Boole, two of the greatest algebraists of the nineteenth century. He significantly impacted both of their careers, and it is doubtful that they would have attained the level of success that they ultimately achieved without his help. If he had done nothing else noteworthy in mathematics besides supporting the efforts of these two men, we would still owe him a great debt. Yet, De Morgan also left a lasting mark in the field of actuarial science that has been overlooked thus far. We also explore his contributions to this discipline, both direct (via his own papers) and indirect (via his friendship and support of actuary pioneer Benjamin Gompertz).

06.05.04 THE PINSKER HEIGHT LOSS MODEL FOR AIRCRAFT MISSED APPROACHES: PREDICTION VS. DATA.

David Stapleton, 100 N. University Dr., University of Central Oklahoma, Edmond, OK.

Height loss predictions by the Pinser Model are compared with the statistical model gained from data collec-
tion using KC-10 missed approaches and a covariance model developed last year. Predictions are found to be in general agreement with experiment, except that the Pinsker model’s lack of adjustment for temperature neglects weather considerations. Statistics for uncertainty in the Pinsker model are developed and presented.

06.05.07 DIMENSION REDUCTION METHODS IN THE STUDY OF THE GENETICS OF GENE EXPRESSION.

1 Qiang Guo, 1 Stephanie Monks, 2 Kathy Hanford, 1 Department of Statistics, Oklahoma State University, Stillwater, OK. 2 Animal Science and Statistics, University of Nebraska, Lincoln, NE.

Several groups have suggested a novel approach for combining many types of genomics information, such as genetic marker data and gene expression from microarrays, in order to better understand the underlying causes of disease. One of the challenges of such an approach is how to study genetics of a vast set of highly interrelated measures which likely represent a much smaller set of truly meaningful responses. The objective of this study is to investigate the results of linkage tests conducted on the components derived from gene expression data by several statistical methods of dimension reduction. In particular, three statistical dimension reduction methods were considered: principal components, partial least squares, and non-negative matrix factorization. These methods were each applied to a large-scale gene expression data set containing 45101 expression phenotypes, i.e., probesets, from a sample of 84 M16xICR F2 mice. Linkage tests were performed on the components derived from each statistical dimension reduction method, and identified QTLs were compared with the results from the analysis that did not utilize dimension reduction. Conclusions from this study will be used to inform future simulations. Simulations will be conducted across a wide variety of scenarios to find out which dimension reduction method will result in the components providing the best power for linkage tests, and to determine what factors affect the power of a reduction method.

06.05.08 AN INTRODUCTION TO TRILINABILITY.

Michael McClendon, Charles Cooper, Josh Baldwin, Mathematics and Statistics, University of Central Oklahoma, Edmond, OK.

A point in the Euclidean plane is said to be m-trilinable if there are three points on the polygon, say x1, x2 and x3, such that d(x,x1) = d(x,x2) = d(x,x3) = m, where d(a,b) is the distance between points a and b. A polygon is said to be trilinable if every point in the interior of a polygon is m-trilinable for some value of m, where m can vary from point to point. A polygon is externally trilinable if every point outside the polygon is m-trilinable for some value of m. We show the existence of trilinable and externally trilinable polygons, as well as the existence of polygons that are neither trilinable nor externally trilinable. Furthermore, we demonstrate a polygon that is not an externally trilinable polygon. But we prove that every externally trilinable polygon is necessarily trilinable.
06.05.09 THE MATHEMATICS OF POPULATION BIOLOGY.
Jeremy Thibodeaux, Mathematics, University of Central Oklahoma, Edmond, OK.
Some of the techniques of modeling biological populations will be presented. Ideas from ordinary and partial differential equations will be included along with parameter estimation techniques. A model of red blood cell production will be included in the presentation.

06.05.10 EUCLIDEAN SQUARED DISTANCE MATRICES: CHARACTERIZATIONS, COMPLETIONS AND RESULTS.
1 Thomas Milligan, 2 Chi-Kwong Li, 1 Department of Mathematics, University of Central Oklahoma, Edmond, OK. 2 Department of Mathematics, College of William and Mary, Williamsburg, VA, USA.
Given n points in Euclidean space, the corresponding Euclidean Squared Distance matrix (ESDM) is constructed by assigning to each entry the square of the pairwise Euclidean distance. Characterizations of ESDM are given and some results of these characterizations are presented. In particular, those ESDM whose points lie on a sphere are discussed and new results about these matrices are presented. A partial matrix is a matrix with some entries specified and some entries left unspecified. A completion is a matrix with a desired property that agrees with the partial matrix in the specified entries and assigns values for the unspecified entries. A partial ESDM matrix is one that can be completed to an ESDM matrix. The completion problem for ESDM matrices is examined, a generalization of the completion problem is introduced and known results are given. Further possible work in this areas is introduced.

06.05.11 POPULAR FRACTALS AND THEIR PROPERTIES.
Jennifer Holt, Mathematics and Statistics, University of Central Oklahoma, Edmond, OK.
A presentation about the mathematics behind fractals. The popular fractals discussed are the Mandelbrot and Julia Sets given by iterative functions of the form fc(z)=z2+c, where c is any constant. The main idea of this presentation will be to show how the Mandelbrot and Julia Sets are related mathematically and visually. Orbits, periodic points, and attracting and repelling fixed points are the main mathematical ideas behind the two sets.

06.05.12 AN OBSERVATION REGARDING A KB-B-SPACE.
1 Kristi Karber, 2 John Akeroyd, 1 Mathematics & Statistics, University of Central Oklahoma, Edmond, OK. 2 Mathematics, University of Arkansas, Fayetteville, AR.
We investigated backward shift invariant subspaces of the form KB, the orthogonal complement of BH2(D) in H2(D), where B is some infinite Blaschke product. One of our studies focused on such spaces where B does not have a proper factor b of a certain form. While constructing a class of functions in these KB-spaces which have a nontrivial singular inner factor, we observed that these spaces do not contain a (nontrivial) function with a singular inner factor of a different form.

06.05.13 A VARIANCE COMPONENTS METHOD TO TEST FOR QUANTITATIVE TRAIT LOCUS (QTL) HETEROGENEITY AMONG MULTIPLE ETHNIC GROUPS.
Trecia Kippola, Department of Statistics, Oklahoma State University, Stillwater, OK.
Findings from the Third National Health and Nutrition Examination Survey suggest that as many as 1 in 4 Americans may be affected by metabolic syndrome (Ford et al. 2002). It is also known that the prevalence of metabolic syndrome varies greatly among ethnic groups (Park et al. 2003). We wish to simultaneously investigate the etiology of metabolic syndrome among multiple ethnic groups using quantitative trait linkage analysis methods. Numerous methods exist for conducting linkage analysis for a quantitative trait locus (GTL); however, these methods do not allow for heterogeneity that may arise when testing for linkage using multiple families from different ethnic groups, countries or geographic locations. We propose a method, which is an extension of the variance components method suggested by Blangero and Almasy (1997). Our method can determine if there exists statistically significant heterogeneity among different ethnic groups, countries or geographic locations. We wish to determine whether or not linkage exists among at least one of several populations. Our test statistic is a likelihood ratio test and will be applied to an existing data set consisting of genotype and metabolic syndrome phenotype data for n=69 Caucasian, n=53 Mexican American, n=65 African American and n=15 Japanese American extended kindreds. Future work will include investigation via simulation of various statistical properties, such as power and Type I error rate, of our proposed method.

06.05.14 PENROSE TILINGS.
Vaibhav Pandya, Sulav Regmi, Mathematics, Southwestern Oklahoma State University, Weatherford, OK.
Roger Penrose is a professor of mathematics at the University of Oxford, England. He has pursued active research in the field of tesselations. We investigate the work of Roger Penrose in the study of aperiodic tilings.

A nonperiodic tiling of the plane also tiles the plane periodically. However, an aperiodic tiling of the plane is a nonperiodic tiling that cannot tile the plane periodically. We study the Penrose tiling, which is an aperiodic...
A NON-PARAMETRIC TEST OF THE STRUCTURE OF A COVARIANCE MATRIX.

1 Tracy Morris, 2 Mark Payton, 1 Mathematics and Statistics, University of Central Oklahoma, Edmond, OK. 2 Statistics, Oklahoma State University, Stillwater, OK.

Many statistical procedures require an assessment of the structure of the underlying covariance matrix. The classical parametric method of testing such a hypothesis involves the use of a likelihood ratio test (LRT). These tests have many limitations, including the need for very large sample sizes and the requirement of a random sample from a multivariate normal population. The LRT is also undefined for cases in which the sample size is not greater than the number of repeated measures. It is quite reasonable to think of many situations in which at least one of these conditions is violated. For example, in educational and medical studies, researchers frequently rely on volunteers, violating the assumption of a random sample; in psychological studies, responses are often recorded on Likert scales, violating the assumption of multivariate normality; and in studies in which experimental units are rare or costly, researchers are restricted to very small sample sizes. In such situations, researchers could benefit from a non-parametric testing procedure. In particular, permutation tests have no distributional assumptions and do not require random samples of any particular size. This research involves the development and analysis of a permutation/randomization test for the structure of a covariance matrix. Samples of various sizes and number of measures on each subject were simulated from multiple distributions. In each case, the type I error rates and power were examined.

Nursing – 06.06

06.06.01 IDENTIFICATION AND CONTROL OF NEONATAL PAIN EXPERIENCE AND THE LONG TERM EFFECTS IF LEFT UNTREATED.

Katie Schmitz, Nursing, East Central University, Ada, OK.

The issue of identifying and controlling the pain experienced by neonates during hospitalization and related procedures has become a topic of great interest and controversy. It has been proven that neonatal patients do experience pain. Therefore, as patient advocates, nurses must be knowledgeable in the identification and control of neonatal pain, as well as the long term consequences of untreated pain in these especially vulnerable patients. The problem of this study is to determine nursing interventions that should be implemented to identify, control, and ideally alleviate neonatal pain. The purpose of this study is to identify and describe the problem, educate others on its’ importance, identify possible barriers to resolution, distinguish methods to prevent the problem, and educate others on long term effects of untreated neonatal pain. The review of literature reveals several actions that can be applied with the neonate experiencing pain. These are proper identification using various pain assessment tools, alleviation of pain using pharmacological and non-pharmacological methods, and understanding the long term effects of untreated pain. In conclusion, it has been proven that neonates do feel and respond to painful stimuli. Specific interventions must be implemented to protect neonates from potentially painful hospital and post-hospital procedures. The healthcare staff and parents must be educated to prevent serious long term consequences of untreated pain.
06.07.01  R & D OF FLUID DISPERSION FOR WEB COATING.
Dustin Donnell, Industrial and Engineering Technology, Southwestern Oklahoma State University, Weatherford, OK.
High density magnetic storage tape is manufactured by applying various fluid dispersions to a "plastic" web carrier. Many properties of the tape are critical in order to deliver the desired performance in the final product application. A significant number of these properties are determined by the materials and processes used in manufacturing the fluid dispersions that are applied to the film. For these and various other reasons, it is critical to understand the relationships between fluid properties and finished data tape performance. This research focuses on the identification and study of fluid properties in relation to data tape performance.

06.07.0  FACE RECOGNITION USING EIGEN FACE.
Kul Prasad Subedi, Computer Engineering, Tribhuvan, Kathmandu, Nepal.
The main tenet of this project named “Face Recognition using Eigen Vector” is to recognize face of any individual who is initially stored on the face database. There are various approaches in doing so but I have selected the Principal Component Analysis (PCA) which depends on Eigenface approach. Basically PCA seeks a computational model that best describes a face, by extracting the most relevant information contained in the face. Eigenface approach is a principal component analysis method, in which a small set of characteristic pictures are used to describe the variation between face images. Upshot of my project is to find out the eigenvectors of the covariance matrix of the distribution, spanned by a training set of face images. Later, every face image is represented by a linear combination of these eigenvectors. Recognition is performed by projecting a new image into the subspace spanned by the eigenfaces and then classifying the face by comparing its position in face space with the positions of known individual. Thus performing the complete steps in matching any face to the face database becomes a useful application in criminal identification, banking system, organization implementing secure entrance of people, authentication to access into certain privileged domain or facilities.

06.07.03  QUANTUM RATCHET.
1 Vijayashankar Ramareddy, 1 Gil Summy, 1 Ishan Talukdar, 1 Itzhack Dana, 1 Physics, Oklahoma State University, Stillwater, OK. 2 Physics, Bar-Ilan University, Ramat-Gan, Israel.
Mechanical ratchets have been useful in many applications. It is interesting to look at the quantum version of this ratchet effect. An asymmetry in the system is required to achieve this phenomenon. A current in a diffusive system was achieved by using an asymmetry between the initial state of the system and the potential that is causing the diffusion. We take a BEC (a new form of matter that is achieved at ultralow temperatures and is a giant matter wave!) and apply standing wave laser pulses to realize the ratchet mechanism. The first pulse is used to prepare the initial state for the system and the subsequent pulses are used to create the diffusion. By introducing a phase offset between the initial state and the diffusion potential, we realize the ratchet current that is proportional to the number of pulses. Ratchets can be used in manipulating the cold atoms in applications from quantum computation to lithography.
06.07.05 THE SEARCH FOR SONOLUMINESCENCE IN A RESONATING SPHERICAL BALL OF WATER.
Scott Bowen, Calvin Cole, Engineering Physics, Northeastern State University, Tahlequah, OK.
This is a presentation of the results of an ongoing project. Sonoluminescence is the emission of short bursts of light from imploding bubbles in a liquid created by sound waves. We have noted in previous work and experiments that dropping a large (20cm diameter) plastic ball filled with water from certain heights can produce a very distinct loud metallic ping. This apparently the result of spherical resonance. Since this occurrence only takes place when the ball is bouncing, it is hard to determine whether or not this produces the sonoluminescence that we expect to occur. Our first step in this project is to see if it is possible to drive the ball into steady state resonance when it is at rest. We will investigate various drive sources and support mechanisms in order to try to achieve our predicted results.

06.07.06 THERMAL EVALUATION OF SWNT-GC PHANTOM GEL UNDER LASER RADIATION.
1 Yichao Chen, 1 Halie Ferguson, 1 Henry Le, 1 Kelvin Le, 1 Tamesha Brown, 2 Rheal A. Towner, 1 Wei R. Chen, 1 Engineering and Physics Dept, University of Central Oklahoma, Edmond, OK. 2 OMRF, 3 Engineering and Physics, University of Central Oklahoma, Temperature distribution within tissue is a critical factor in laser treatment of cancer. In order to reach the optimum thermal effect, the thermal performance of SWNT-GC phantom gel under laser radiation is analyzed to simulate the tissue photothermal process. The single wall nanotube (SWNT) particles are mixed with Glycated Chitosan (GC) to form tissue-like phantom gel. The temperature elevation in surface and body is measured using thermal camera, thermocouples and 7T MR imager under 980nm laser radiation. The surface temperature elevation of nano-gel is about 20°C compare with 15°C of normal phantom gel using 3.0 W laser radiation with power density of 0.125W/cm2. Using the thermocouple for the internal temperature measurements, the internal thermal elevation has about 25°C compared 12°C of the normal gel at same surround and testing conditions. It is proved that the nano-phantom gel has higher thermal absorption coefficient under 980nm laser radiation. The easy mixing inclination between SWNT and GC will enhance the uniform selective thermal treatment within tissue and better photothermal immune response. The temperature distributions both in surface and body provide important thermal information and further reference for tumor destruction and immunological responses.

06.07.07 SPR BIOINSTRUMENTATION DESIGN AND CONTROL.
1 John Potts, 2 Allen Brown, 1 Engineering, Nomadics, Oklahoma City, OK. 2 Electrical Engineering, Oklahoma University, Norman, OK.
Surface Plasmon Resonance (SPR) is a revolutionary sensing method for analyzing the interaction of biological molecules. Spreeta, from Texas Instruments, is a sensing device designed for SPR analysis. ICx Nomadics has been granted exclusive rights from Texas Instruments to develop life science instrumentation around the Spreeta Sensor. These instruments make up ICx Nomadics SensiQ Product Line. Involved in the design of such instrumentation includes technical applications such as data acquisition, temperature control, and instrument communications. Data acquisition requires real time processing with noise cancellation algorithms and hardware. Temperature control involves system compensator algorithms to drive a thermal electric cooler. Instrument communications provide user control through proprietary computer software and real time streaming data. These components are among the more important systems involved in the design of the SensiQ Instrument Product Line.

06.07.08 THE CREATION OF A HYBRID OSCILLATOR FOR OIL AND GAS WELL GAUGES.
Stephen Pondelik, Electrical Engineering, University of Tulsa, Tulsa, OK.
The project at GRC Amerada is the creation of a high heat hybrid oscillator. This high heat oscillator would measure the heat and pressure down hole in an oil reservoir. The heat limit before failing in most circuit is around 150 degrees Celsius. The goal is to create a that can reach 200 degrees Celsius with minimal effect on the frequency of oscillation. This is to be done by placing the circuit on a ceramic substrate that dissipates heat at a higher rate then any fiberglass substrate. My part in this process is testing various oscillator types to determine which would have the best heat/current characteristics. The time I have spent thus far has been spent creating PCB boards in Altium Designer, constructing them and testing their heat/current characteristics. This was done by ramping and soaking various PCBs while observing the changing frequency and current. When the testing is finished on the various oscillators the oscillator with the most stable frequency and lowest current consumption will be selected. This will allow us to create a PCB that can function for an extended period of time due to low current consumption and have higher accuracy due less heat effects on the frequency.
06.07.09 LASER PHOTOTHERMAL INTERACTIONS FOR CANCER TREATMENT.
Halie Ferguson, Deon Peoples, Dr. Wei Chen, Dr. Yichao Chen, Henry Le, JP Cooper, Kelvin Le, Savanna White, Tamesha Brown, Physics and Engineering, University of Central Oklahoma, Edmond, OK.
The goal of laser immunotherapy is to eliminate cancerous tumors and to prevent future outbreaks in a patient by the construction of immunity through the use of an immunoadjuvant. Laser photothermal interaction, when used in cancer treatment through laser immunotherapy, utilizes the injection of laser-absorbing dye(Indocyanine Green)and a near-infrared diode, non-invasive laser irradiation treatment. In this study, the effect of photothermal interactions was observed in two materials(chicken breast tissue and phantom gel) injected with a tumor-like dye ball infused with ICG or Nanotubes. The examined temperature measurements included: the internal with a thermal couple, the external with a thermal camera, and the internal and external with a MRI. It was found that photothermal interactions were very essential to the outcome of the laser immunotherapy. The primary results of surface and in vivo experimental studies are presented and discussed. The relationship between the target temperature and the treatment effects are also investigated. In reference to the effectiveness of ICG vs. Nanotubes, it was found that the wavelength of the laser(850nm vs. 980nm)determined the use. The temperature distribution provided in vivo thermal information and reference for optimizing thermal enhancement and irradiation parameters to reach the optimum tumor destruction and immunization effects. Key Words: infrared thermography, surface and volume temperature measurement, cancer treatment.

06.07.10 CRYSTALLINE TRANSDUCER WITH TEMPERATURE SENSOR.
Travis Ellison, Courtney Palmer, Mechanical Engineering, University of Tulsa, Tulsa, OK.
High temperature bottom-hole pressure and temperature gauges are utilized throughout the world in all types of oil and gas well productions. The pressure measuring crystal transducer is sensitive to temperature changes. Therefore, to accurately measure pressure we must have an accurate measurement of the temperature crystal. The present technology utilizes a quartz resonating crystal to measure pressure in the wells at a distance from the pressure measuring device. This creates a lead-lag situation in the temperature response of the temperature-measuring device and the pressure-measuring device. To enhance the reliability and performance of the products produced by GRC, we propose to directly create a platinum resistance temperature detector (RTD) on the quartz pressure crystal. The project is to deposit platinum on the end cap of a quartz crystal transducer to make a RTD to be able to measure the temperature directly. First step is to study and to become familiar with the principles and theory of RTDs. Several texts were examined. The principles of vacuum and vacuum deposition were studied. The orthographic projections of the quartz resonator were examined in order to determine an accurate are onto which the platinum will be deposited. The mechanical finish, amount of platinum needed, and the dimensions of the platinum trace were studied. The coefficients of thermal expansion for platinum were analyzed. The project is still in developmental stage.

06.07.11 DEVELOPMENT OF DATABASE FOR DESIGN OF FUTURE BURNERS.
Mark Stover, Brad Gahring, Chemical Engineering, University of Tulsa, Tulsa, OK.
In this work, we report the development of a database called Burnlog which will aid in designing future burners. As part of this work, we have collaborated in writing three different operating instruction manuals. We have helped in creating a new computer code for sizing burners so that the code will be more user friendly than existing codes. We have also helped in developing new control systems for future burners by writing PLC programs and also developing the wiring schematics. We have undergone hands-on training in inspection of electrical panels.

06.07.12 TRANS-RECTAL OPTICAL TOMOGRAPHY OF PROSTATE WITH A PRIORI TRANS-RECTAL ULTRASOUND INFORMATION: INITIAL SIMULATIVE STUDY.
Guan Xu, Cameron Musgrove, Charles F. Bunting, Daqing Piao, Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK.
Trans-rectal optical tomography is a novel approach toward non-invasive functional imaging of prostate cancer. The unique functional contrast acquired by optical tomography originates from the vascular density difference as well as hemoglobin oxygenation gradient between malignant and healthy tissues. This physiological contrast could render specific guidance to the prostate biopsy to only the suspicious regions rather than systematic random sampling throughout the entire prostate. The interrogation of deep prostate tissue by trans-rectal optical tomography is made possible owing to the strong scattering of photons in tissue, which however makes the trans-rectal optical tomography image-reconstruction ill-posed thereby lower in spatial resolution. The image reconstruction of trans-rectal optical tomography may be improved by use of the structural a priori information from trans-rectal ultrasound. In this work, an imaging geometry designed for concurrent trans-rectal optical tomography and ultrasound is inves-
tigated. A synthetic prostate phantom is used to assess the performance of trans-rectal optical tomography and the improvement of image reconstruction with a priori morphology information from trans-rectal ultrasound. The simulation is based on diffusion approximation of radiative transport equation where the forward problem is numerically solved by finite element method and the inverse reconstruction is performed by iterative approach.

06.07.13 PRODUCT REFINEMENT FOR PASSIVE INFRARED SENSORS.
Patrick Reynolds, Electrical Engineering, University of Tulsa, Tulsa, OK.
Qual-Tron is a global supplier of Mini Intrusion Detection Systems (MIDS) designed for use in multiple environments. One sensor in this family of products is the Passive Infrared Detector (PIR). These devices incorporate a pyroelectric detector in order to sense the passage of an object in the vicinity of the target area by sensing the change in heat. When activity crosses a given threshold, the sensor triggers a radio transmitter to send this information to a remote sensing location. Interns have focused on testing and redesigning the variable sensitivity levels used to select various ranges of detection, which were found to be insufficient during testing of the previous designs. As a related project, data and performance benchmarks for the new design are now being used to design a microprocessor based sensor. A testing procedure is being developed to test the effect of various weather conditions on the PIR’s output.

06.07.14 DESIGN OF A PORTABLE POWER SUPPLY.
Joseph Collette, Electrical Engineering, University of Tulsa, Tulsa, OK.
The focus of this work is the design of a portable power supply to test a down hole gauge, researching power line communication systems, and replacing parts in the Centrillift microdrives. We came up with three different designs for the power supply. The first two designs achieve the same goal with the difference being price and efficiency. One of the designs utilized DC-DC converters to convert a DC input voltage of 15-20 V to a DC voltage of 100 V and 24 V. The problem with this design was that the two converters cost $50 and $20 each. With the cost of the board, the total cost was close to $100. The second design uses the $50 converter to get the voltage to 100 VDC but the 24 VDC source is produced using 555 timer with 50% power cycle and a voltage multiplier.

06.07.15 DESIGN AND TESTING OF RAILROAD SIGNALING COMPONENTS.
Nick Speiser, Electrical Engineering, University of Tulsa, Tulsa, OK.
This work focuses on the design and testing of railroad signaling components developed at Railroad Signal International (RSI) in Tulsa. One project deals with the design and drawing of plans for railroad crossings throughout the United States. Other projects include the implementation of wayside signals in South America, software design for a commuter rail system in Austin, Texas, and the design of a robot that tests railroad track conditions. This work has provided valuable experience in working with AutoCAD and programming for control systems from General Electric and Union Switch & Signal. A highlight of my work with RSI was that the company sent me, along with a few others, to Colombia, South America to work on the installation of a new wayside control systems.

06.07.16 RESONANT TERAHERTZ REFLECTION IN ARRAYS OF SUBWAVELENGTH METALLIC RODS.
Xinchao Lu, Jiaguang Han, Weili Zhang, Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK.
The resonant reflection of periodic arrays of subwavelength metallic rods is characterized by terahertz time-domain spectroscopy. Reflection measurements reveal that the peak reflection is influenced by the rod length parallel to terahertz electric field and the refractive index of the substrate. Meanwhile, the resonant reflection is gap-dependent, due to coupling between the rods which can be regarded as dipole resonance arisen from by localized surface plasmons. A simple physical model presents an explanation of the coupling between the gap-dependent dipoles. The reflectance of the metallic rods is fitted by the Fano model, indicating that the reflection of the subwavelength metallic rods contains two processes: discrete localized surface plasmon resonant reflection state and the direct non-resonant continuum reflection.

06.07.17 COUPLING BETWEEN TERAHERTZ SURFACE PLASMONS AND NON-RESONANT TRANSMISSION IN SUBWAVELENGTH HOLE ARRAYS.
Jiaguang Han, Abul K. Azad, Mufei Gong, Weili Zhang, Xinchao Lu, Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK.
Terahertz transmission in periodic arrays of rectangular subwavelength holes exhibits strong dependence on hole widths. A characteristic evolution in transmittance, linewidth, and peak frequency is observed when the hole width is increased from 40 to 120um. The peak
transmittance approaches a maximum value with the hole width being 80um, while linewidth broadening and blueshift of the peak frequency are observed with increasing hole widths. Based on numerical analysis by the Fano model and the momentum-dependent transmission measurements, we find that such characteristic evolution is attributed to the coupling between discrete resonant excitation of surface plasmons and continuum non-resonant transmission through the holes. The non-resonant transmission, could be resulted from localized effects and direction terahertz transmission, exhibits angle-independent peak frequencies.

**06.07.18 PROOF-OF-CONCEPT TERAHERTZ METAMATERIAL SENSOR.**

Ranjan Singh, Jiaguang Han, Weili Zhang, John O’Hara, Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK. MPA-CINT, Los Alamos National Lab, New Mexico.

We present a proof-of-concept demonstration of terahertz sensor using split-ring resonator (SRR) metamaterials. The effect of a dielectric layer in tuning resonance frequencies of planar double-ring SRRs is studied by terahertz time-domain spectroscopy. Both the LC and dipole resonances exhibit dependence on the thickness of the dielectric film deposited on the SRRs. Resonance shifts are observed even with a dielectric film as thin as 100 nm, showing the sensitive nature of SRRs as well as the tunability which we can achieve over the resonances using thin film processing. Additionally, saturation in frequency shifts occurs with a dielectric overlayer thicker than 16 microns. Our experimental results agree well with numerical simulations by the finite element method and the effective medium model of SRRs. This effect is promising in fine tuning of metamaterial resonances and terahertz sensing of small amounts of analytes by use of SRRs.

**06.07.19 FINITE ELEMENT ANALYSIS OF A MINDLIN PLATE ON A THREE-DIMENSIONAL EXPANSIVE SOIL FOUNDATION. BITUPORN TONTAVANICH,**

DR. RIFAT BULUT, CIVIL ENGINEERING, Oklahoma State University, Stillwater, OK.

Since expansive soils often cause problems to light weight structures as residential foundations, a steady state finite element method computer program is developed for proper design purposes of these foundations. The program is used to analyze a two-dimensional slab on a three-dimensional expansive soil model. The linearly elastic slab is modeled as a Mindlin Plate with the option of having both uniform thickness slab and ribbed slab. The program is used to analyze a three-dimensional soil-structure interaction system.

Suction diffusion model is employed as the foundation soil model. The intent is to combine the slab and the foundation models into a complete soil-structure interaction system.

A pre- and post-processor, GiD, is adopted for automatic mesh generation and visualization of results, while the finite element code is programmed in FORTRAN.

**06.07.20 SUB-SKIN DEPTH TERAHERTZ METAMATERIAL.**

Ranjan Singh, Weili Zhang, Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK.

We demonstrate the capability of tuning the LC resonance strength of terahertz metamaterials by using split-ring resonators (SRRs) of sub skin-depth thicknesses. An array of 34 nm-thick SRRs made from Pb is nearly transparent to the normally incident terahertz pulses whereas a 50 nm-thick SRR-array attenuates by 35% and reshapes the incident terahertz pulses, showing an evolution of the lower energy LC resonance and the higher energy dipole resonance at 0.5 and 1.6 THz, respectively. The resonance is strengthened with increase in metal film thickness at the sub skin-depth level and tends to saturate beyond one skin depth, 336 nm for Pb at 0.5 THz. The decrease in terahertz transmission through the optically thin SRRs shows exponentially decaying behavior. This experiment showed how well we can modulate the incident terahertz pulses using the optically thin metal SRRs. This approach could lead to development of novel terahertz communication devices in the future. We further investigated the LC resonance of half, one, one and half and two skin depth Ag, Al and Pb SRRs and a consistent difference in their resonance strengths was observed. The difference in their resonance sharpness can also be seen for the same thickness (300nm) samples of all the three metal SRRs.

**06.07.21 CHARACTERIZATION OF DETECTOR SCINTILLATOR EFFECT ON INTERVENTIONAL DEVICE VISUALIZATION IN X-RAY FLUOROSCOPY.**

Yuhao Jiang, David Wilson, Engineering and Physics, University of Central Oklahoma, Edmond, OK. Biomedical Engineering, Case Western Reserve University, Cleveland, Ohio.

The thickness of the scintillator layer will significantly affect detection performance in X-ray fluoroscopy. A thick scintillator layer has improved detective quantum efficiency (DQE) with high X-ray conversion efficiency, but a thin scintillator layer has a high modulation transfer function (MTF) with less spatial blurring. Scintillator layer thickness should be optimized for better image quality. In Chapter 3, we investigate flat panel detector technology and X-ray physics to simulate direct and
indirect detectors. Investigation methods also include designing and conducting experiments to measure contrast sensitivities in detection of interventional devices (guidewire and stent) buried in fluoroscopy noise under a variety of X-ray exposures. We apply the results to develop and validate human observer models to further quantify the effects of scintillator thickness.

**06.07.22 UTILIZING A 3D HUMAN TISSUE MODEL TO STUDY THE EFFECT OF HYPERGLYCEMIA ON MONOCYTE MIGRATION AND DIFFERENTIATION.**

Anirudh Shukla, Heather Fahlenkamp, Chemical Engineering, Oklahoma State University, Stillwater, OK.

Hyperglycemia influences monocyte migration from the blood into peripheral tissues. Monocytes differentiate into either dendritic cells or macrophages depending on a number of factors. Macrophages are suspected to trigger formation of atherosclerotic plaques in blood vessels, but the exact mechanisms describing these interconnected phenomena are not well understood. A novel 3D human tissue model containing a blood endothelium (HUVECs) has been developed to investigate the migration and differentiation of monocytes in response to high glucose concentrations. The tissue model was exposed to a high glucose concentration (30 mM) for 9 hours, at which time peripheral blood mononuclear cells were added to the top of the HUVEC layer to measure cell migration and differentiation into the tissue model. Cells were counted and characterized by performing flow cytometry. Compared to control samples, there was a 30% increase in monocyte cell migration into the tissue model, in response to the high glucose concentration. Comparing the cells that migrated into the tissue model and remained, there was a 15% increase in the number of cells that differentiated into macrophages. The viability of the HUVECs along with the expression of the cell adhesion molecules PECAM-1 and VCAM-1 were assessed for each condition by using fluorescent probes with confocal microscopy.

**06.07.23 STRUCTURE OF WATER AT THE SiO2 AND GRAPHITE SURFACES.**

Dimitrios Argyris, Alberto Striolo, School of Chemical, Biological and Materials Engineering, University of Oklahoma, Norman, OK.

The structure of the first few molecular layers of aqueous solutions at solid-liquid interfaces determines a number of phenomena, typically identified by the general classification of ‘hydrophobic’ and ‘hydrophilic’ surface properties. Such phenomena are important in a variety of fields including geology, biology, and engineering. As a consequence, aqueous solutions at interfaces have generated, and continue to generate, significant research interest. We employed all-atom equilibrium molecular dynamics simulations in the canonical ensemble to investigate the structure and dynamics of water within thin interfacial layers (maximum 10 molecular layers) near a few selected free-standing surfaces. In detail, a rigid graphite sheet and crystallographic surfaces of the SiO2 cristobalite crystal were considered to assess the effect of surface on the properties of interest. The water-water interactions were modeled using the SPC/E model and the solid layers were treated as rigid. Density profiles, radial distribution functions, hydrogen-bonding structure and diffusion coefficients were calculated to study the effect of surface properties on the characteristics of confined water and on the formation of the electric double layer. Our results show that both the surface roughness and chemical heterogeneity affect the density profile and the orientation of the interfacial water molecules, as well as their rate of exchange with bulk water and reorientation at the surface.

**06.07.24 MORPHOLOGY AND DIFFUSION MECHANISM OF PLATINUM NANO Particles ON CARBON NANOTUBE BUNDLES.**

Brian Morrow, Alberto Striolo, Chemical, Biological, and Materials Engineering, University of Oklahoma, Norman, OK.

Molecular dynamics simulations were used to investigate the mobility and morphology of platinum nanoparticles supported on carbon-based materials. The supports considered include a single graphite layer as well as carbon nanotubes, regarded as bundles. In all supports the carbon atoms were held fixed. The goal of our work is to assess the effect of the substrate morphology on the properties of the metal nanoparticles. Our results show that the diffusion coefficients of Pt nanoparticles on carbon nanotube bundles are one order of magnitude lower than those of Pt nanoparticles supported by graphite. Density profiles, radial distribution functions, and average coordination numbers were calculated to study the structure of the supported nanoparticles. Pt nanoparticles deposited on carbon nanotubes differ structurally from those deposited on graphite. In particular, they are characterized by a lower average coordination number than those supported by graphite. We have also conducted simulations using bimetallic metal clusters which indicate that it may be possible to influence the distribution of atoms at the surface of the nanoparticle. These results suggest that the catalytic properties of supported Pt nanoparticles can be tuned by changing the substrate and may provide partial explanation of recent experimental studies according to which metal nanoparticles deposited on carbon nanotubes yield effective catalysts.
The single molecule spectra are observed in terms of sudden appearance of discernable Raman peaks, each indicative of a single PYP molecule finding a hot spot. In several instances, we observed switching in the single PYP molecule between the pG and pB states. Thus, our preliminary data indicate that we capture the photocycle in a single PYP molecule, initiated by 514 nm excitation. Future work will pursue acquisition and analysis of time series for single PYP molecules with the objective of studying its photocycle in detail at the single molecule level. In particular, the impact of laser intensity and pH will be addressed. This promises to provide structurally precise insights into the role of molecular individuality on the structure and function of this photoreceptor.
06.07.28 IMPROVED LOW-COST TEST-BED FOR AUTOMATED DRIVING WITH REAL-TIME LANDMARK TRACKING.
1 Pavan Kayathi, 2 Sarah Cary, 3 Jay Hanan, 1 Computer Science, Oklahoma State University, Stillwater, OK. 2 Civil Engineering, Oklahoma State University, Stillwater, OK. 3 Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK.

A low-cost vehicle test-bed system was developed to iteratively test, refine and demonstrate navigation algorithms before attempting to transfer the algorithms to more advanced rover prototypes. The skeleton of the test bed used here was a modified radio controlled (RC) tamiya TXT-1 Monster Truck chassis. A microcontroller board and onboard laptop computer allow for either autonomous or remote operation via computer. As with previous test-beds, the system is compatible with sensors onboard the vehicle representing the types currently used on NASA-JPL rovers. Examples include optical wheel encoders for dead-reckoning navigation, a single axis gyroscope, and 2-axis accelerometer. An ultrasound ranger is available to calculate distance as a substitute for the stereo vision systems presently used on rovers. Improvements include modified suspension, 4-wheel drive, 4-wheel steering, IEEE1394 camera, electronic speed controller, high-torque motors, USB based servo control, and wireless transmitter to send real-time status and video to an off-board computer.

Using such test-beds, real-time landmark tracking was tested by autonomously driving the vehicle through Mars analog terrain. As targets are approached on natural terrain, their scale increases and orientation may change unpredictably. The algorithms tracked rocks as waypoints. This generated coordinates calculating relative motion and provided visual odometry to science targets.

06.07.29 PREDICTING AND MEASURING RESIDUAL STRESS AT INTERFACES AND VOIDS IN ALUMINA-ZIRCONIA CERAMIC LAYERED COMPOSITES.
1 Hrishikesh Bale, 1 Jay Hanan, 2 Francesco DeCarlo, 2 Yong Chu, 3 James Smae, 4 Mechanical Engineering, Oklahoma State University, Stillwater, OK. 5 Advanced Photon Source, Argonne National Laboratory, Chicago, IL. 6 Chemical Engineering, Oklahoma State University, Stillwater, Oklahoma.

Layered Alumina-Zirconia composites have a potential for crack deflection and hence improved resistance to fatigue failure. The current research quantifies the thermal residual stresses developed at the interface in a model layered ceramic. Another focus lies in determining the role played by sample geometry including pre-existing voids or pores. The current work presents the development of a solid finite element geometry for

06.07.30 IMPACT OF UNDERGRADUATE ROBOTICS RESEARCH ON RECRUITING FRESHMAN STUDENTS TO MAJOR IN ENGINEERING AND COMPUTER SCIENCE FIELDS.
Baha Jassemnejad, Mathew Mounce, Wei Pee, Engineering, University of Central Oklahoma, Edmond, OK.

The goal of this robotic research activity in the UCO’s Engineering and Physics department was to promote science, technology, engineering, and mathematics (STEM) among the incoming freshmen so that they will be encouraged to pursue a degree in Engineering, Physics, or computer science. The duration of this research activity was four weeks, during which time these students become familiar with research, teamwork, problem based learning, and the procedures involved in engineering design and building. The first phase of the activity, lasting for one week, involved an introduction to basic theory focusing on electronics, mechanics, programming, and engineering design processes. The second phase of the activity, lasting the remaining three weeks, involved researching, designing, and building a conceptual model and prototype of a minesweeper robot. With the facilitation of their peer mentors, students built a working scaled down model that could autonomously navigate, identify, and extract mines. Following the presentation of their project, these students expressed enthusiasm in pursuing a degree in engineering and computer science disciplines. Acknowledgement. This research activity was sponsored by the UCO’s NSF SURE-STEP funding. Nathan Steele, Hunter De Toy, Francis Nguyen, David Deland, Kelly Green, and Paul Wiechmann contributed to this activity.
**Math & Science**

**06.07.31  DYNAMIC COMPRESSION OF BULK METALLIC GLASS FOAM.**
Nicholas Phelps, Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK.

Foams are cellular structures, which are made from an increasingly wide variety of materials. Current foam processing methods randomly places cells, giving them a complex microstructure. These microstructures provide foams with the mechanical properties needed for excellent impact energy absorption as evidenced by their response under compressive stress. Recently, new metal foams made of Pd43Ni10Cu27P20 bulk metallic glass (BMG) have been successfully produced. BMG foams have the potential to become super plastic by increasing the porosity, which would in turn give them higher energy absorbing properties than current foams. Dynamic compression was performed on the BMG foam for the first time using a Split Hopkinson Pressure Bar (SHPB) setup. Dynamic compression on unconfined foam exhibited remarkable, yet brittle behavior. With confinement in a copper tube, despite the brittle behavior, the foam increased in energy absorption by more than 3.5 times. Increasing the porosity of these BMG foams could lead to even higher levels of energy absorption.

**06.07.32  SIMULATING THE EFFECT OF SPREAD OF EXCITATION IN COCHLEAR IMPLANT DUE TO ELECTRODE CONFIGURATION.**
Mohamed Bingabr, Justin Wilson, Engineering and Physics, University of Central Oklahoma, Edmond, OK.

An algorithm was developed to simulate cochlear-implant (CI) bipolar and monopolar stimulation (BS and MS) in recognition of CI-processed speech by normal-hearing listeners. In BS, the active electrode is outside the cochlea and the electrical current decays at 4.0 dB/mm to either side of the active electrode. In MS, the active electrode is inside and the return is outside the cochlea, and the current decays at 0.5 dB/mm [1]. Because of the faster decay rate, the spatial (spectral) resolution is higher with BS than with MS. In recognition of CI-processed CNC sentences, decay rate was simulated as spectral smearing. The speech signal was processed through 4-, 8-, or 16-pass-band filters, rectified and low-pass filtered at 400 Hz. Each pass-band amplitude envelope was used to modulate the amplitude of noise bands centered at the same frequencies of the pass bands. The spectral envelope of each noise band decayed to either side of the center frequency at a rate matching the MS or BS current decay (i.e., noise-band bandwidth was proportional to decay rate). With the summed signals, recognition was studied as a function of number of bands. Results indicated a significant interaction between spectral resolution (number of channels) and spread of excitation. The effect of narrowing the excitation spread was minimal when the spectral resolution was sufficiently good (> 8 channels) but it was significant when the spectral resolution was poor (4 channels).

**Agriculture – 06.08**

**06.08.01  EFFECTS OF DIETARY CONCENTRATE LEVEL ON TISSUE AND ORGAN MASS OF ALPINE DOES AT DIFFERENT STAGES OF LACTATION.**
1 Arthur Goetsch, 1 Glenn Detweiler, 1 Roger Merkel, 1 Ryszard Puchala, 1 Tilahun Sahlu, 2 Lionel Dawson, 1 Calvin Ferrell, 1 American Institute for Goat Research, Langston University, Langston, OK. 2 College of Veterinary Medicine, Oklahoma State University, Stillwater, OK. 3 US Meat Animal Research Center, ARS/USDA, Clay Center, NE.

Alpine does were fed diets with 60 or 20% concentrate (C and F, respectively) for 0, 8, 16, or 24 wk. DM intake of DM was greater (P < 0.05) for F vs C (2.23, 2.14, 2.10, 2.42, 2.81, and 2.55 kg/d), ADG was affected (P < 0.07) by an interaction between diet and time (0, 24, 121, -61, 46, and 73 g), and 4% fat-corrected milk was less (P < 0.05) in wk 17-24 than earlier (3.60, 2.78, and 2.45 kg/d for C and 3.02, 3.00, and 2.14 kg/d for F in wk 1-8, 9-16, and 17-24, respectively). Measures at 0 wk in % empty BW (EBW) included 2.01% liver, 14.88% internal fat, and 6.57% gastrointestinal tract (GIT). Liver mass was similar between diets and greatest among times (P < 0.05) at 8 wk (2.87, 2.42, and 2.23% EBW for C and 2.81, 2.63, and 2.58% EBW for F at 8, 16, and 24 wk, respectively). Internal fat mass was greatest among times (P < 0.05) at 24 wk and greater for C vs F (14.10, 14.27, and 18.59% EBW for C and 9.39, 11.43, and 13.70% EBW for F at 8, 16, and 24 wk, respectively). Mass of the GIT was less (P < 0.05) for C than for F and decreased (P < 0.05) with increasing time in lactation (9.26, 7.56, and 6.21% EBW for C and 9.24, 8.50, and 7.87% EBW for F at 8, 16, and 24 wk, respectively). Based on tissue mass more energy was expended by the GIT of F vs C does. Considerable internal fat is mobilized in early lactation particularly with forage-based diets, with more rapid and a greater magnitude of repletion by does consuming diets with high vs moderate or low concentrate levels.
06.08.02 EFFECTIVENESS OF A WEB-BASED CERTIFICATION PROGRAM FOR MEAT GOAT PRODUCERS.
Steven Hart, Roger Merkel, Terry Gipson, Tilahun Sahlu, American Institute for Goat Research, Langston University, Langston, OK.
In 2006, a Langston University-led consortium of 11 universities and 5 meat goat producer groups unveiled an on-line training and certification program (http://www2.luresext.edu/training/qa.html). The program consists of 22 learning modules in which participants take pre- and post-tests (requiring a score of ≥ 85%) to pass the 16 required and a minimum of 3 elective modules for certification. As of February, 2007, 256 participants have registered for the program. Least square means were lower for pre- vs post-tests (68 vs 90% ± 1.53; P < 0.001), with an average increase in score of 22 percentage points. Largest increases in pre- vs post-test scores were seen in the Reproduction (48 vs 89% ± 3.7) and Nutrition (54 vs 90% ± 3.0) modules, with lowest increases in test scores seen in the Livestock Guardian Dogs (77 vs 91% ± 5.4), Herd Health Procedures and Prevention (73 vs 90% ± 4.6), and Marketing (75 vs 87% ± 2.7) modules. Knowledge transfer was evident through the increases in test scores. These data suggest that an on-line testing and knowledge dissemination program is acceptable for many goat producers as a means to increase knowledge of goat production practices.

06.08.03 PARTICIPANT DEMOGRAPHICS OF A WEB-BASED CERTIFICATION PROGRAM FOR MEAT GOAT PRODUCERS.
Roger Merkel, Steven Hart, Terry Gipson, Tilahun Sahlu, American Institute for Goat Research, Langston University, Langston, OK.
In 2006, a Langston University-led consortium of 11 universities and 5 meat goat producer groups unveiled an on-line training and certification program (http://www2.luresext.edu/training/qa.html). The program consists of 22 learning modules. Participants take pre- and post-tests to pass the 16 required and a minimum of 3 elective modules for certification. As of February, 2007, 256 participants from 9 countries (US - 245, Canada - 3, India - 2, Australia, Jamaica, Malaysia, Nigeria, Pakistan, Romania - 1 each) have registered for the program. 39 states are represented, with the top 5 states representing 55% of total participants (OK - 59, MO - 24, TX - 20, TN and KS - 16 each). Sixty-five percent of respondents classified themselves as part-time farmers/ranchers, 19% full time, and 16% no response. Fifty-one percent classified farm size as less than 40 acres and only 16% > 160 acres. Average herd size for 54% of respondents was 49 or fewer animals (34% < 25 goats). Only 13% of respondents owned >100 goats.

Males comprised 56% of participants and females 37%, with the remainder not responding. Sixty-three percent of respondents reported membership in the American Boer Goat Association; 16% American Meat Goat Association; 13% American Kiko Goat Association; 6% U.S. Boer Goat Association; and 4% International Kiko Goat Association. Demographic data suggest that an on-line certification program is an acceptable method to provide information to smallholder meat goat producers.

06.08.04 VALIDATION OF PETRIFILM PLATES FOR ENUMERATION OF TOTAL BACTERIA, PSYCHROTROPHIC BACTERIA, AND COLIFORMS IN GOAT MILK.
1 Steve Zeng, 1 Blaise Bah, 2 F. Z. Ren, 3 Sean Chen, 1 J. S. Van Kessel, 1 American Institute for Goat Research, Langston University, Langston, OK. 2 College of Food Science & Nutritional Engineering, China Agricultural University, Beijing, China. 3 Environmental Microbial Safety Laboratory, USDA-ARS, Beltsville, MD.
PetrifilmTM Aerobic Count (AC) and Coliform Count (CC) plates were validated against standard methods for enumeration of coliforms, total bacteria, and psychrotrophic bacteria in raw (n = 39) and pasteurized goat milk (n = 17) samples. All microbiological data were transformed into log form and analyzed using paired comparison t-test. There were no differences between PetrifilmTM CC and the standard Violet Red Bile Agar Petri dish method. PetrifilmTM AC was as accurate (P > 0.05) as the standard Petri dish methods for both total bacteria and psychrotrophic bacteria when the total bacteria count was less than 1x106 CFU/ml. Correlations between PetrifilmTM plates and the standard Petri dish agar methods were high (r = 0.992, 0.997, and 0.974 for coliform, total bacteria, and psychrotrophic bacteria, respectively). In conclusion, PetrifilmTM AC and CC plates can be used as alternatives to standard methods for enumeration of total bacteria, psychrotrophic bacteria, and of coliforms, respectively. Advantages of Petrifilm TM plates include rapidity, ease of performance, labor saving, and no need for agar preparation or autoclaving. This validation is of practical importance to goat milk producers and processors because of the limited numbers of goat milk samples available daily and the lack of advanced laboratory facilities on most goat farms and in most goat milk processing plants.
06.08.05  EFFECTS OF FEED RESTRICTION AND SUBSEQUENT REALIMENTATION ON TISSUE AND MOHAIR BER BY GROWING ANGORA GOATS.

Ryszard Puchala, Amlan Patra, Arthur Goetsch, Getachew Animet, Tilahun Sahlu, American Institute for Goat Research, Langston University, Langston, OK.

Forty-eight Angora goat wethers (16.7 ± 0.43 kg initial BW and 6 mo of age) were used in a 24-wk experiment to evaluate effects of level of feed intake on current and subsequent tissue (non-ber) and mohair ber growth. In Phase 1, 12 wk in length, different amounts of dehydrated alfalfa pellets were fed to provide ME according to NRC requirements adequate for tissue and mohair ber growth (g/d) of 0 and 0 (0L), 15 and 1.5 (15L), 30 and 3.0 (30L), 45 and 4.5 (45L), 60 and 6.0 (60L), and 75 and 7.5 (75L), respectively. Alfalfa pellets were consumed ad libitum in Phase 2. Digestibility of OM was similar among treatments in both phases. In both phases ME intake (MEI) increased linearly (P < 0.05) with increasing level of DMI in Phase 1 (Phase 1: 5.40, 5.24, 6.00, 7.15, 7.89, and 8.04 MJ/d; Phase 2: 10.93, 11.00, 12.02, 13.50, 13.59, and 16.32 MJ/d for 0L, 15L, 30L, 45L, 60L, and 75L, respectively). Energy expenditure in Phase 1 increased linearly (P < 0.05) with increasing level of DMI (3.67, 3.87, 3.91, 4.18, and 5.20 MJ/d for 0L, 15L, 30L, 45L, 60L, and 75L, respectively) and was similar among treatments in Phase 2 (6.45 ± 0.40 MJ/d). Tissue growth increased linearly (P < 0.05) with increasing DMI in Phase 1 (15.3, 30.9, 49.2, 58.9, 62.5, and 72.1 g/d) and was similar among treatments in Phase 2 (105.6, 108.3, 91.9, 81.9, 76.0, and 97.0 g/d for 0L, 15L, 30L, 45L, 60L, and 75L, respectively). Mohair ber growth was similar among treatments in Phase 1 (6.6, 6.6, 6.0, 6.2, 7.8, and 7.0 g/d) and in Phase 2 (6.6, 6.8, 5.5, 6.1, 9.2, and 7.3 g/d for 0L, 15L, 30L, 45L, 60L, and 75L, respectively). Mohair ber growth was similar among treatments in Phase 1 (6.6, 6.6, 6.0, 6.2, 7.8, and 7.0 g/d) and in Phase 2 (6.6, 6.8, 5.5, 6.1, 9.2, and 7.3 g/d for 0L, 15L, 30L, 45L, 60L, and 75L, respectively).

06.08.08  SHORT-TERM TRENDS OF BOER AND KIKO BUCKS IN A CENTRAL PERFORMANCE TEST.

1 Terry Gipson, 1 Tilahun Sahlu, 2 Lionel Dawson, 1 Agriculture Research, Langston University, Langston, OK. 2 Oklahoma State University

Since 1999, the Langston University central performance test (LUCPT) has evaluated 398 bucks representing 70 breeders and 8 states. Two breeds have been tested, Boer and Kiko, the former accounting for 95% of the bucks enrolled. Therefore, the objective of this study was to evaluate the trends of the performance traits over the last 8 years (1999 to 2006) of LUCPT bucks. Traits evaluated were ADG, feed:gain ratio (FE), loin-eye area (LEA), and residual feed intake (RFI). An analysis of covariance was conducted with performance traits as the dependent variables, breed as the independent variable, and linear and quadratic effects of year as covariates. Over the 8 years, ADG increased linearly; FE decreased linearly; LEA increased quadratically; and RFI increased quadratically. The two latter traits increased then decreased over time so that the traits in 2006 were virtually the same as in 1999. Breed influenced all performance traits: ADG averaged 277 ± 2.9 for Boer and 206 ± 13.8 g/d for Kiko; FE averaged 6.8 ± 0.07 for Boer and 7.6 ± 0.32 for Kiko; LEA averaged 11.4 ± 0.11 for Boer and 9.2 ± 0.53 cm² for Kiko; and RFI averaged -0.03 ± 0.008 for Boer and 0.04 ± 0.038 g/d for Kiko. Generally, ADG increased and FE decreased in desirable directions indicating that producers may be basing selection upon economically important traits, especially ADG which is easily measured on-test
and on-farm. LEA and RFI remained unchanged, indicating that meat goat producers may not be selecting for them.

**06.08.09 THE LANGSTON UNIVERSITY WATER WATCH INITIATIVE FOR MONITORING THE AQUATIC HEALTH OF LANGSTON LAKE.**

1 Bruce McGowan, 1 Raymond Faucette, 2 Gnanambal Naidoo, 1 Department of Agriculture & Natural Resources, Langston University, Langston, OK. 2 Biology, Langston University, Langston, Oklahoma.

Langston University has established a partnership with the Oklahoma Water Watch (OWW) Program to develop certified water quality monitors to assist in water quality monitoring and testing of Langston Lake located in Logan County. The Langston University OWW Team monitors the physical and chemical properties of Langston Lake for purposes of determining whether the water is of sufficient quality to support its beneficial uses. Faculty and student water quality monitors currently test for standard parameters that will be collected during water quality monitoring to include Temperature (Celsius), pH (standard units), Dissolved Oxygen (mg/l), Ammonia Nitrogen (mg/l), Nitrate Nitrogen (mg/l), and Orthophosphate (mg/l). Every month, the Langston University OWW Team conducts various water quality tests and documents these measurements from five sampling sites on the lake to characterize the lake’s overall water quality. Collected data will provide supplemental information to the state’s Beneficial Use Monitoring Program (BUMP) report and consistent long-term data which will provide an important historical perspective on nutrient intake and aid in identifying trends in Langston Lake as well.

**06.08.11 DETERMINATION OF MELAMINE IN WHEAT GLUTEN USING NEAR INFRARED REFLECTANCE SPECTROSCOPY.**

1 Auda Trotter, 2 Cindy Coy, 1 Health Science, Redlands Community College, El Reno, OK. 2 USDA-ARS Grazinglands Research Laboratory, El Reno, OK.

Contamination of imported feed and foodstuffs with melamine scrap has become a concern the past few months. Melamine scrap is a by-product of melamine manufacturing that contains melamine monomer and cyanuric acid. Ingestion of melamine scrap contaminated wheat gluten has caused illness and death in hundreds of companion animals. Contaminated feed has also been consumed by animals destined for human consumption. The purpose of this study was to examine the feasibility of using Near Infrared Reflectance Spectroscopy (NIRS) as a fast, easy to use screening method for detecting melamine in wheat gluten. Melamine was added in known amounts (0.5, 1, 2, 3, 4, 5 and 6% by weight) to 7 samples of wheat gluten from different sources. Equations generated from the calibration data set were capable of predicting melamine concentrations ranging from 0.5 to 6.0 percent melamine in 26 samples that were not included in the calibration data. Regression of predicted versus actual melamine concentrations yielded an R-squared greater than 0.996. While NIRS is not as sensitive as HPLC or GC/MS, NIRS could prove useful as a screening tool for melamine in wheat gluten.

**06.08.12 EFFORTS TO ANALYZE NUTRIENT MANAGEMENT WITHOUT THE USE OF COMMERCIAL FERTILIZER.**

Amy Robak, Plant and Earth Science Department, University of Wisconsin - River Falls, River Falls, WI.

The purpose of this project for the past two years has been to research how corn will perform without the use of commercial fertilizer. This is being pursued in order to help American farmers realize that past legume credits and past and current manure credits can be enough nutrients, especially nitrogen, to support a corn crop throughout a growing season. This approach is also expected to produce no difference in the harvested yield. The project also consisted of researching and comparing the new and old nutrient management recommendations prepared by the University of Minnesota. Throughout the growing season, various scouting procedures and tests were conducted to help test our hypothesis. Replicated test plot areas were set up to help compare and contrast yield calculations in the fall. Analysis of the resultant data are on-going.

**06.08.13 EVALUATION OF PARASITE LOAD IN HAIR-TYPE, WOOL-TYPE, AND CROSSBRED LAMBS GRAZING WHEAT PASTURE.**

1 Adam Hughes, 1 Carneli Jorge-Torres, 1 Chris Tuma, 1 Gaurav Poudyal, 1 Jason Peace, 1 Lisa Appeddu, 1 Mike Brown, 1 Allied Health, Southwestern Oklahoma State University, Weatherford, OK. 2 USDA-ARS-GRL, El Reno, OK.

This research evaluated the effect of breed type and diet on parasite load in lambs. Fall-born lambs grazed wheat pasture with (n=5) or without (n=5) a corn supplement over Spring 2007. Lamb breeds were purebred St. Croix (hair-type; n=3), Dorset (wool-type; n=3), and reciprocal crossbreeds (n=4). To evaluate parasite load, fecal and blood samples were collected on Feb. 16, Mar. 9, Mar. 30, and April 20. Plasma was evaluated for red blood cell percentage (RBC%) and serum for total protein. A sugar flotation technique was used to count coccidian oocytes (Eimeria) and stomach worm eggs (Haemonchus, Ostertagia, Trichostrongylus) in feces. RBC% decreased (P<0.02) on other measures. Neither diet (P>0.61) nor breed type (P>0.40) affected RBC%
and total serum protein. Diet had no effect (P=0.25) on oocyst count; however, supplemented lambs (median 963 eggs/g, CV=113%) had higher (P=0.02) egg counts than unsupplemented lambs (median 363 eggs/g, CV=376%). Breed type affected oocyst (P=0.01) and egg (P=0.12) counts. Wool-type lambs had higher parasite loads (median 2863 oocysts/g, CV=82%; median 1356 eggs/g, CV=208%) as compared to hair-type (median 988 oocysts/g, CV=139%; median 400 eggs/g, CV=96%) and crossbred (median 1000 oocysts/g, CV=162%; median 675 egg/g, CV=201%) lambs. Close quarters of supplementation may increase parasite exposure, and using hair-type breeds may decrease parasite load in grazing lambs.

**06.08.14 USING INDIGESTIBLE NEUTRAL DETERGENT FIBER AND ACID DETERGENT FIBER TO ESTIMATE DIGESTIBILITY IN STEERS FED WHEAT.**  
1 Jason Peace, 1 Lisa Appeddu, 1 Mike Brown, 1 Allied Health, Southwestern Oklahoma State University, Weatherford, OK. 2 USDA-ARS-GRL, El Reno, OK.

This research evaluated indigestible neutral detergent fiber (iNDF) and acid detergent fiber (iADF) as internal markers to estimate digestibility in cattle grazing wheat. Samples were taken from four steers offered wheat silage and fed a corn supplement. Total feed intake and fecal output were determined to calculate true dry matter (DM) digestibility. Percentage iNDF and iADF were determined from feed and fecal samples incubated in digestive fluid in vitro for 96 h, followed by conducting respective fiber analyses on the residue. Another set of samples was also incubated in an acid-pepsin solution for 48 h between the digestive fluid incubation and fiber analysis steps (iNDF+AP and iADF+AP). Higher (P<0.58). DM digestibility was estimated from marker contents by taking 100% – 100 x (marker content of wheat / marker content of feces); no differences (P > 0.52) were found among method of analyses. Estimated DM digestibility was different (P=0.01) from the actual calculation (55.0±3.93% vs 64.3±2.21%). Amount iNDF (P=0.13) and iADF (P=0.17) recovered in feces tended to be lower than amounts consumed. Results suggest the fiber-based markers tested may not be fully indigestible under conditions employed; therefore, a longer digestive fluid incubation may be necessary if it can be maintained in vitro.

**06.08.15 VITAMIN C CONTENT OF ORGANICALLY GROWN PRODUCE.**  
1 Jamie Hyatt, 2 Penelope Perkins-Veazie, 3 Stanley Rice, 1 Biological Sciences, Southeastern OK State University, Durant, OK. 2 ARS, USDA, Lane, OK. 3 Department of Biological Sciences, Southeastern State University, Durant, OK.

Organically grown produce is the fastest growing sector of fresh market sales in the U.S. While accounting for only 3% of total produce sales, it is growing by 20% per year. There has been much debate over the relative health merits of organically grown fruits and vegetables. Most consumers believe that organically grown produce is safer because no chemical pesticides have been applied, and some think that there may be added health benefits, if phytochemical production is stimulated to fight off insects and diseases. Phytochemicals include recognized nutrients, such as vitamin C, vitamin A, and non-nutritive compounds such as lycopene, and phenolics. In this study, we determined the vitamin C content of onions and tomatoes obtained from a nearby farm that produces organically grown crops.

**06.08.16 COMPARISON OF EFFECTS OF COOPER SULFATE APPLIED WITH TWO DOSE LEVELS AND INTERVALS ON PHYTOPLANKTON IN CATFISH PONDS.**  
Letong Tang, Conrad Kleinholz, George Luke, Kenneth Williams, School of Agriculture and Applied Sciences, Langston University, Langston, OK.

Copper sulfate was applied weekly at a rate of 15 ppb Cu/l in three catfish ponds and biweekly at a rate of 30 ppb Cu/l in other three ponds from June 24 through July 31 in 2006. Samples were taken biweekly from these ponds and other three untreated ponds from June 24 through September 8. In the treated ponds, compared to the untreated ponds, biweekly dose of 30 ppb significantly (p10 micron was marginally significant on August 7. On September 8, total phytoplankton biomass and fraction >10 micron in ponds applied with weekly dose of 30 ppb was significantly less than that in ponds treated with bi-weekly dose of 15 ppb. Bi-weekly dose of 30 ppb seems more effective than weekly dose of 15 ppb to control phytoplankton.
This research evaluated the potential of predicting alfalfa forage quality in the field using forage canopy light absorbance estimates. Alfalfa (Medicago sativa) forage canopy spectral reflectance measurements (n=275) were taken during the growing seasons in 2005 and 2006 using a hyperspectral radiometer scanning from 200 nm to 2500 nm. Forage samples and hyperspectral measurements were taken simultaneously. Laboratory analyses were performed for nitrogen (N), neutral detergent fiber (NDF), and acid detergent fiber (ADF). Forage canopy spectral reflectance (R) was converted to absorbance (A) as: A = \log_{10}(I/R). Laboratory forage quality estimates were simultaneously regressed on canopy light absorbance from 300 nm to 2407 nm on a calibrations set (n=184) for equation development. Calibration analyses accounted for 93% of the variation in independent variables (canopy light absorbance) and 66% of the variation in dependent variables (forage quality estimates) using nine factors. Application of the prediction equation to an independent test data set (n=91) indicated a correlation between observed (laboratory estimates) and predicted values of forage quality was 0.73, 0.69, and 0.65 for N, NDF, and ADF, respectively. Results validate the prediction that forage quality in the field is possible using hyperspectral forage canopy reflectance using a hyperspectral radiometer.
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