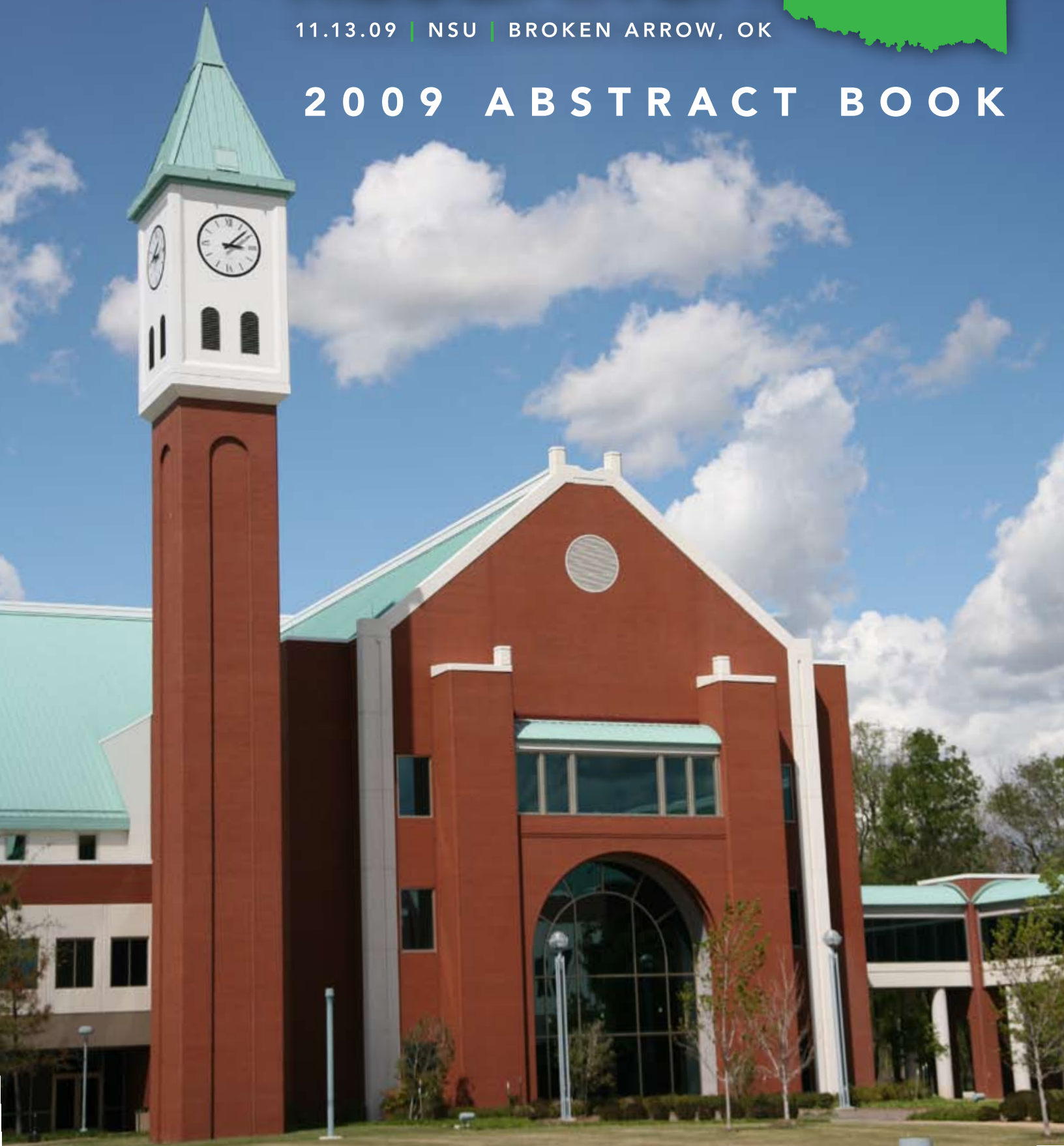


O K L A H O M A
RESEARCH DAY

11.13.09 | NSU | BROKEN ARROW, OK

2009 ABSTRACT BOOK



Abstract Submission History, 2000-2009

COLLEGE / UNIVERSITY / INDUSTRY	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	Total
Cameron University	24	26	25	34	40	31	55	28	25	28	316
East Central University	68	70	51	65	43	38	42	46	14	27	464
Langston University	20	40	24	41	44	40	35	27	35	51	357
Northeastern State University	151	130	51	82	101	73	66	117	94	70	935
Northwestern Oklahoma State University	4										4
Oklahoma City Community College	1	5	0	0	0	0	0	0	0	0	6
Oklahoma State University	7	1	21	17	33	2	2	0	0	0	83
OSU Center for Health Sciences	2										2
Redlands Community College	9	2	0	0	0	0	0	0	0	0	11
Rogers State University	6	6	3	2	3	4	0	0	1	0	25
Southeastern Oklahoma State University	24	28	33	21	31	19	21	6	4	4	191
Southwestern Oklahoma State University	38	43	51	25	31	24	17	14	9	16	268
Tulsa Community College	3										3
University of Central Oklahoma	275	226	167	181	124	93	101	91	106	108	1,472
University de León	1										1
University of Oklahoma	1	4	9	23	16	1	3	5	0	0	62
University of Tulsa	3	2	8	4	4	3	4	0	0	0	28
Western Governors University	2	1	0	0	0	0	0	0	0	0	3
Western Oklahoma State College	1	1	0	0	0	0	0	0	0	0	2
Other University or Organization		6	20	27	12	9	17	16	9	11	130
TOTAL	640	594	470	524	482	337	364	351	298	318	3,971

Abstract Submission by Discipline

2009

- A** Arts & Music: 37
- B** Business: 94
- C** Education: 116
- D** Liberal Arts: 116
- E** Math & Science: 231

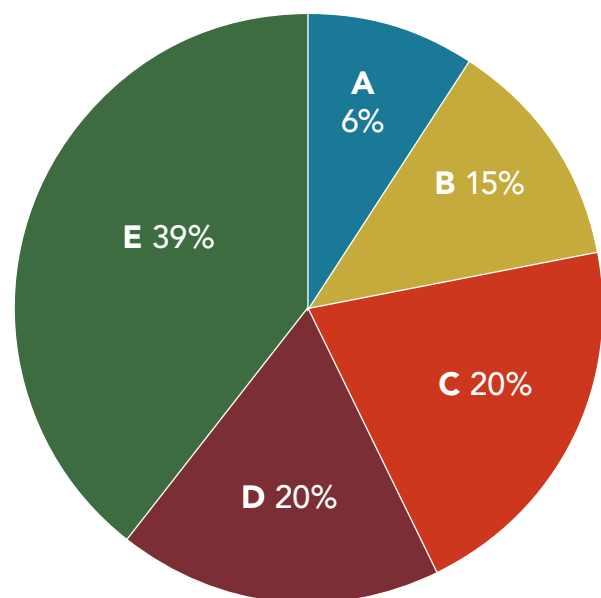


TABLE OF CONTENTS

Council on Research for Regional Universities	4	ABSTRACTS	
Keynote Speaker	5	Arts & Music	9
Special Guests of Honor	6	Business	24
Sponsors	7	Education	45
Abstract Number Key	8	Liberal Arts	85
		Math & Science	114
		Author Index	191



Tom Jackson, Ph.D.

Welcome to the 11th annual Oklahoma Research Day 2009!

Northeastern State University (NSU) is proud to host Oklahoma Research Day for the second year, with both years having record numbers of research abstracts submitted for this event. This year will include approximately 1,200 participants. The event demonstrates the importance of the consortium of Oklahoma Regional Universities as well as all institutions of higher education in the State of Oklahoma and beyond, making research a priority. With research being strongly encouraged and supported by events like Oklahoma Research Day, Oklahoma is quickly becoming the "Research Capital of the Plains." For the 2009 event we have over 600 posters, and have added oral paper presentations (approximately 60) and "making place matter" (approximately 40), which increases our commitment to regional stewardship.

Oklahoma Research Day 2009 would not have been possible without significant financial support from the Oklahoma State Regents for Higher Education (OSRHE), The National Science Foundation (NSF)-Oklahoma Experimental Program for Stimulating Competitive Research (EPSCoR), the National Institutes for Health (NIH)-INBRE, the Oklahoma Center for the Advancement of Science and Technology (OCAST), and the participating Oklahoma Regional Universities. On behalf of the Council on Research for Regional Universities and Dr. Don Betz, NSU President, I express sincere appreciation to these institutions.

On behalf of all universities, supporters, faculty, staff and students involved in Oklahoma Research Day 2009, I extend my heartfelt thank you and welcome to each of you. May your quest for new information, processes and knowledge become a lifelong journey that will be demonstrated not only in your research, but in your daily lives. We have an excellent banquet and speakers planned as well as your research presentations. Please enjoy your day to the fullest extent while you network and collaborate with your research peers and colleagues.

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

Dr. Tom Jackson

Coordinator,

2009 Oklahoma Research Day

Assistant Vice President for Academic Affairs

Northeastern State University

601 N. Grand Ave.

Tahlequah, OK 74464

Phone: 918-444-2220

Fax: 918-444-2295

jacks009@nsuok.edu

Dr. Don Betz

President

Northeastern State University

601 N. Grand Ave.

Tahlequah, OK 74464

Phone: 918-444-2000

Fax: 918-458-2015

betz@nsuok.edu

Ms. Kathryn Schoonover

Director of Research &

Sponsored Programs

Northeastern State University

601 N. Grand Ave.

Tahlequah, OK 74464

Phone: 918-444-2243

Fax: 918-458-9662

schoonok@nsuok.edu

Dr. S. Narasinga Rao

Dean Emeritus, Jackson College of Graduate

Studies and Research

University of Central Oklahoma

100 N. University Drive

Edmond, OK 73034

Phone: 405-974-2524

Fax: 405-974-3881

srao@ucok.edu

Dr. William J. Radke

Provost and Vice President for

Academic Affairs

University of Central Oklahoma

100 N. University Drive

Edmond, OK 73034

Phone: 405-974-3370

Fax: 405-974-3825

wradke@ucok.edu

Dr. Gregory Wilson

Executive Director

Office of Research and Grants

University of Central Oklahoma

100 N. University Drive

Edmond, OK 73034

Phone: 405-974-2526

Fax: 405-974-3825

gwilson@ucok.edu

Dr. Duane C. Anderson

Provost & Vice President,

Academic Affairs

East Central University

Ada, OK 74820-6899

Phone: 580-310-5701

Fax: 580-332-1623

dandersn@mailclerk.ecok.edu

Dr. C. J. Vires

Associate Vice President for

Sponsored Programs & Research

East Central University

1100 E. 14th Street, Box #C3

Ada, OK 74820-6899

Phone: 580-310-5486

Fax: 580-310-5788

cjvires@mailclerk.ecok.edu

Dr. Blake Sonobe

Provost & Vice President

Academic & Student Affairs

Southwestern Oklahoma State University

100 Campus Drive

Weatherford, OK 73096

Phone: 580-774-3264

Fax: 580-774-7035

blake.sonobe@swosu.edu

Ms. Anita Blankenship

Director, Office of Sponsored Programs

Southwestern Oklahoma State University

100 Campus Drive

Weatherford, OK 73096

Phone: 580-774-7010

Fax: 580-774-7064

anita.blankenship@swosu.edu

Dr. Marvin Burns

Dean School of Agriculture &

Applied Sciences

Langston University

P.O. Box 730

Langston, OK 73050

Phone: 405-466-3836

Fax: 405-466-3148

mburns@luresext.edu

Dr. Clyde Montgomery

Associate Vice President,

Academic Affairs

Langston University

P.O. Box 730

Langston, OK 73050

cmontgomery@lunet.edu

Dr. Rodney C. Murrow

Associate Dean

Graduate Studies

Northwestern Oklahoma State University

709 Oklahoma Blvd.

Alva, OK 73717

Phone: 580-327-8589

Fax: 580-327-8514

RCMurrow@nwosu.edu

Dr. Larry Minks

Executive Vice President for Academic Affairs

Southeastern Oklahoma State University

1405 N. 4th Ave., PMB 4137

Durant, OK 74701

Phone: 580-376-2206

Fax: 580-376-5498

lminks@se.edu

Dr. Charles Weiner

Assistant Vice President for Academic Affairs

Director of Student Learning and Research

Southeastern Oklahoma State University

1405 N. 4th Ave., PMB 4137

Durant, OK 74701

Phone: 580-745-2200

cweiner@se.edu

Dr. Sid Hudson

Interim Vice Chancellor for

Research & Development

OSRHE

655 Research Parkway, Suite 200

Oklahoma City, OK 73104

Phone: 405-225-9114

Fax: 405-225-9230

shudson@osrhe.edu

Dr. Janet Bahr

Interim Vice President for Academic Affairs

Northeastern State University

601 N. Grand Ave.

Tahlequah, OK 74464

Phone: 918-444-2060

Fax: 918-458-2061

bahr@nsuok.edu

Ms. Camille Holt

Coordinator, Sponsored Programs

Northwestern Oklahoma State University

709 Oklahoma Blvd.

Alva, OK 73717

Phone: 580-327-8110

Fax: 580-327-8514

caholt@nwosu.edu

Dr. Frank Waxman

Director

Oklahoma EPSCoR

655 Research Parkway, Suite 200

Oklahoma City, OK 73104

Phone: 405-225-9459

Fax: 405-225-9230

fwaxman@osrhe.edu

Dr. Lance Janda

Chair, Department of History and Government

Cameron University

2800 West Gore Boulevard

Lawton, OK 73505-6377

Phone: 580-581-2987

Fax: 580-581-2941

ljanda@cameron.edu

Dr. Tony Wohlers

Assistant Professor of Political Science

Academic Research Director

Department of History and Government

Cameron University

2800 West Gore Boulevard

Lawton, OK 73505

Phone: 508-581-2496

awohlers@cameron.edu



Dr. Timothy Lyden

Director of the Tissue and Cellular Innovation Center (TCIC),
Associate Professor of Anatomy and Physiology, Biology Department,
University of Wisconsin-River Falls

Dr. Timothy Lyden relocated to UW-RF from the Ohio State University Medical School in 2001. During the previous 10 years, Dr. Lyden had worked as a biomedical researcher focused on the normal human placenta at both Ohio State and Wright State University Medical Schools. During that time he held positions as a Senior Post-Doctoral Fellow, Research Scientist and Research Assistant Professor serving as a co-investigator for nearly \$4 million in NIH research grant projects.

In 2001, Dr. Lyden relocated to UW-RF in order to balance his scholarship with more teaching, as well as to develop an ongoing independent research program and engage in community service. Following several successful smaller projects focused on various aspects of placental cell biology during 2001-'03, Dr. Lyden shifted his research focus in 2004 to modeling aspects of developmental biology using tissue engineering methods. This shift followed an overall interest in cellular differentiation and tissue/organ development that had always been a part of his work. However, as a direct result of his teaching activities and involvement of those students in research questions, Dr. Lyden undertook the development and modeling of 3-D artificial tissues as a new research direction. The work quickly developed into a full-scale set of projects and successfully attracted funding from the state level through the UW System IP organization, WiSys.

Current projects in the lab include the development of tissue engineering methods for pharmaceutical applications as well as the study of cancer stem cells, avian fetal and human embryonic stem cell biology in 3-D cultures. This work has recently attracted new collaborative interactions with UW-Stout, UW-Stevens Point and UW-Platteville, Marshfield Clinic and the River Falls Regional Cancer Center, Phillips Plastics and BioE as well as other industrial partners. These relationships are expected to generate significant new IP in the near to mid-term future as the research at the TCIC continues.

SPECIAL GUESTS OF HONOR



Dr. Don Betz

President Don Betz has enjoyed a distinguished career in higher education for nearly 39 years. During that time he developed a reputation for teaching and encouraging students, leadership development, and diplomacy through his international activities, most notably associated with the United Nations and its affiliated non-government organizations.

On July 1, 2008, Dr. Betz became the 17th president of Northeastern State University, where he began his academic career in 1971. He served as Chancellor at the University of Wisconsin-River Falls since 2005, and previously was Provost and Vice President for Academic Affairs at Palmer College, Davenport, Iowa; and Provost and Vice President for Academic Affairs and Professor of Political Science at the University of Central Oklahoma.

Since 2002, Dr. Betz has been a member of the founding implementation committee for the American Association of State Colleges and Universities' American Democracy Project. He serves as chair of the AASCU International Education Committee and is on the board of directors of Creativity Oklahoma. Dr. Betz was the 1991 recipient of The Medal of Excellence in University Teaching, awarded by the Oklahoma Foundation for Excellence.

He received his B.A. in Political Science and Philosophy from the University of San Francisco and his M.A. and Ph.D. in International Studies from the Graduate School of International Studies at the University of Denver. He completed Harvard University's Institute for Educational Management (IEM).



Dr. Glen D. Johnson

Dr. Glen D. Johnson became the 8th chancellor of the Oklahoma State System of Higher Education in January 2007. Previously, Dr. Johnson served as president of Southeastern Oklahoma State University in Durant for 10 years. He began his career in higher education as Director of Public Policy and Professor of Law at the University of Oklahoma College of Law.

Before making his mark as one of the state's outstanding advocates for higher education, Dr. Johnson established a reputation for leadership through his service in the Oklahoma House of Representatives from 1982 to 1996, and as 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.

Dr. Johnson is recognized both statewide and nationally as a strong, untiring advocate for funding for Oklahoma education, both secondary and higher education. His powerful political career was a model of success in leadership, as evidenced by the variety of his many major accomplishments and the improvements he initiated that have benefited citizens throughout Oklahoma.

A native of Muskogee, Dr. Johnson is a graduate of the University of Oklahoma, with an undergraduate degree in political science and a Juris Doctor degree from the University of Oklahoma's College of Law.



Dr. Frank Waxman

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 50 scientific publications, and the recipient of more than \$50

million dollars in external grant funding. Dr. Waxman previously served as the Vice President for Research at The University of Oklahoma Health Sciences Center. Dr. Waxman currently serves as the Director of Oklahoma's Experimental Program to Stimulate Competitive Research (EPSCoR) under the auspices of the State Regents for Higher Education and as the Principal Investigator of Oklahoma's \$18 million dollar IDeA Network for Biomedical Research Excellence (INBRE) grant and \$9 million NSF EPSCoR grant. He was inducted into the Oklahoma Higher Education Hall of Fame in October 2008.

Sponsors

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 Advancement of Science and Technology (OCAST)

National Institutes of Health (NIH) Oklahoma IDeA Network of Biomedical Research Excellence (INBRE).

Key to Abstract Numbers

NO.	CATEGORY	DISCIPLINE	NO.	CATEGORY	DISCIPLINE
1.01	Arts & Music	Art & Design	4.01	Liberal Arts	Communication
1.02	Arts & Music	Music	4.02	Liberal Arts	English
1.03	Arts & Music	Theater & Dance	4.03	Liberal Arts	Foreign & Modern Languages
2.01	Business	Accounting	4.04	Liberal Arts	History
2.02	Business	General Business	4.05	Liberal Arts	Geography
2.03	Business	Business Communication	4.06	Liberal Arts	Humanities
2.04	Business	Economics	4.07	Liberal Arts	Philosophy
2.05	Business	Finance	4.08	Liberal Arts	Political Science
2.06	Business	Information Operations Management (MIS)	4.09	Liberal Arts	Sociology & Substance Abuse
2.07	Business	Management	5.01	Math & Science	Biology
2.08	Business	Marketing	5.02	Math & Science	Chemistry
3.01	Education	Curriculum	5.03	Math & Science	Computer Science
3.02	Education	Gerontology	5.04	Math & Science	Forensic Science
3.03	Education	Human Environmental Sciences	5.05	Math & Science	Mathematics & Statistics
3.04	Education	Kinesiology, Health Studies & Special Services	5.06	Math & Science	Nursing
3.05	Education	Professional Teacher Education	5.07	Math & Science	Physics & Engineering
3.06	Education	Psychology	5.08	Math & Science	Agriculture

01 ARTS & MUSIC

01 ART & DESIGN

01.01.01 FIELD GUIDE TO SUSTAINABLE GRAPHIC DESIGN

Mr. Jesse Warne - University of Central Oklahoma, Design

As a graphic design student, I seek to not only learn about my field but also find ways to contribute back to it. Graphic designers work with a wide range of businesses throughout the market place. For this reason, I am developing a guide for graphic designers to help them increase the sustainability of the work they produce and the businesses they are a part of.

Due to the amount of printed materials, packaging, and products graphic designers are involved in producing, their influence has the ability to affect a wide range of industries. By designing with sustainability in mind the end results could make a significant difference in the amount of non-renewable resources that are used as well as the amount of contamination and waste produced throughout the life of the products.

By gathering research, developing information graphics, and collecting resources I hope to assemble a field guide to help designers find solutions to the problems of complacency, cost, and materials they may encounter. This would be a great benefit to designers seeking to move to a more sustainable business structure by providing solutions and resources in a fun and easy to use reference tool.

01.01.02 WARNING SIGNS: AVOIDING CONSUMER DEBT

Dan Paulus - University of Central Oklahoma, Department of Design

Warning signs can be found everywhere from "Bump Ahead" on local roads to "fire Danger" under the washer door. Warning systems have been established to prevent injury or harm due to uncertainty. The implications that warning signs provide, signify the protection from imminent harm. The impact these warning systems have on mankind is the preservation of life or at least a decline in harm due to heeded warnings. If a typical warning system can prevent harm, enacting a warning system for debt awareness has the potential to improve peoples lives. This study examines how visual warning signs/systems are used and what attributes make them effective tools in reducing injury or harm. An attempt has

been made to design a system of visual warning signs for consumer awareness of debt and evaluate whether or not that system of signs is successful at persuading consumers to make positive money related decisions. The implementation of a visual warning system within the consumer-spending arena possesses the possibility to help consumers become aware of their spending habits. Rising debt levels alone may not signify a problem, but the significant rise in credit card debt, quick loans, and home foreclosure does indicate a potential problem. The question of whether or not consumer debt is healthy for the consumer must be considered. Therefore, debt has the potential of being reduced through the development of a system of visual signs that could persuade consumers to become wary of their debt.

01.01.03 MAKER'S OF MEANING: THE PROCESS AND PURPOSE OF GRAPHIC DESIGN

Kelly Lester - University of Central Oklahoma, Design, Amy Johnson - University of Central Oklahoma, Design

Graphic design is the communication of a specific body of information to a specific group of people to achieve a specific result.

Picture Coca-Cola. What comes to mind? Is it refreshment? Enjoyment? It is the duty of graphic designers to mediate between the sender of a message and the audience, in many cases between brand and consumer. But how this is done is often invisible to the consumer.

"Makers of Meaning" will be an exhibition that communicates the process and purpose of graphic design to the average person. The preparation process of this project will include: interviewing professionals in the design field as well as average consumers, research of the misconceptions that surround design, in depth studying of the graphic design process, collection and production of exhibition pieces, and, ultimately, the design and execution of the exhibition.

The goal of "Makers of Meaning" is to communicate this process. The exhibit will explore the process of design and explain its purpose through real-life examples. Student work as well as that of professionals will be displayed alongside the process that was involved. Instead of seeing only the finished product, which is indicative of most exhibits, the viewer will see every visual decision the designer made, as well as the rationale behind each project. The viewer will learn that nothing is random in the realm of design. Every decision is justified, from color to composition to the size of the lettering.

ARTS & MUSIC

01.01.04 COLLABORATIVE PUBLIC ART MAKING

E.K. Jeong - Southwestern Oklahoma State University, Art

The community better appreciates Public Art when they are involved in the design and/or art making process. This is project-based research for the composition of a public art, large-format tapestry, in the communities of Western Oklahoma to study the level of appreciation from the public's perspective.

01.01.05 ROTOSCOPING

Mario A. Dominguez - Cameron University, Multimedia Design

Rotoscoping is not new; animators have been using this process to develop elaborate works of art filled with rich color and detail with simple tools like pencil, pen, and paper. The technique requires the animator to draw out each motion of the animation one frame at a time. Several examples include many favorites such as "Betty Boop", "Popeye", and "Koko the Clown". It has become a well known technique used widely in the film industry and the business world. However, software such as Adobe Flash, Photoshop, and After Effects can now help create breathtaking visuals and effects that can be possible only with the use of computers. The introduction of CGI (Computer-Generated Images) has revolutionized animations allowing animators to complete their works on computer rather than paper. On the other hand, rotoscoping has also evolved to a much easier process on computer than ever before. Likewise, the amount of time spent on digital rotoscoped images is far less than CGI. This research discusses the history and techniques of rotoscoping along with the changes computer technologies have made and are continuing to make in the field of animation.

01.01.06 ELEMENTAL ORIGINS

**Anna Lee - University of Central Oklahoma, Design,
Dan Paulus - University of Central Oklahoma, Design**

The Need:

The overall goal of the project is to produce and interactive, web-based document that will provide science instructors and researchers with information about primary source countries that are the major producers of the elements in the periodic table. With this knowledge they can make sound decisions that pertain to their goals when a certain element is needed. Having data that is readily available about each element will give researchers more accessibility when choosing what types of materials are needed.

The project is to present this information in a

visual, Flash-based website as a collaborative effort involving students from the UCO departments of chemistry and design.

The Design:

As the designers, we will collaborate on the development of the information graphics and the web-based, Flash interface.

One main priority while designing will be the ease of use and ability to quickly access information. When the user is navigating the site, they will be able to access the data from either a clickable periodic table or a clickable world map.

Our other main priority will be the graphic aesthetics. The design will contain mostly elements that are clean vector shapes and graphics for a modern take on common educational icons, such as the periodic table, world map, etc.

The Product:

The eventual product will be a publically available UCO-hosted website.

01.01.07 SHAPING THE WORDS - TYPOGRAPHY METHODOLOGY

Xiaomiao Wang - Southwestern Oklahoma State University, Art Department

In the field of Graphic Design, text layout embodies two kinds of meaning. One is the literal content of the message, and the other is visual; however in Beginning Typography, students have a difficult time understanding text as a strictly visual element. We need to enable them to see text from the perspective of shape, structure, and form. I have designed several typography projects to achieve the goal of helping students see letters as shapes. The projects include letter form combination, typography illustration, and text animation.

01.01.08 TRADIGITAL ART

Derece Williams - Cameron University, Multimedia Design

This presentation demonstrates the differences in digital art and traditional art. The intended audience is educators, colleagues in digital media, the general public, and anyone else interested in the debate over these two forms of art. It will show that each approach, no matter the tools, can present an image that is aesthetically pleasing to the viewer. However, the focus is on digital art and the answer to the question whether it is "real" art.

Digital art is solely computer-based and dependant on a mathematical language to produce pixels. Until 1969, artists were not able to mix their traditional art with digital art. After that time, the mixing of both forms enabled both artistic environments to come alive with color and movement. With this new phenomenon, some argued that digital art was not "real" because it was a replica of an original or, because digital art cheapens traditional art. However, proponents of digital media say that digital art is a transformation of an image, a translation from a continuum to a set of discrete units that makes it "real" art. Meanwhile, both art forms work well with each other, and the method of artistry is a matter of the user's choice.

01.01.09 EVALUATING THE DESIGN OF THE BUILT ENVIRONMENT THROUGH THE USE OF THE NATIONAL REGISTER NOMINATION PROCESS

Valerie Settles - University of Central Oklahoma, Design

Design can be evaluated in many contexts, ranging from functionality, to aesthetics, to historical significance. As people are inherently visual, one of the most commonly practiced (if informal) methods of evaluation is one that considers the aesthetic quality of a property. This is particularly true in those cases involving older properties, which many deem to be architecturally interesting, particularly in comparison to more modern buildings. By utilizing the nomination process of the National Register of Historic Places, the design of resources thought to be of historical significance can be evaluated in a more quantitative method, allowing new insight to be developed into a property's value. Researching a property's background and determining the historical contributions to a community's resources within the context of the National Register provides an objective methodology in which to evaluate a property's design. This technique would be beneficial to those attempting to place a measurable value on an architectural resource within a context other than aesthetic quality.

01.01.10 THE PROCESS OF CERAMIC GLAZE USING RAKU

Joe London - Southwestern Oklahoma State University, Art, Megan Malloy - Southwestern Oklahoma State University, Art

An experimentation and assessment of the use of various oxides in ceramic glazes used in the process of ceramic Raku and their affect in a reduced oxygen environment.

01.01.11 THE VIDEO PROJECT IN THE ART SURVEY CURRICULUM

Mr. Todd Parker - Southwestern Oklahoma State University, Art

Adding a video project assignment to an Art Survey curriculum enables students to work as a group, develop proficiency in the use of modern media, and to acquire a more comprehensive mastery of the subject. Students collaborate and work together to present essential information about a subject covered in an Art Survey course; subjects such as the use of concrete in Roman barrel vaults, the process of mummification in Egyptian burial practices, or the process of creating a medieval illuminated manuscript. Students are encouraged to use the video medium, a contemporary means of delivering information, to present a chosen subject. This method of presentation effectively shifts the responsibility of learning from receiving information from an instructor to the student gathering and organizing information for themselves.

01.01.12 ROTOSCOPE MACHINE TO MOTION CAPTURE: DIGITAL STORYTELLING'S VISUAL ONTOLOGY

Dr. Linda Wright Smith Ph.D. - Cameron University, Multimedia Design

In 1915, while working his day job at Popular Science, Max Fleisher and brother Dave spent their nights in the dining room inventing the rotoscope machine (Fleischer 2005). Drawing outlines of live action film frames over a piece of glass allowed animators to create realistically proportioned cartoon characters that affected the movements of their real life counterparts. A couple years later Fleisher added rotating abilities to his machine and called it a rotograph which allowed the animated figure to appear over moving backgrounds (Fleisher 2005). With the advent of advanced computer technologies and software such as Illustrator, Photoshop and CorelDraw rotoscoping evolved into a digital methodology for both static and moving pictures. In the late 1990's Bob Sabiston wrote the proprietary software "Rotocopy" which was used for rotoscoping the 2001 movie Waking Life (Black Films). Finally, the "devils rotoscope" more commonly called "motion capture" has impacted the world of animation (Furniss 1999). This research dives into the back story leading to motion capture. Through it all there has been an undertone in some of these films of metamorphosing images crossing an invisible aesthetics line of reality and becoming eerie human replicas that lack soul. Additionally, morphing between the real and the imaginary has created exaggerations in pseudo-ethnographic animated films that reinforcing racial, ethnic and gender stereotypes (Bouldin 2001).

02 MUSIC

01.02.01 A LEGACY REDISCOVERED: THE ERNEST S. WILLIAMS RECORDING PROJECT

Dr. Brian Lamb - University of Central Oklahoma, School of Music

In June, 2007, Charles Colin Music Publishers presented their remaining published sets of Ernest S. Williams' music to the University of Central Oklahoma School of Music. The UCO Office of Research & Grants awarded a grant in the Fall of 2008 that enabled the UCO Wind Symphony, under the direction of Dr. Brian Lamb, to prepare, perform, and record some of the music that Ernest Williams composed for symphonic band.

The recording project became a transformative learning initiative. The students divided into five groups, each responsible for one aspect of the CD. The students took complete ownership of the project-preparing, planning, designing, researching, and performing the creative and scholarly activity. Group A researched and gathered information needed to write the CD booklet. Group B developed the graphic design and layout for the CD package. Group C was the Audience Development and Marketing group; they addressed important questions involving the use and distribution of the product in its completed form. Group D was involved in the logistics of the recording sessions themselves- everything from preparation of the scores for the producer, engineer and faculty that served as co-producers, to snacks and refreshments, equipment transport, and even picking up trash at the end of each session. Group E documented the evolution of the project and the personal involvement of each individual member of the ensemble in the recording project.

01.02.02 CELLO MUSIC OF SAMUEL MAGRILL, VOLUME II

Dr. Samuel Magrill - University of Central Oklahoma, School of Music, Dr. Tess Remy-Schumacher - University of Central Oklahoma, School of Music

In the fall 2004, Dr. Tess Remy-Schumacher, cellist at the University of Central Oklahoma, released a CD entitled "Cello Music of Samuel Magrill." The CD included seven cello chamber music compositions that I have written for her since she joined the faculty in 1998. For the year 2009-2010, I am overseeing a recording project of an additional five works that I have written for her.

Volume II will include "Double Concerto"(2001) for two cellos and chamber orchestra(18 minutes),

"Remy 2002"(2001) for cello and piano (16 minutes), "Tango Cellito"(2002) for cello ensemble (5 minutes), "Shalom"(2003) for cello ensemble (5 minutes) and "East West Duo" (2004) for violin, cello and mridangam (15 minutes). The recording will take place on the campus of the University of Central Oklahoma. Hermann Heinrich, who recorded the previous CD, will be the recording engineer for this project as well. The CDs will be distributed on the CD label XOLO Music.

The "Double Concerto" will be performed by the UCO Chamber Orchestra, conducted by Dr. John Clinton, with cello soloists Dr. Remy-Schumacher and Kirsten Underwood. "Remy 2002" will be performed by Dr. Remy-Schumacher, cello and myself, Samuel Magrill, piano. "Tango Cellito" and "Shalom" will be performed by the UCO Cello Ensemble under the direction of Dr. Remy-Schumacher. The "East West Duo" will be performed by Dr. Hong Zhu, violin, Dr. Remy-Schumacher, cello and a mridangamist as yet unspecified.

01.02.03 CELLIST FOR SAMUEL MAGRILL'S CD RECORDING OF CELLO WORKS, VOLUME 2

Dr. Tess Remy-Schumacher - University of Central Oklahoma, School Of Music

Following my CD recording of Samuel Magrill: Cello works Volume 1 (and various other CDs), my current creative project consists of the research, study and preparation of Samuel Magrill's: Cello works Volume 2.

The CD will be recorded in spring 2010. It includes the following compositions: Remy 2002 (Sonata for Cello and Piano), Shalom (Cello Ensemble), Tango Cellito (Cello Ensemble), East-West Duo (for Cello, Violin and Percussion), Concerto for 2 Celli and Chamber Orchestra. The CD will be released through my Label XOLO in Nuremberg, Germany, and be sold online through CD baby.com and available for download on my website: www.tessremyschumacher.com.

01.02.04 PERFORMANCE OF SELECTED WORKS FOR ORGAN

Mark Bighley - Northeastern State University, Performing Arts

This recital was presented at Holy Trinity Lutheran Church in New York City, Trinity Episcopal Church in Tulsa, Oklahoma, St. Basil's Episcopal Church in Tahlequah, Oklahoma, and Bethany Lutheran Church in Tulsa, Oklahoma.

Prelude and Fugue in D minor, BWV 851Johannn

Sebastian Bach
 Sinfonia 11 in G minor, BWV 797
 (1685-1750)
 Sinfonia 5 in E-flat major, BWV 791
 Sinfonia 13 in A minor, BWV 799
 Prelude and Fugue in C-sharp major, BWV 848

Passamezzo Samuel Scheidt
(1587-1654)

1. Variatio à 4
2. Variatio à 4 Voc.
3. Variatio à 3 Voc.
4. Variatio, Bicinium
5. Variatio à 4 Voc.
6. Variatio à 4 Voc.
7. Variatio à 4 Voc.
8. Variatio à 3 Voc.
9. Variatio à 4 Voc.
10. Variatio à 4 Voc.
11. Variatio à 3 Voc.
12. Variatio à 4 Voc.

Prelude and Fugue in E major, BWV 854 Bach
 Sinfonia 15 in B minor, BWV 801
 Sinfonia 10 in G major, BWV 796
 Prelude and Fugue in E minor, BWV 855

Concerto No. 7 in F major, BWV 978
 Bach

Allegro after Antonio Vivaldi
 Largo (1674-1741)
 Allegro

01.02.05 METRIC MODULATIONS IN CONTEMPORARY JAZZ IMPROVISATION

Dr. Tommy Poole - Northeastern State University, Music

Over the last decade, metric modulations have become much more prominent in recorded jazz. Recordings such as Dave Holland Quintet's *Extended Play: Live at the Village Vanguard* (2003), Jean Michel Pilc Trio's *Together: Live at the Sweet Basil Vol. 1-2* (2000-2001) and Chris Potter Quartet's *Lift: Live at the Village Vanguard* (2004) are showing that metrically modulating is the "new thing" and is here to stay. This being said, research and pedagogy on this topic are, at present, sparse. Throughout this paper, terms will be defined. Examples of specific types of metric modulations will be extracted from current jazz artists' improvised solos for purposes of analysis. Finally, pedagogical approaches to achieving these concepts, on one's own, will be shown.

01.02.06 NSU JAZZ ENSEMBLE CD ENTITLED "PORTRAIT"

Dr. Arthur White - Northeastern State University, Music

"Portrait" (2009) represents a musical collaboration between internationally reknown guitarist Russell Malone, NSU Director of Jazz Studies Dr. Arthur White, NSU Jazz Lab Facilities Supervisor Shane Ohlson, and the NSU Jazz Ensemble. Nine of the ten tracks were arranged by Dr. Arthur White. In addition, NSU music student, Daniel Thompson, contributed his original composition entitled "We've Found the Main Nerve" for this project.

"Portrait" was recorded on May 7-8, 2009 at the NSU Jazz Lab. "Portrait" is the fifth CD released by the NSU Jazz Ensemble.

Situated in downtown Tahlequah, OK, the NSU Jazz Lab is a performance and multi-track recording facility.

01.02.07 FACULTY CLARINET RECITAL

Dr. Anne Watson - Northeastern State University, Performing Arts

Little is known about the mid-nineteenth century composer Marie Grandval (1828-1907). Her *Deux Pieces for Clarinet* (1885) was written under the name Clemence de Grandval; one of no fewer than six known pseudonyms for the composer. The *Deux Pieces* is her only work for solo clarinet.

Johannes Brahms (1833-1897) is often considered among the greatest and most influential composers of all time. After completing his *String Quartet no. 2 in G Major* (1890), the composer decided to end his compositional career. However, after hearing clarinetist Richard Mühlfeld (1856-1907) perform, Brahms decided to begin composing again.

Gryphon (2006) was written by good friend and fellow clarinetist Theresa Martin (b. 1979). *Gryphon* won second prize in the National Association of Composers/USA (NACUSA) Young Composer's Competition in 2006.

Charles-Marie Widor (1844-1937) is mostly known as an organist, composer, and teacher. He composed ten organ symphonies and a number of works for a variety of instruments, including brass and percussion, although the *Introduction et Rondo* is his only work for clarinet.

An English composer with a very colorful musical career, Malcolm Arnold spent much of his time writing film scores, even winning an Oscar for the film *Bridge on the River Kwai* (1957). The *Sonatina for Clarinet* (1951) was written for the great jazz clarinetist Benny Goodman (1909-1986).

ARTS & MUSIC

01.02.08 PERFORMANCE OF SELECTED MUSIC FOR CHORUS AND ORCHESTRA

Donald Studebaker - Northeastern State University, Department of Performing Arts

This performance, presented by the Tulsa Oratorio Chorus and the Tulsa Symphony Orchestra, on November 8, 2008, at the Tulsa Performing Arts Center, included the "Missa Solennelle" by Charles Gounod, and the "Stabat Mater" by Gioachino Rossini. These are both 19th century Latin liturgical works written by predominantly operatic composers, demonstrating Romantic theatrical styles.

01.02.09 PERFORMANCE OF SELECTED WORKS FOR CHORUS AND ORCHESTRA

Donald Studebaker - Northeastern State University, Department of Performing Arts

This performance by the Tulsa Oratorio Chorus and the Tulsa Symphony Orchestra, on December 6, 2008, at the Tulsa Performing Arts Center featured operatic soprano Sarah Coburn. The program included seasonal music by Georg Frideric Handel, Hector Berlioz, Johann Sebastian Bach, Ralph Vaughan Williams, Franz Schubert, Benjamin Britten, Michael Praetorius, Johannes Brahms, and Gustav Holst.

01.02.10 PERFORMANCE OF VERDI REQUIEM

Donald Studebaker - Northeastern State University, Department of Performing Arts

This performance, presented by the Tulsa Oratorio Chorus and the Tulsa Symphony Orchestra, on March 21, 2009, at the Tulsa Performing Arts Center featured the "Requiem" by Giuseppe Verdi. Premiered in 1874 in honor of Italian poet, Alessandro Manzoni, this work displays some of the most dramatic operatic style ever composed for Latin church music. The performance also featured international opera soloists.

01.02.11 PERFORMANCE OF MASSES AND MOTETS

Donald Studebaker - Northeastern State University, Department of Performing Arts

This performance presented by the Tulsa Oratorio Chorus and the Tulsa Oratorio Chamber Chorus, on April 18, 2009, at the Trinity Episcopal Church in Tulsa, OK included selected works from the motet and mass repertory. The

concert was accompanied by Trinity organist, Casey Cantwell. The program included motets by Maurice Durufle, Sergi Rachmaninoff, Edward Elgar, Wolfgang Amadeus Mozart and Johann Sebastian Bach. Masses by Gabriel Faure and Louis Vierne were also performed.

01.02.12 CD RECORDING: CHRISTMAS WITH THE TULSA ORATORIO CHORUS

Donald Studebaker - Northeastern State University, Department of Performing Arts

This recording by the Tulsa Oratorio Chorus, released in November 2009, features selected music for Christmas by JS Bach, Benjamin Britten, Hector Berlioz, Gustav Holst, Georg Frideric Handel, and Sir David Willcocks. The TOC is accompanied by organist, Casey Cantwell, violinist, Rossitza Jekova-Goza, and harpist, Tabitha Reist Steiner. The music was recorded in the sanctuary of Trinity Episcopal Church, Tulsa, OK.

01.02.13 PERFORMANCE OF SELECTED LITERATURE FOR TROMBONE

Danielle Embrey - Northeastern State University, Performing Arts, Norman Wika - Northeastern State University, Performing Arts

This degree recital was presented by Danielle Embrey, trombone, assisted by Farren Mayfield, piano; Trevor Moore, trombone; Ryunoske Hamada, trombone and Norman Wika, bass trombone at NSU on April 16, 2009.

Sonata (Vox Gabrieli) for Trombone and Piano by Stjepan Šulek (1914-1986)

Elegy for Mippy II by Leonard Bernstein (1918-1990)

Achieved is the Glorious Work by Franz Joseph Haydn 1732-1809), trans. Donald Miller

Grassauer and Zweifacher by Jan Koetsier (1911-2006)

Sonata for Trombone and Piano by Paul Hindemith (1895-1963)

Allegro moderato maestoso, Allegretto grazioso,

Lied des Raufbolds (Swashbuckler's Song, Allegro moderato maestoso

Just a Closer Walk with Thee, traditional arr. Mike Forbes

01.02.14 PERFORMANCE OF SELECTED LITERATURE FOR CLARINET

Annette Batemon - Northeastern State University, Performing Arts, Anne Watson - Northeastern State University, Performing Arts

This degree recital was presented by Annette Batemon, clarinet assisted by Rhoda Wilson, piano, on April 22, 2009.

Phantasiestücke, Op. 73 Robert Schumann (1810-1856)

Zart und mit Ausdruck Rasch und mit Feuer

Rhapsody for Clarinet Willson Osborne (1906-1979)

Six Studies in English Folk Song Ralph Vaughn Williams (1872-1958)
Adagio
Andante sostenuto
Larghetto
Lento
Andante tranquillo
Allegro vivace

01.02.15 PERFORMANCE OF SELECTED LITERATURE FOR PIANO

Michiko Saiki - Northeastern State University, Performing Arts, Ronald Chioldi - Northeastern State University, Performing Arts

This degree recital was presented by Michiko Saiki, piano on April 27, 2009.

Italian Concerto, BWV 971, Johann Sebastian Bach (1685-1750), 1st Movement

32 Variations in C Minor, WoO. 80, Ludwig van Beethoven (1770-1827)

Ballade in F Major, Op. 38, Frédéric Chopin (1810-1849)

Passacaglia, Aaron Copland, (1900-1990)

01.02.16 PERFORMANCE OF SELECTED LITERATURE FOR TROMBONE

Aaron Hollon - Northeastern State University, Department of Performing Arts, Arthur White - Northeastern State University, Performing Arts, Norman Wika - Northeastern State University, Performing Arts

This degree recital was presented by Aaron Hollon, trombone, assisted by Bradley Spears, guitar; Eric Schmidt, bass; Tony Hankins, drums; and the NSU Jazz Ensemble on December 2, 2008.

Arabia by Curtis Fuller

Lament by J.J. Johnson as played by Slide Hampton trans. Aaron Hollon

Ten-85 by J.J. Johnson

Blessed Relief by Frank Zappa

Lemoncello by Robert Watson

Slam by Jim Hall

James by Pat Metheny

Scoville Unit by Aaron Hollon

Mojo Jojo by Robin Eubanks, arr. Arthur White

01.02.17 PERFORMANCE OF SELECTED LITERATURE FOR SAXOPHONE

Aki Homma - Northeastern State University, Performing Arts, Arthur White - Northeastern State University, Performing Arts

This degree recital was presented by Aki Homma, saxophone assisted by Shane Ohlson, piano, on December 2, 2008.

Aria, Eugene Bozza (1905-1991)

Tableaux de Provence, Paule Maurice (1910-1967)
Farandoulo di chatouno
Cansoun per ma mio
La boumiano
Dis alyscamps l'amo souspire
Lou cabridan

Improvisation I, Ryo Noda (b. 1948)

ARTS & MUSIC

Concerto in Eb Major, Alexandre Glazounov
(1865-1937)

01.02.18 PERFORMANCE OF SELECTED LITERATURE FOR PIANO

Mari Kumagai - Northeastern State University,
Performing Arts, Ronald Chiodi - Northeastern State
University, Performing Arts

This degree recital was presented by Mari Kumagai, piano,
on May 4, 2009.

Prelude & Fugue in F-sharp Minor, WTC Book 2, BWV 883
Johann Sebastian Bach
(1685-1750)

Sonata in C major, Op. 53 "Waldstein" Ludwig van
Beethoven (1770-1827)
Allegro con brio

Sonata in A Major, D 664 Franz Schubert (1797-1828)

Allegro moderato
Andante
Allegro

Ballade in A-flat Major, Op. 47 Frédéric Chopin
(1810-1849)

Une barque sur l'océan, Miroirs, Maurice Ravel
(1875-1937)

La Campanella, S 141, Franz Liszt
(1811-1886)

01.02.19 PERFORMANCE OF SELECTED LITERATURE FOR GUITAR

Blake Peters - Northeastern State University,
Performing Arts, Ben Harris - Northeastern State
University, Performing Arts

This degree recital was presented by Blake Peters, guitar,
on May 6, 2009.

Prelude No. 1, Heitor Villa-Lobos (1887-1959)

La grima and Adelita, Francisco de Asís Tárrega y Eixea
1852-1909)

Prelude No. 3, Heitor Villa-Lobos

Study No. 3, Matteo Carcassi (1792-1853)

Estudios Sencillos I-XII, Juan Leovigildo Brouwer
Mezquida (b. 1939)

Prelude in C minor, BWV 999, Johann Sebastian Bach
(1685-1750)

Etude No. 1, Heitor Villa-Lobos

Study No. 7, Matteo Carcassi

Sunburst, Andrew York (b. 1958)

01.02.20 PERFORMANCE OF SELECTED LITERATURE OF VOICE

Colby Walker - Northeastern State University,
Department of Performing Arts, Courtney Sherman -
Northeastern State University, Performing Arts

This degree recital was presented by Colby Walker,
soprano, assisted by Sarah Clemmens, soprano; Justin
Crook, classical guitar; Kaia Holder, cello; Haley Stocks,
violin; Holly Stocks, piano; on May 21, 2009.

Come again John Dowland (1563-1626)
All ye, whom Love or Fortune
Dear, if you change
Flow my tears

The Complaint (The Fairy Queen) Henry Purcell 1659-1695)

L'heure Exquise Reynaldo Hahn (1875-1947)
Si mes vers avaient des Ailes
A Chlois

Almen se non poss'io, Vincenzo Bellini (1801-1835)
Il fervido desiderio
Ma rendi pur contento
Malinconia, Ninfa gentile

Allerseelen Richard Strauss (1864-1949)
Morgen
Zueignung

Duetto Buffo di Due Gatti Gioachino Rossini
(1792-1868)

Klänge der Heimat (Die Fledermaus) Johann Strauss
(1825-1899)

01.02.21 RICKY IAN GORDON'S ORPHEUS AND EURIDICE: A COMPARISON AND ANALYSIS

Dr. Deborah Popham - Northeastern State University, Music

The main purpose of this study is to examine Orpheus and Euridice, the song cycle in two acts for Soprano, Piano and Clarinet, by Ricky Ian Gordon, as well as determine its value as an Orpheus work in the twenty-first century. The study first examines four operas on similar topics to ascertain the differences in Gordon's work. The operas with which Orpheus and Euridice is compared are Eurydice (1600) by Peri and Caccini, La Favola d'Orfeo (1607) by Monteverdi, Orfeo ed Eurydice (1762) by Gluck, and finally, Orphée aux enfers (1858) by Jacques Offenbach. After introducing Ricky Ian Gordon and the conception of Orpheus and Euridice, the original story of Orpheus and Eurydice from classical mythology is examined, followed by each opera chronologically, to determine how each opera differs from the initial account.

The music of Orpheus and Euridice by Ricky Ian Gordon is also considered in order to understand the opera's importance in music history. Through this comparison, the differences between Gordon's work and the previous examples are revealed, and Orpheus and Euridice is established as a work unique to the late twentieth/early twenty-first century. This is followed by a motivic analysis of Gordon's work, showing how the music supports the changes in text and further corroborates the need for yet another vocal work on the Orpheus myth.

01.02.22 PERFORMANCE OF SELECTED LITERATURE FOR VOICE

Stephen Clark - Northeastern State University, Performing Arts

This degree recital was presented by Stephen Clark, bass, assisted by Judy Young, piano, on November 12, 2008.

Arise, Ye Subterranean Winds The Tempest
Henry Purcell
(1659-1695)

Ici-bas Gabriel Faurè (1845-1924)
Lydia
Clair de lune

Die beiden Grenadiere Robert Schumann (1810-1856)
Die Lotosblume Du bist wie
eine Blume
Widmung

Three Shakespeare Songs Roger Quilter (1877-1953)
Come Away, Death ○
Mistress Mine
Blow, Blow Thou Winter Wind

01.02.23 PERFORMANCE OF SELECTED LITERATURE FOR TRUMPET

Michael Black - Northeastern State University, Performing Arts, Jason Dovel - Northeastern State University, Performing Arts

This degree recital was presented by Michael Black, trumpet, assisted by Nathan Fifield, piano, on November 20, 2008.

Sonata for Trumpet and Piano Kent Kennan (1913-2003)
I. With strength and vigor
II. Rather slowly and with freedom
III. Moderately fast, with energy

The Swan Camille Saint-Saëns (1835-1921)
arr. Dishinger

LeiLani Michael Black (b. 1985)

Concert Etude Op.49 Alexander Goedicke (1877-1957)

01.02.24 THE PERFORMANCE OF SELECTED LITERATURE FOR JAZZ PIANO

Tatsuo Kohjima - Northeastern State University, Performing Arts, Arthur White - Northeastern State University, Performing Arts

This degree recital was presented by Tatsuo Kohjima, piano, assisted by: Gerad Breeding, bass; Greg Breeding, drums; Taron Pounds, guitar; and the NSU Jazz Ensemble on November 24, 2008.

Akashi, Tatsuo Kohjima

Young and Foolish, Albert Hague, arr. Frank Mantooth

Tell Me a Bedtime Story, Herbie Hancock, arr. Tatsuo Kohjima

Passage, Chick Corea, arr. Arthur White

So Tired, Bobby Timmons, arr. Tatsuo Kohjima

Little Lulu, Kaye/Lippman/Wise, arr. Tatsuo Kohjima

The Old Country, Curtis Lewis/Nat Adderley, arr. Tatsuo Kohjima

Prelude to a Kiss, Duke Ellington, transcribed by Tatsuo Kohjima

ARTS & MUSIC

01.02.25 PERFORMANCE OF SELECTED LITERATURE FOR PIANO

Mari Kumagai - Northeastern State University,
Performing Arts, Ronald Chioldi - Northeastern State
University, Performing Arts

This recital was performed by Mari Kumagai, piano on
October 28, 2008.

Tocatta in E minor, BWV 914, Johann Sebastian Bach
(1685-1750)

Sonata in C major, K 330, Wolfgang Amadeus Mozart
(1756-1791)
Allegro moderato
Allegretto

Sonata No. 3, Op. 28, Sergei Prokofiev (1891-1953)

L'isle joyeuse, Claude Debussy (1862-1918)

Nocturne in C Minor, Op. 48, No. 1, Frédéric
Chopin, (1810-1849)

Allegro de concierto, Enrique Granados (1862-1916)

01.02.26 PERFORMANCE OF SELECTED LITERATURE FOR SOLO PIANO

Ronald Chioldi - Northeastern State University,
Performing Arts

Dr. Ronald Chioldi - TAHLEQUAH, OK, PERFORMING
ARTS (MUSIC)
October 13, 2008
Faculty Piano Recital
NSU Center for the Performing Arts

Sonata No. 62 in E-flat Major, Hob: XVI/52 Joseph Haydn
Allegro (1732-1809)
Adagio
Presto

Mazurka in C-sharp Minor, Op. 30, No. 4 Frédéric Chopin
Etude in C-sharp Minor, Op. 25. No. 7 (1810-1849)
Etude in A Minor, Op. 25, No. 11 "Winter Wind"

Barcarolle, Op. 60

Intermission

Douze Etudes pour piano Claude Debussy
pour les Sixtes (1862-1918)
pour les Agréments

Sonata No. 3 in A Minor, Op. 28 Sergei Prokofiev
(1891-1953)

01.02.27 GUEST PIANO ARTIST: MASTERCLASS AND PERFORMANCE

Ronald Chioldi - Northeastern State University,
Performing Arts (Music)

Dr. Ronald Chioldi - TAHLEQUAH, OK, PERFORMING
ARTS (MUSIC)
November 9, 2008
Sterling College
Sterling, Kansas

Sonata No. 62 in E-flat Major, Hob: XVI/52 Joseph Haydn
Allegro (1732-1809)
Adagio
Presto

Mazurka in C-sharp Minor, Op. 30, No. 4 Frédéric Chopin
Etude in C-sharp Minor, Op. 25. No. 7 (1810-1849)
Etude in A Minor, Op. 25, No. 11 "Winter Wind"

Barcarolle, Op. 60

Intermission

Douze Etudes pour le piano Claude Debussy
pour les Sixtes (1862-1918)
pour les Agréments

Sonata No. 3 in A Minor, Op. 28 Sergei Prokofiev
(1891-1953)

Recital was preceded by a masterclass featuring several
Sterling College piano students

01.02.28 TEXTBOOK PUBLICATION: KEYBOARD MUSICIANSHIP, PIANO FOR ADULTS, BOOK 1 (STIPES PUBLISHING)

Ronald Chioldi - Northeastern State University,
Performing Arts (Music)

Dr. Ronald Chioldi - TAHLEQUAH, OK, PERFORMING
ARTS (MUSIC)

This textbook is intended to be used by first-year music
majors who are enrolled in group-piano courses. The text
provides a comprehensive and unified set of materials
allowing the student to develop into a well-rounded
keyboard musician. Each of the book's sequentially
organized eight chapters includes sight-reading,
transposing, harmonization, improvisation, solo repertoire,

ensemble music, and accompanying.
Used throughout the United States and Canada, Keyboard Musicianship is in its 9th edition.

01.02.29 REFLECTIONS ON A REMARKABLE CAREER: AN INTERVIEW WITH JIM LYKE

Ronald Chioldi - Northeastern State University, Performing Arts (Music)

Dr. Ronald Chioldi - TAHLEQUAH, OK, PERFORMING ARTS (MUSIC)

Article published in the 2009 May/June issue of Clavier Companion

This article/interview is an historic overview of the important career of Jim Lyke. It outlines the subject's early pedagogical influences, explores past trends in piano pedagogy, and chronicles Lyke's achievements in the world of piano pedagogy such as; the establishment of the national conference on piano pedagogy, numerous textbook publications, numerous duet publications, and his influence on the current pedagogy landscape.

01.02.30 PERFORMANCE OF SELECTED LITERATURE FOR FLUTE

Patricia Surman - Northeastern State University, Performing Arts

This faculty recital was presented by Patricia Surman, flute, assisted by Genevieve Briggs, flute, on April 4, 2009.

Fantasie, Gabriel Fauré
(1890-1962)

La Chasse Galop Brilliant, Wilhelm Popp
(1828-1903)

Concerto for flute and orchestra, Jacques Ibert
(1890-1962)

Andante and Rondo, Albert Franz Doppler
(1821-1883)

01.02.31 PERFORMANCE OF SELECTED LITERATURE FOR JAZZ QUINTET

Arthur White - Northeastern State University, Performing Arts

This faculty quintet programs was performed by Arthur White, saxophone; Ben Harris, guitar; Shane Ohlson, piano; Chris Ferrell, drums; Daniel Thompson, bass; on October

23, 2008.

Portrait of AB, Arthur White

Saucy Jack, Chris Ferrell

IWTBYABOLPTASOTTYOAAAT, Shane Ohlson

Bizarre Twist, Arthur White

Starlight Turnaround, Ben Harris

Deeover Eff, Shane Ohlson

Tunnel Vision, Arthur White

Slinky, Ben Harris

01.02.32 PERFORMANCE OF SELECTED LITERATURE FOR JAZZ COMBO

Arthur White - Northeastern State University, Performing Arts

This program featuring NSU faculty member Arthur White, saxophones; assisted by Shane Ohlson, piano; Chris Ferrell, drums; Daniel Thompson, bass; was presented on February 26, 2009.

All compositions are by Wayne Shorter:

Yes or No

Fee Fi Fo, Fum

United

Infant Eyes

Speak No Evil

Mysterious Traveler

01.02.33 MARTIN LUTHER'S CHORALE "KOMM, HEILIGER GEIST, HERRE GOTT" AND ITS USAGE IN MODERN AMERICAN LUTHERAN HYMNALS

Mark Bighley - Northeastern State University, Performing Arts

This article, published in the Hymns of the Church Series in CrossAccent, the Journal of the Association of Lutheran Church Musicians, Vol. 17, No. 2 (2009), pp. 36-39, examines issues related to this chorale, particularly rhythm.

ARTS & MUSIC

The chorale as it appears in the 1524 Erfurt enchiridia is compared with its form in Christian Worship (CW) #176, Evangelical Lutheran Worship (ELW) #395, Lutheran Book of Worship (LBW) #163, The Lutheran Hymnal (TLH) #224, Lutheran Service Book (LSB) #497, Lutheran Worship (LW) #154, and the Service Book and Hymnal (SBH) #122.

01.02.34 RECITAL OF SELECTED MUSIC FOR TRUMPET

Dr. Jason Dovel - Northeastern State University, Performing Arts

Jason Dovel, trumpet and Baroque trumpet
February 26, 2009
Presented at Southeastern Oklahoma State University
Durant, OK

PROGRAM

Concerto for Trumpet Alexander Arutunian (b. 1920)

Cascades Allen Vizzutti (b. 1952)

Mont St. Michel Geoffrey Robbins (1910-1954)

Intermission

Night Sun Journey Meg Bowles (b. 1957)

Modo per imparare a sonare di tromba Girolamo Fantini (1600-1675)
Ricerca detta la Serristori
Ricerca detta la Torrigiani
Ricerca detta la Lenzoni
Ricerca detta la Canigiani
Ricerca detta la Martellini
Ricerca detta la Guidoni
Ricerca detta la Brancadoro
Ricerca detta l'Albergotti
Ricerca detta l'Amerighi

01.02.35 RECITAL OF SELECTED MUSIC FOR TRUMPET (EASTFIELD COLLEGE, DALLAS, TX)

Dr. Jason Dovel - Northeastern State University, Performing Arts

Jason Dovel, trumpet and Baroque trumpet
February 25, 2009
Eastfield College
Dallas, TX

PROGRAM

Concerto for Trumpet Alexander Arutunian (b. 1920)

Cascades Allen Vizzutti (b. 1952)

Mont St. Michel Geoffrey Robbins (1910-1954)

Intermission

Night Sun Journey Meg Bowles (b. 1957)

Modo per imparare a sonare di tromba Girolamo Fantini (1600-1675)
Ricerca detta la Serristori
Ricerca detta la Torrigiani
Ricerca detta la Lenzoni
Ricerca detta la Canigiani
Ricerca detta la Martellini
Ricerca detta la Guidoni
Ricerca detta la Brancadoro
Ricerca detta l'Albergotti
Ricerca detta l'Amerighi

01.02.36 RECITAL OF SELECTED MUSIC FOR TRUMPET (SOUTHEASTERN LOUISIANA UNIVERSITY, HAMMOND, LA)

Dr. Jason Dovel - Northeastern State University, Performing Arts

Jason Dovel, trumpet and Baroque trumpet
October 27, 2008
Southeastern Louisiana University
Hammond, LA

PROGRAM

Concerto for Trumpet Alexander Arutunian (b. 1920)

Cascades Allen Vizzutti (b. 1952)

Mont St. Michel Geoffrey Robbins (1910-1954)

Intermission

Night Sun Journey Meg Bowles (b. 1957)

Modo per imparare a sonare di tromba Girolamo Fantini (1600-1675)
Ricerca detta la Serristori
Ricerca detta la Torrigiani
Ricerca detta la Lenzoni
Ricerca detta la Canigiani
Ricerca detta la Martellini
Ricerca detta la Guidoni

Ricerca detta la Brancadoro
 Ricerca detta l'Albergotti
 Ricerca detta l'Amerighi

01.02.37 RECITAL OF SELECTED MUSIC FOR TRUMPET (EVANGEL UNIVERSITY, SPRINGFIELD, MO)

Dr. Jason Dovel - Northeastern State University, Performing Arts

Jason Dovel, trumpet

Fall 2009 Recital Program for Evangel University
 Oct. 1, 2009
 Springfield, MO

Concerto for Trumpet Alexander Arutunian
 (b. 1920)

Nine Pieces for Solo Trumpet Dexter Morrill

- I. Majestic (b. 1938)
- II. Echoes
- III. Duple-Triple
- IV. Lullaby
- V. Shining Trumpets
- VI. Alternating Thirds
- VII. Airborn Blues
- VIII. Cross Key Gallop
- IX. Funky

Mont St. Michel Geoffrey Robbins
 (1910-1954)

Intermission

Studies for Trumpet and Computer Dexter Morrill

- I. Hocket (b. 1938)
- II. Rotations
- III. Blues
- IV. Cadenza

Modo per imparare a sonare di tromba Girolamo Fantini
 (1600-1675)

Ricerca detta la Serristori
 Ricerca detta la Torrigiani
 Ricerca detta la Lenzone
 Ricerca detta la Canigiani
 Ricerca detta la Martellini
 Ricerca detta la Guidoni
 Ricerca detta la Brancadoro
 Ricerca detta l'Albergotti
 Ricerca detta l'Amerighi

Yellow Basket

Arr. Gary Slechta

01.02.38 "CORNETS AND POCKET TRUMPETS FOR BEGINNING PLAYERS"

Dr. Jason Dovel - Northeastern State University, Performing Arts

"Corns and Pocket Trumpets for Beginning Players" published in the April 2009 issue of The Instrumentalist.

Examines the advantages and disadvantages of using alternatives to the standard B-flat piston valve trumpet for beginning trumpet students. Provides valuable information to music educators for teaching students at the beginning level.

01.02.39 "THE DIPHTHONG VERSUS THE PURE VOWEL IN TRUMPET PERFORMANCE AND PEDAGOGY"

Dr. Jason Dovel - Northeastern State University, Performing Arts

Article "The diphthong versus the pure vowel in trumpet performance and pedagogy" published in the January 2009 International Trumpet Guild Journal.

A study of the diphthong and the pure vowel and their effect on sound production on the trumpet. Relates various aspects of trumpet performance and pedagogy to speech and provides valuable pedagogical material to music instructors and performers.

01.02.40 STUDENT REQUIRED DEGREE RECITAL

Dr. Anne A Watson - Northeastern State University, Performing Arts

Annette Batemon, Senior Recital

Fantasiestücke ("Fantasy Pieces"), Op. 73 (1849), Robert Schumann (1810-1856)

Rhapsody for Clarinet (1958), Willson Osborne (1906-1979)

Six Studies in English Folksong (1926), Ralph Vaughan Williams (1872-1958)

This recital is presented in partial fulfillment of the requirements for the Bachelor of Music Education degree.

Mrs. Batemon is a student of Anne Watson

ARTS & MUSIC

01.02.41 MASTER CLASSES ON VARIOUS TOPICS, BLUE LAKE FINE ARTS CAMP (TWIN LAKE, MICHIGAN)

Dr. Jason Dovel - Northeastern State University, Performing Arts

In July and August 2009, I researched, prepared, and presented 10 different master classes on topics related to trumpet performance and pedagogy at the Blue Lake Fine Arts Camp in Twin Lake, Michigan. Topics included respiration, articulation, how to practice, equipment, etc. Audience included trumpet students from around the world.

01.02.42 ARCADIA PIANO TRIO'S PERFORMANCE AND MUSIC OUTREACH PROJECT

Chindarat Charoenwongse - University of Central Oklahoma, School of Music

The Arcadia Piano Trio will conclude its 2009-2010 concert tour in Bangkok, Thailand in June 2010. The program to be presented includes women composers: Chen Yi and Violet Archer; W.A. Mozart's Trio in G Major, K.496 and Joaquin Turina's Trio No.2 in B minor. The program was presented in 2009 in Ontario, Canada; Indiana, Pennsylvania at Indiana University of Pennsylvania; and Oklahoma at the University of Central Oklahoma for School of Music's Faculty Artist Concert Series(FACS); and for Oklahoma City Ladies' Music Club in May 2010. Chen Yi's "Tibetan Tunes" was presented as Oklahoma Premiere. In June 2010 the "Tibetan Tunes" by Chen Yi and Violet Archer's "Four Pieces for Violin and Cello" will be presented as Bangkok's Premiere.

The Arcadia Trio also presented concerts for public schools in Oklahoma City as a part of the Music Outreach Program which was established in Spring 2007 at UCO. The Trio will also performed at many schools and universities in and around Bangkok as a part of the Outreach Program during the Bangkok's performance project. Members of the Arcadia Trio are Deborah Greitzer (Full-time violinist of Buffalo Philharmonic Orchestra); Dr. Linda Jennings (Cello professor of Indiana University of Pennsylvania); and Dr. Chindarat Charoenwongse (Piano faculty at UCO.)

01.02.43 RECITAL OF SELECTED MUSIC FOR TRUMPET AND CORNET (NORTHEASTERN TRUMPET FESTIVAL)

Dr. Jason Dovel - Northeastern State University, Performing Arts, Dr. Ronald Chioldi - Northeastern State University, Performing Arts

Jason Dovel, trumpet and cornet
Assisted by
Ronald Chioldi, piano
Robert Bailey, cornet

February 7, 2009
4 p.m.
NSU Jazz Lab
(As part of the 2009 NSU Trumpet Festival)

PROGRAM

Concerto for Trumpet by Alexander Arutunian
(b. 1920)

Cascades by Allen Vizzutti
(b. 1952)

Mont Saint-Michel by Geoffrey Robbins
(1910-1954)

Intermission

Night Sun Journey by Meg Bowles
(b. 1957)

Concertino Pour Deux Cornets by Fernand Andrieu
I. Allegro (1863-1935)
II. Andante
III. Scherzetto

03 THEATER & DANCE

01.03.01 RECRUITING THEATRE STUDENTS: SUCCESS OR FAILURE

Mr. Skiler Schmitz - Southeastern Oklahoma State University, Theatre

This purpose of this research is to examine students' perception of their interactions with faculty and other students. The two groups for the study include students who were recruited by the program and those who were not recruited. In similar study, a program was faced with many theatre students graduating from the program. To gain majors, they created a process that was successful recruiting

freshmen the next year (Vernon 33-38). They, however, did not measure student's long term commitment. Based on this study, we explored the success of the recruiting process of theatre arts program at a small regional university. Students were able to rate their involvement during productions, their attendance in theatre and non theatre related courses, and communication levels with faculty and peers. We found students who were not recruited showed only forty-percent of a high level of communication with faculty members, while the students who were recruited for the program showed a seventy-five percent level of high communication with faculty members. Recruitment did not affect the level of communication between the students. Students who were recruited showed a higher level of involvement with productions and with faculty. Those not recruited showed a higher level of commitment to their theatre and non theatre related courses. Also, students not recruited have fewer absences and higher grade point averages than the students who were recruited.

01 ART & DESIGN

TYPOGRAPHIC STORYTELLING AS AN EDUCATIONAL TOOL: COMMUNICATING TOPICS OF SOCIAL AND CULTURAL RELEVANCE TO A K-12 AUDIENCE

Luis Angeli - University of Central Oklahoma, Design

This project intends to explore the memorable attributes of storytelling, and its ability to create mental and emotional connections with its audience to help educate children about relevant issues such as race, religion, etc., in today's society. This project will develop visual tools to be used in school classrooms, facilitating an assertive approach to teaching about the subjects that are difficult to explain to young audiences, with the help of modern style narrative and design.

In addition, the visual content of each story will be typographic, presenting almost every element in the narrative as a type or letterform based object to assist younger age groups with reading. If the narrator is talking about the grass and the sky, then each of these elements will be created out of letterforms. This typographic depiction of narrative content will attempt to grab the attention of its young audience, communicating the message, creating a memorable learning experience and initiating dialogue. In addition, it will help enhance the audience's curiosity in reading, by showing how interesting words and letters can be, and the possibilities presented in them. At the same time promoting the development of their creativity by changing their perception of letterforms and perhaps other things around them.

GRAPHIC NOVELS YESTERDAY, TODAY AND TOMORROW

Robyn Edmonds - Cameron University, Multimedia
GRAPHIC NOVELS YESTERDAY, TODAY AND TOMORROW

Comic strips have been a part of our everyday lives for 100 years. Comics were and have always been fun leisure time for children as well as adults. Today comics have taken on a new venue, graphic novels. Graphic novels first appeared in the United States in 1842. Graphic novels have opened the door for all artists: Graphic designers, multimedia developers, and many others with creativity in the art world. The graphic novel sales has gone from \$75 million in 2001 to a \$715 million in 2008.

Graphic novels have also become part of the curriculum in high school social studies and also in colleges to show future doctors graphics of major body functions. Colleges have taken even more steps today by including courses in Graphic design combined with art as well as multimedia courses that cover all aspects of creating novels and animation. The job market has endless opportunities for everyone involved in any aspect of creating visual or video art.

03 THEATER & DANCE

AN EXPLORATION OF THE COLLEGIATE EXPERIENCES OF THEATRE STUDENTS

Mrs. Robyn Nikcole Pursley - Northeastern State University, Communication, Art, and Theatre, Mrs. Constance Cassity - Northeastern State University, Education

Every college student encounters a unique pool of experiences during their collegiate career. Some of these experiences are common across a large body of students. However students engaging in the study of subject areas commonly referred to as the arts or, more specifically, the performing arts may indeed encounter unique experiences that escape those students majoring in other subject areas. This qualitative study focuses on the experiences of theatre majors at a four year regional university. The purpose of this study is to describe the unique experiences of students engaged in this particular academic area. The findings of the study show that theatre students encounter a variety of unique opportunities and obstacles, external and internal, that spawn directly from their heavy involvement in extracurricular activities as well as the apparent stigma that is placed on them when they self-identify as theatre majors. This study supports the need for further research in this particular area of student experiences. Results of a similar but more rigorous study could easily be used by university faculty and staff in efforts to increase retention and recruitment of students in the performing arts.

02 BUSINESS

01 ACCOUNTING

02.01.01 EVALUATING DEFINED BENEFIT PENSION WORKSHEETS

Dr. Daniel Haskin - University of Central Oklahoma,

FASB Statement No. 87, "Employers' Accounting for Pensions," became effective in 1985. Applying the provisions of this standard was so complex that various worksheets were developed to cope with the mass of information that needed to be tracked.

FASB Statement No. 158, "Employers' Accounting for Defined Benefit Pension and other Post Retirement Plans," was issued in 2006. This standard modified FASB No. 87 considerably by requiring the reporting, on the balance sheet, of the overfunding or underfunding of the defined benefit plan as measured by the difference between the fair value of the plan assets and the projected benefit obligation. It also required the inclusion of the amount of unamortized prior service cost and the amount of unamortized gain or loss in other comprehensive income.

Because of these recent developments, new worksheets have been developed to deal with the new methods of recording and reporting pension related items. This project reports the results of a survey of worksheets for organizing pension information in intermediate accounting textbooks and evaluates the usefulness of the worksheets.

FASB No. 158 was the first phase of an ongoing pension project by the FASB. The second phase is now underway and its goal is to harmonize U.S. GAAP on pension plans with IASB standards.

02.01.02 BUSINESS ANALYTICS USING DASHBOARD APPLICATIONS

Dr. Robert L. Terrell - University of Central Oklahoma, Accounting

Business analytics can help a company become more profitable. Through the implementation of a dashboard application, important management members can make better business decisions while basing those decisions on current sales statistics and trends from the past. A dashboard is more useful than numerous statistical reports because this tool allows management to manipulate data and makes information much more useful while also providing management with easier access to large amounts of data.

02.01.03 UNITED STATES ECONOMY IN CRISIS:"SOMEONE SHOULD TAKE THE CREDIT"

Dr. Mary Teal - University of Central Oklahoma, Accounting, Deanna J. Wolek - University of Central Oklahoma, Accounting

The United States is one of the most prosperous countries in the world due to democracy, free trade, and the spirit of this nation and its citizens. Anyone in the U.S. has the right to an education, free liberty, and is free to purchase any item they choose such as a house or a vehicle. Although America's economy has seen many fluctuations over the last decade; it has had one of the worse downturns in its history since the Great Depression that began in 1929 and lasted until about 1939 (Nelson). With the falling housing and stock market, society dictated and legislation indicated that something needed to be done to "stimulate" the economy. Although one can only speculate the actual causation - from wars in the Middle East to miscalculated home loans targeting minorities - with one president ending his term in office and a new one beginning, an answer was surely at hand to address a resolution. One thing became perfectly clear; it was time to give credit to whom credit was due.

02.01.04 DASHBOARD APPLICATION FOR BUSINESS ANALYTICS

Ms. Ashlie Salisbury - University of Central Oklahoma, Accounting, Dr. Robert Terrell - University of Central Oklahoma, Accounting

Business analytics can help a company become more profitable. Through the implementation of a dashboard application, important management members can make better business decisions while basing those decisions on current sales statistics and trends from the past. A dashboard is more useful than numerous statistical reports because this tool allows management to manipulate data and makes information much more useful while also providing management with easier access to large amounts of data.

02.01.05 THE EVOLUTION OF THE UNITED STATES FEDERAL INCOME TAX

James Price - University of Central Oklahoma, Accounting, Dr. Mary Sheets - University of Central Oklahoma, Accounting

The United States tax structure is complicated and immense in scale, and many have asked why it is so. Only by exploring the evolution of the U.S. tax system can someone determine whether the taxes imposed are

“fair.” The varying rates that taxes apply to income, and what is defined as income, changes and adapts to the needs of the present domestic and global economic factors. By exploring the history of the federal income tax system of the United States, understanding the present tax structure, and examining other tax structures around the globe and their feasibility in the U.S., one may gain a better insight about tax and the purpose it serves for the citizens of a country.

02.01.06 SELF-EMPLOYMENT INCOME AND ALLOWABLE DEDUCTIONS

Brad Simmons - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

Self-employment income is taxed differently from normal wages. When a taxpayer receives normal wages from an employer, she pays an income tax based on her income, and the liabilities for Medicare and Social Security taxes are split between the taxpayer and the employer. Self-employment income is taxed differently because the payment of Medicare and Social Security tax is the sole responsibility of the taxpayer. Although being self-employed creates an additional tax burden for the taxpayer, several tax deductions are available that are not available to the employed. These deductions can offset income, lowering a taxpayer's total taxable income. Some of the most common deductions allowed for self-employed taxpayers are the business expense deduction, auto expense deduction, and the meals and entertainment deduction. Although these deductions have guidelines and are very dependent on meticulous record keeping, they are well worth it and can result in significant savings to the self-employed taxpayer. If taxpayers do not keep well-maintained records of these expenses, they are not doing what is financially prudent for themselves or their companies and are paying too much in taxes.

02.01.07 THE HISTORY OF THE ALTERNATIVE MINIMUM TAX

Pam Lindsey - University of Central Oklahoma, Accounting, Lori Varva - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

The Alternative Minimum Tax or AMT is a tax system that is separate from the regular income tax system familiar to most taxpayers. Some taxpayers are stripped of standard deductions, dependent exemptions, and tax credits allowed under the regular income tax system and have an additional layer of taxes added on top of the regular tax owed. The minimum tax rate for the AMT is

currently 26 percent, although a tax rate of 28 percent applies for taxpayers at higher income levels. For the tax year 2008, the AMT allowed an exemption of \$70,950 for married filing joint filers; \$46,700 for those filing single or head of household; and \$35,475 for married persons filing separately. Depending on filing status, the AMT exemption begins to phase out for taxpayers with incomes as low as \$75,000 and is completely phased out for any taxpayer with an income of \$433,800 or higher. Although a national issue, the AMT affects more taxpayers in states with high state and local taxes.

02.01.08 ECONOMIC BENEFITS OF EDUCATION POLICIES

Travis Koch - University of Central Oklahoma, Accounting, Kelson Peoples - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

Tuition continues to rise along with the demand for employees with higher education. To help alleviate this financial strain, Americans have turned to their policy makers for help. Several education specific tax incentives now exist for students and parents. These policies include both tax free savings and tax reduction. As complex as the tax code is, these programs may not be generating the most benefit as possible for the intended recipients. Furthermore, with higher education's already tight budget the benefits may decrease if better funding is not attained. Policy discussions are currently in progress to increase funding but some question the direction policy makers are taking. Other ways exist to fund education, but they could mean a restructuring of the way Americans view college funding. Americans need to understand some basic tax policies and to be aware of new innovations to make the best higher education decisions.

02.01.09 INTERNATIONAL FINANCIAL REPORTING STANDARDS AND THE OIL AND GAS INDUSTRY

Jeff Jacques - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

Since the 1970s, accounting standard setters have sought to deal with differing accounting standards from the various countries of the world. Different standards can make a difference in financial accounting and reporting. Varying accounting standards may make it difficult for investors to compare financial statements from companies based in different countries. Also, multinational companies must decide which country's standards to use for financial accounting and reporting. Over the years,

different organizations have proposed a single set of international accounting standards. In 2007, the U.S. Securities and Exchange Commission permitted foreign companies to submit financial statements to U.S. stock exchanges without the previously required reconciliation to U.S. standards, provided that the statements used the standards of the International Accounting Standards Board (IASB). Now, the IASB and the U.S. Financial Accounting Standards Board (FASB) are planning the convergence of IASB and FASB standards by 2013. International standards are expected to have a significant impact in the oil and gas industry, which is dominated by large multinational corporations. This poster focuses on the financial reporting of BP, an energy company that, like many multinational companies, has already converted to International Financial Reporting Standards (IFRS). In the next few years, American companies will start making the switch to IFRS as well.

02.01.10 THE CARS ACT

Ms. Crystal Crawford - University of Central Oklahoma, Accounting, Dr. Katherine P. Terrell - University of Central Oklahoma, Accounting

In June, 2009, President Barack Obama signed into law new legislation called the Consumer Assistance to Recycle and Save (CARS) Act of 2009. The authors deal with the specifics of implementation of law, and how the National Highway Traffic Safety Administration (NHTSA) is handling the development of the program. The Federal Aviation Administration (FAA) Enterprise Service Center (ESC) located in Oklahoma City, Oklahoma's Mike Monroney Aeronautical Center (MMAC) has contracted with the (NHTSA) to maintain the accounting for the \$1 billion appropriated for this act. As a federal entity, the FAA ESC is regulated by the Federal Accounting Standards Advisory Board (FASAB) and the Governmental Accountability Office (GAO). These are all mandatory safeguards to protect the public interest.

02.01.11 USING AN ANNUAL REPORT PROJECT IN HELPING STUDENTS IN UNDERSTANDING FINANCIAL ACCOUNTING

Dr. Bambi Hora - University of Central Oklahoma, Accounting, Mrs. Joan Stone - University of Central Oklahoma, Accounting

Design and use an effective project at either an individual or group level using a company annual report to help students better understand the concepts learned in the financial accounting course. This presentation will show the project outline of required components, more detailed descriptions of required report elements, grading/ feedback sheet, and also group management techniques.

02.01.12 A TALE OF ECONOMIC RECOVERY: AN ANALYSIS OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 AND THE ECONOMIC RECOVERY TAX ACT OF 1981

Tosha Lackey - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

In the wake of one of the largest recessions in United States history, President Barack Obama signed into law one of the largest economic plans in United States history. The American Recovery and Reinvestment Act of 2009 was signed on February 17, 2009, only 28 days after Obama's inauguration. The bill was valued at approximately \$819 billion and will be fully distributed by the end of 2019, with the largest amount being distributed in the first nineteen months. The economic situation Obama faced at the beginning of his administration was strangely similar to what President Ronald Reagan faced in 1981 when he entered office. In response to the economic situation of the time, Reagan signed the Economic Recovery Tax Act of 1981. The package contained many substantial changes to the tax policy of the time. An analysis of the details of the two tax acts reveals many similarities as well as many differences in the individual tax policies. Both economic stimulus policies contained changes to the alternative minimum tax, efforts to stimulate the housing industry, and direct tax rate reductions. However, the theories behind both tax acts were very different. The American Recovery and Reinvestment Act of 2009 focused on short-term tax effects and targeted lower-income individuals. On the contrary, the Economic Recovery Tax Act of 1981 focused on long-term tax effects and targeted upper-income individuals in hopes of creating a trickle-down effect to stimulate the economy.

02.01.13 STUDY OF BUSINESS TAX INCENTIVES IN THE STATE OF OKLAHOMA

Andreas Gunawijaya - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

The Oklahoma state government tries to stimulate more growth in the private economic sector because it realizes that the private sector is the main driver of the democratic economy. Both the federal and state governments provide citizens many incentives to start a new business or grow an already-existing business. However, many businesses needing incentives the most, especially during the 2009 recession, are not taking advantage of them. A lack of knowledge and of public advertisement may be factors in this failure. This study explores the available business incentives and takes into consideration the tax effects of these incentives.

02.01.14 STOCK OPTIONS AND RESTRICTED STOCK: BENEFITS AND TAX IMPLICATIONS

Hciahm Ben Hsain - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

Equity-based compensation is a popular way to compensate all employees, not only key employees as it once was. Its purpose is to attract, retain, and reward employees. Two common forms are stock options and restricted stock. Stock options give employees the right to buy a predetermined number of shares at a predetermined price and date. Because of the economic crisis, many stock options have become worthless because their market value is less than their exercise price. Critics of stock options argue that restricted stock is a better incentive for two reasons. First, understanding stock options can be complicated. Second, restricted stock always maintains some value no matter what the market value is.

Accounting for stock options was a controversial subject for decades. Effective in 2006, FAS 123(R) became the rule under which stock options are accounted for. It requires the issuer to recognize compensation expense, generated by a standard option-pricing model, at the grant date. The accounting rules for restricted stock have been stable over time. Its compensation expense is the stock's market value at the grant date; no pricing-model is used. Tax implications for stock options depend on which type of stock options an employee owns: incentive or non-qualified. Employees having incentive stock options defer paying taxes on the options from the date of exercise until the date of sale to a third party, and pay taxes on the entire gain as a capital gain.

02.01.15 PAYING FOR COLLEGE: HOW THE NEW AMERICAN RECOVERY AND REINVESTMENT ACT AND OTHER FEDERAL AND STATE TAX BENEFITS CAN HELP FAMILIES

Sheila Briesch - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

How can an Oklahoma family, the Wrights, earning \$55,000 per year and with two children, use the federal and state tax code and other government benefits to help save and pay for a college education? In 2009, the American Recovery and Reinvestment Act (ARRA) made several changes that will give more help to taxpayers paying for college. The ARRA renamed the Hope Education credit as the American Opportunity Tax Credit.

For the next two years, this credit has an increased limit, is available for more years of college, and is partially refundable. The ARRA raised the maximum Pell grant award. Grants are a big part of the ARRA, and many higher education institutions can apply for grants to assist in research and development. The ARRA funded additional work-study grants, as well as loan forgiveness programs in the health and legal professions. A provision included in the ARRA allows distributions from a Section 529 qualified tuition program to pay for computers and computer technology, including internet service. In addition, other tax benefits enacted in previous years continue to encourage taxpayers to save for college. These include the federal Coverdell Education Savings Account and the Oklahoma Section 529 Plan.

02.01.16 AN ENHANCED METHOD FOR TEACHING MASTER BUDGETING

Dr. Edward R. Walker - University of Central Oklahoma, Accounting, Dr. Bambi Hora - University of Central Oklahoma, Accounting, Dr. Mary D. Teal - University of Central Oklahoma, Accounting

Accounting graduates often complete their formal educations without a thorough understanding of the master budget, its development, the relationship between the individual components, or the significance of this tool in planning for future business activities. Likewise, graduates have often received little training in complex spreadsheet applications and have no idea how to apply them to accounting-related tasks such as budgeting. Skills such as these are valued highly by perspective employers.

This session introduces a spreadsheet-based budgeting project that requires students to prepare a master budget with an assumptions page to which all sub-budgets and pro-forma financial statements are linked. This type of linkage eliminates the need for entering data multiple times on several budgets and makes the creation and analysis of multiple scenarios more efficient and accurate.

02.01.17 BUSINESS ORGANIZATIONS: SOLE PROPRIETORSHIPS, PARTNERSHIPS, LLCs

David Franzoni - University of Central Oklahoma, Accounting, Mary Sheets - University of Central Oklahoma, Accounting

One of the first choices any business makes is about organizational structure. The consequences of a poor choice can have serious tax implications. According to the latest census data, the majority of businesses in the United States employ fewer than ten people. Businesses of this size typically select one of three organizational

structures: sole proprietorship, partnership, or LLC. While they may not be the largest businesses, and may not make the most money, they still make up a large portion of the GDP. Understanding the differences between these three choices can help a business owner have a better, more efficient organizational structure and a financially healthier business.

02.01.18 TEACHING THE LINKAGE BETWEEN ACCOUNTING SOFTWARE AND DATABASE MANAGEMENT SYSTEMS

Dr. Edward R. Walker - University of Central Oklahoma, Accounting, Dr. Mary F. Sheets - University of Central Oklahoma, Accounting, Dr. Mary D. Teal - University of Central Oklahoma, Accounting

The course content for an introductory course in Accounting Information Systems (AIS) has been a subject of debate for some time. Many academics are more concerned with teaching theoretical issues, such as systems design and data modeling. On the other hand, practitioners are more interested in hiring graduates who have been well trained in software applications such as generalized accounting software and spreadsheets. Ideally, an AIS course should be designed to meet both objectives.

Students often enter an AIS class with little understanding of the internal and external environmental factors that affect the structure and operation of the accounting system. Further, they may not understand the manner in which data is stored and transformed into useful accounting information.

This study proposes a project that introduces relevant external and internal environmental factors and requires the student to establish an accounting information system with appropriate controls and documentation. The project also introduces the relationship between QuickBooks® accounting software and MS-Access® database management software. The project addresses several of the AICPA's core competencies that are considered benchmarks of student learning.

02.01.19 PROBLEMS IN IMPLEMENTING ERP IN STATE GOVERNMENT

Dr. Edward R. Walker - University of Central Oklahoma, Accounting, Andrew Lopez - University of Central Oklahoma, Accounting

The State of Oklahoma has been implementing an Enterprise Resource Planning (ERP) system in phases since 2003. During this time, improvements have been made over the former legacy system, but problems with implementing the ERP system have also been encountered. Although financial data for all state agencies has been

consolidated into the new system, not all agencies are yet integrated into the system and, instead, operate on their own separate financial accounting and reporting systems. This lack of coordination often results in extra transaction processing time and inaccurate financial information being exchanged between governmental entities. An example of this may be found in the procedures currently used to process payroll warrants. The problem is not with the ERP itself, but the interfacing of other systems with the new ERP. The state is still in the transition phase from a legacy system to an ERP system. While this transition is occurring and after the new system is fully implemented, effective controls should be developed and used consistently to improve the accuracy and efficiency of the state's financial accounting and reporting.

02.01.20 DEFERRING THE COST OF HIGHER EDUCATION IMPLEMENTING IRC DEDUCTIONS AND CREDITS

Jane Calvert - University of Central Oklahoma, Accounting, Amanda Twidwell - University of Central Oklahoma, Accounting

In a troubled economy, all ages are returning to higher education to receive training in a field of interest, work towards a bachelor's degree, procure a graduate degree to increase competitiveness in the workplace, or insure a child's viability in the job market. The costs can be overwhelming to many struggling families. The federal government provides assistance in defraying these costs through various avenues found in the Internal Revenue Code. Two of these opportunities are the Hope Credit and the Lifetime Learning Credit, both of which are filed on Form 8863. Taxpayers must research which credit would be most beneficial to themselves and/or their child. Both are also subject to phase outs and limitations. There is also a deduction for tuition and fees along with a deduction for student loan interest. A taxpayer must view each alternative or combination of alternatives to determine which will be most financially advantageous in defraying higher educational costs.

02.01.21 ASSESSING THE ACCURACY OF STUDENT ESTIMATION OF STARTING SALARIES

Jane Calvert - University of Central Oklahoma, Accounting, Dr. Maryellen Epplin - University of Central Oklahoma, Finance, Dr. T.K. Bhattacharya - Cameron University, Finance

Escalating costs of higher education require students to be reasonably accurate about the economic rewards in their chosen field. In addition to monetary sacrifices, time spent pursuing higher education goals is also an

opportunity cost of working for 4 to 5 years with full time pay. With an economy in recession, employability in a chosen field of study and the starting salary in that field is a changing dynamic. We hypothesize that students do not have a reasonable expectation of what their actual starting salary will be after starting their post graduation career. A survey will be administered to seniors in the College of Business at the University of Central Oklahoma and Cameron University. This survey will identify their field of study, what they expect to earn after graduation and various other factors such as age, marital status, and previous professional work experience. A post-graduation survey will be transmitted via email which will collect data regarding the graduate's actual starting salary. These email queries will be sent out 3 times during the 12 months following conclusion of the initial survey. Statistical analysis will be administered to determine variations in salary expectations and actual starting salaries.

02.01.22 UNRAVELING THE ALTERNATIVE MINIMUM TAX

Matthew Adams - University of Central Oklahoma, College of Business, Dr. Richard Alltizer - University of Central Oklahoma, College of Business

The Alternative Minimum Tax (AMT) is a separate tax system inside the regular tax code. AMT can apply to both individuals and corporations; however, this paper addresses only how it is applied to individuals. The AMT is used to increase the tax liability of moderate to high earners in an effort to prevent income from being earned tax free. AMT takes a taxpayer's regularly calculated tax and makes a series of adjustments to specific deductions and items of income to arrive at Alternative Minimum Taxable Income. These adjustment items are called Preference Items. Once a taxpayer has arrived at AMTI, he or she calculates the amount of tax owed under AMT. From there, any excess over their regularly calculated tax is paid in AMT tax. Calculation of AMT is relatively straightforward; however, much confusion surrounds AMT due to general lack of knowledge of the subject. Congress continually addresses AMT each year with minor changes to the law along with an adjustment to the level of income that should be affected by the tax.

02.01.23 EDUCATIONAL INCENTIVES IN THE TAX LAWS

Lacey Luther - University of Central Oklahoma, College of Business, Richard Alltizer - University of Central Oklahoma, College of Business

Achieving a college education is every student's dream, but the expenses that come with it cannot be met by

every household. Therefore, the United States government has provided several different methods for families, friends, or acquaintances to contribute to education costs and receive taxable credits or deductions for contributions made toward the beneficiary's qualified educational expenses. Considering which option the parent or other party chooses is primarily determined by their income level. A decision also needs to be made whether to take a tax credit or to take a tax deduction, whichever benefits the taxpayer. A tax deduction permits one to reduce their income that is subject to taxes, while a credit reduces the tax due/refund directly. The following tax provisions will be discussed: Hope Scholarship Credit, Lifetime Learning Credit, 529 Plan (also known as Qualified Tuition Program), and the Coverdell Educational Savings Account.

02.01.24 DEDUCTIBILITY OF DEDUCTIONS INCURRED OF A HOBBY

Brandon Hedrick - University of Central Oklahoma, College of Business, Richard Alltizer - University of Central Oklahoma, College of Business

The classification of an activity as a business or a hobby directly impacts the treatment of deductions. If the activity is defined as a business, the deductions which may be taken may well exceed those which are legally deductible if the activity is a hobby. Section 183 of the Internal Revenue Code specifies the criteria required to differentiate between a hobby and an activity engaged in for profit. Court rulings also provide precedents to guide the taxpayer in proper classification. For trade or business, the primary purpose of the activity must be the intent to make a profit. For hobbies, expenses are deductible only to the extent of revenues. This research identifies the criteria specified by the code and examines several court rulings which provide relevant criteria for classification as to trade or business or hobby.

02.01.25 OIL AND GAS ACCOUNTING METHODS

Benjamin Przywojski - University of Central Oklahoma, College of Business, Richard Alltizer - University of Central Oklahoma, College of Business

Accounting for oil and gas manufacturing has historically been a difficult process due to the length of time from discovery to revenue from discovered reserves, the difficulty in estimating costs of reserves and costs to extract them, and the volatile market for the finished products. These difficulties continue today. There are many pieces of legislation bumbling through the congested process on Capitol Hill at this moment that could have a profound impact upon the industry and our society as a whole. However, these new rules and

regulations, like the oil and gas industry itself, are hard to assess as to their probability and the price of the impact they may have. Our current system allows for two different methods that attempt to resolve these accounting issues: full cost and successful efforts. Both of these methods have shortcomings and benefits to the entity employing them; neither is perfect. The best choice of method depends entirely on the objectives of an entity and the strategies it plans to employ to reach these objectives. This paper analyzes the various strategies within the context of alternative objectives.

02.01.26 ABUSIVE TAX SHELTERS: CHALLENGES IN COMBATING THEM

Benedicta Reis - University of Central Oklahoma, College of Business, Richard Alltizer - University of Central Oklahoma, College of Business

Tax shelter schemes have been around since early in the 1950s, and will unfortunately continue to be around for a very long time. Although the Treasury Department and the Internal Revenue Service have put in a tremendous amount of effort to combat abusive tax shelters, it will not be feasible—at least for now—to completely eradicate the abuse of tax shelters. This is primarily because organizers and sellers of these tax shelters are continually brainstorming for new ideas and, as a result, find other means by which they can create new tax shelters that have not been classified as listed transactions. It can be very frustrating for the IRS and Treasury to keep up with these new tax shelters, but that is the only way to stop these persons from exploiting the government for their own personal gains. The penalties imposed and the injunctions given to persons guilty of participating in tax shelter abuse serve as a deterrent to future violations. However, the truth of the matter is that reprimanding these persons will not exclusively stop these ongoing schemes.

02.01.27 INNOCENT SPOUSE RELIEF: WHO BENEFITS?

Albana Gjata - University of Central Oklahoma, College of Business, Richard Alltizer - University of Central Oklahoma, College of Business

The correct filing of tax returns is very important. Taxpayers are responsible for reporting all of their taxable income and taking only appropriate deductions and credits. Sometimes, taxpayers who file as married filing jointly may face significant problems and liability. In filing jointly, the spouses are jointly and severally liable for deficiencies. In some situations one spouse may not be aware of tax deficiencies created by his/her spouse due to insufficient knowledge or other factors. Section 6015 of the Internal Revenue Code provides relief for “innocent

spouses” if specific criteria are met and a proper request for innocent spouse relief is submitted. This paper explores court cases and court rulings in such cases.

02.01.28 AN EFFORTLESS APPROACH TO REDUCE TAX LIABILITY: INDIVIDUAL CREDITS

Melissa Neher - University of Central Oklahoma, College of Business, Richard Alltizer - University of Central Oklahoma, College of Business

Taxpayers are always looking for ways to increase a refund or decrease an amount owed to the government. A good way to do this is by taking a tax credit. Credits decrease the amount of tax due dollar-for-dollar as opposed to reducing the actual income that the tax rate is applied to. Credits are either refundable or nonrefundable, but regardless of their nature, they are still quite valuable to the taxpayer. Refundable credits are especially beneficial to the taxpayer because if the amount exceeds the tax liability, the taxpayer will receive a refund in the amount of the excess. The government is constantly changing the tax law, and credits are certainly subject to the same constant changes. They are being altered each year, but the changes are generally only minor ones. Several tax credits in 2008 and 2009 are available, but some specific ones will create a greater benefit for those who qualify. This paper explores the various credits that are available and the criteria for utilizing them.

02.01.29 USING XBRL TO TRANSFORM EXISTING FINANCIAL STATEMENTS INTO THE PROPOSED PRESENTATION FORMAT

Olga Mironova - University of Central Oklahoma, Accounting, Dr. Zane Swanson - University of Central Oklahoma, Accounting

The objective of the research project is to translate financial statements as they are traditionally presented into the proposed financial statement format. The project will use XBRL as a means to effect the translation. XBRL is a tagging system for each line item account of financial statements. There exists a uniform dictionary (XBRL taxonomy) which all firms must use. The SEC requires that large firms use XBRL in their filings starting 2009 and will require all publicly traded firms use XBRL for filing purposes by 2011. The task is to create a transformation matrix which takes every XBRL-tagged item and places it in its proper classification of the new proposed presentation standard. With this information, the project will compare key financial ratios created from the new presentation classification scheme with the traditional financial statement presentation in order to examine the appropriateness of the new presentation format.

02.01.30 GENERATION SKIPPING TRANSFER TAX

Katie Kruck - University of Central Oklahoma, Student in Accounting Department, Dr. Bambi Hora - University of Central Oklahoma, Accounting

What is the Generation Skipping Tax, why is it in place, and how does it impact your estate? This poster will focus on each of these issues and then summarize the pros and cons of the GST as it currently stands.

02.01.31 ARE FEES FOR INVESTMENT ADVICE FULLY OR PARTIALLY DEDUCTIBLE BY TRUSTS?

Kong W. Lee - University of Central Oklahoma, Student - Department of Accounting, Dr. Bambi Hora - University of Central Oklahoma, Accounting

"Rudkin" issued by the United States Supreme Court in 2006 spoke to the issue of when investment fees can and cannot be deducted by the trust. This issue is critical for those who are charged with trust administration, and yet lack the skills for being the financial investor for the trust. How does the administrator determine when and what types of advice they should and can pay for to effectively manage the trust.

02.01.32 LIVING AND TESTAMENTARY TRUSTS

Dr. Bambi Hora - University of Central Oklahoma, Accounting, Jordan Geurkink - University of Central Oklahoma, Accounting Department Student

Comparison and contrast between Living and Testamentary trusts, the basic formation, benefits and drawbacks to these are discussed in this poster presentation.

02.01.33 ART VALUATIONS FOR ESTATES

Patrian Hart - University of Central Oklahoma, Accounting Department Student, Amanda Twidwell - University of Central Oklahoma, Accounting Department Student, Dr. Bambi Hora - University of Central Oklahoma, Accounting

Valuation of Art for estate tax purposes. Statements of Value, understanding the penalties and filing requirements in this area are presented and discussed.

02.01.34 BANKRUPTCY ESTATES VS. DECEDENT ESTATES

Patrick Granahan - University of Central Oklahoma, Accounting Department Student, Dr. Bambi Hora - University of Central Oklahoma, Accounting

The objectives of estates, the formation and termination of the estates along with the similarities and differences between those in bankruptcy vs. decedent are displayed.

02.01.35 ANTIQUE TAXATION

Diana Pakhlevanyan - University of Central Oklahoma, Department of Accounting Student, Dr. Bambi Hora - University of Central Oklahoma, Accounting

Valuation, capital gains and the current laws in the taxation of antiques are displayed in this poster.

02.01.36 THE EFFECTS OF LIFE INSURANCE PROCEEDS ON ESTATE TAX

Zera Menard - University of Central Oklahoma, Accounting Department Student, Dr. Bambi Hora - University of Central Oklahoma, Accounting

The impact of life insurance proceeds on the estate and potential liability issues associated with life insurance is presented along with information on life insurance trusts and second to die policies.

02.01.37 ESTATE TAX ISSUES CREATED BY LOTTERY ANNUITIES

Andrew Lopez - University of Central Oklahoma, Accounting Department Student, Katie Jones - University of Central Oklahoma, Accounting Department Student, Dr. Bambi Hora - University of Central Oklahoma, Accounting

Oklahoma's entry into lotteries, and potentials for big annuity wins can lead to a potential estate tax issue for those who may be lucky enough in the draw. The impact of such a win on estate planning and valuation of such annuities are presented in this poster.

02 GENERAL BUSINESS

02.02.01 TEACHING AND INTERNATIONAL TRAVEL: A TEACHING MOMENT FROM ATHENS, GREECE

Marty Ludlum - University of Central Oklahoma, Finance

International travel provides an excellent opportunity for transformative learning. Every moment of the trip can be used for teaching. In this example, I use a student trip to Athens, Greece, and how I integrated one lunch as a way of teaching exchange rates and relative costs for students on the trip and for students in the classroom after the trip. Travel provides numerous opportunities for excellent teaching moments that students will remember.

02.02.02 UTILIZATION AND SATISFACTION OF OPTOMETRIC PRACTICE MANAGEMENT SOFTWARE AND ELECTRONIC HEALTH RECORDS

Mrs. Mackenzie Weir - Northeastern State University, Oklahoma College of Optometry, Mrs. Kelly Campbell - Northeastern State University, Oklahoma College of Optometry, David Lewerenz O.D. - Northeastern State University, Oklahoma College of Optometry

Purpose: Practice management software has been used in optometric offices for many years, but few optometrists use of each capability their software provides, especially the Electronic Health Records (EHR) component. This is concerning because the National Health Information Infrastructure has set a deadline of 2015 to make EHR mandatory. The ultimate goal is to have health information flow seamlessly between healthcare professionals, while protecting patient confidentiality and guarding against inappropriate use. The purpose of this study is to increase clinician knowledge of the practice management software available, the capabilities the software holds, the relative perceived benefits of certain programs, and the benefits of EHR. **Methods:** The subject group consisted of 185 optometric physicians from a variety of practice modalities that responded to a questionnaire.

Results: An overwhelming majority of responders work in private practice. Practice management software was utilized by 86% of responders. Only 41% use Electronic Health Records.

Conclusion: Over 80% of optometrists utilize the components of billing, claim processing and bookkeeping. Still a majority do not utilize each component of their practice management software, especially EHR. The results of this research project show: 88% of optometrists surveyed use practice management software, 41% utilize

EHR, 80% of EHR users reported it is a component of their practice management software.

02.02.03 SHOULD COMPANIES ACCOMMODATE SMOKERS AT THE WORKPLACE?

Darrell Ford - University of Central Oklahoma, Finance, Porsha Webb - University of Central Oklahoma, Finance

This research examines the issues of whether and to what extent employers should accommodate employees who smoke at the workplace. We examine legal and strategic issues. We also explore the positive and negative aspects of providing smoking areas and other forms of accommodation. We include a comparison of the costs of accommodating employees and the costs associated with no-smoking policies.

02.02.04 WHY DO WE HAVE SOCIAL RESPONSIBLE COMPANIES?

Faye Smith - University of Central Oklahoma, Economics and International Business, Mihai Nica - University of Central Oklahoma, Economics and International Business

Since the whole corporate social responsibility concept is relatively new, our understanding of why firms choose to become social responsible is also scanty. As of now the literature seems to identify three main reasons behind companies' choice to allocate resources for this goal. Stakeholders are often able to determine whether or not a company is likely to cheat them. The social responsible corporations are expecting loyal stakeholders, and consequently stable, higher investments, recruitment of more investors.

CSR is also theorized to attract "better" employees- the types who are loyal to the company, take pride in their work, and will impact customers on a positive level. Other benefits of "better" employees: worthwhile products, lower turnover costs. Finally many corporations believe that CSR will lead to a positive reputation which in turn leads to loyal customers. We may see here why corporations would expect CSR to lead to higher financial gain. Starting from this state of the literature this research aims at better understanding the reasons behind companies becoming social responsible and constructing a theoretical model of social responsibility which may then be used for empirical research.

04 ECONOMICS

02.04.01 THE ROLES OF SPECULATION AND FUNDAMENTALS IN COMMODITY MARKETS: THE CASE OF U.S. NATURAL GAS FUTURES MARKET

Dr. Zhen Zhu - University of Central Oklahoma,
Economics and International Business, Mengzhu Ji -
University of Central Oklahoma, MBA Student

The issue concerning the role of fundamentals and speculation is in the center of the many financial and commodity market dynamics modeling as well as policy making processes. Many theoretical discussions suggested that speculation could stabilize market. Keynes also provided some argument for the positive effect of the speculation that provides liquidity to the market.

However, more recent history in energy market volatility has caused many market participants as well as policy makers to point to speculation as a source of price volatility and destabilization, in addition to price run-ups. It is very frequent that industry and trade journals and newspapers suggest that there is a causal link between speculative activities and higher price and volatilities in the commodity markets, in particular, energy commodity markets. As the consequence, policy makers are calling for more rigorous regulation and market oversight of energy commodities. However, while there are some theoretical possibilities that speculation may cause price volatility to increase and prices to increase, there is little empirical evidence linking these together.

This project empirically investigates the connection between natural gas price and its volatility and speculations in the U.S. natural gas futures market. To help understand the situation better, we also model the prices and volatilities by using fundamental supply and demand factors.

02.04.02 CURRENT ECONOMIC CRISIS AS A LABORATORY FOR TESTING ECONOMIC THEORIES

Dr. Mohamad B. Shaaf - University of Central Oklahoma,
Economics

The purpose of this study is to examine three main free market ideology of monetarism, rational expectation, supply side growth. The current crisis provides a laboratory for testing these ideologies. The ultimate decline of monetarism and rational expectation "theories" was in 1979 when the Federal Reserve developed their prescription of publically

announcing the switching from interest rate to monetary target to achieve the promise of a harmless disinflation. Their policy continued for the next three years and resulted in the recession of 1982-83, the worst one since the Great Depression. The depth of the recession was so severe that the Fed had to abandon its policy reversing itself by switching to interest-rate cuts and interest-rate targets. At the same time, the Reagan administration used a full scale supply-side "pro growth" corporate and upper income tax cut, social security tax increase, deregulation of business, privatization, and introduction of IRAs that poured more money into Wall Street. This added to stock market speculation, and debt, that contributed more to the concentration of wealth and income, more inequality, and a glut of saving; clogging the economy to the current crisis.

The dogma of rational expectation uses unrealistic equations and assumptions representing the economy. While this model was never accepted by the majority of economists it officially failed its test by 1979 policy and current crisis similar to that of monetarism.

02.04.03 ECONOMIC CRISIS AGAIN AND MONETARY-POLICY IMPOTENCE AGAIN

Dr. Mohamad B. Shaaf - University of Central Oklahoma,

One of the major debates about the Great Depression of 1930s has been the role of money and monetary policy. School of monetarism claim that the cause of the Great Depression of 1930s was the Federal Reserve of not using monetary policy to inject high-powered money and liquidity in the economy to offset the sharp increase in the currency withdrawal from the banking system, and currency-deposit ratio and sharp increase in the excess-reserve holding by banks, and thus excess-reserve deposit ratio that resulted in a sharp decline in the money multiplier.

They claim that if the Fed had injected liquidity in the system it could had prevented the fall of the money supply, spending, thus the Depression could had not happened. Their premises are that the economy is inherently stable, efficient, and monetary policy tool is a very powerful, exogenous. The current crisis proved that all these premises have been invalid, and that "laissez faire" capitalism is rather wasteful and is inefficient. The calamities of this crisis have resulted in massive devaluation of assets of all kinds, including equity and real estate in the trillions of dollars, massive bank failure, loss of output, massive unemployment and underemployment, and dislocation on the world scale, similar to the depressions in 1832, 1836-43, 1869-71, and the Great Depression of the 1930s.

02.04.04 QUALITY/QUANTITY DRIVEN HIGHER EDUCATION

Dr. Susanne Rassouli-Currier - University of Central Oklahoma, Economics and International Business

The economic downturn in recent years has affected most economic agents negatively. Consumers experience the existing economic hardship in both capital intensive markets such as well as less capital intensive consumer goods markets. Shortly prior to the 2008 presidential election the talk of recession started to surface and finally a full blown economic slump was admitted to by economic experts. The worst economic conditions since the great depression were claimed and according to some experts, recovery was nowhere close!

The slow economy has trickled down and is affecting enrollment in colleges and universities. The almost two digit unemployment rate has created a great deal of prospective students despite the rising tuition. On the university side, at the beginning of every fiscal year faculty and staff expect more bad news about the "budget" i.e., no raises etc. One of the solutions to this problem suggests more efforts to increase student enrollment. This strategy brings up several interesting questions.

- Primarily:
- a) Is education a public good?
 - b) If so, what are the possible ways of dealing with the inherent "market failure" of this public good?
 - c) If knowledge should be viewed as a commodity to be capitalized on, should the "profit maximization" approach replace the widely accepted "goal" in academic institutions ,i.e., output maximization/cost minimization models?

The purpose of this study is to attempt to address these, and other, questions.

02.04.05 THE EFFECTS OF ECONOMIC FACTORS ON HOUSE PRICE FLUCTUATIONS

Siham Zafar - University of Central Oklahoma, Economics and International Business

The recent economic crisis has left a large negative impact on the housing market as house prices continue to decline, and sellers continue to lose money. From the data collected, it is evident that the number of houses sold since 2006 has fallen drastically, as has the average house price. House prices are expected to further decline as they are still dangerously higher than most people's incomes, and mortgages are roughly three times the annual income of the average buyer.

Fundamentally, one can see that economic variables such as income, interest rates, inflation and costs of raw materials can affect house prices positively or negatively. A rise in income, inflation, and cost of raw materials drives up the price of housing. However, a rise in interest rates

and unemployment leads to lower house prices. This project is essentially designed to hypothetically examine the connection between current and future house prices and its fluctuations caused by the mentioned economic factors. To make our results clearer and to enhance our understanding of the relationship, we use models and forecasting techniques to visually see the two variables being examined, and their linkage. This will allow us to conclude whether or not housing price fluctuations are actually a result of alterations in the different economic variables that we are taking into account.

02.04.06 RICE PRICE FORCASTING

Josh Randels - University of Central Oklahoma, , Narciso Sumbana - University of Central Oklahoma, Economics

Rice, though seemingly cheap to most Americans, is one of the most important food staples for much of the world. For about half the world, rice is the main staple. For these countries, even relatively small changes in price can cause major impact on life. Our goal is to look at factors that may cause changes in the price of rice, with a focus of US rice prices.

Over the last few years, rice has risen in price rapidly. While prices have started to come back down, they still remain high compared to 2006-2007 prices. In our study, we will look at the impacts from exports, demand, general weather cycles and the strength of the U.S. dollar to determine what impact each of these may have on rice prices. We will also look at rice futures trading, and U.S. demand tastes for rice in order to better predict what may happen to rice prices in given future situations.

02.04.07 FORECASTING OIL PRICE MOVEMENTS WITH CRACK SPREAD FUTURES.

Arjun Khatri - University of Central Oklahoma, Economic and international Business, Vick Isokrari - University of Central Oklahoma, Economic and International business

In the oil industry, the crack spread refers to difference in the price of crude oil and its constituent products that are extracted from it, the profit margins the oil refiners expect to make after producing and selling the finished products. The refiners are greatly exposed to the crack spread that is why they trade it often to hedge their risk. Hedging crack spreads with futures locks a market participant into a differential which may require him to give up a favorable market move in return for price stability. A popular spread is the 3-2-1 spread that uses the prices of three barrels of crude, two barrels of gasoline, and a barrel of heating oil to determine the spread. For example, the price of heating oil is higher during winter months which reflect

the higher demand causing rise in crack spread ahead of winter.

Crack spread has become a popular trading vehicle as the price of crude oil and its constituent products keep fluctuating. Due to high volume of crack spread futures trading, this research project aims to examine the connection between crack spread futures and the short and long term movement of oil prices. Finding an appropriate model to price these spreads accordingly remains problematic. As spreads are potentially unrestrained, we will use correlation analysis and regression analysis to describe the relationship between the chosen independent variables and the dependent variable.

05 FINANCE

02.05.01 USING NEURAL NETWORKS IN OIL TRADING

Mrs. Jennifer Gastorf - Northeastern State University, Finance, Dr. Julia Kwok - Northeastern State University, Finance, Dr. Ernst Bekkering - Northeastern State University, Information Systems

One of the areas of Artificial Intelligence uses computer simulations of the human brain. These Neural Networks can be used to detect and predict trends in data that changes over time. In Finance, fast and accurate prediction of changes in direction and magnitude of quantities and prices is essential for economic success. The presentation for Research Day demonstrates how a Neural Network is used to predict trading in energy commodities. Actual historical data are converted to a format that the Neural Network can import. The network is trained on the data, and the results used for prediction of favorable trading moments and conditions. Results are compared with actual historical results.

02.05.02 USING EXCEL TO AUTOMATE THE DETERMINATION OF AN EFFICIENT SET

Dr. Maryellen Epplin - University of Central Oklahoma, Finance, Dr. David Noel - University of Central Oklahoma, ISOM

The process of selecting securities for investment is a time-consuming task. However, Excel may be used to retrieve historical prices from the internet and to calculate average returns and standard deviations. Then simple Excel formulas can be used to determine which of the securities are "efficient" and should be considered for investment. Investors don't need to consider "inefficient" securities.

This project involves using VBA programming to automate

the process so the investor can evaluate large quantities of securities simply by entering the stocks' symbols.

02.05.03 USE OF NEURAL NETWORKS IN FORECASTING UTILITY REVENUES

Jeremy Ledbetter - Northeastern State University, Accounting and Finance, Dr. Julia Kwok - Northeastern State University, Accounting and Finance, Dr. Ernst Bekkering - Northeastern State University, Information Systems and Technology

An accurate forecast of utility revenue is vital to the provision of city services in Claremore County. The city's utility department has been using linear modeling to forecast the municipal's utility usage. The four major components of usage are water, electric, sewage and sanitation. The demand for each component is, in turn, dependent on a number of factors such as utility rates, household's wealth, average temperatures and rainfall. Neural networks, which allow simultaneous consideration of multiple factors in a multi-dimensional framework, might be useful to provide more reliable predictions. More accurate forecasts allow the local government to manage its budget and allocate its resources in a more efficient manner. The network is trained on actual historical environmental, usage and rate data, which were collected from the city's utility department. Results are compared with actual historical results. The trained neural network model will be used to predict utility usage and estimate impacts of rate changes.

02.05.04 DIMINISHING RETURNS TO INVESTMENT VIS-À-VIS FIRM AGE

Zane Swanson - University of Central Oklahoma, Accounting

To the extent that firm information provides data to complete markets, firm characteristics determine value to investors. Contrarily, investors are motivated by prospect theory to bid up firm prices without information especially concerning diminishing returns to investments. The valuation effect of investments is highly subjective in the case of R&D (growth options) and more concrete in regards to capital expenditures (assets-in-place). This study contributes to the investment knowledge frontier by analyzing diminishing returns to research and development (R&D) and capital expenditures in regards to a firm's age.

02.05.05 PROSPECT THEORY AND FIRM AGE

Zane Swanson - University of Central Oklahoma, Accounting

This research examines the existence of an interaction between prospect theory and firm age. The research motivation is that firm age appears to have been a factor in the demise of several companies in the 2008 recession and investigators want to know the extent of any age effect. The findings are mixed in their support for both the firm life-cycle theory and survivorship tenets.

02.05.06 STAKEHOLDERS, SHAREHOLDERS AND WEALTH MAXIMIZATION

V. Sivarama Krishnan - University of Central Oklahoma, Finance

This research attempts reconciliation between the two somewhat extreme views espoused by the shareholder wealth maximization paradigm and the stakeholder theory. The stakeholder theory challenges the basic premise built into corporate finance theory, teaching and practice. Corporate finance theory, teaching and the typically recommended practice, are all built on the premise that the primary goal of a corporation should be shareholder wealth maximization. Extant theoretical and empirical research in financial economics also generally accept shareholder wealth maximization as the normative and ideal goal on which all business decisions should be based. This paradigm assumes that there are no externalities and all the participants engaged in transactions with the firm are voluntary players competing in free, fair and competitive markets. A very different view is offered by what is loosely called stakeholder theory. The stakeholder theory posits that the focus on shareholders and firm value is misplaced and managers should be concerned with all stakeholders of the firm. The paper attempts to address what is felt as a lack of dialogue between the two camps.

02.05.07 ASSESSING UNIVERSITY FACULTY AND STAFF KNOWLEDGE & UTILIZATION OF RETIREMENT INVESTMENT STRATEGIES

Jane Calvert - University of Central Oklahoma, Accounting, Dr. Stuart Macdonald - University of Central Oklahoma, Finance, Allen Arnold - University of Central Oklahoma, Finance

The fall of 2008 began a national recession that dramatically altered the retirement portfolios of most Americans. The financial deterioration of investment banks, constriction of credit, declining real estate values, and resulting decline in spending reduced stock market

began a recession that has paralleled the economic downturn of the 1930's. This resulted in a decline of stock values from 25 percent to 50 percent. Additionally, state retirement funds, which also hold large stock portfolios, experienced increased insolvency.

It is crucial that all faculty and staff members possess an acceptable level of knowledge and awareness regarding the funding of their respective 403B plans and alternative private investment vehicles. The authors' hypothesize that a majority of higher education employees do not actively monitor their retirement funding level nor do they fully understand all the options available in most employer sponsored plans. Additionally, the authors doubt whether said individuals fully understand alternative, private investment vehicles such as IRA's, mutual funds, annuities, and investment real estate.

If the hypothesis is proved true, this paper is intended to provide a platform of increased awareness and knowledge of retirement. In tandem with this idea, educational programs would be designed and implemented to educate all university and college employees, both staff and support, regarding retirement needs and alternatives to meet those needs.

02.05.08 WHY ARE SO FEW FUTURES CONTRACTS EXERCISED? A FRAMEWORK FOR INTRODUCING THE FUTURES HEDGING STRATEGY IN AN UNDERGRADUATE COURSE IN DERIVATIVE SECURITIES

Dr. Roger Collier - Northeastern State University, Dept of Accounting and Finance

The basic goal of hedging with futures is to reduce the price uncertainty of a future spot market purchase or sale of a commodity (agricultural, financial, etc). The mechanics of hedging involve taking a position in futures contracts that is carefully tailored so that any opportunity losses or gains in the spot market for the commodity are matched with gains and losses in the futures contracts being used in the hedge.

Essentially, the framework is based on the knowledge that hedgers in futures contracts seldom exercise their contracts, choosing almost always to offset them. This true because hedgers frequently find themselves using the "wrong" number of contracts, usually with the "wrong" expiration date, and often representing the "wrong" underlying commodity. That is, due to the standardization of futures contracts and to certain restrictions in the market for futures, hedgers are forced to invest in more or fewer contracts than would be optimal (the "wrong" number), are often forced to choose contracts whose expiration differs from what would be optimal (the "wrong" expiration date) and whose underlying commodity differs from that being hedged (the "wrong"

underlying commodity). Each of these “wrong” aspects helps explain why so few contracts are exercised and each represents a teachable moment in introducing the futures hedging strategy. The methods that hedgers have developed to deal with such “wrong” aspects represent the basis of this teaching framework.

06 INFORMATION OPERATIONS MANAGEMENT (MIS)

02.06.01 TRANSFORMATIVE MODELS FOR PROMOTING CRITICAL AND CREATIVE THINKING SKILLS IN TRADITIONAL, HYBRID, AND VIRTUAL CLASSROOMS

Dr. Joselina Cheng - University of Central Oklahoma, Information Systems Operations Management (ISOM),
Tavir Sayeed - University of Central Oklahoma, ISOM

Advanced technology and a knowledge-based global economy have presented new opportunities and challenges for the traditional method of learning and teaching in higher education. Electronic methods of knowledge distribution (referred to as e-teaching) and skill acquisition (referred to as e-learning) with advanced technology may offer a viable alternative to enhance traditional methods of education delivery in brick and mortar higher education institutions. To increase the intellectual capital of Oklahoma and to better prepare youth in our nation for competitive global societies, this research study explores transformative models that allow traditional brick-and-mortar higher education institutions to implement and promote creative and critical thinking skills in face-to-face, hybrid, and globally virtual classroom. Examples of innovative strategies and technological components that can be improvised to enhance adult learning effectiveness when teaching in different classroom settings are also presented.

02.06.02 PROVIDING ERP RESOURCES FOR THE CLASSROOM (PERC)

Savannah Edwards - University of Central Oklahoma, Information Systems & Operations Management, Dr. Michelle Hepner - University of Central Oklahoma, Information Systems & Operations Management

Enterprise Resource Planning (ERP) systems play a vital part in managing a modern business. Typically, students are restricted to learning only the theory of ERP systems rather than experiencing these systems first-hand because of the complex implementation, configuration, and maintenance requirements of ERP systems. PERC researched the installation requirements, implemented, and configured the Microsoft Dynamics GP (DGP) ERP

system. Our goal is to create firsthand experiences with ERP processing and reports for UCO students so they will comprehend the value that ERP systems provide to businesses. Due to high enrollment in introduction to Management Information Systems, this course will use browser-based reporting exercises. This access is described as a thin client because the processing occurs on the server running DGP. To support this configuration, the applications, DGP Business Portal and SharePoint Services, must be also configured. Processing power, memory, and network bandwidth requirements were researched for Release 10 of the DGP system. While installing the ERP system on our 64 bit server, we experienced compatibility issues. These were resolved by researching the ongoing service pack releases for Server 2008, SQL Server 2008, DGP 10, and FRx, which supported 64 bit architecture. Since Business Portal does not provide 64 bit support at this time, a separate 32 bit server must be configured with Business Portal and SharePoint Services to provide thin client access.

02.06.03 IT SECURITY POLICY IN THE WEB 2.0 WORLD

Dr. Susan Chinburg - Rogers State University, Applied Technology, Dr. MaryRose Hart - Rogers State University, Business, Dr. Dana Gray - Rogers State University, Business

The security community has known for a long time that one of our biggest threat areas is the user. Those trusted to use the IT systems we protect. The nature of Internet use and the way users look at the online community is changing. There is some indication that the Web2.0 user especially in the Facebook-type arena behave differently than in the pre-Web 2.0 world. Developing IT security policy and practices should be in done with understanding of those whom the policies impact. Getting users to comply with policy and follow good practices is a challenge and developing policy and procedures must be done with the end user in mind. Understanding how users view the technology and what they want from the technology is key to developing policy and practices that will achieve the goal of securing digital resources. This study examines the differences between the user models with respect to IT in Web 2.0 settings as compared to the Web 1.0 world. Young adult and college age users will be surveyed about their Web 2.0 practices in relationship to privacy and security.

02.06.04 OBJECT ORIENTED USER STORIES FOR AGILE REQUIREMENT ANALYSIS

I-Lin Huang - Langston University, Management Information Systems, Judy Hsu - Creative Process Research, Creative Process Research, Judy Hsu - Creative Process Research, Creative Process Research

Traditionally, requirement analysis has tried to define all of the users' requirements up front. These practices have often lead to vulnerable projects because the users' requirements keep changing and are always not completely known at the initial stages of system development. As a result, agile requirement analysis and object modeling have been recommended to cope with the changing requirements. Agile requirement analysis addresses the issue of changing requirements by supporting evolution of requirements and providing mechanisms for easily incorporating requirement changes. On the other hand, object modeling examines system requirements from the perspective of classes and objects found in the specified domain. By localizes the required changes, object modeling reduces costs associated with change, and hence reduces project development risk. Although agile requirement analysis and object modeling are important for handling changing requirements, it is still unknown how to integrate these two techniques together to reduce the risk of system development more effectively. On the basis of the theories on human cognition, this article proposes object-oriented user stories as a mechanism to integrate object modeling with agile requirement analysis to create synergy for dealing with changing users' requirements.

07 MANAGEMENT

02.07.01 THE PERSPECTIVES REGARDING FEMALE LEADERSHIP IN THE COLLEGE OF BUSINESS

Ms. Mary Allen - University of Central Oklahoma, Management, Dr. Cheryl Steele - University of Central Oklahoma, Leadership Central, Mrs. Emily Griffin Overocker - University of Central Oklahoma, Leadership Central

The purpose of this study is to investigate the perspectives regarding female leadership in the College of Business. The researcher hypothesizes that if female leaders continue to grow in the fields of business, then female leaders should be more alike and accepted in this society. The researcher speculates that female leaders have more effective qualities as management than male management. A non-random convenience sample of

105 participants was utilized who were undergraduate students taking a course in the College of Business. The instrument used was a paper questionnaire that consisted of twenty-one questions with a combination of true or false and multiple choice questions regarding female leadership. Results emphasized that gender does not play a significant role in leadership. This study also highlighted the importance of personal qualities in leaders and factors that prohibit both men and women from being effective leaders. Therefore, there were not significant findings about perspectives regarding female leadership.

02.07.02 DEMAND-SIDE COMPETENCES AS SOURCES OF INTRA-INDUSTRY HETEROGENEITY IN INDUSTRIES BASED ON SYSTEMIC TECHNOLOGIES

Lalit Manral - University of Central Oklahoma, Management

A dynamic evolutionary model captures an analytically tractable case of demand competition wherein firms offering heterogeneous bundles of complements - supported by a common underlying technological system - compete to satisfy idiosyncratic consumer demand for a heterogeneous bundle of attributes. Firms' temporally heterogeneous demand-side investments correspond to their idiosyncratic and dynamically evolving demand-side competences, which in turn explain the evolution of intra-industry heterogeneity under the assumed structural conditions of stationary technology and policy environment. More specifically, while the static competence effect explains the distribution of market-share at any period the dynamic competence effect explains the distribution of the growth in market share over the last period. The model allows developing a set of testable propositions amenable to panel data analysis of typical competitive conditions along the evolutionary path of industries based on systemic technologies.

02.07.03 SHOW ME THE MONEY! DEVELOPING COMPENSATION POLICIES FOR ONLINE COURSE DEVELOPMENT AND DELIVERY

Katerina M Gabrovska - University of Central Oklahoma, Management, Suzanne Clinton - University of Central Oklahoma, Management

One of the fastest growing and most constructive avenues in the virtually limitless environment of cyberspace is distance education. In addition to questions of consistent quality, academic integrity, outcomes assessment, and accreditation, there are unwieldy legal issues concerning accessibility, intellectual property, and ownership/use

rights regarding developed courses and materials. A search of the literature exposed a gap in the area of compensation for the development and delivery of online courses. Although many authors indicate the need for online compensation policy, no one offers a definitive policy.

The authors will attempt to address a partial list of issues as identified in the literature for administrators to consider in the development of compensation policies for the development and delivery of online courses. Particular constructs of interest include: the value of cyber contributions in tenure and promotion, whether online development and delivery will be calculated as a portion of faculty load or overload, the existence or amount of release time involved, compensation for course revision, any payment of royalties, provision of internet access/hardware/software and technical and/or graduate assistant support (Shelton and Saltsman 2005; Moscato 2001). The need for development of a comprehensive cyber compensation policy is evident. It will increase the efficiency of cyber compensation administration and enhance the extrinsic rewards of cyber faculty.

02.07.04 LEADERSHIP IN A KNOWLEDGE DRIVEN ENVIRONMENT

Ethan P. Waples - University of Central Oklahoma, Management, Paul Shelton - University of Central Oklahoma, Management, Suzanne Clinton - University of Central Oklahoma, Management, Katerina M Gabrovska - University of Central Oklahoma, Management

In a knowledge driven economy, it is important that we reexamine our conceptualizations of leaders and leadership behavior. To this end, the present effort redirects attention to leadership as a cognitive process centered around solving complex, ill-defined problems. Central to this problem solving effort is the role of sensemaking. Thus, this paper offers a model of sensemaking from an individual leader perspective, taking into account the dynamic influences on this process at the individual, group, and organizational levels of analysis. More specifically, the sensemaking process is described as one that begins with problem-identification, proceeds to an individual leader (singular) frame, integrates additional perspectives (cumulative framing), and results in the construction of a final message for stakeholders. Each stage of the process, including potential moderators, is described. Finally, the implications of such a model for researchers and practitioners alike are discussed.

02.07.05 ONLINE DISCUSSION BOARDS: EFFECTIVE USE IN A CORNERSTONE MBA COURSE

Katerina Gabrovska - University of Central Oklahoma, Management, Paul Shelton - University of Central Oklahoma, Management, Robert H Epstein - University of Central Oklahoma, Management, Suzanne Clinton - University of Central Oklahoma, Management

The cornerstone MBA course incorporated an asynchronous online discussion board to create an online learning community (Wilson, Cordry, & King, 2004; Han & Hill, 2007; Cox & Cox, 2008) that would enhance the face-to-face classroom. For each week, students must complete an assignment that typically consists of at least one of the following: watching several clips from a movie or reading articles that pertain to class material or reading a case and preparing an analysis for presentation in the discussion board. Students must post an original, initial response to the questions posed. They must read all of their classmates' original postings. Finally, they must respond to at least two other classmates' original postings. We queried students about the strengths and opportunities for improvement with the use of the discussion board.

Student comments about the use of the discussion board as an educational tool included the following:

- *A Virtual, More Egalitarian Classroom
 - *Improves Participation and Learning; Allows Reflection and Sets a Performance Bar
 - *Enhances Critical Thinking
 - *Provides an Opportunity to Apply Theory to Real Situations
 - *Maintains Focus on Course between Real Classes
- Opportunities for improving the discussion board included the following:
- *Desire for an Improved Interface to Achieve Greater Familiarity with Other Students
 - *Seemed Like Extra Work
 - *Wanted Instructor Involvement
 - *More Focus on Classroom Material and Current Events

02.07.06 ENGAGING STUDENTS USING SOFTCHALK

Katerina Gabrovska - University of Central Oklahoma, Management, Suzanne Clinton - University of Central Oklahoma, Management, Kimberly L. Merritt - Oklahoma Christian University, Management

As more courses are being offered online, faculty are seeking creative, yet uncomplicated, ways to engage students. This workshop offers instruction and

examples in creating engaging content using SoftChalk LessonBuilder™.

LessonBuilder is a powerful web lesson editor that permits faculty to easily create engaging, interactive learning objects that can be incorporated into any online course. Examples of objects that can be created include: games (flashcards, image labeling, image hotspot activities, matching games, crosswords), assessments (multiple choice, multiple answer, short answer, true/false, matching, and ordering) and pop-ups (text annotations to define terminology, or enhance the interactivity of your lesson content).

Faculty want professional quality results, but don't have months to spend on the development of components for online courses. This software product creates professional looking results, fast. With LessonBuilder's built-in style sheets, faculty can choose a style design, page navigation and layout options, and more. Within minutes, LessonBuilder will generate a set of integrated lesson pages, with built-in navigation and a professional-looking layout.

The presenters will demonstrate learning objects created for graduate and undergraduate business courses.

02.07.07 MEASURING THE EFFICACY OF STRATEGIC MESSAGES FROM LEADERS

Katerina Gabrovská - University of Central Oklahoma, Management, Robert H Epstein - University of Central Oklahoma, Management

Many profit and not-for-profit organizations use multiple strategic planning techniques for achieving goals.

One such goal is organizational alignment, aligning all stakeholders, both internal and external, with the leadership's selected organizational strategy (Kaplan & Norton, 2006). When human capital is not aligned with organizational goals and objectives, organizational performance suffers in both efficiency and effectiveness; leadership is failing to lead. In the corporate world, alignment is desired because it is believed to result in more productive organizations.

This research considers an academic course and the participants in a class as an organization. Like the mission and goals of an organization, a course has its goals and objectives. In evaluating whether a course succeeds at achieving its goals and objectives to perform with a particular subject, one could look at how well students perform on a departmental exam for that subject. This research explores the influence of the alignment of the professor's behaviors, such as teaching and modeling behaviors, along with the course content and its messages, on student performance. Developing a measurement tool that will assess alignment, and then comparing the results with scores from final departmental exams, will measure how effective alignment overall and

the individual components are related to learning and test performance.

02.07.08 3 C'S OF A CHANGE INITIATIVE

Paul Shelton Ph.D. - University of Central Oklahoma, Management Department

Organizational change can be seen as a circular process. The organizational culture and the leader need to prepare for the change and anticipate its success or failure. Leaders need to identify and communicate change at different levels. He/she needs to alleviate employees' job fears and questions such as "what will this change mean for me?" Employees will be looking for someone within the organization who has insight into the change (Saksvik et al., 2007). Lastly, leaders and employees need to be prepared for conflict. Conflict should be anticipated in any change process. Leaders should also be prepared to get pushback from internal and external constituencies. This is a normal reaction to change (Karten, 2008). These three concepts; culture, communication and conflict, are all interwoven on a circular continuum in a dynamic process that takes place during organizational change.

Paul M. Shelton, Ph.D.

Michelle e. Shelton, M.A.

02.07.09 GROUP POTENCY IN BUSINESS SCHOOL LEARNING COMMUNITIES: PERCEIVED ORGANIZATIONAL SUPPORT, GROUP SIZE AND DURATION OF MEMBERSHIP

Katerina Gabrovská - University of Central Oklahoma, Management, Paul Shelton - University of Central Oklahoma, Management

The purpose of this research is to explore selected antecedents associated with group potency and how these antecedents can be controlled to increase group potency within different pedagogical delivery methods (on ground, hybrid, and online). Thereby, utilizing the increase in a group's potency to decrease attrition in business schools and improve outputs. More specifically, the purpose is to explore how group potency is influenced by perceived organizational support, group size, and length of membership in the learning community in business school learning communities.

Research has demonstrated that there are many contradictions with respect to optimal time and group size and how these variables impact performance of a group or learning community. However, research has failed to establish how business school learning communities' levels

of potency are related to organizational support, group size, and length of time of membership within the group, or to investigate potential differences in undergraduate, graduate and online students. This research will investigate these relationships -- group potency and (a) participants' perception of organizational support, (b) length of time participants have been together, and (c) size of the learning community, and size of the learning community and the perception of organizational support in on ground classes, hybrid classes and online classes.

02.07.10 DEBATING WITH KEYBOARDS: AN INNOVATIVE ARENA FOR CLASSROOM PARTICIPATION

Dr. Jennifer Barger Johnson - University of Central Oklahoma, Finance, Dr. Lee J. Tyner - University of Central Oklahoma, Management

Today's business professor is compelled to remain current with technologies used inside and outside the classroom. This paper provides ideas for the successful growth of online discussion boards and warns of simple but significant. These tips focus on preparing discussion boards, using discussion boards, and grading discussion boards. Additional attention is given to the unexpected outcomes of discussion boards, both positive and negative.

08 MARKETING

02.08.01 EXPLORING RELATIONSHIPS BETWEEN CONSUMER ETHNOCENTRISM, PATRIOTISM, GLOBAL OPENNESS AND COUNTRY OF ORIGIN EFFECT: A PROPOSED STUDY

Michael Vassella - East Central University, Business Administration - Management

After defining consumer ethnocentrism, patriotism, global openness, and the country of origin effect and examining literature related to each, a study to replicate and expand previous research is proposed. Hypothesis for the proposed study are also provided and a research plan is outlined.

This research proposes collecting primary data using a questionnaire. The questionnaire includes established scales regarding consumer ethnocentrism (Shimp and Sharma, 1987), patriotism (Kosterman and Feshbach, 1989), global openness (Cleveland and Laroche, 2007), and the country of origin effect (Klein, Ettenson, and Morris, 1998). The questionnaire also includes questions regarding demographic and socioeconomic information. Proposed samples to be surveyed include U.S. college

students, Taiwanese college students, Taiwanese Civilians, U.S. civilians, U.S. civil service employees, and U.S. military personnel.

Goals for this study include re-examining the relationships between consumer ethnocentrism and patriotism; consumer ethnocentrism and global openness; and consumer ethnocentrism and the country of origin effect.

02.08.02 A NEW MODEL FOR CONSUMER BEHAVIOR

Dr. Dana Moore Gray - Rogers State University, Business, Dr. Susan Chinburg - Rogers State University, Technology

Traditional consumer behavior models typically identify a five-step model including problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. A new model is proposed that divides the decision making process into two steps (first, selecting the product or brand and, second, selecting the retailer or place of transaction). The new model also strives to relate the marketing mix components to the steps of the consumer behavior model and the requirements for a market. Finally, the new model focuses on creating opportunities for transactions in locations where demand exists.

02.08.03 HOW CORPORATIONS LEARN: ENVIRONMENTAL UNCERTAINTY, DYNAMIC CAPABILITIES, AND LEARNING COMPETENCY

Dr. Stefan E. Genchev - University of Central Oklahoma, Marketing, Dr. Thanh V. Tran - University of Central Oklahoma, Marketing, Anna Chan - University of Central Oklahoma, Marketing

Contemporary research on organizational learning has embraced the resource-based view to explain how the internal resource endowment of the firm results in improved learning process through the dynamic capabilities construct. Acknowledging the importance of this approach and its explanatory power, this paper contends that the effect of the degrees of environmental uncertainty is oversimplified in past research. Such oversimplification results in applying this perspective unanimously toward explaining the learning process in organizations. Specifically, we introduce environmental uncertainty and theorize that the process of building firm-specific dynamic capabilities is contingent on these conditions and that this relationship is strongly influenced by the firm's ability to gain and absorb valuable knowledge. Furthermore, this research embraces the view that this process is in fact the gauge of the

learning competency of a given firm. Some practical implications for selecting the strategic course of the firm through exploiting different real options dependent on the dynamic capabilities of this firm are also discussed. Several propositions linking environmental uncertainty and firms' dynamic capabilities are theoretically derived from the existing literature including the widely overlooked absorptive capacity construct and its important role as a moderating factor of this relationship.

02.08.04 SOCIAL MEDIA: IS IT AN EFFECTIVE COMMUNICATION CHANNEL AT RSU?

Sarah Bible - Rogers State University, Business, Tamara Brixey - Rogers State University, Business, Kyla Evans - Rogers State University, Business, Ashley Hatcher - Rogers State University, Business

Social media and networking are very popular with young adults and college students. Rogers State University, RSU, has made efforts to reach out to students using these new communication channels such as online blogs, Facebook, Flickr, MySpace, YouTube, and Twitter. Given the prevalence of use and the apparent unstoppable expansion of use of these communication channels, using social media to communicate to the customer base is a viable marketing strategy. However, the question is asked: Are these efforts making an impact? To determine whether the investment in these social media channels are effective, a study will be conducted on the Claremore campus of RSU. This study will attempt to verify the impact, measure the effectiveness of using this strategy, and define processes to aid in expanding the use of social media. A convenience sample of traditional and online RSU students on the Claremore campus, both full-time and part-time, will be surveyed. Preferences, use and knowledge of social media, and demographics, among other factors will be collected to understand the nature of the customer as well as the actual effectiveness of social media.

02.08.05 THE PRACTICE OF LEADERSHIP

Dasha Titkina - University of Central Oklahoma, College of Business Administration, Dr. Donna Carlon - University of Central Oklahoma, College of Business Administration

"Leadership" has a symbolic, discursive role in modern organizations. Yet many researchers are critical of work in this field, citing the lack of a coherent, consistent definition of the term, a seemingly endless list of attributes that describe it, significant conceptual weaknesses, and little empirical support for it. To date, much of the research on leadership has focused on the psychology

of leadership. That is, its primary perspective is on the individuals involved-the "leaders" and the "followers," and their traits/behaviors/skills/abilities that lead to success. This project takes a discursive approach to leadership, focusing instead on the interactions between the individuals and the processes that underlie the specific actions of leadership. Ultimately, a discursive approach to leadership research tells us how to act, not just what actions to take. Simultaneously, the goal of the research is to get a more precise definition of the term "leadership." Since when one begins to dissect much of the scholarship in this field, it becomes clear that the most researchers treat "leader" and "leadership" as essentially the same phenomenon. Epistemologically, "leadership" is an outcome of "leader" actions. Therefore, the purpose of this project is (1) to explore potential new avenues for theorizing about leadership and perhaps making process in resolving some of these dilemmas; (2) to study the phenomenon and get a clearer picture of leadership role in organizational success.

02.08.06 THE INSTRUMENTAL USE OF MULTI-ATTRIBUTE MODELS FOR BUILDING A DOMINANT BRAND

Dr. Jeanetta D. Sims Ph.D. - University of Central Oklahoma, Marketing, Ms. Tessa Chervenka - University of Central Oklahoma, Marketing

This paper argues for the increased utility of Multi-Attribute Models in the field of Integrated Marketing Communications to investigate and understand the cognitive structures that consumers have of brands in an effort to build a more dominant brand. Originally advanced by Rosenberg (1956) and Fishbein (1967) in the field of social psychology, multi-attribute attitude models have been adapted (Wilkie & Pessemier, 1973) and used in marketing for decades to explore consumer attitudes (Belch & Belch, 2007). The models suggest that consumers have expectations for the features or attributes associated with brands (Meyer & Sathi, 1985) and that consumers assign differing levels of importance to these expectations or attributes (Belch & Belch, 2007). Given the prominence of multi-attribute models, IMC efforts could be enhanced by understanding the relative importance of these attributes and using them in the design of promotional mix elements. Thus, multi-attribute models can assist IMC professionals in building a dominant brand in the corporate world and in devising a more effective marketing strategy (Dreves, Durand, & James, 1976). Understanding the cognitive structures of consumer attributes can give IMC professionals greater insight into the development of more successful IMC campaigns.

02.08.07 THE CRITICAL CHALLENGES ASSOCIATED WITH MARKETING AMBULATORY CARE CENTERS

Dr. Jeanetta D. Sims Ph.D. - University of Central Oklahoma, Marketing, Mr. David McKinney - University of Central Oklahoma, Marketing

Due to the ever increasing capabilities of modern medicine, people are living longer. This results in an increased demand for health care and a unique obstacle for marketers. This paper elaborates on the marketing insights which need to be taken into consideration for more effectively reaching the targeted audiences of ambulatory care centers in integrated marketing communications efforts. Ambulatory care centers are known to profit based on quality of care (Self, Hegji, & Self, 2009). The challenge is to present ambulatory care centers in large numbers with convenient locations while still offering the same quality of care that larger more traditional facilities provide. Word-of-mouth has always had a large effect on organizational reputation (Hong & Yang, 2009), especially in the health care industry market. To achieve high levels of satisfaction with the care received, timeliness and levels of perceived "care" are what patients cite as contributing factors (Vukmir, 2006). The continuity of care, availability and convenience of services, cost, payment mechanisms, and ease of emergency care facilities all contribute to patients' overall impressions of quality care (Ware, Wright, Snyder, & Chu, 1975). The dimensions of care quality, as well as other factors, are the critical points that marketers must understand to be competitive in this new marketplace.

02.08.08 THE INSTRUMENTAL ROLE OF POSITIVE PUBLICITY IN BUILDING A DOMINANT BRAND

Dr. Jeanetta D. Sims Ph.D. - University of Central Oklahoma, Marketing, Ms. Maria Jimenez - University of Central Oklahoma, Marketing

Though closely linked, Harris (1991) argues that marketing public relations (e.g., sponsorships, special events, public service, media events, etc.) can be distinguished from corporate public relations efforts (e.g., government relations, employee communications, investor relations, etc.). A vital responsibility associated with the work of marketing public relations is publicity, generating communication about a company or product for which the company does not pay (Keegan & Green, 2008). This paper argues for the persuasive impact that positive publicity has in assisting integrated marketing communications professionals in building a dominant brand. Target audiences are exposed to publicity in daily living and through media content as they actively search to

obtain information or simply scan for diversion (Hallahan, 1999). Through publicity, consumers are influenced via a communication channel of "consented space," as opposed to "paid space," that has greater perceived credibility and better perceived credentials than advertising (Ries & Ries, 1999). In today's budget-tight marketing departments with over-stimulated consumers, the selection of the publicity path to persuasion can generate a more welcoming response from consumers at a lesser cost to the corporate wallet. The result is that publicity becomes a useful public relations tool for assisting IMC professionals in building a dominant brand.

04 ECONOMICS

IMPACT OF CITY SALES TAX INCREASE: A STUDY OF SELECTED CITIES IN OKLAHOMA, KANSAS AND TEXAS

Dr. Syed Ahmed - Cameron University, School of Business, Dr. Abdulhamid Sukar - Cameron University, School of Business

The objective of the study is to investigate the relationship between sales tax rates and sales tax collections and retail sales in different cities of Oklahoma, Kansas and Texas. Panel data estimation technique has been used to estimate the impact of various variables including sales tax rate on sales tax collections and retail sales. The study finds that sales tax collections are significantly and positively affected by sales tax rates, per capita income and population.

U.S. DEMAND FOR NATURAL GAS

Chris Chambers - University of Central Oklahoma, Economics and International Business, Kei Komiyama - University of Central Oklahoma, Economics and International Business, Maiko Sato - University of Central Oklahoma, Economics and International Business

U.S. Demand for Natural Gas

The U.S. demand for natural gas can be broken into five basic categories; residential, commercial, industrial, power generation, and vehicle fuel use. Each of these types of demand has a distinct and separate demand curve from the others. The combination of these curves reflects the overall demand for natural gas in the United States. This report will cover each of the categories of demand and the variables that influence it. Some of the variables we will incorporate into this examination will be technological improvements in efficiency, the trend away from oil and coal, the seasonal swings, and greater use of natural gas as a type of fuel to replace gasoline.

08 MARKETING

INCREASING CUSTOMER SATISFACTION, CONSUMER AWARENESS AND SALES FOR MOONEY'S SUNSET BAR AND GRILL

Rebekah Lynn King - Rogers State University, Business

This lakeside bar and grill has been successful for years but recently sales, profit and customer traffic has fallen. This change has made the business aware of the need to examine and adapt to the market trends. Conveniently located next to Pensacola Dam on Grand Lake, OK; this business has the advantage of location and accessibility by both land and water. This is opportune to a large target market and must be segregated appropriately. First, the reasons for change in consumer behavior need to be identified. Then adjust the marketing mix to react to the problems. Finally position and promote the bar and grill for market penetration and growth. This research project will attempt to answer the satisfaction level of the current customer base, customer preferences as related to a lakeside bar and grill and does the current business model address these needs. We will address how to increase consumer awareness of the business. It is well-known that the customer base in resort settings is two faceted, locals and visitors. A cross-sectional examination of the local customer base will be conducted to determine their needs. A broader net will be cast to examine the needs of the visitors by delving into the extensive research base on resort vacation consumer behavior. A plan will be presented to the management of this business to address the research questions.

CONSUMER PREFERENCES AND DEMANDS IN THE MUSIC RECORDING BUSINESS IN NORTHEAST OKLAHOMA

Mr. Troy Donald Bradley - Rogers State University, Business

Title: Consumer preferences and demands in the music recording business in NE OK

Authors: Troy Bradley, Cody Dickey, Abe Donlon, and Jake Taylor

Intelligent Design Recording Studio needs to know how to effectively market their services. By determining the customer market needs and demands, this business should be able to define a market niche. One new core competency that Intelligent Design can offer is mobile recording. This new business needs to know the pricing structure, recording artist psychographics, as well as genre and technical requirements of the customer base in NE OK. Initial research efforts indicate that there is market potential in NE OK. Intelligent

Design Recording Studio wishes to establish a healthy collaborative process between the recording artist and recording engineer, where the main focus is meeting the customer's needs. The ultimate goal is creating happy and satisfied customers, which promotes repeat business and powerful referral processes. The research problem for this study is "what are the consumer preferences and demands of the recording artists in the NE OK area what are the appropriate marketing channels to reach this customer base, and is there a need for mobile recording capabilities?" To answer these questions a database of recording artists and recording engineers in existing NE OK studios will be developed, and a convenience sample of both will be surveyed to determine the capabilities needed for a new recording studio.

03 EDUCATION

01 CURRICULUM

03.01.01 BRIDGING THE CULTURAL GAP IN AMERICAN CLASSROOMS

Ms. Rosa Mae Harrison - East Central University, Education

I will be conducting research over the issue of the effects that immigration has in American classrooms. I will focus on how children from different countries are affected by entering into the United States school system and reporting on ideas that teachers can use for helping children during this major transition in their lives. My main goal is to discover ways that teachers can help bridge the cultural gap in their classrooms. I will be searching for ways that teachers can help their culturally diverse students to feel more welcome in their class.

03.01.02 PROMOTING GEOSCIENCES THROUGH ONLINE COURSES

Deborah Hyde - Northeastern State University, Natural Sciences

With the tight budgets on campuses nationwide, educators are often limited to teaching courses with strong enrollments. Some students who indicated that they might be interested in taking Geoscience courses do not enroll in them due to scheduling conflicts. To alleviate the scheduling problems, Geoscience courses including some lab courses, can be offered online. This situation presents special challenges along with the rewards. The rewards include introducing student to Geosciences who otherwise may never take those courses in a face-to-face class. Some students may find life-long hobbies or even new career paths in Geosciences. Special challenges include non-science majors facing the rigors of scientific lab science courses for the first time while simultaneously learning about online delivery methods.

This investigation compares the success rates of students who took the Physical Geology Lecture and Lab course in a traditionally presented, face-to-face course, with the success rates of students in an Online Physical Geology lecture and lab course. The same instructional material was used. The rate at which the material was covered was identical. The presentation method was kept as similar as possible. The major difference for the Online class was that study, lecture and lab time was left up to the individual within time-frame deadlines.

In conclusion, online classes are not for everyone, but they can be a valuable solution for some.

03.01.03 COMPARISON OF EFFECTIVENESS OF CHALKBOARD- AND COMPUTER-BASED LECTURE PRESENTATIONS

Dr. John de Banzie - Northeastern State University, Natural Sciences

Many faculty members have switched from chalkboard- to computer-based lecture presentations. The latter allow for more polished presentations with sophisticated graphics and animation. In this study I attempted to assess the relative effectiveness of these two approaches in promoting student learning.

Two classes of Genetics lecture were used, one in Fall 2008, the other in Spring 2009. Lecture material was presented in four sections, each with a separate examination. In Fall 2008 the first section was delivered as computer-based lectures. The remaining three sections were delivered as chalkboard-based lectures. In Spring 2009 all four sections were delivered as chalkboard-based lectures. Content, ancillary materials, and examinations were kept the same to the extent possible. The performance of students who took all four section tests in Fall 2008 was compared with those who took all four section tests in Spring 2009.

Student performance on the first section test was significantly better ($P < 0.05$) in Spring 2009 (chalkboard-based) than in Fall 2008 (computer-based). There was no significant difference between the two groups in performance on the remaining section tests.

Hence, for this instructor and this course, chalkboard-based lectures appear to have been more effective in bringing about student learning as measured by section tests. Possible reasons and confounding variables are discussed.

03.01.04 ASSESSMENT RESULTS OF INFORMATION LITERACY SKILLS OF UNIVERSITY STUDENTS IN OKLAHOMA

Mr. Tom Messner - Northeastern State University, NSU Libraries, Ms. Bettye Black - Langston University, Library

In the fall of 2008, a consortium of seven Oklahoma universities conducted assessments of 1,028 students using the Standardized Assessment of Information Literacy Skills (SAILS) test. The SAILS test was funded by AT&T Corporation through a planning grant titled "Successfully Completing College: Developing Integrated Information Literacy Skills". SAILS is a knowledge test with multiple-choice questions targeting diverse information literacy

skills. Testing is based on the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education. This presentation outlines the results of the SAILS student assessments at the seven participating institutions, and identifies information literacy deficiencies in comparison with other higher education institutions across the United States. The results of those tests will continue to be used to inform planning and production of future phases of the Consortium's program to improve the information literacy skills of Oklahoma students.

03.01.05 OPTOMETRY EDUCATION AND PROFESSIONAL PREPAREDNESS STUDY: A SURVEY OF NORTHEASTERN STATE UNIVERSITY OKLAHOMA COLLEGE OF OPTOMETRY GRADUATES

Celina Hall - Northeastern State University, College of Optometry, Saunya Smith - Northeastern State University, College of Optometry, F. John Pembroke O.D. - Northeastern State University, College of Optometry

Purpose: The purpose of this study was to survey graduates of Northeastern State University Oklahoma College of Optometry (NSUOCO) about their perceptions regarding quality of education and preparedness for the optometry profession.

Methods: Contact information of the NSUOCO alumni for the years of 2000-2008 was obtained. An anonymous, internet-based survey was sent to the graduates, preceded by an invitational postcard.

Results: Sixty-five responses were received of the 212 invitations, yielding a 30.67% response rate. Ocular Disease ranked the highest in quality of training, while Practice Management ranked the lowest. Ocular Disease ranked the highest in value to current practice modality, while Low Vision ranked the lowest. Ninety-eight percent would recommend NSUOCO to a prospective student, and 96% gave either an "A" or "B" letter grade for overall preparedness.

Conclusion: Overall, NSUOCO graduates feel they have received a quality optometric education and believe they were adequately prepared for the profession. The academic weight given to some curriculum topics were reported to be disproportionate to the relevancy that the particular topic has in everyday optometric practice. NSUOCO should conduct self assessments regularly and make subsequent modifications to provide the highest quality educational experience possible and to keep abreast of the continuously expanding scope of the optometry profession.

03.01.06 TO EXTEND OR NOT TO EXTEND: THAT IS THE QUESTION

Lindsey Holman - East Central University, Education Department, Cindy Orrick - East Central University, Education Department

Lindsey Holman
Cindy Orrick

To Extend or Not to Extend: That is the Question

This presentation is a comparison to illustrate the differences in Full Day Kindergarten (FDK) as opposed to Half Day Kindergarten (HDK). We present a comparison of time spent in subject area for each as well as the benefits for each program. Results show mixed sentiments related to either side. Although FDK provides reliable, state and federally funded childcare for single parent and/or double income families, the costs of HDK are significantly lower than FDK. While FDK affords teachers more instructional and developmental time with the students, it reduces the amount of time spent with families. Increased class time may result in accelerated test scores for students who have attended FDK; however, research proves that the higher test results tend to taper off around the second or third grade.

The purpose of this poster is not to promote one routine over the other but to simply present both sides in a non-biased way. The choice between a full day and half day routine may not be available for every family or school district, but our research provides the viewer an overview of both sides. Consequently, if a choice is offered, parents can make an informed decision based upon the needs of their child(ren). Based upon research that we analyzed, it is the presenters' opinion that the advantages of FDK outnumber and outweigh the advantages of HDK.

03.01.07 HOW DOES QUALITY CHILDCARE EFFECT THE COGNITIVE DEVELOPMENT OF A CHILD FROM BIRTH TO 5 YEARS OLD?

The first five years of brain development has been found to be a critical period in a child's life. Quality experiences can help contribute to the cognitive development of a child during this period. Research has shown that in the later part of the 20th century the amount of children in childcare increased steadily. Due to this, quality child care has been the main focus when it comes to designing a program that includes school readiness for children from birth to 5 years old. My presentation deals with how quality childcare can help enhance the cognitive development of a child from birth to 5 years old. With my research, I have found that quality childcare in preschool age years predicts cognitive and academic performance in elementary school years. In this poster I have included the effects of quality childcare, along with what age is

most beneficial, and what amount of time is acceptable to produce positive effects of quality childcare.

03.01.08 LUDDITES TO ELEARNERS: CONVERTING ADULT FACE-TO-FACE LEARNERS TO ONLINE LOVERS

Mr. Kevin Stretch - Northeastern State University, Educational Foundations and Leadership, Dr Renee Cambiano - Northeastern State University, Educational Foundations and Leadership

The purpose is to discuss the positive impact of Information Communication Technologies on the aging workforce. Currently this adult population is beginning to feel the strain of the social, political, and economic structures of all societies. More workers are retiring than available replacements coming in to the workforce. Median incomes of families with little or no higher education continue to be near 1964 levels, versus those with four-year degrees are up 145% from that same period (Haskins, Holzer, & Lerman, 2009). These diminished numbers and decreasing public funding have caused Higher Education to target previous generations of adult learners in order to fill their seats. Education delivery has shifted from a teacher-centric, pedagogical focus, to a learner-centric, andragogical environment, where life experiences (Caffarella, 2002) and different learning styles are the primary focus.

Digital Immigrants entrusting online, asynchronous learning continues to be a difficult process. However, Digital Natives who grew up immersed in technology and expressing their opinions, have a higher efficacy navigating these same online environments (?). This chapter proposes that each group's misconceptions, as well as their personal learning styles can be addressed in a multimedia-enhanced, online curriculum utilizing in part, by the R2D2 method (Bonk & Zhang, 2008) of online curriculum development.

References provided on poster.

03.01.09 BUILDING GLOBAL RELATIONSHIP

Susan Frusher - Northeastern State University, Educational Foundations and Leadership, Renee Cambiano - Northeastern State University, Educational Foundations and Leadership, Jaclyn Bonner - Northeastern State University, Educational Foundations and Leadership

This poster will portray the dynamics of selected experiences involved in building and nurturing a relationship between Northeastern State University (NSU) and Rajamangala University of Technology Lanna (RMUTL) in Thailand. Global relationships can and should be long-term cooperative, mutually-enriching relationships between

two or more academic institutions, colleges, schools, or departments involving student and faculty exchanges, joint curricula ventures for courses, degree programs, dual and/or joint degree programs, and collaborative research. This philosophy aligns directly with Ernest Boyer's (1990) Scholarship of Engagement (formally scholarship of application) (Cox, 2006) by creating service activities that are documented, evaluated by beneficiaries and partners and are related to the academic expertise of the profession. This philosophy is not only shared with Boyer's Model, but is embedded in the Mission, Vision, and Core Values of NSU. As stated in the focused Mission Statement, "We (NSU) empower individuals to become socially responsible global citizens by creating and sustaining a culture of learning and discovery." Through these kinds of relationships, partnerships and collaboration become innately intertwined with the academic profession and the development of global citizens. It is imperative to create these global links that reconnect NSU's students to the world.

References will be provided on poster.

03.01.10 ALITERACY: IT STARTS IN THE CLASSROOM

Mrs. Christi Joanna Carruth - East Central University, English

According to John Tappo despite a decade-long effort, reading skills of U.S. students haven't improved much since 1992. While few children are illiterate, experts say "aliteracy," or lack of interest in reading, is contributing to low skills across the board. As a recovering illiterate, I see literacy as a lifeline that will leave you with an empowering knowledge that enables your ability to assess and adapt to the world you live in. Why are we seeing more and more aliterate students refusing that lifeline? Where is this aversion to reading coming from and how can we stop it? The first key factor in stopping aliteracy would be to determine who aliteracy affects. Then we must understand the different views the aliterate reader has toward reading. Research on the reading habits of grade school and high school students will lead to answering the questions of why are they not reading and what can we change to encourage better reading habits of our students.

03.01.11 STRATEGIC READING ONLINE: A MIXED-METHODS ANALYSIS

Dr. Angel Kymes - Northeastern State University, College of Education - Curriculum & Instructio

Reading online has become more common for students in the past few years. Young people often turn to the Internet before books when gathering information. Can the skill sets, strategies, and practices which have

EDUCATION

been validated and used successfully with print texts be modified for use in online environments with online texts?

Skill and strategy are two hallmarks of engaged, effective readers. This study was designed to identify, analyze, and categorize the skills and strategies used by high school students while searching for and reading information in online texts.

Both quantitative and qualitative measures were used to ensure completeness of the data. The quantitative results were then used to select individuals for qualitative analysis. In this sequential explanatory study, the collection and analysis of quantitative data was followed by the collection and analysis of qualitative data. Much of the quantitative data comes from survey and questionnaire data, while the qualitative data results from verbal protocols elicited from the student participants.

A complete presentation of the quantitative measures, including ANOVA tables, and detailed presentation of qualitative measures, in the form of student responses and thematic comparisons, will be presented for analysis and discussion.

03.01.12 CULTURAL PRESERVATION THROUGH ORAL TRADITIONS

Janelle Adair - Northeastern State University, Education, Dr. Susan Frusher - Northeastern State University, Education, Dr. Renee Cambiano - Northeastern State University, Education, Dr. Joseph Faulds - Northeastern State University, English

Indigenous Tribal Stories have been handed down through all Native American Tribes in North America for hundreds of years. These Tribal Stories have many meanings embedded within them, including etiquette for living and life skills, historical references for individual tribes, and how the nature of the world came to be as it is. At one time, the stories told were vital to each tribe's continued existence, whereas today the stories are used more for entertainment purposes and cultural preservation. The stories represented in this archive are from the Keetoowah Cherokee Tribe and are told by traditional storyteller Janelle Adair. The stories were shared during a Native American Myths and Legends English class instructed by Dr. Joseph Faulds at the Northeastern State University Tahlequah campus. Each story was shared so that the Keetoowah Cherokee culture will continue on in its existence and in the hope that the stories will continue to teach on the many levels they can be interpreted.

03.01.13 THE BIRTH OF A LEADERSHIP CULTURE

Dr. Karen Carey - Northeastern State University, Education, Dean Laura Boren - Northeastern State University, Student Affairs, Jason Jessie - Northeastern State University, High School & College Relations, Kin Thompson - Northeastern State University, President's Leadership Class Program Director

Four campus leader directors came together in a social environment discussing shared knowledge and concerns. With a spirit of excitement that promoted cooperation and trust, strategic conversations led to a desire to challenge campus student leaders to birth a new culture. Collegial harmony spawned a new and vital approach to fostering student leadership and campus commitment. As stewards of public engagement, second century student leaders of scholarship and service are challenged to share a common bond. They are challenged to read widely and think more deeply than ever before in the past. They are challenged to lead in a new way.

The longitudinal study involves three student scholarship organizations and four campus officials. The Northeastern State University Honors Program, the NSU President's Leadership Class and the newly organized, NSU RISE Program combine to form the first freshmen target group. Each scholarship program maintains its own unique flavor and challenges, but all three combine to share a common bond. The dean of student affairs and directors of each program formed a task force identifying intentional student activities. Beginning with a summer common read and including a luncheon convocation discussion, students follow a common syllabus testing their own unique strengths in regard to leadership. Directors cross train students as guest lecturers and challenge student integrity in the areas of creative excellence and leadership.

03.01.14 HELPING TEACHER CANDIDATES MEET GLOBAL COMPETENCIES

Jaclyn Bowen - University of Central Oklahoma, Curriculum & Instruction, Dr. Janette C. Wetsel - University of Central Oklahoma, Curriculum & Instruction

Early childhood teachers must be prepared to work with young children and their families from a wide range of cultures. There are a number of ways for a teacher to learn about diverse cultures in a school setting, as well as many ways to prepare a classroom to be warm and inviting for all children. This study examines a checklist to use in a classroom to assess its diversity.

03.01.15 PERCEPTIONS OF UNDERGRADUATE RESEARCH AT A REGIONAL COMPREHENSIVE UNIVERSITY

Miss Emily Diane Wilbins - Northeastern State University, NSU Honors Program

The objective of this study is to gather and synthesize information on student and faculty perceptions of undergraduate research. This study specifically collects data concerning the opportunities that are available for research and scholarly activity at Northeastern State University (NSU), as well as the total number of both students and faculty actively engaged in research, and the level of satisfaction associated with the activity. The information obtained from the study is used to assess the current state and quality of research at NSU. The design of this study consists of a university-wide email to students and faculty seeking their participation in a web-based survey. The survey results are continually being obtained and are compiled for a comprehensive assessment. The presentation includes demographic data from the three NSU campuses as well as definitive statements of the terms used to classify the results obtained from this study.

03.01.16 DRAMATIC PLAY AND LITERACY DEVELOPMENT IN A FIRST GRADE CLASSROOM

Kate Hughes - University of Central Oklahoma, Education, Dr. Kelly Baker - University of Central Oklahoma, Education

In this poster presentation, the development of first grade students' literacy development will be analyzed as it corresponds with the use of dramatic play.

A first grade teacher will be invited to partake in the investigation of dramatic play and literacy development in a first grade classroom. The first grade classroom will be presented with a variety of dramatic play prop kits, each focused on a dramatic play environment. The methods of data collection will be primarily through field observation. This study will be investigated using a qualitative, naturalistic approach that allows for specific focus to emerge as the inquiry proceeds. The researcher will actively observe the children, and will generate a description of the play behaviors as they occur. The children will be observed specifically to determine what kind of communication is occurring, what stimulates the communication, and the complexities of the exchanges. The anticipated outcome would be that the literacy-enriched dramatic play sets would increase the student's use of natural, meaningful language through dramatic play in a way that will incorporate the unit the teacher is focusing on. A child's language is often far more advanced during the context of play than it is in real life. As the data

is organized, it is expected that themes will emerge and the study will continue to progress. These themes will be continually analyzed, and the findings of the investigation will take shape.

03.01.17 ASSISTIVE TECHNOLOGY IN THE CLASSROOM CURRICULUM

Mrs. Elizabeth Reeve - Western Governors University, MASP- Masters of Special Education, Dr. Renee Cambiano - Northeastern State University, Educational Foundations & Leadership

Many times when the IEP team meets, the question of how to put assistive technology into the IEP arises. Some times what might not seem to be assistive technology can actually be the biggest answer to covering the issue. Take a step back, and reconsider what is and is not assistive technology. You might be surprised what one can do with the curriculum when one tries to insert assistive technology into the plans. It might just be easier than you think!

Elizabeth Reeve is working on her Masters of Special Education at Western Governors University. She has always had a love for individuals with special needs, and has strived to consider ways to improve the education of individuals with special needs. This is one of her projects where she considers the issue of Assistive technology based on the IEP.

Dr. Cambiano is a professor at Northeastern State University in the Educational Foundations & Leadership Department. Dr. Cambiano has been a mentor to Elizabeth since Elizabeth at a student at Northeastern State University. Through hard work, both Dr. Cambiano and Elizabeth have become a great research team.

Does the inclusion of assistive technology make the classroom better for all students? The answer is yes, it makes the classroom environment better for all!

03.01.18 PLACE BASED MODEL: "STUDY ABROAD" IN THE CHEROKEE NATION

Dr. Phyllis Fife - Northeastern State University, Center for Tribal Studies, Wyman Kirk - Northeastern State University, Language and Literature, Sedelta Osahwee - Northeastern State University, Center for Tribal Studies, Chris Smith - Northeastern State University, Center for Tribal Studies, Travis Wolfe - Northeastern State University, Center for Tribal Studies, Travis Wickliffe - Northeastern State University, Center for Tribal Studies, Kinsey Shade - Northeastern State University, Center for Tribal Studies

EDUCATION

Initiated at UNC-Chapel Hill as a Native American tribal studies program, the concept of "study abroad" was used to develop a unique program which was implemented at Northeastern State University in June, 2009. Twelve University of North Carolina students participated in the experiential and interdisciplinary program while living on the NSU campus. Five host students, all Cherokee, participated in learning activities the UNC students would experience both in the classroom and in the community. Advanced level students delivered 15 hours of instruction in beginning Cherokee to UNC students under the supervision of faculty from the Cherokee degree program. The Center for Tribal Studies assisted UNC faculty in the two-year development process and facilitated the program locally. Formal classroom instruction in history, government, culture, film, and literature was complemented with field activities to learn about tribal economy, education, social welfare, language initiatives, healthcare, religion, traditions, environmental challenges, tourism, and recreation.

Based upon international study abroad principals, this innovative collaboration between NSU and the UNC-Chapel Hill presented a rigorous learning experience in cooperation with a sovereign tribal nation. This model offers new expectations for "stewards of place" as both NSU and UNC are uniquely situated in the geographic regions of the Cherokee Nation past and present.

02 GERONTOLOGY

03.02.01 RAISING AWARENESS BY INFUSING GERONTOLOGY INTO SOCIAL WORK CURRICULUM

Ms. Angela Blanton - East Central University, Social Work Program, Ms. Georgia Ramsey - East Central University, Social Work Program, Ms. Erika Armstrong - East Central University, Social Work Program, Ms. Tabatha Miller - East Central University, Social Work Program, Ms. Beckie Bowen - East Central University, Social Work Program

The elderly population is growing due to the baby boomers reaching the age of retirement. Therefore, there is an increasing need for social workers to have knowledge and be aware of issues related to older adults. Over the last year, in order to meet this increasing need, the Council on Social Work Education has encouraged universities to infuse gerontology into the social work curriculum. A forty item Likert scale is used to assess knowledge, values, and competencies of bachelor level social work students. The purpose is to determine if infusing gerontology into the social work curriculum has increased the amount of awareness and knowledge bachelor level social work students have about older adults. It is our prediction that

upper level social work students will have an increased awareness and knowledge due to the infusion of gerontology into the social work curriculum.

03.02.02 TEACHING AND PROMOTING RESILIENCE THROUGH INTERDISCIPLINARY COLLABORATION: CERTIFICATE IN GERONTOLOGY PROGRAMS

Dr. Douglas P. Reed - University of Central Oklahoma, Sociology/Criminal Justice/Substance Abuse

Increasingly, our workforce will need to be prepared to work with older adults, promote the strengths of older adults, and work across disciplinary lines. Venues to teach the upcoming workforce about this process of interdisciplinary collaboration can rest within program such as Certificate in Gerontology program and Master's degrees in Gerontology. This poster will present the unique features that these educational venues provide, and will explore ways to teach and promote interdisciplinary collaboration through these educational venues.

03.02.03 EFFECTS OF FRUIT AND VEGETABLE CONSUMPTION ON CONSUPTION OF HIGH-FAT FOODS BY AGE GROUPS

Dr. William Hart - Rogers State University, Department of Health Sciences

Higher levels of fruit and vegetable consumption have been linked to lower risks for heart disease, diabetes, certain cancers and hypertension. One of the key unanswered questions is whether this represents an effect of the elevated consumption of fruits and vegetables or a lower consumption of other foods, particularly those higher in fats. Using the Nation Health And Nutrition Examination Survey (NHANES), models were developed examining differences in high-fat food consumption for the lowest quartile of fruit and vegetable consumption versus the highest quartile by age group. The NHANES data set is particularly well-suited to this study since it represents a multi-stage probability sample of the civilian, non-institutionalized population of the United State. Other variables in the model include, gender, race/ethnicity, income and education levels since all of these have been shown to affect food consumption behavior patterns. We expect that the elderly will be more prone to consuming fruits and vegetables while avoiding high-fat foods since they are more conscious of the risks of the chronic diseases and are more likely to be suffering the effects of these diseases.

03 HUMAN ENVIRONMENTAL SCIENCES

03.03.01 INVESTIGATING THE DYNAMICS OF RELATIONSHIP VIOLENCE AMONG COLLEGE STUDENTS

Charlette Nicole Webber - University of Central Oklahoma, Human Environmental Sciences, Glee Bertram Ph.D. - University of Central Oklahoma, Human Environmental Sciences, Ladonna Atkins Ph.D. - University of Central Oklahoma, Human Environmental Sciences

One's college years serve as a very important period of time when there is a deeper level of commitment in relationships. Like marital relationships, dating relationships that resemble that of marital relationships are more at risk for violence (Stets & Pirog-Good, 1987). In Bookwala, Frieze, Smith, & Ryan's study (as cited in Bougere, Rowley, & Lee, 2004), they found that aggressive behavior has been present in 20 to 50 percent of university students' relationships. College years serve as an important transitional stage that allows one to put into practice the knowledge and life experiences he or she has gained over time. By understanding the factors that play a role in perpetuating violent behaviors in relationships, society can work towards educating and successfully combating these behaviors.

03.03.02 IFP SIAP INSTRUMENT FLIGHT PROCEDURE - STANDARD INSTRUMENT APPROACH PROCEDURE

Rochelle Howard - Langston University, Mathematics, Julie Morgan - Federal Aviation Administration, System Integration

The Production Integration Team aids in the design, development and maintenance of application/software services. These software are used in the standard development, evaluation, and certification of airspace systems, as well as instrument flight procedures (IFP). Among the existing software is the standard instrument approach procedure (SIAP). To ensure releases meet user needs and does not impact production the software goes through two different phases of testing: Alpha testing and Beta testing. Alpha testing is done by the project manager (PM) and select members of his team, and Beta testing is done by users who are familiar with the software. Testers follow a test script that is made by the PM to test the software. The PM composes a variety of test scripts that way every different change is tested. Each test script can either reveal that everything is in working condition, pass, or there is a defect, fail. If it passes it is recorded and testers move on with the next text script, if it does not

it is recorded and sent to information technology (IT) so it can be fixed. Out of the thirty test scripts completed, twenty nine ended with a passing result. The one that failed has to now be reworked by IT and retested. Proper testing is extremely important. The ultimate goal of testing is to produce a product with the highest level of customer satisfaction (safety). Future work will comprise of properly testing any previous failed test scripts.

03.03.03 POVERTY AND ITS EFFECT ON EARLY CHILDHOOD STUDENTS

Mrs Kristie Stidman - East Central University, Education, Ms Ashley Christene Green - East Central University,

Poverty and its Effect on Early Childhood Students. Early childhood students throughout the United States are suffering during and after school, because their concern is what meal comes next. Our presentation gives a clear concise understanding of how poverty negatively effects the learning of our students. Not only their learning, but also their health. Maslov's Hierarchy of needs expresses that basic life needs such as: air, food, drink, shelter, warmth, and sleep must be met before the concern for learning is at all considered. Throughout our research this fact has been made very clear. We hypothesized that diet quality and dietary behaviors are very closely related to several factors including socio-economic status, education levels, environment, and knowledge of health and nutrition. In our presentation we plan to express how poor nutrition has become a major issue and why it is important for early childhood students to be well fed, and what can be done to keep children from eating so poorly.

03.03.04 RECESS ADVOCACY TOOLBOX

Lea May - University of Central Oklahoma, Human Environmental Sciences

Proposal Introduction

The decline of recess in schools today is a prevalent issue that has a widespread affect on children. Studies show that the amount of time designated for recess is diminishing in our schools today. The main reason for this decline is the fact that schools are being pressured to provide a head start on academic skills for their children, even at the youngest age. Forty percent of school districts throughout the United States are reducing or deleting recess as they focus additional time and resources on teaching and learning.

Rationale for Recess Advocacy Toolbox- Parents and educators need a resource to educate themselves as well as local school boards and legislators. This toolbox will give them the resource to gain knowledge about the issue of recess. Upon completion of the Toolbox, submission will be made to the Oklahoma Family Resource Coalition

for use as a source available on the OFRC website for recess advocacy. This toolbox could be modified by other organizations concerned about this issue. This resource guide can give our state recognition for providing the basis of advocacy for a prevalent issue of today.

Components of the Toolbox

- * Introduction to the Issue.
- * Steps to take for Legislative Action.
- * Recess Policy Recommendations.
- * Websites for further information.
- * Information on how to contact legislators.
- * Facts & Resources about recess advocacy
- * Sample letter to legislators.
- * Talking points for Recess Advocacy.

03.03.05 THE EFFECTIVENESS OF SPECIALTY AVIATION TRI-TINT LENSES

Tyson Allard - Northeastern State University, Optometry, Phillip Tabor - Northeastern State University, Optometry, Dr. David Lewerenz - Northeastern State University, Optometry

Authors: Tyson Allard, Phil Tabor, and David Lewerenz O.D.

Purpose: To compare the visual performance of this new tri-tinted lens with a uniformly tinted neutral gray lens and a clear lens.

Methods: The experiment contained eight total subjects with four being under the age of 45 and four being over the age of 45. A Cessna training aircraft was used for the testing, but oriented for luminance levels that approximate flight conditions. The total number of letters correctly read before a subject could no longer identify any further letters determined a visual acuity score, which was then converted to a Snellen equivalent. The Snellen equivalents were converted to minimum angle of resolution (MAR).

Results: The intermediate viewing distance for the group over the age 45 had statistical significant results concerning the tri-tinted lens. The p-value for the tri-tinted lens versus the clear lens was 0.0174, while the p-value for the tri-tinted lens versus the neutral gray lens was 0.0312. No other statistical significant results were calculated for the other distances for both age groups.

Conclusions: The results support a possible benefit of the tri-tinted lens design for pilots over 45 years of age in high luminance situations. It has the ability to improve instrument visibility and not detract significantly from distance vision. Due to the small number of subjects in this study, further investigation using a larger subject population is needed to confirm our findings.

03.03.06 ASSESSMENT OF BODY IMAGE AND WEIGHT CONTROL BEHAVIORS IN FEMALE COLLEGE STUDENTS

Katelynn Nguyen - University of Central Oklahoma, Human Environmental Sciences, Mojdeh Akbaran - University of Central Oklahoma, Human Environmental Sciences, Dr. Tawni Holmes - University of Central Oklahoma, Human Environmental Sciences

The "Freshmen 15" is known as the increase of body weight during the first year of college among students who are on their own for the first time. The purpose of this study was to identify the dieting practices and body image issues among female college students. A total of 45 female college students age 18 to 24 years participated in this study. The survey included 23 forced choice questions. The outcomes of this study indicated that 31% of participants agree that they were currently happy with their body image; 31% of participants were either neutral or disagree with obsessing about their body size; 33% of participants have never been on a diet since college although 39% of participants did compare their body types to other people's body type. The three most common weight control behaviors reported were exercise, use of low fat/ fat free foods, and counting calories. In conclusion, discussion with health educators regarding healthy and effective dieting practices would help female college students to maintain or attain a healthy body weight and address issues related to body image. Further studies are needed to explore this topic more thoroughly.

03.03.07 AN INVESTIGATION INTO PARENTAL INVOLVEMENT

Michelle Garvin - East Central University, Education, Crystal Johnson - East Central University, Education, Becky Weeks - East Central University, Education, Stephanie Wilson - East Central University, Education

ABSTRACT

The purpose of this study is to investigate the attitudes of parents and teachers of school-aged children in relation to parental involvement. The value of parental involvement in school has been researched, corroborated and somewhat legislated by No Child Left Behind (Dillon, 2008). Parental involvement will not ensure a child's success in school, but it has shown to be a definite influence on academic achievement. Sampling for this study will consist of parents of students in first grade and sixth grade that will be randomly selected. Teachers of students in grade one through six will also participate in the study. The instrument used will be a scaled answer survey concerning various aspects of parental involvement. There are 23 questions on the survey. It

will take each participant about 20 minutes to complete. The data will be collected by the investigators at their respective workplaces. The answers from this survey will be used to determine what the participants felt were the benefits of parental involvement, if parent support groups are effective and why parental involvement declines as children age. Researchers also seek to determine any detrimental effects caused by a lack of parental involvement. Data is in the process of being collected and analyzed.

03.03.08 DEVELOPMENT OF RESOURCE PACKETS FOR ELDERLY AT NUTRITIONAL RISK PARTICIPATING IN THE OKLAHOMA COUNTY HOME DELIVERED MEAL PROGRAM

Mrs. Amy J. Henderson - University of Central Oklahoma, Nutrition, Mrs. Tawni Holmes RD/LD, Ph.D. - University of Central Oklahoma, Nutrition, Mr. Doug Reed Ph.D. - University of Central Oklahoma, Gerontology

Food insufficiency amongst households is associated with poor nutritional status further reflecting diminished quality of life, disease outcomes, and rising health care costs. According to the U.S. General Accounting Office on Food Assistance Programs report during 1998, 1.6 million to 2 million households with individuals age 60 and older did not have the appropriate types or inadequate amounts of food to maintain their health. Reduction of disease outcomes through the implementation of food assistance along with nutrition education and other helpful resources may facilitate in the promotion of improved quality of life. This study compiles an extensive literature review to determine the most effective way to present materials to the elderly as well as the pertinent topics to be considered in a resource packet. Homebound elderly participants of Oklahoma County Home Delivered Meal Program were assessed according to "Determine Your Nutritional Health" (DYNH) screening tool. The top three identifiers of nutrition risk in Oklahoma County were a reduced ability to shop, prepare or feed oneself; taking multiple medications; and eating alone most of the time. An identified area of concern and focuses on educating clients on how to apply, obtain, and use food stamps. Materials were created to distribute and educate homebound elderly participants based on their particular areas of need and risk factors as determined by the DYNH tool with a follow up planned.

03.03.09 COHABITATION: PERSPECTIVES FROM A NEW MILLENNIUM

Ms. Vickie M. Goodman - Northeastern State University, Human & Family Sciences, Ms. Sheree M. Whiteside - Northeastern State University, Human & Family Sciences

The structure of conventional families has shifted from traditional marriage patterns to those of immense diversity. Statistics show that in 1970, 85% of families in the United states contained married parents. By 1976, those numbers had dropped to 68%. (Child Trends DataBank). Now families are comprised of single parent homes, grandparents raising children, and parents that are cohabitating. Research shows that children living in many of these differing structures are at risk for medical as well as emotional difficulties.

The purpose of this ongoing project is to evaluate college undergraduate students' perspectives on cohabitation. It is important to know how views on cohabitation may affect parenting, financial responsibilities, and family structures. Being aware of students' perspectives will be beneficial to instructors in providing information and preparing course content.

Data will be available on research day after students have completed surveys and instructors have compiled data.

03.03.10 THE EFFECTS OF CORPORAL PUNISHMENT ON THE PARENT-CHILD RELATIONSHIP DURING ADOLESCENCE

Moneek Broom - University of Central Oklahoma, Family Life Development, Dr. Frederick Hammond - University of Central Oklahoma, Professional Teacher Education

The present study examined how corporal punishment affects the parent-child relationship during adolescence more specifically, whether or not a child feels unloved, fearful, or depressed after corporal punishment is used by their parents. This study also explored whether or not low levels of non-corporal punishment has any affect on these characteristics. There were 78 participants. Results indicated that corporal punishment does produce negative feelings between the parent and child even if it is administered at a lower level. Due to the frequency of corporal punishment and the harmful side effects of corporal punishment society must recognize the impact it has on the socialization of American children.

EDUCATION

04 KINESIOLOGY, HEALTH STUDIES, & SPECIAL SERVICES

03.04.01 RESTRUCTURING THE CLIENT RIGHTS INFORMATION FOR GUIDING RIGHT, INC.

Nina Johnson - University of Central Oklahoma, Kinesiology

It is imperative for a non-profit community based organization to have policies and procedures in place when working with persons in the community. The purpose of this project was to revise/ update Guiding Right Inc.'s Client Rights information. The non-profit organization primarily assists individuals who are seeking an HIV test and/ or are currently living with the disease. My primary assignment was to update the Client Rights information to ensure that not only clients of services but also employees of the facility were well informed about client's rights. The project entailed conducting research from local, state and federal entities on client rights. A sample pamphlet was created from this research, and the existing and new client right's information sheet will be assessed by four individuals (two external reviewer and two internal reviewers). In comparing the two Client Rights information sheets, the results will yield that the revised version will be interpreted with ease and useful to the clients and organization.

03.04.02 DEVELOPMENT OF A COALITION TRAINING TOOLKIT TO PROMOTE ACTIVISM AND BUILD SKILLS

Mrs. Lana S. Hale - University of Central Oklahoma, Department of Kinesiology and Health Studies

The State of Oklahoma has earned one of the lowest health ratings in the nation-47th in overall health and 50th in cardiovascular disease according to the Centers for Disease Control, citing tobacco use as the significant contributor. Realizing the tobacco companies were winning the hearts and minds of our citizenry, the Tobacco Use Prevention Coalition was created to raise awareness, expose deceptive marketing practices of Big Tobacco to youth and minorities, and promote clean-air ordinances to city councils. In order to meet their mandate a new training toolkit is needed. The purpose of this project is to develop a portable training toolkit for the coordinator and members of the coalition. The method involves developing a curriculum around advocacy and communication skills. Techniques include using a 4-step instructional plan with a Powerpoint slide show for each skill set. Assignment and Procedure Sheets will be included. Attention will be paid to illustrations and literacy.

Participants will be adult coalition members most of whom are well educated and employed in business, healthcare, and education. Likert Scale evaluation forms based upon objectives, learner feedback and attainment of grant indicators will measure effectiveness. This project has broadened my understanding of educational theory and required me to confront my own self-efficacy issues. I have gained experience writing objectives and incorporating motivation into the lesson plans.

03.04.03 INTERNSHIP EXPERIENCE AT INTEGRIS-HEALTH

Andrea Dianne Mills - University of Central Oklahoma, Wellness Management

My internship site was Integris-Health Employee Wellness Program, a program designed to offer opportunities to improve the health and wellness of the Integris employees. The program was initially started in 1978, consisting of a health risk assessment. Since then the program has grown and now includes many programs including a health risk assessments, wellness screenings, personal health journals, physical activity logs, food logs, awareness quizzes, weight management program, lipid management program and a smoking cessation program. My primary assignment was to improve the program by researching and creating more effective ways to increase participation in preventative exams. This experience allowed me to research what other companies had found successful and put this knowledge in action by drafting a new plan for Integris to improve the participation of their employees in preventative exams. This experience has taught me to communicate so that I understand exactly what is needed, organize a project into steps, and work efficiently to create the project within the time guidelines.

03.04.04 INTERNSHIP EXPERIENCE AT INTEGRIS BAPTIST MEDICAL CENTER

Ms. Shikshya Shrestha - University of Central Oklahoma, Kinesiology & Health Studies

Primary Presenters: Shikshya Shrestha
Faculty Mentor: Dr. Diane Rudebock
Email/phone: sshrestha17@uco.edu/(405)-600-8082
Major: Community Health
University Attending: University of Central Oklahoma
City: Edmond
State: Oklahoma
Title: Internship Experience at INTEGRIS Baptist Medical Center
Discipline: Community Health

The 200 hour internship is a course requirement for a graduating Community Health senior. I believe such

experience is a vital part of molding us into becoming a good public health educator, and any health related field we choose as our career in future. I am interning at the Cancer Center at INTEGRIS Baptist Medical Center. Cancer used to be a death sentence to people at one time, now with advanced treatment technologies many cancer patients have survived and are living a healthy and happy life. The few days at INTEGRIS has already given me so much information and knowledge on cancer, organizing events, and working collaboratively with the employees of other departments as a team. I have been helping my supervisor in promoting "Race for the Cure." This is one of the nation's big events organized by the Komen Foundation to cherish life of the breast cancer survivors. I have been helping with the statistical data for free cancer screening provided by INTEGRIS. Every day is a great learning experience for me. I definitely believe that this will be very beneficial as I pursue my future goals and career.

03.04.05 THE \$2.50/DAY DIET: A UCO EDUCATIONAL TOOL, REALITY FOR THE WORLD

Brittney Hodges - University of Central Oklahoma, Kinesiology and Health Studies-Community Health

Globally, many people spend only \$2.50/day for food. The purpose of this project is to increase awareness of global poverty and its effects on health by modeling a \$2.50/day diet for an Oklahoma college student.

A 26 year old female college student volunteered for the project. Her typical diet, activity level, and Basal Metabolic Rate (BMR) was assessed and recorded. A diet based on \$2.50/day was created by using prices available at an Oklahoma grocery store. The typical diet and normal daily activities were then compared to the \$2.50/day restricted diet to assess insufficiencies in nutrients and calories. The restricted diet served as a model and was not implemented by the student.

The results of this project indicated the need for greater awareness regarding poverty's effects on health and daily activities. The \$2.50/day model diet provided a daily average of 1225 calories versus the unrestricted diet's daily average of 1899 calories. Prolonged vitamin and calorie deficiencies can impact long-term health by influencing factors such as bone mass. Due to reduced calorie intake, daily activities would also be affected. Activities must also be evaluated and reduced in order to save energy and strength. The effect on health and activity levels would require a change in the student's lifestyle. This project raises awareness about global poverty by personalizing its effects to Oklahomans.

03.04.06 INTERNSHIP EXPERIENCE AT VOLUNTEERS OF AMERICA- ADVANTAGE PROGRAM

Allegra Seals - University of Central Oklahoma, Community Health, Kinesiology and Health Studies

I chose to do my internship at Volunteers of America-ADvantage Program. The ADvantage program accommodates the needs of our elderly population. It is geared towards fulfilling the services needed to help people sixty-five years and older stay in their respected homes. Volunteers of America seeks to help prevent our elderly population from being sent to Nursing Care facilities or Institutions. They help by joining forces with medical supply companies and home health aid facilities, as well as many more organizations, in order to help care for senior citizens within the community. I became involved in shadowing ADvantage Case Management Workers to get a better understanding of what they do as part of this program and how they go about giving their clients the services that they need in order to stay in their own homes. This experience has truly had a positive affect on me. It has really changed my perception of how we care for our elderly population. Doing my internship with this agency gave me a better respect for organizations that reach out a helping hand to help out our senior citizen population. The Advantage program taught me that one could make a difference in someone's life, no matter what age they may be. Offering your assistance in helping someone in need is very fulfilling and rewarding because you know that your hard work was recognized and appreciated by someone who needed your helping hand.

03.04.07 COMMUNITY HEALTH INTERNSHIP

Rachel Woods - University of Central Oklahoma, Community Health

My selected internship site was at the Oklahoma State Department of Health in the office of STD/HIV Prevention and Intervention. During my internship, my primary duties included shadowing health educators in the field and assisting with obtaining information for various projects throughout the office. One assignment included researching other state HIV/AIDs resource inventories as a reference for the new Oklahoma resource inventory. This is a part of the community services assessment, and through this research I was able to learn about community planning. I have also been given the opportunity to attend various classes presented by the health educators within the department. This specific field has taught me how important it is to leave your personal beliefs and judgments at home in order to provide the needed information to your targeted audience. I have learned to be more understanding and accepting of many things.

03.04.08 RELATIONSHIPS BETWEEN CHANGE IN MUSCULAR STRENGTH AND ENDURANCE FOLLOWING RESISTANCE TRAINING

Jonathan Suttle - University of Central Oklahoma, Kinesiology and Health Studies, Sydney Tomlinson - University of Central Oklahoma, Kinesiology and Health Studies, Patrick Funkhouser - University of Central Oklahoma, Kinesiology and Health Studies

The literature is inconsistent regarding the relationship between improvements in muscular strength (MS) and muscular endurance (ME) following resistance training. The purpose of this study was to determine if a relationship existed between changes in MS and changes in ME. It was hypothesized that a positive relationship would be present between changes in MS and changes in ME. Participants (n = 31) consisted of women 75 years of age or older who completed six months of resistance training. The chair stand and arm curl tests of the Senior Fitness Test were used to assess ME, while MS was assessed using one repetition maximums (1RM) for the biceps curl and knee curl exercises. MS and ME change variables were calculated as the difference between pre- and six-month tests for all variables. Results were analyzed using Pearson's product moment correlation coefficient. No significant relationships were observed between changes in MS and changes in ME ($p > .05$). A significant positive relationship was found between the two measures of ME ($r = .568, p = .002$), but no relationship was found between measures of MS ($r = -.037, p = .862$). Findings support previous literature in regard to the inconsistent relationship between improvements in MS and ME following resistance training. The results also support the need for full-body testing when observing changes over time. Although, upper and lower body ME changes were similar, MS changes followed a different pattern.

03.04.09 THE ASSOCIATION OF FAMILY PARTICIPATION AND OBESITY OUTCOMES IN FIFTH GRADE CHILDREN PARTICIPATING IN AN OBESITY PREVENTION INTERVENTION

Miss Rashawnda Brown - Langston University, Chemistry

Purpose: The purpose of this study was to conduct a 3 year educational and behavioral intervention on 3rd graders at two elementary schools in the Fort Worth Independent School District aimed at preventing and reducing obesity.

Methods: The 3rd grade children and their parents were invited to participate in the FitFuture program. The

intervention included regular educational and physical activities, family memberships at the local YMCA, and numerous family activities that promoted a more active lifestyle and healthier eating habits. Body Mass Index (BMI), percent body fat, weight and other measures were measured regularly. Family participation in study related events was also noted throughout the intervention.

Results: A total of 20 subjects were continuously enrolled for the entire three years at the intervention school. Of these, 60% (n=12) of the children participated in study related events with no parental participation. By the end of the intervention, subjects with parental involvement in study related events had lower BMIs (24.3 vs. 25.4), percent body fat (27.1% vs. 28.4%), and mean weight (56.2 kg vs. 58.8 kg).

Discussion: Children whose parents participated in study related events may have enjoyed better outcomes because their families may have seen the benefit of the program and thus increased their child's physical activity and changed their diet.

03.04.10 THE CORRELATION BETWEEN STATIC MAXIMAL GRIP STRENGTH TO MAXIMAL PUSH-UP REPETITION PERFORMANCE.

Mr. Eric Dale Reed - University of Central Oklahoma, Kinesiology and Health Sciences, Mr. Patrick Funkhouser - University of Central Oklahoma, Kinesiology and Health Sciences, Mr. Paul Walker - University of Central Oklahoma, Kinesiology and Health Sciences, Nicolas Whitmer - University of Central Oklahoma, Kinesiology and Health Sciences

An individual's grip strength has long been recognized as an important component of muscular fitness. Forearm and hand flexor muscles are the primary muscles involved in gripping whereas the wrist extensors provide stability. The purpose of this study was to investigate the correlation between static maximal grip strength to maximal push-up repetition performance.

This study was approved by the University's Institutional Review Board and written consent was obtained from each participant before taking part in the study. Each participant completed a demographic survey. The static grip strength test was administered followed by maximal repetitions push-up test. The grip test had the participant stand holding the grip dynamometer in their dominant hand with the arm resting next to their thigh. Held firmly and begin to squeeze as much as possible to reach maximal force. Each participant was test two times with two minutes of rest between each test.

For male participants used the standard push-

up starting in the down position. Female participants were instructed to conduct the modified push-up. Each participant was to perform push-ups until unable to continue.

The results of the investigation have not been formulated, data is currently being collected. The findings from the study could assist in improving the understanding of the impact grip strength has of athletic performance. Additionally could possibly improve current training protocols.

03.04.11 THE SPERO PROJECT: SUSTAINING HOPE IN A GLOBAL COMMUNITY

Lauren West - University of Central Oklahoma, Kinesiology and Health Studies

Primary Presenter: Lauren West
 Faculty Mentor: Dr. C. Diane Rudebock
 Banquet Attendance: Yes
 Valid Email: leighwest@gmail.com
 University Attending: University of Central Oklahoma
 City: Edmond
 State: Oklahoma

Title: Internship Experience with Catholic Charities
 Discipline: Community Health

I completed my internship with The Spero Project, a fairly new non-profit organization partnered with Catholic Charities, that seeks to utilize and collaborate with the faith-based community to offer job placement, health needs, English language learning, and homework help for the refugee population here in OKC. Spending time each week at The Spero Project gave me a gateway to many different countries. I felt very blessed and fortunate to serve this population with my heart and my education. I sought to improve the physical activity, social interaction, and health awareness of women through the program, "Walk the Talk." I also took the initiative to start a dance group with several pre-teen girls who were interested in dance lessons. I love cross cultural work, and this experience laid some ground work for further continuation in this area. I was also stretched to be a leader and facilitate health classes, activities, and design and implement programs. I learned a great deal about networking among different groups and teaming up to be effective in making an impact on the world.

03.04.12 A QUALITATIVE APPROACH TO LABYRINTH RESEARCH

Dr. C. Diane Rudebock - University of Central Oklahoma, Kinesiology and Health Studies, Carol Naifeh R.N. - University of Central Oklahoma, Kinesiology and Health Studies, Brittney Hodges - University of Central Oklahoma, Kinesiology and Health Studies

The purpose of this qualitative research is to analyze 461 written responses from persons who walked an 11-circuit Chartres design, indoor canvas labyrinth. Immediately after walking the labyrinth, participants wrote about their experiences. These written responses are ideal to use for a qualitative study and are currently being evaluated by three different reviewers using five categories: messages received while walking; analogies; thoughts; key words; and feelings. Current research on labyrinth experiences is minimal and often includes a very small number of participants or uses a quantitative or case study approach.

Research has identified the benefits of other forms of meditation that are currently practiced in the United States and in other countries. The benefits of walking a labyrinth have not been verified through any large-scale study. Labyrinths designs have been documented in many cultures throughout history. Labyrinth designs have a unicursal path which leads to the center of the design and returns to the beginning using the same path so the path can represent a symbolic journey of one's life. There are no dead ends or tricks like a maze. The labyrinth in Chartres Cathedral in France dates back to 1201.

Using a qualitative approach to analyze large amounts of data of those who have walked a labyrinth seems to be ideal for beginning to understand how using this ancient design of a moving meditation can be beneficial to one's health and wellness.

03.04.13 RELATIONSHIP BETWEEN CHRONIC EXERCISE AND ALCOHOL CONSUMPTION

Larissa Adams - University of Central Oklahoma, Kinesiology and Health Studies

Exercise has shown to have many positive effects on the body. Conversely, the consumption of alcohol has been known to have negative effects on the body. Research has shown that people with addictive behaviors are more likely to become addicted to exercise and other hormone stimulating behaviors such as alcohol and drug usage. Feelings of withdrawal have been reported to be greater in those who exercise chronically and consume large amounts of alcohol rather than those who just partake in one addictive behavior. The purpose of this

study is to determine if there is a relationship between alcohol consumption and the amount of time students spent strength training. The American College Health Association survey was randomly emailed to 9,000 college students. Data was self reported by 472 respondents. Students were asked how many occasions they drank within the last two weeks. They were also asked about the amount of days spent strength training within the past seven days. A Spearman's Rank Order correlation coefficient will be calculated to determine if a relationship exists between strength training and alcohol consumption. The expected results are that the more people strength train, the more they will drink alcohol. Future applications of this data should make people more aware of psychological effects of chronic exercise and addictive behaviors. This could be beneficial in targeting students at risk for addictive behaviors.

03.04.14 INTERNSHIP EXPERIENCE AT THE LOGAN COUNTY HEALTH DEPARTMENT

Jennifer Duller - University of Central Oklahoma, Department of Kinesiology and Health Studies

My internship site was the Logan County Health Department, generally focusing on Health Education. The agency serves all persons in Logan County, and different programs serve different populations. The agency is separated into 14 departments and has around 45 employees. My experience at the Logan County Health Department was very well rounded. I was able to focus on all aspects of health. I assisted with the after school program CATCH; this health program is to promote physical activity and healthy food choices. I shadowed several employees of the agency and was able to understand the many areas of public health. I assisted with public health inspections, and also visited several daycares to make sure their vaccination records were up to date. My experience at the Logan County Health Department has helped with my social and communication skills; and has better prepared me for my future career as a Health Educator.

03.04.15 WHO DO YOU BELIEVE? PROMOTING HEALTH LITERACY IN COLLEGE STUDENTS

Carolyn Gresham-Fiegel - University of Central Oklahoma, Department of Kinesiology & Health Studies

In the current climate of health care reform, emphasis is placed on the promotion of self-care as a necessary component of health care. The desire of an individual to take a proactive role in his or her own well-being, often called self-care, depends in turn on the individual's level of health literacy. A high level of health literacy imparts

an ability to gather, understand, and use basic health information to make informed personal health decisions. Fewer hospital visits and more successful medical outcomes result. College students, on their own for the first time, are at an increased risk for low health literacy and determining the most efficient and believable routes for disseminating information to them becomes a goal. In the present study, leaflets, medical center staff, and the internet were chosen as three possible sources of information used by college students. Using data gathered in the 2008 ACHA College Health Assessment, the believability of these information sources was considered by year in school and by gender. Students at all grade levels found medical staff most believable, and all consistently believed the internet the least. In addition, chi square analyses showed a significant difference between male and female students in the believability of leaflets. While more information should be gathered, results imply that the use of medical staff, as in hotlines and seminars, may be more efficient than the use of internet or printed materials.

03.04.16 INTERNSHIP EXPERIENCE AT SCHOOLS FOR HEALTHY LIFESTYLES

Stephanie Adams - University of Central Oklahoma, Department of Kinesiology & Health Studies

My internship site was Schools for Healthy Lifestyles (SHL). Their mission is to promote and maintain healthy lifestyles among students, families, and educators. Oklahomans are getting unhealthier year by year, and SHL strives to educate and create awareness among elementary students, their parents, and faculty.

I was responsible for many interesting tasks at Schools for Healthy Lifestyles. I was first given the assignment of updating a Bicycle Rodeo Packet. This packet is distributed to a few SHL recipient schools who are interested in holding a Bicycle Rodeo. The packet goes into detail on how to set up a Bicycle Rodeo, along with diagrams of optional courses. I was also asked to create a SHL Volunteer Handbook. This handbook helps SHL volunteers know more about SHL, what is expected from them, and what the SHL policy and procedures are. I also went to several Oklahoma elementary schools and gave a pre health risk survey to fourth and fifth graders.

Since elementary students are the target area that I plan on building my career around, SHL has given me the opportunity and building blocks needed in furthering my knowledge on issues regarding school age children. My valuable learning experience at SHL has given me the tools necessary to make it into the professional world of serving and helping my community.

03.04.17 INTERNSHIP AT THE OKLAHOMA CITY-COUNTY HEALTH DEPARTMENT WITH IMPLEMENTATION OF CATCH.

Brittney Christine Murray - University of Central Oklahoma, Kinesiology and Health Studies

My internship site was at the Oklahoma City-County Health Department, specifically in the Health Promotion program. There are several areas that Health Promotion serves, one of them being CATCH (Coordinate Approach to Child Health). I was assigned to help teach CATCH and create a newsletter that targeted the parents who had kids attending CATCH. Before I started, I received special training for CATCH. The purpose of CATCH is to prevent obesity by implementing the importance of physical activity, nutrition, and preparing healthy snacks in school-aged children (3rd-5th grade). I also designed the newsletter for the parents so they can see what their child is learning and hopefully they can get information as well. This experience taught me about the importance of health promotion and how much of a critical role it plays in our society. I did not realize how many kids did not understand the basic steps to live a healthy life. This opportunity helped me learn how to implement and teach programs when I step into the public health field someday.

03.04.18 IMPLEMENTATION OF DANCE AEROBICS (ZUMBA) FOR OLDER ADULTS.

Brittney Murray - University of Central Oklahoma, Kinesiology and Health Studies

The aim of this study is to improve balance, mood, and depressive symptoms with Zumba. Comprised of a combination of Latin dances (salsa and meringue), Zumba incorporates cardiovascular specific moves, simultaneously for a complete workout.

Participants will consist of male and female adults who are 55 and older. Each individual will complete the proposed 10-week dance program. Zumba classes will be completed twice per week, 45 minutes per session. Each session will include a warm-up, dance, and a cool-down. One week prior to the first class and one week after the last class, each participant will complete a battery of tests, measuring: balance, mood, and depressive symptoms. Each participant's mood will be assessed by using the Visual Analog Model (VAMS). The model measures several mood states: afraid, confused, sad, energetic, angry, tired, happy, and tense. The 8-foot up and go test will be used to measure each participant's dynamic balance. The Center for Epidemiologic Studies Depression Scale will be administered to each individual in the study to measure depressive symptoms. Data will be analyzed using dependent t tests.

Incorporating dance aerobics, Zumba, we can expect to

see an improvement on individuals balance, mood, and depressive symptoms. This research can be beneficial for activity directors of retirement centers and community centers as they plan physical activity programming for their residents and clients.

03.04.19 OUTDOOR ACTIVITIES AND ITS CORRELATION TO LIFE SATISFACTION

Mr. Geoffrey William Harris - University of Central Oklahoma, Kinesiology, Curt Dikes - University of Central Oklahoma, Kinesiology, Darby Slater - University of Central Oklahoma, Kinesiology, Adam Ashford - University of Central Oklahoma, Kinesiology

Americans are becoming increasingly sedentary with little or no interaction in outdoor environments. The purpose of this study is to examine the relationship between frequency of engaging in outdoor activities and life satisfaction.

Methods for this study include a short questionnaire distributed to participants, which assess by self-report life satisfaction and frequency of participation in outdoor activities. Participants for this study are college students over the age of eighteen enrolled at the University of Central Oklahoma. Data will be analyzed using the Spearman's rank order correlation coefficient.

The expected result of this study is that increased frequency of engaging in outdoor activities will be related to higher overall life satisfaction. The outcome of this study can help in the reasons for proper maintenance and development of current and future parks to better one's life satisfaction.

03.04.20 HOURS WORKED VERSUS QUALITY OF REST

Ms. Victoria George - University of Central Oklahoma, Wellness Management, Ms. Kara Nimz - University of Central Oklahoma, Wellness Management, Ms. Yolanda Emerson - University of Central Oklahoma, Wellness Management

The American College Health Association-National College Health Assessment (ACHA-NCHA) survey was conducted at the University of Central Oklahoma (UCO), regarding the healthy lifestyles of the students. The purpose of this study is to find out if the amount of hours worked at a job per week is related to the quality of rest. This survey was email to 9,000 UCO students, which were randomly selected. Of the 9,000 email surveys only 472 responded to this self-reported survey. A Spearman's Rank Order correlation test will be conducted to test the relationship between hours worked at a job per week and quality of rest. The expected results of this study are that as the amount of hours of work increases, the days

of quality rest will decrease. Findings from this study will allow future researchers to look at how the quality of rest can affect a person's quality of life. Also with the lack of quality rest a person is more likely to have a decreased attention span, decrease in productivity throughout the day, an increase in caffeine intake, and an increase in mistakes made.

03.04.21 LET'S START TALKING: DOES PREMATUREITY AFFECT A CHILD'S LANGUAGE DEVELOPMENT?

Mr. Ryan Crowe - East Central University, Education,
Mrs. Carris Renea Crowe - East Central University,
Education

Prematurity can have major effects on a child's language development. The most severe and noticeable issues are found in babies with increased prematurity or in conjunction with a number of other variables. Some of the most commonly found effects include: poor vocabulary size for age, poor quality of word use, and delayed babbling and/or use of sounds. Some of the variables that increase these effects are low birth weight of infant, long-term NICU stay or hospitalization, hearing and/or physical disabilities, socioeconomic status, and lack of parental involvement.

Having a daughter born prematurely, the idea for this poster was developed due to care and concern with the topic. Based upon our research findings, there should be concern when dealing with a premature child's language development; however, the majority of drastic situations are found in premature children who have other underlying issues. It is essential that premature babies are observed closely so that if any language development issues arise, steps may be taken to help the child overcome their obstacles.

03.04.22 THE DEAF EMERGENT READER

Samantha Lynn Dolan - East Central University,
Education

When a child learns to read there is an emphasis on the sound each letter or letter combination creates in the spoken language. Though learning to read takes time and does not occur without difficulties the concepts are not completely unknown to the child, for deaf children this is not the case. A deaf child cannot hear the sounds that are taught to represent the text. In many cases the child's first language is not English based and other difficulties can arise in simply translating the text. This research sets out to discover the differences in how a deaf student learns to read compared to the hearing student. While the deaf student learns in a similar manner as hearing students do there are still differences due to the lack of hearing. Before a child learns to read they must learn a language.

Without a first language the child does not have something to translate the words into. Certain areas of phonological awareness that require more hearing than others, for example rhyming, are noticeably more difficult for the student to learn, in contrast other areas that have more visual cues, for example syllabication, are noticeably much easier for the student to learn. Despite these the deaf student's reading can match that of a hearing student if the proper instruction is provided. In conclusion, this research supports the idea that a deaf student can become a fluent reader and provides the knowledge of why the differences occur so proper instruction can be further explored.

03.04.23 WHAT AFFECT DO FOOD PROGRAMS HAVE ON EARLY CHILDHOOD DEVELOPMENT?

Alexis Robertson - East Central University, Early Childhood Education, Brittany Worcester - East Central University, Early Childhood Education, Brittany Crosby - East Central University, Early Childhood Education

While many food assistance programs are viewed in a negative manner in society, additional research and deeper examination into the issue prove many benefits are evident. In this poster, we provide detailed information on specific organizations that offer nutritious foods to less fortunate children. Extensive research has proven that these organizations that kindly extend support for children enhance each child's development not only in education, but socially as well. In conclusion, food assistance programs are highly effective for all early childhood children living in lower economic societies.

03.04.24 IS THERE A LINK BETWEEN PHYSICAL EDUCATION IN SCHOOLS AND CHILDHOOD OBESITY?

Ms. Stevanna Segerlund - East Central University, Ms. Missy Tomlinson - East Central University, Education

Is there a link between physical education in schools and childhood obesity?

Stevanna Segerlund, Missy Tomlinson

Our project deals with linking the lack of Physical Education in schools to the rise in obesity in children. Our research will prove that schools need to keep the physical education as part of the daily curriculum in order to give our kids a place to be active and help them stay healthy. It is important for us to start teaching our kids when they are still young, the importance of being active and to exercise so that when they become adults, they will continue that lifestyle. We can do this by having the required amount of physical education in our schools; they can see that it is in fact important.

Through our research, we tried to link obesity and physical education together to prove that there is a correlation. During our research, we have gathered information in order to make an accurate analysis. In conclusion, we found that having physical education does in fact help children with obesity. We cannot control what children do after they get home, but it is the responsibility of the school to make sure they are keeping them as healthy as possible while they are in school.

03.04.25 DEPRESSION AMONG FRESHMAN STUDENTS AT A REGIONAL UNIVERSITY IN OKLAHOMA

Dr. Kathy Hixon - Northeastern State University, College of Education/Health & Kinesiology, Dr. Vanessa Anton - Northeastern State University, College of Education/Health & Kinesiology, Dr. Shae Foutch - Northeastern State University, College of Education/Health & Kinesiology

Depression Among Freshman Students at a Regional University in Oklahoma

The college years should be the best time of a person's life. Not so for many beginning freshman. The transition into college can be overwhelming and in fact is to approximately 30 percent of freshman (UCLA). Leaving home, new and sometimes overwhelming financial responsibilities, academic pressures, along with a newfound freedom for night life, opens the door for depression or exacerbating symptoms that already exist.

The purpose of this study was to determine what percentage of college freshman have been diagnosed with depression, what percentage of college freshman have been treated and/or are taking medication for depression, how many are currently in treatment for depression, and are there more men than women with depression.

Male and female students enrolled in personal health were invited to participate in this study. The Mental Health section (depression/stress indicators) of the American College Health Association-National College Health Assessment (2008) was utilized to determine depression status.

03.04.26 GENDER DIFFERENCE IN MUSCULAR ENDURANCE CURL-UP TEST

Kayla Garver - University of Central Oklahoma, Kinesiology, Syiece Bowie - University of Central Oklahoma, Kinesiology, Kirsten Borgert - University of Central Oklahoma, Kinesiology, Chelsea Hull - University of Central Oklahoma, Kinesiology

General fitness of the core muscles is important for balance and stability in daily functioning. Typically, males have greater muscular strength than females. The

purpose of this project is to determine if there is a gender difference in core muscular endurance.

A sample of students at the University of Central Oklahoma will be used. Males and females will complete a muscular endurance curl-up test. The participants will have to do a curl-up and reach a four-inch distance, with their fingers. The goal will be for the participants to perform as many curl-ups as they can in one minute. The number of complete curl-ups will be recorded for the measure of endurance. The results will be analyzed using a dependent t-test to test for gender differences in curl-up performance.

The expected results are that males will perform better on the curl-up test. At maturation, males tend to gain lean muscle while females tend to gain necessary abdominal fat around reproductive organs. Since the reproductive organs reside in the trunk, females' fat distribution is higher in the abdominal region. This could result in males having the ability to perform better.

The results of this project will be useful for fitness professionals and their clients. It can be used to help shape the approach to abdominal muscular endurance achievement. Fitness professionals and their clients can use the results to be able to understand appropriate goals for abdominal muscular endurance, based on gender.

03.04.27 INITIATION OF SMOKING IN AFRICAN AMERICAN YOUNG ADULTS

Mrs. Kamisha Busby - University of Central Oklahoma, Kinesiology and Health Studies, Jacqueline Mansker - University of Central Oklahoma, Kinesiology and Health Studies

African Americans often begin smoking as young adults after avoiding the vulnerable period for smoking initiation in adolescence, resulting in adult smoking rates as high or higher than whites and Hispanics. The purpose of this qualitative study is to use formative research to help tobacco researchers and community practitioners understand why African Americans begin to smoke as young adults. Fifteen focus groups will be conducted to collect detailed information about tobacco use in African American young adults. This information will be linked to brief attitudinal surveys administered before and after focus group discussions to provide more detailed information about attitudes, knowledge, beliefs, and tobacco use behaviors. The attitudinal surveys will also be administered to 100 additional African American young adults to have a sufficient number to conduct a quantitative analysis of the beliefs, attitudes, values, and social influences that are associated with smoking initiation and the transition to regular smoking. The results of this program can help in the development of future programs aimed at increasing the quality of life and level of independence of older adults through participation in resistance training activities. The culturally-

specific information resulting from the focus groups will help the Oklahoma tobacco community understand two behaviors among African Americans, late initiation of smoking and progression to regular smoking.

03.04.28 IS HAMSTRING FLEXIBILITY RELATED TO VERTICAL JUMP PERFORMANCE AMONG COLLEGE AGED MALES?

Kerry Arneson - University of Central Oklahoma, Kinesiology, Kyle Cavitt - University of Central Oklahoma, Kinesiology, Matt Mangan - University of Central Oklahoma, Kinesiology, Morgan Sunny - University of Central Oklahoma, Kinesiology

Muscle flexibility poses many different health benefits in relation to activities of daily living and specific sport performance. The purpose of this study is to determine if hamstring flexibility is related to vertical jump performance among college aged males. Active college aged males will be chosen and tested to determine the relationship between hamstring flexibility and vertical jump performance. The significance of this study is to understand whether college aged males with increased hamstring flexibility will have an increased vertical jump performance. Subjects will have their hamstring flexibility measured with the sit and reach test. After hamstring flexibility is measured, participants will perform two individual vertical jumps with a grace step for added jump momentum. Subjects will be allowed 10-20 seconds of rest in between jumps to allow for maximal jump power. Jump height will be measured via a vertical jump stand. The final vertical jump measurement will be obtained by subtracting the maximum reach height from the maximum jump height. The correlation between hamstring flexibility and vertical jump performance will be determined using the Pearson's product moment correlation coefficient. The results of this study can help college age males and individuals seeking to increase their jump performance understand the importance of hamstring flexibility and its relationship in the vertical jump test.

03.04.29 DESCRIPTIVE OF WEIGHT GOALS IN RELATION TO YEAR IN SCHOOL AT THE UNIVERSITY OF CENTRAL OKLAHOMA

Ms. Rachel Allen - University of Central Oklahoma, Kinesiology and Health Studies, Mr. Jonathan Suttle - University of Central Oklahoma, Kinesiology and Health Studies

The purpose of this study is to determine weight goals of the student body of the University of Central Oklahoma according to respective year in school. Nine-thousand individuals, = 18 years of age, were randomly selected

and encouraged to participate with a possible reward for completion of the National College Health Assessment of the University of Central Oklahoma survey. Of those, 472 voluntarily participated. In assessing the weight goals, we will compare the question that states "Are you trying to any of the following about your weight?" to the question that states "Year in school." Descriptive statistics based on student year in school will be analyzed for the comparison of the two questions. These descriptive statistics will be used to determine weight goals according to year in school. It is expected that the further advanced an individual's year in school the more likely their weight goal will be to maintain or lose weight. Furthermore, the less advanced an individual's year in school the less likely their weight goal will be to maintain or lose weight. In conclusion, this study will be important because it will allow for more highly targeted and appropriate weight management educational programs and awareness based on year in school.

03.04.30 DEVELOPING A FUNCTIONAL FATIGUE PROTOCOL FOR MAXIMAL SOFTBALL HITTING

Emilee Bounds - University of Central Oklahoma, Kinesiology and Health Studies, Teri Lake - University of Central Oklahoma, Kinesiology and Health Studies, Dr. Michelle Gray - University of Central Oklahoma, Kinesiology and Health Studies

The purpose of this study was to develop a functional fatigue protocol for maximal softball hitting. Research shows that fatigue can be detrimental to sports performance in many ways from decreases in sport specific accuracy to impairments in joint angles and even decreases in muscle performance. Such decreases associated with overall sports performance could be the difference in winning or losing a game. Negative effects of fatigue have been examined in sports such as tennis, soccer, and baseball where researchers examined tennis hitting, the soccer kick, and the overhand throw. Functional fatigue was utilized in each of these studies in an effort to quantify the fatigue experienced by athletes, specifically in a game or practice setting. While a certain amount of fatigue is inherent in sport, the effects of fatigue associated with many sport specific activities are often unknown. Although research has been conducted examining the effects of fatigue on the overhand throw, no known research has been found examining the effects of fatigue on baseball or softball hitting. Through creating a functional fatigue protocol for maximal softball hitting, further research will be conducted examining the effects of fatigue on softball hitting form and performance with players at the University of Central Oklahoma. Supported by the Office of Research and Grants at the University of Central Oklahoma

03.04.31 TOO DRUNK TO BRUSH YOUR TEETH

Nicole Gibbon - University of Central Oklahoma, Kinesiology, Christine Poteet - University of Central Oklahoma, Kinesiology

The purpose of this study will be to determine the relationship between alcohol consumption and dental hygiene habits of college students at the University of Central Oklahoma. The participants that will be involved in this experiment were randomly selected from the population of students attending the University of Central Oklahoma in the spring semester of 2008. The participants consisted of 472 students who voluntarily and anonymously submitted a survey consisting of a variety of health-related questions. The results of the survey were compiled by the American College Health Association into an Institutional Data Report. The data will be extracted from questions on the Institutional Data Report regarding alcohol consumption and frequency of dental examinations among college students. A Spearman's Rank Order Coefficient Test will be conducted in order to determine the association between the two variables. The expected results of this research to show that students who consume higher amounts of alcohol on average are less likely to maintain good dental hygiene. The anticipated applications of this research will be used to educate college students about the possible unforeseen health risks of alcohol consumption.

03.04.32 INTERNSHIP EXPERIENCE AT RED ROCK BEHAVIORAL HEALTH SERVICES IN CLINTON, OK.

Mrs. Kama Ramsey - University of Central Oklahoma, Education & Professional Studies

Title: Internship Experience at Red Rock Behavioral Health Services in Clinton, OK.

My internship site was Red Rock Behavioral Health Services in Clinton, OK. The Red Rock BHS in Clinton serves persons in a nine county area surrounding Clinton, OK. Red Rock Behavioral Health Services was founded in 1974 as a private, not-for-profit comprehensive behavioral health service provider. Today, Red Rock operates 14 offices and service delivery locations as well as 7 residential facilities and 3 adult/children crisis intervention centers serving 24 counties in Oklahoma and employing nearly 450 professionals including Psychiatrists, Psychologists, Licensed Clinical Social Workers, Licensed Professional Counselors, Registered Nurses, Case Managers, administrative and supporting staff. I observed several employees of the agency to gain an understanding of mental health education process for the

priority population of Red Rock. I also observed in medical records to gain an understanding of Red Rock's charting, computer, and phone systems. I observed in the Clinton crisis unit, and Westhaven transitional housing unit to gain an understanding of how Red Rock helps persons in and out of the facility. My experience at Red Rock Behavioral Health Services helped me with my communication and listening skills, and has better prepared me for my career as a Health Educator.

03.04.33 SEX EDUCATION: INNOVATIVE INSTRUCTIONAL MATERIALS TO IMPROVE COLLEGE STUDENTS' PERCEPTIONS AND KNOWLEDGE ABOUT SEXUAL ACTIVITIES

Ms. Jacqueline Lorraine Mansker - University of Central Oklahoma, Kinesiology & Health Studies

There is a significant concern for the overall sexual health of Oklahoma's youth. Oklahoma's teen pregnancy rates ranked sixth in the nation in 2006, according to a report by the National Center for Health Statistics. Students are not adequately being taught about sexual health issues while in secondary school and are consequently at risk for making poor decisions in college. This research will be used to assess student knowledge of safer sex practices and birth control methods.

Male and female college students will be used in the study. Students will be administered anonymous pre-tests regarding their knowledge about sexually transmitted infections, contraceptives, and sex practices prior to a presentation. It will cover symptoms, means of transmission, treatment, and prevention of sexually transmitted infections. Various means of contraception, pseudo-sexual activities, and ways to effectively communicate with partners will also be discussed. After the presentation, a post-test will be administered and used to assess the program's effectiveness.

This research will be used to assess student knowledge of safer sex practices and birth control methods. If the presentation is found to have a significant, positive impact on students, the principal investigator will request for professors to incorporate the program in courses, such as Success Central and Healthy Life Skills on the UCO campus.

EDUCATION

03.04.34 WII FIT™ AND SENIOR ADULTS

Dr. Darla Fent - University of Central Oklahoma, Kinesiology and Health Studies, Caitlin Little - University of Central Oklahoma, Kinesiology and Health Studies, Kayla Garver - University of Central Oklahoma, Kinesiology and Health Studies

Elderly adults who are inactive increase their risk of morbidity, mortality, and loss of function (Purath, Buchholz & Kark, 2009). The purpose of this study is to assess and compare fitness levels, balance, balance confidence, and mood in 6 independent living senior adults from Epworth Villa (OKC, OK). Two individuals will be participating in 3 different groups: a traditional balance class meeting 45 minutes twice a week; an active video balance class (Wii Fit™) meeting 45 minutes twice a week; and a control group with no additional physical activity. After determining physical activity readiness (PAR-Q), subjects will be assessed (Oct., 2009) utilizing: Senior Fitness Test (chair stand, arm curl, chair sit-and-reach, back scratch, & the 8-ft. up-and-go); hand-grip; Positive and Negative Affect Schedule (PANAS); Activities-specific Balance Confidence (ABC) Scale; & Berg Balance Scale. Assessments will be conducted again at mid-term (Dec., 2009) and at the end of the study (April, 2010). Subjective data will be collected from the Wii Fit™ participants daily after training: participation rate, rate of perceived exertion (RPE), fatigue levels, activity feedback, improvement in balance & strength, exercise enjoyment & satisfaction. Data will be compared to identify/describe differences between groups. It is hoped that findings will justify further study comparing the effects of traditional balance training with Wii Fit™ balance training.

03.04.35 RELATIONSHIP BETWEEN REACTION TIME AND POWER OUTPUT IN ELDERLY WOMEN

Matt Tecmire - University of Central Oklahoma, Kinesiology, Exercise Science, Dr. Michelle Gray - University of Central Oklahoma, Kinesiology, Exercise Science, Emilee Bounds - University of Central Oklahoma, Kinesiology, Exercise Science

As humans age one inevitable experience faced by all is the loss of muscle mass. This loss of muscle mass affects the amount of force that can be generated by the muscles of the body causing a decline in performance in the areas of muscular power and reaction time. The purpose of this research project was to analyze and determine if a relationship existed between muscular power and reaction time in elderly women. Participants for the study ($n = 13$) were women aged 75 and older who lived independently in the community. Power was measured using the Tendo Training Unit where participants performed a series of

10 chair stands with one minute of rest between each stand. To measure reaction time, participant's times were recorded over ten trials with 5 seconds between each reaction time trial. The participants decided between grabbing one of two colored balls depending on the command given by the researcher. A Pearson's Product Moment Correlation Coefficient was conducted to determine if a relationship did occur. After analysis a negative relationship was evident ($r = -.662$) ($p = .022$) between the amount of power generated by the participant and their reaction time; meaning a faster (improvement) reaction time equated to a higher (greater) power output. With falls and accidents becoming more apparent with age this research provides information for future studies and could one day help design a way to rate an individual's propensity for accidents or falls in the community.

03.04.36 RELATIONSHIP BETWEEN QUALITY OF SLEEP AND STRENGTH TRAINING IN COLLEGE STUDENTS

Matt Tecmire - University of Central Oklahoma, Kinesiology, Exercise Science, Dani Myrick - University of Central Oklahoma, Kinesiology, Exercise Science

The years spent in college are often thought of as the time students spend pulling all nighters for study or staying up late to spend time with friends. Two important aspects of maintaining focus and staying healthy are the amount of quality sleep gained and a structured exercise regiment, yet students seem to be the ones missing out. The purpose of this research is to determine if a relationship exists between the amounts of quality sleep received and the amount of strength training exercise completed during the week. The sample size of 472 students from the University of Central Oklahoma completed the American College Health-Association-National College Health Assessment which is a self reported survey that covered many different aspects of student's health status. In the survey participants ranked the number of days they received enough sleep to feel rested and also the number of days they participated in some sort of strength training exercises. A Pearson's Product Moment Correlation Coefficient will be conducted to determine if a relationship existed. The researchers' hypothesis states that a positive correlation does exist between the two variables. Since students tend to not receive enough sleep the results of this study could provide more advertised benefits for the importance of structured sleep and exercise programs. With improved sleep students could experience an improved focus level along with improved success as a student and adult later on in life.

03.04.37 THE RELATIONSHIP BETWEEN BODY FAT PERCENTAGE AND CARDIORESPIRATORY ENDURANCE FOR COLLEGE STUDENTS

Kyra Cody - University of Central Oklahoma, Kinesiology and Health Studies, Jonathan Cannizzo - University of Central Oklahoma, Kinesiology and Health Studies, Alli Miller - University of Central Oklahoma, Kinesiology and Health Studies, Casey Smith - University of Central Oklahoma, Kinesiology and Health Studies

The purpose of this project is to test the relationship between body fat percentage and cardio-respiratory endurance among college students. Over the past few years there has been a dramatic decrease in the physical activity level of Americans which has led to a steep increase in the obesity of American people.

Participants in the study are UCO college students between the ages of 18-24. Student participants have received no training before testing and only get one chance to complete the program. The program starts with a seven-site skin-fold test to determine body fat percentage. Once the students have their body fat percentage recorded, they will be given a five minute warm up time. When the five minutes is up, the students will be timed in a one-mile run. The run will be held on an indoor track at the UCO Wellness Center where 12 laps equals one mile. The results are analyzed using the Pearson's product moment correlation coefficient.

According to our hypothesis, the lower an individual's body fat percentage than the lower time clocked when running one mile. The same results were found when the individual had a higher percent body fat, and was clocked at a higher time when running the mile. The results from our study can be used as information to reach out to the community and let them know how the rise of physical inactivity is impacting the health of Americans. We can conclude that the more exercise participated in helps keep a healthy fit lifestyle.

03.04.38 RELATIONSHIP BETWEEN HAMSTRING FLEXIBILITY AND VERTICAL JUMP PERFORMANCE OF COLLEGE AGE FEMALES

Mr. Paul Hinex - University of Central Oklahoma, Kinesiology, Ms. Mandie Garner - University of Central Oklahoma, Kinesiology, Mr. Roy Mesa - University of Central Oklahoma, Kinesiology, Ms. Kim Ford - University of Central Oklahoma, Kinesiology

The purpose of the study was to examine the relationship between hamstring flexibility and vertical jump performance of college age females. Several college

age females were recruited from the local university to participate in the study. Before the vertical jump test portion of the study, participants were administered a sit and reach test to assess current flexibility levels. Then, the same females were administered a vertical jump test using the Vertec vertical jump system. The test consisted of having each female measure their standing reach., then each were given two chances at jumping as high as they could utilizing only one step until the jump. The expected results of the test are that hamstring flexibility is not related to vertical jump of college age females. The importance of testing hamstring flexibility and vertical jump is that collegiate female athletes may be able to improve performance by stretching their hamstrings more often, if the results conclude there is a relationship. Coaches could stress the importance of more hamstring stretches and implement these practices into the player's workout regimens. In the case the test indicates there is no relationship female athletes can focus their attention on other factors for improving performance.

03.04.39 PATIENT PERCEIVED PAIN LEVELS

Amanda Lee Gillam - University of Central Oklahoma, Kinesiology and Health Studies - Athletic Training, Jamie Rose Hume - University of Central Oklahoma, Kinesiology and Health Studies - Athletic Training

The purpose of this research project is to study a patient's perceived pain levels when different therapeutic modalities are compared. Over a two week period therapeutic massage and electrical stimulation (e-stim) will be compared using a 22 year old college football player with bilateral knee pain as the test subject. The patient's left knee will be treated using electrical stimulation and the right knee will be treated using therapeutic massage. The patient will receive treatment every day before and after activity for two weeks. Before and after each treatment, the patient will answer a questionnaire that asks about his pain levels. The patient will continue to receive treatments and participate in all football related activities as usual. It is the hypothesis of this study that the knee treated with massage will have less pain than the knee treated with electrical stimulation after two weeks of treatments. The results will be used in the future to help patients with the same problem. If another patient comes in with the same kind of bilateral knee pain, the athletic trainer will know what treatment protocol will be more effective because of this study.

03.04.40 THE IMPACT OF PRE-EXERCISE WARM-UPS AND DYNAMIC STRETCHING ON HAMSTRING FLEXIBILITY

Freddie Harris - University of Central Oklahoma, Kinesiology, Daniel Morrell - University of Central Oklahoma, Kinesiology, Cody Ellett - University of Central Oklahoma, Kinesiology

Abstract

Primary Presenter: Freddie Harris

Co-Presenter: Daniel Morrell, Cody Ellett

Faculty Mentor: Melissa Powers, Ph.D.

Department: Kinesiology

The Impact of Pre-exercise Warm-ups and Dynamic Stretching on Hamstring Flexibility

Due to not properly warming up or stretching prior to exercise or participating in a physical activity, this does not have a positive effect on hamstring flexibility. The purpose of the study is to determine the impact pre-exercise warm-ups and dynamic stretching on hamstring flexibility. Participants were college students who completed two tests of hamstring flexibility (ie. sit-and-reach test) on two different days. The order of participation the dynamic warm-up was random, meaning that some participants completed the dynamic warm-up followed by flexibility testing on the first testing day, while the other participants completed only the flexibility test on the first day. For the dynamic warm-up, the participants were asked to jog down the gymnasium and back and put through a series of dynamic warm-ups including: high knees hugs, butt kicks, straight leg kicks, and lunges. A dependent t-test will be conducted to assess difference in hamstring flexibility in the two different conditions.

The expected result of this project is that a warm-up along with dynamic stretching will increase hamstring flexibility. Without an appropriate pre-exercise routine, hamstring flexibility will not increase.

03.04.41 RELATIONSHIPS BETWEEN FUNCTIONAL FITNESS AND MOOD

Teri Lake - University of Central Oklahoma, Kinesiology and Health Studies, Larissa Adams - University of Central Oklahoma, Kinesiology and Health Studies, Emilee Bounds - University of Central Oklahoma, Kinesiology and Health Studies, Dr. Melissa Powers - University of Central Oklahoma, Kinesiology and Health Studies, Dr. Michelle Gray - University of Central Oklahoma, Kinesiology and Health Studies

Research indicates that with physical activity participation, older adults may report better mood. The purpose of this study was to examine the relationships between

age, functional fitness and mood. Participants ($n = 30$; $M = 84.6$, $SD = 6.7$ years) completed the Senior Fitness Test (chair stand test (CS), 8-foot up-and-go test, arm curl test, 6-minute walk test, chair sit-and-reach test and back scratch test) and two mood assessments. The Visual Analog Mood Scales (VAMS) assesses eight mood states, while the Profile of Mood States (POMS) measures six mood states. Pearson's product moment correlation coefficients were used to examine the relationships. The strongest association between age and functional fitness was observed in the 8-foot up-and-go ($r = .542$, $p = .00$), indicating that with an increase in age, participants recorded lower performance. Further analyses revealed the CS as the most consistent functional fitness measure associated with mood. The VAMS mood scales related to the chair stand test were Afraid ($r = -.402$, $p = .03$) and Confused ($r = -.444$, $p = .01$). The POMS subscales most affiliated with CS consisted of Vigor-Activity ($r = .413$, $p = .04$) and Confusion-Bewilderment ($r = -.555$, $p = .00$). Future research should examine the use of CS as a predictor of mood using a larger sample of male and female older adults. This is especially needed to further understand the impact of functional fitness and mood on quality of life among seniors.

03.04.42 EFFECTS OF POWER AND STRENGTH TRAINING ON PARAMETERS OF GAIT AMONG OLDER ADULTS

Teri Lake - University of Central Oklahoma, Kinesiology and Health Studies, Emilee Bounds - University of Central Oklahoma, Kinesiology and Health Studies, Dr. Melissa Powers - University of Central Oklahoma, Kinesiology and Health Studies

Poor gait performance has been linked to poor functional performance in older adults, which can yield a reduced quality of life. Since life expectancy has recently increased, the importance of quality years in later life is ever present. Therefore, the purpose of this study is to examine the effects of strength and power training on the parameters of gait among older adults. Participants will be comprised of men and women, over 75 years of age, currently enrolled in an exercise intervention program. The primary investigator will conduct pre (prior to training), and post (after training) testing for each strength and power training group of the study. The testing protocol will include the analysis of self-selected gait speed and maximal gait speed with Dartfish TeamPro Software Version 5.0. Stride length and frequency will be assessed, as the product of these two variables is gait speed. Pearson's product moment correlation coefficients will be utilized to examine the relationships between each variable, while a repeated measures ANOVA will be used to explore changes in gait over time. The authors hypothesize that the relationship between strength and

power will be positive. In addition, as muscular power increases and/or as strength improves, gait will improve over time. Individuals who experience improvement in gait may also experience a decrease in the risk for falls. This may lead to an improvement in quality of life.

03.04.43 ASSESSMENT OF MUSCULAR ENDURANCE IN COLLEGE STUDENT PARTICIPANTS OF INTRAMURAL SPORTS

Travis Gage Oneal - University of Central Oklahoma, Kinesiology, Stenia Moore - University of Central Oklahoma, Kinesiology, Heather Tubbs - University of Central Oklahoma, Kinesiology, Kenny Burrell - University of Central Oklahoma, Kinesiology

Muscular endurance is an important factor in good posture, injury prevention, and is also necessary to perform many daily activities. The purpose of this project is to assess whether college student who participate in intramural sports have greater muscular endurance than college student who not participate in intramural sports. Performing the American College of Sports Medicine ACSM Curl-up test assessed muscular endurance. Participants lay supine with head to low back on a horizontal yoga mat for comfort. Knees are bent at 90° and feet are on the floor. Straight arms are extended to sides with fingers touching a piece of tape; fingertips are not allowed past the first line in the starting position. A second piece of tape is placed 12 cm beyond the first piece. The duration of the test is 60 seconds and measured by a stopwatch. Once the clock starts the participants lift shoulder blades off the mat by flexing spine until finger tips reach the second piece of tape. Each reach past the second tape is counted as one, record the final count. Intramural sports participation is assessed by a questionnaire prior to participation. A dependent t-test is used to compare group means.

The results of this program can help in determining if recreational athletes possess more muscular endurance than a non recreational athlete. Also may be able to design programs to develop muscular endurance in non recreational athletes and encourage more people to participate in intramurals.

03.04.44 ANKLE INJURY ASSESSMENT

Rachel Collins - University of Central Oklahoma, Kinesiology and Health Studies/graduate Athletic, Marisol Hernandez - University of Central Oklahoma, Graduate Athletic Training

This study will consist of assessing the severity of an ankle as well as the effectiveness of the rehabilitation process. The participant will be a high school student athlete who has recently suffered from an acute ankle sprain. The

subject will be studied in a three-week program. The researchers will perform a Talor-tilt test, Kleiger Test, Syndesmotoc separation, and the anterior drawer test three days after injury occurs. Assessment will incorporate a manual muscle test for each ligament, grade of pain, strength and measure the range of motion of the injured ankle with a goniometer. The acute ankle range of motion (AAROM) will be measure once a week at the high school athletic training room. After establishing the chief complaint, the researchers will proceed to do an initial assessment to isolate each ligament. For the recovery period of the injury, the researchers will first RICE (rest, ice, compression, and elevation) until swelling has gone down. Then, they will initiate range of motion, strength, and balancing exercises at least five times a week, for three weeks. It is hypothesized that after the three weeks program it will increase strength and range of motion in the injured ankle.

03.04.45 THE EFFECTS OF ALTERNATIVE STRENGTH TRAINING METHODS FOR RECREATIONAL ATHLETES.

Mr. Keyvan Kamooneh - University of Central Oklahoma, Kinesiology and Health Studies, Dr. Gregory Farnell - University of Central Oklahoma, Kinesiology and Health Studies

The purpose of the present study is to explore the possibility of developing a new, more effective way, to strengthen athletes. The PI of this study hypothesizes that a strengthening program with low resistance, high repetition, maximum speed of contractile force and use of full multiple ranges of motion in sequence, will have a comparable or higher effect in vertical jump, agility, and sprint speed than traditional Olympic style weight lifting. Forty recreational athletes will be selected and randomly assigned to two different training groups. Both training groups will complete three sessions per week and the duration of the study is eight weeks. One group will use Olympic style weightlifting, including the power shrug, push press, push jerk, hang clean, hang snatch, and split jerk. Each lift will consist of 3-5 repetitions x 4 sets. The second group will train outdoors using body weight resistance and sport specific movements. Exercises will include sprinting, walking, slow jogging, squats, full circle leg throws and hip twists. Additionally some static and dynamic stretching and coordination movements will be performed. After 4 weeks, the same procedures will be repeated with adding 5 lbs of weight to each leg of the participants through ankle weights. Vertical jump, 40-yard sprint time, and zigzag agility test time will be measured pre- and post-.

03.04.46 RELATIONSHIP OF FREQUENCY OF ACTIVITY TO PERCEPTION OF GENERAL HEALTH

Josh Isbell - University of Central Oklahoma, Kinesiology/Health Science, Scott Groves - University of Central Oklahoma, Kinesiology/Health Science

The purpose of the study is to determine the relationship between the participation strength training and the participation in vigorous or moderate exercise and an individual's perception of their general health. The data to be used was comprised of three questions taken from the National College Health Assessment. There were 472 participants in the Assessment, both male and female students from the University of Central Oklahoma. The 472 students that were surveyed chose to participate in this study from over 9,000 random surveys given out by the American College Health Association. The questions chosen from the survey were: "On how many of the past 7 days did you do exercise to strengthen your muscles, such as push-ups, sit -ups, or weight lifting?"; "On how many of the past 7 days did you participate in vigorous exercise for at least 20 minutes or moderate exercise for at least 30 minutes?"; and "Considering your age, how would you describe your general health?". This study will support the researcher's hypothesis that a positive correlation exists between the number of days a person participates in either moderate or vigorous exercise and/or strength training and the person's perception of their general health. The implications of this study will help support that taking part in healthy activities increases one's overall perception of their own health, thus increasing self-esteem and overall well-being of the individual.

03.04.47 THE EFFECT OF ETHNICITY AND GENDER ON SELF PERCEIVED ALCOHOL DEPENDENCY IN UNIVERSITY STUDENTS

Mark Giese - Northeastern State University, Health and Kinesiology

Jillian Garcia and Dr. Mark L. Giese
The purpose of this study was to determine if perceived differences existed between ethnicity and gender of university students with alcohol consumption. Myths abound regarding alcohol consumption between races and to some degree between males and females. This study attempted to determine if these myths were true in university students enrolled in a General Education Personal Health class. Students enrolled in Personal Health during fall of 2008 served as a convenience sample for this study. After proper informed consent was given, students in these classes were allowed to complete an Alcohol Consumption Questionnaire from a Personal Health book by Hales (2007). The questionnaires were administered by

the teacher of record. Answers to the questionnaire served as the dependent variable and ethnicity and gender were the two independent variables. The data were analyzed by a two way ANOVA to determine if a significant difference existed between ethnicity and gender. Scores on the questionnaire ranged from 1-10. The higher the score, the more propensity for drinking abuse. A two way ANOVA indicated that the men scored significantly higher than the females and the white and "other" student scored significantly higher than the Native Americans. These data indicated that Native American university students in this study had a "lower" drinking risk and does not support the myth that Native Americans abuse alcohol.

03.04.48 THE EFFECT OF ETHNICITY AND GENDER ON ATTITUDES REGARDING PHYSICAL ACTIVITY IN UNIVERSITY STUDENTS

Mark Giese - Northeastern State University, Health and Kinesiology

Dale Tounzen and Dr. Mark L. Giese
Northeastern State University

The purpose of this study was to determine if perceived differences existed between ethnicity and gender of university students regarding physical activity. Students enrolled in Personal Health during fall of 2008 served as a convenience sample for this study. After proper informed consent was given, students in these classes were allowed to complete a Physical Activity Attitude Questionnaire from a Personal Health book by Hales (2007). The questionnaires were administered by the teacher of record. Answers to the questionnaire served as the dependent variable and ethnicity and gender were the two independent variables. The data were analyzed by a two way ANOVA to determine if a significant difference existed between ethnicity and gender. Scores on the questionnaire ranged from 18-90. The higher the score, the more likely the student would possess positive attitudes towards physical activity. A two way ANOVA indicated that there was no significant difference between ethnicity or gender on the Physical Activity Attitude Questionnaire. The attitudes of the subjects were typical of those across the nation and typical recreational programming should be considered.

03.04.49 THE EFFECT OF ETHNICITY AND GENDER ON COMMUNICATION IN UNIVERSITY STUDENTS

Mark Giese - Northeastern State University, Health and Kinesiology

Misty Crittenden, Dale Tounzen, Jillian Garcia and Dr. Mark L. Giese

The purpose of this study is to determine if perceived differences existed between ethnicity and gender of university students regarding communication. Are females better communicators than men? Do Native Americans tend to be less verbal than most other cultures? These are popular ideas that may or may not be true. Students enrolled in Personal Health during fall of 2008 served as a convenience sample for this study. After proper informed consent was given, students in these classes were allowed to complete a Wellness and Communicating Questionnaire from a Personal Health book. The questionnaires were administered by the teacher of record. Answers to the questionnaire served as the dependent variable and ethnicity and gender were the two independent variables. The data were analyzed by a two way ANOVA to determine if a significant difference existed between ethnicity and gender. Scores on the questionnaire ranged from 1-20 with a higher score indicating better communication skills. There were no significant differences on either independent variable (ethnicity or gender) meaning that communication skills among university males and females of all ethnicities were within normal expectations. There myth of Native Americans being less verbal and not as communicative as other races was not borne out in this study.

05 PROFESSIONAL TEACHER EDUCATION

03.05.01 ACTION RESEARCH TO IMPROVE SCHOOL PRACTICE

Dr. Barbara Ray - Northeastern State University, Curriculum and Instruction

Action research allows educators to look at best practice in an effort to improve learning. As part of their capstone experience, school library media candidates, in collaboration with their mentoring school librarian, engage in action research to seek ways to improve library services. Once the problem has been identified, candidates use peer reviewed journal articles to identify best practice. Data is gathered using surveys, questionnaires or interviews. Working together, the candidate and the school librarian make changes to reflect best practice and improve services.

03.05.02 GRADUATE CANDIDATES' ASSESSMENTS OF COHORTS IN SCHOOL LEADERSHIP PROGRAMS

Dr. Cheryl L. Evans - University of Central Oklahoma, Advanced Professional Services

Current research (SREB, 2006) includes findings that support the need for school districts to create partnerships with universities in an effort to take a proactive stance in acquiring additional trained principal candidates for their districts due to the scarcity of qualified principal applicants and the growing number of current school administrators nearing retirement. One component of these school partnerships includes the cohort-based learning approach in order for candidates to begin, continue, and finish the educational administration degree and certification together. These candidates learn together throughout the entire principal preparation program, while the traditional structure of learning for on-campus candidates in the same program continues as before. This poster presentation will describe and explain graduate candidates' current perceptions and preferences of cooperative learning cohorts in university school principal preparation programs. This presentation will describe and explain whether candidates perceive cohort learning groups to be more effective than traditional learning structures in increasing their knowledge and retention, improving decision-making, communication, human relations, and group-process skills, in terms of applying principles of cognitive learning theory to program development in educational administration programs.

03.05.03 TRANSFORMATIVE LEARNING AND FUTURE SCHOOL LEADERS

Dr. Cheryl L. Evans - University of Central Oklahoma, Advanced Professional Services

Transformative learning is a holistic process that places students at the center of their own active and reflective learning experiences. The educational leadership program at the University of Central Oklahoma has embraced the mission of Transformative Learning by implementing the Central Six in principal preparation courses. Guided by the core values of character, civility, and community, leadership at the University of Central Oklahoma is a transformational journey centered on learning and focused by integrity, stewardship, and service (Steele et, al., Leadership Central at UCO).

This poster presentation will describe and explain how Transformative Learning is implemented in a graduate principal preparation program by providing transformative experiences so that candidates may become productive, creative, ethical and engaged citizens and leaders contributing to the intellectual, cultural, economic and social advancement of the schools and communities they serve (University of Central Oklahoma,2009).

03.05.04 ALTERNATIVE PRINCIPAL CERTIFICATION IN SCHOOL LEADER PREPARATION PROGRAMS

Dr. Kirk Webster - University of Central Oklahoma, Advanced Professional Services

Today's role of school administrator is considerably more challenging than in the past due to multiple reasons including high stakes accountability and the need to ensure faculty consist of highly qualified teachers. A general trend is clear: Educators across the board increasingly see the role of the school administrator as being more challenging and less desirable than the job is worth (Lindle, 2004; Pounder & Merrill, 2001). A study commissioned by the National Association of Elementary School Principals (NAESP) and the National Association of Secondary School Principals (NASSP) found that "approximately half of the school districts surveyed reported a shortage in the labor pool for K - 12 principal positions they were trying to fill that year." That was the case across the board, "regardless of the schools' grade levels and whether they were rural, suburban, or urban schools" (Educational Research Service, 1998).

In response to current reports of school administrator shortages and changes in state law, this poster presentation will describe and explain new approaches to developing a plan of study for those seeking alternative principal certification in school leader preparation programs. The process and procedures discussed in this presentation will provide suggestions for a foundation other universities may want to develop or change and modify their existing programs.

03.05.05 A COHORT GROUP AS PART OF AN EDUCATIONAL PARTNERSHIP

Paul Haxton - University of Central Oklahoma, Advanced Professional Services

Abstract

Title: A Cohort Group as Part of an Educational Partnership

Traditionally, university school leader preparation programs have been ridiculed and criticized. Many universities have responded to these critiques by forming cohort learning groups in addition to traditional on-campus classes. This paper describes the successful completion of a collaborative partnership and cohort group that prepared quality school leaders.

One premise for using cohorts is that keeping candidates together as a unique group of learners enhances professional learning and skill development (Norris & Barnett, 1994; Peel, Wallace, Buckner, Wrenn, & Evans, 1998). Another affirmation is that the cohort

structure provides excellent opportunities for aspiring school leaders to learn and practice skills in corporate goal setting, community building, conflict resolution, and culture management (Geltner, 1994; Milstein & Krueger, 1997).

It is necessary to provide program coherence when implementing the cohort model (Dick & Cary, 1990). The university program implemented best practices in this partnership throughout the duration of the program. The continued evaluative process provided information that was invaluable to both the school district and the university program and will contribute to the development and implementation of another cohort partnership with the same district by 2010.

03.05.06 DELPHI ANALYSIS OF PRACTITIONERS' RECOMMENDATIONS FOR CLASSROOM TEACHERS' INITIAL PEDAGOGICAL KNOWLEDGE

Jennifer J.R. Endicott Ph.D. - University of Central Oklahoma, Professional Teacher Education, Malinda Hendricks Green Ph.D. - University of Central Oklahoma, Professional Teacher Education, Susan Scott Ed.D. - University of Central Oklahoma, Professional Teacher Education, Sharon Zimmerman - University of Central Oklahoma, Professional Teacher Education

From spring 2001 through fall 2006, 2043 practitioner educators in pre-12 common education served as mentor/supervisors for the field experience in the gateway teacher education course at a southwestern public university whose teacher education program is accredited by the National Council for Accreditation of Teacher Education (NCATE). The practitioners responded to interview questions including, "What should beginning teachers know about teaching?" The Phase 1 data were analyzed within the general framework of grounded theory comparative method and have yielded primary themes (realities, classroom management, professionalism) and secondary themes (discipline, instructional strategies, workshops, child development, field experiences). No Child Left Behind Act of 2001 (NCLB) required educational practices to be based upon scientific or empirical research. In pursuit of the NCLB standard, Phase 2 of the Delphi Policy design has begun the transformation of qualitative alphastrings into quantitative nominal data sets and the development of an interval scale instrument.

03.05.07 VALIDATION OF "ATTITUDES TOWARD OVARIAN CANCER" INSTRUMENT

Linkous Lowe - University of Central Oklahoma, Professional Teacher Education, Malinda Hendricks Green Ph.D. - University of Central Oklahoma, Professional Teacher Education, David Alan Jacoby - University of Central Oklahoma, Professional Teacher Education

Ovarian cancer is the sixth most common cancer in women, and the fifth most common cause of cancer death in the United States. The initial step of this study explored the awareness of and concern for ovarian cancer among college freshman women in the spring of 2007 on the University of Central Oklahoma campus with the cross departmental cooperation. The responses to the 32 closed-end questions self-report instrument, developed specifically for this project, yielded reasonable internal consistency co-efficients ($r = .42$ to $r = .73$). The 2007 participants ($N=24$) indicated little awareness of ovarian cancer as well as minimal concern about it. During 2008-2009 academic year, data were collected from the adolescents taking a healthy living course ($N=235$) offered as part of general education requirements. Results were consistent with the earlier data further documenting the reliability of the instrument while providing additional support for the lack of awareness and knowledge regarding ovarian cancer among college age adolescents. The 2009-2010 study will revise the instrument "Attitudes toward Ovarian Cancer" for contemporary language and further expand the data set to provide a basis of curriculum development.

03.05.08 PRESERVICE TEACHERS' BELIEFS ABOUT URBAN EDUCATION

Dr. Genia James - University of Central Oklahoma, Professional Teacher Education, Lori Blevins - University of Central Oklahoma, Professional Teacher Education

Popular images of urban schools as scary places with hostile or apathetic students and parents (Groulx, 2001) can lead new teachers to have a cultural deficit view of urban students and to have low expectations for them. Many urban districts report difficulty and frustration with attracting and retaining quality educators (Darling-Hammond, 2000; Graziano, 2005; Haberman, 2005). In an effort to learn better ways to prepare preservice teachers to effectively serve students in urban schools, this project will examine beliefs of preservice teachers about urban education. Q methodology will be used to survey individuals' degree of agreement with a variety of statements about urban education, and, through correlation and factor analysis, determine categories of beliefs. This presentation will include objectives, a description of Q method, and the instrument to be used.

03.05.09 IMPLICATIONS OF THE ANALYSIS OF INQUIRY RUBRIC FOR SCIENCE TEACHER PREPARATION

Dr. April Dean Adams - Northeastern State University, Natural Sciences, Monica Macklin - Northeastern State University, Natural Sciences, Dr. Renee Cambiano - Northeastern State University, Educational Foundations & Leadership

The Analysis of Inquiry Rubric (AIR) is an empirically developed observational instrument that documents teacher actions during inquiry-based instruction. The AIR was initially developed by analyzing videotapes of 1st -9th-grade teachers engaging their students in inquiry-based instruction. This poster will present the AIR instrument and discuss the AIR categories with their corresponding observed teacher actions. The implications for teacher education will be presented as well. Categories for the AIR were developed by grouping similar teacher actions within a column. Then a descriptive name for the categories was developed. The initial grouping was developed by one researcher and then presented to the rest of the research team for review. The review resulted in the consolidation of different types of questioning into one group so that multiple-levels of categories could be avoided. The refined version of the AIR is presented below. The categories of teacher actions are Questioning, Modeling, and Facilitating Student to Student Communication, Relating Experience to Science Content, Encouraging Evaluation, Providing Rich Experiences, Focusing on Process Skills, and Managing the Classroom.

03.05.10 FUNDING EQUITY IN OKLAHOMA: THE STORY OF THE EXTREMES

Ken Hancock Ph.D. - Northeastern State University, Educational Foundations and Leadership, Mr. Steve Schwab - Northeastern State University, Educational Foundations and Leadership

Funding Equity in Oklahoma: The Story of the Extremes

Research Question: Are there any school districts that are perennial to either the top or bottom 10% of funding each year in Oklahoma?

Significance of Problem: The State Senate of Oklahoma created a committee to look at the possibility of simplifying the funding formula for common education. When research was presented to this committee comparing the equitability of three proposed funding formulas using a restricted range instrument, inquires were related to the possibility of districts being perennial to these two categories.

EDUCATION

Summary of Method: A ten year study was conducted to look at the top and bottom 10 percent funded districts in Oklahoma. For each year, the districts were placed in rank order according to total dollars per WADM, correlation coefficients were calculated for all; top 10%; middle 80%, bottom 10% districts, and for all districts. These correlation coefficients were compared for significance. Following this, a data base was constructed for each district that contained the dollar per student rank order for the ten year period. A mean rank and a standard deviation were calculated for each district. The data base was then sorted to rank order the standard deviations. This provided evidence of districts that were perennial at each end as well as those districts that moved greatly each year.

Conclusion: There are school districts that are perennial to the top 10% in funding each year.

03.05.11 THE EFFECTS OF EMBEDDED TESTS IN INSTRUCTIONAL ACTIVITIES: AN APPROACH FOR IMPROVING ATTENTION AND A SENSE OF ACCOMPLISHMENT

Abbas Johari - Cameron University, Multimedia Design, Derece Williams - Cameron University, Multimedia Design, Mario Dominquez - Cameron University, Multimedia Design, Dominique Thomas - Cameron University, Multimedia Design

Abstract

This presentation reports on a research study responding to a need for an innovative way of teaching and evaluating content that must be learned prior to taking comprehensive tests, and that can sustain intrinsic motivation by improving attention and sense of accomplishment. The treatment - Embedded Tests in Instructional Activities - not only minimizes anxiety but provides learning of complex concepts necessary to practice instruction for employing higher order learning such as problem solving. The intended audience is international colleagues and those interested in developing innovative indirect tests that are, in reality, indirect test activities for low achievers with diverse learning abilities, including ESL adult learners.

03.05.12 A MULTILEVEL STUDY OF SOCIAL NETWORKS AND PERSONAL AGENCY

Mike Nelson - University of Central Oklahoma, Professional Teacher Education, Rebekah Williams - University of Central Oklahoma, Professional Teacher Education, Jenah White - University of Central Oklahoma, Professional Teacher Education, Summer Kerby - University of Central Oklahoma, Professional Teacher Education, Bryan Duke - University of Central Oklahoma, Professional Teacher Education

In light of the changing demographics of the childhood population in the United States (Digest of Education Statistics, 2007), it is critical to understand how successful developmental pathways may differ for children of diverse cultural, racial, ethnic, and national backgrounds. While similar developmental competencies are required of all children, those from non-mainstream backgrounds may follow different trajectories. Experiences within the broader society and community, family, and schools create particular realities for such children that need to be better understood in order to provide appropriate supports to ensure their success. To frame our investigation we have incorporated the ideas of macro and micro-cultures from Bronfenbrenner's Ecological Systems Theory (1978) with a model proposed by Juvonen (2006) for investigating social processes and sense of belonging in a school context. For this poster we present a model where social interactions within the family mediates the relationship between the broader values and beliefs expressed in the media, family networks, neighborhoods, cultural heritages and the internalized values and beliefs that guide adolescents' behaviors and responses at school. In addition, we include school micro-cultures of peers and teachers. In the model interpersonal relationships with peers and teachers mediate the relationship between student behavior and sense of belonging.

03.05.13 THE PUEBLA CONNECTION

Dr. Judith Elaine Wakefield Ph.D. - University of Central Oklahoma, Advanced Professional Services

The University of Central Oklahoma (UCO) "Technology for Teachers" course is an Oklahoma state mandated course for all teacher education candidates. It prepares undergraduate teacher candidates to use technology in the classroom. One class assignment was a transformative learning project called "The Puebla Connection". The project goal was to provide communication experiences between teacher education candidates at UCO and education candidates at the Universidad Popular Autónoma del Estado de Puebla (UPAEP) in Puebla City, Mexico.

The UCO students were assigned pen pals at UPAEP. They were to exchange dialogue about their teacher preparation and university education experiences. The major purpose of the qualitative study was to examine the candidates' perceptions of the differences and similarities in the two educational systems. It also viewed online translators as communication tools.

The study involved categorizing and viewing the differences in the student responses. It addressed the students' opinions on the effectiveness of the online translators. The Puebla Connection study is the first of a series of studies to be replicated with other countries.

06 PSYCHOLOGY

03.06.01 YOU KNOW, I LEARNED SOMETHING TODAY: THE MORALITY BEHIND SOUTH PARK

Patrick Kubier - University of Central Oklahoma, Psychology

Television these days is filled with shows that are obscene and vulgar. Yet, many of these shows are capable of showing what the truth behind not only America but also the world. One of the most vulgar and crude shows, one which has been banned from countries, is South Park. This show is capable of being one of the most pervasive shows on television, but at the same time, it teaches morals and displays what the problems with current politics or lifestyles are, they are capable of doing this through satire and punditry. Through an extensive meta-analysis of the episodes of South Park, a theory of South Park being one of the most open-minded, tolerant, and education television shows was created. Results have shown that South Park is capable of displaying the faults of the world and simultaneously teaching us how to better it.

03.06.02 GENDER DIFFERENCES IN SELF-REPORTED SOCIAL AGGRESSION AMONG YOUNG ADULTS

Dr. Caleb W. Lack - University of Central Oklahoma, Psychology, Mr. Haden J. Shepherd - Arkansas Tech University, Behavioral Sciences

In the past, research on aggression largely focused on males, as females tend to be viewed as less aggressive than males (Bjorkqvist, 1994). Contemporary research, however, indicates that females may be just as aggressive as males, but may manifest this aggression differently, in the form of social aggression (e.g. Owens, Shute, & Slee, 2000; Ireland & Archer, 1996). Researchers typically define social aggression as utilizing behaviors to harm the friendships or social status of others (Underwood, 2003), encompassing a large array of behaviors, including both verbal and nonverbal ones. The current study was designed to examine gender differences in self-reported social aggression in college students, a non-studied population.

The current study was conducted by gathering from over 300 undergraduates at a medium-sized university. Undergraduate students in psychology and sociology courses completed questionnaires examining demographic variables and a self-report inventory measuring how likely they are to engage in socially and physically aggressive behaviors (Loudin, Loukas, &

Robinson, 2003). Initial analyses will provide descriptive information on demographic and aggression variables, comparing levels of reported social and physical aggression to previous studies. Analyses will then be conducted to examine potential gender differences, with the hypothesis that males and females will socially aggress at approximately the same levels.

03.06.03 GENDER DIFFERENCES IN THE CONCEPTUALIZATION OF RESPECT IN THE CONTEXT OF ROMANTIC RELATIONSHIPS

Mr. Benjamin Walser - University of Central Oklahoma, Psychology

The purpose of this experiment is to examine the difference between the genders in the conceptualization of respect within the context of romantic relationships. This is a concept that has been widely discussed in popular culture and portions of the psychological literature, but has gone relatively unexamined from an empirical point of view. The project fulfills a need in the discipline for deeper understanding of how respect within the context of romantic relationships is conceptualized by both genders. The truism that respect is vital to the maintenance of a modern romantic relationship leaves out the possibility that each gender might have distinct ideas about what it means to respect one's partner. This is an issue that has not been studied empirically within the field of psychology. The aim of the current research is to explore what interpersonal concepts each gender most closely resembles its own conceptualization of respect as displayed by one's partner. The predicted outcome is that specific concepts will be shown to be more closely identified with one gender or the other, demonstrating a statistically significant difference in how each gender perceives romantic respect. With a clearer understanding of how each gender conceptualizes respect, greater understanding might develop between partners about how best to display respect towards one another.

03.06.04 ARE LOVERS BELIEVERS? THE ASSOCIATION BETWEEN RELATIONSHIP STATUS AND IMPLICIT THEORIES OF RELATIONSHIPS

Mrs. Natalie West - University of Central Oklahoma, Psychology, Dr. Alicia Limke - University of Central Oklahoma, Psychology

This study examines implicit theories of relationships (i.e., destiny and growth), relationship status, and relationship closeness and satisfaction in a sample of undergraduate college students. Although Knee and others (e.g., Knee, 1998; Knee, Lonsbary, Canevello, & Patrick, 2005; West &

EDUCATION

Limke, 2009) have investigated the association between these thoughts about romantic relationships and long-term outcomes within specific relationships as well as other individual differences, no research to date has examined whether these implicit theories of relationships are associated with current relationship status. In the current study, there were differences in both destiny beliefs and growth beliefs by relationship status, such that those in serious relationships reported higher levels of destiny beliefs and lower levels of growth beliefs than those not in serious relationships. Discussion focuses on these somewhat surprising results, as well as implications for relationship closeness and relationship satisfaction. Ideas for future investigation are also presented.

03.06.05 PERSONALITIES OF BLACK FRIDIANS

Mr. Tyler Burns - University of Central Oklahoma, Psychology, Dr. Mark Hamlin - University of Central Oklahoma, Psychology

Individuals have certain characteristics that allow, or force, them to wait for extended periods of time for different things. One of the most notable occurrences of this is Black Friday, a day defined by sizable sales. Every year people wait outside shops for periods ranging from a few hours to days for a chance at items at bargain prices. Most individuals may call them crazy, but something motivates these individuals to get up and wait extended periods of time in possibly abhorrent conditions to shop. The purpose of this experiment is to study what about individuals that camp out on Black Friday is different from those who do not. We will poll individuals who wait in line the day of Black Friday. The participants will take part in a survey which asks questions about personality, occupation, previous and present history of Black Friday, as well as the individuals positive and negative affect. The control group will be shoppers with the only stipulation being that they did not shop on Black Friday. A similar survey will be used to score the individuals personality, positive and negative affect, and a few different questions about what prevented them from camping out for the Black Friday sales. This research hopes to determine what are the major components of a person that correlate with this event and predict if certain individuals will take part in this annual phenomena.

03.06.06 IMPLICIT BIAS OF ATTRACTIVENESS

Mrs. Curtesia Plunkett - University of Central Oklahoma, Psychology, Dr. Mark Hamlin - University of Central Oklahoma, Psychology

The purpose of this study is to investigate the relationship between attractiveness and positive and negative stimuli among college students. Attractiveness bias will be assessed using the Implicit Association Test (IAT). The IAT measures the strength of automatic association between mental representation of objects or concepts in memory. The researcher had 25 participants complete two experiments that utilized an IAT that measured any significant differences between attractiveness and positive or negative stimuli. The researcher then compared the data from the initial combined task with the data from the reversed combined task. It was hypothesized that participants' reaction times would be dramatically slowed when the combined tasks were reversed and that participants would be able to respond at a much quicker rate when the attractive photographs were paired with the positive-affect words. The researchers' hypothesis was supported and there was a significant difference found. Establishing that there is a significant bias when not attractive photographs are paired with positive stimuli versus when attractive photographs are paired with positive stimuli, leads the researcher to believe that the attractiveness of the educator could greatly influence the students ability to learn.

03.06.07 DOMESTIC VIOLENCE AGAINST WOMEN AND HOW IT CAN BE PREVENTED

Ms. Diep Pham - University of Central Oklahoma, Chemistry, Dr. Gabriel Rupp - University of Central Oklahoma, Psychology

One domestic violence act occurs in the US in every 10-15 seconds. The results from this violence not only impact the economy hugely; it also causes a range of negative effects, such as death, injury, physical, sexual, reproductive, and mental health problems. The purpose of this research is to evaluate and find out why domestic violence occurs and how domestic violence can be reduced. Specifically, the focus of this study is to determine how society and individuals could prevent, given our present understanding of the phenomenon of domestic abuse, the violence from happening again. The researcher's hypothesized that domestic violence against women can be reduced eventually through education, parenting strategies and therapy. The hypothesis was supported by the results found. Further research is needed to determine more enhanced prevention methods.

03.06.08 USING CONCEPTS OF KNOWLEDGE CONSTRUCTION TO ILLUSTRATE THE NECESSITY OF PERSONIFYING GRIEF IN TRANSFORMATIONAL LEARNING

Dr. Angela Knight - University of Central Oklahoma, Funeral Service Education, Mr. Justin Wayne Gibbons - University of Central Oklahoma, Funeral Service

The use of a social networking site helps to facilitate transformational learning, in that, information is created by the student and internalized while personifying the networking page. This allows students to embody their learning experience and has been shown to be a valuable and innovative pedagogical technique to enhance transformational learning (Knight, Limke, & Rupp, 2009). The project here disembodies the creation of a social networking site in a Psychology of Grief class. Rather than having the students create individual pages, which were the focus of our previous research, the class worked together in creating one class representation of grief. Each student had the ability to create material relating to grief on the networking page; however, students were not allowed to personify the material covered; rather, the students were required to agree on a single class representation of grief. Due to the highly unique nature of grief it was hypothesized that the consensus among students would be one of apprehension, discomfort, and detachment regarding the grief project in part because of the wide variety of experiences that are present in grief (Breen & O'Conner, 2007). Self-report measures revealed that students had indeed experienced a negative affinity for the project. Because of the wide variety of grief experiences the group assignment obfuscated the student's ability to actively embody grief and express it as a unique individualized representation.

03.06.09 ASSESSING CLIENT SPIRITUALITY: AN INTEGRATED MODEL OF MULTICULTURAL AND SPIRITUAL GROWTH.

Michelle Kelley Shuler PhD - Northeastern State University, Psychology and Counseling

Currently an increasing amount of attention is being paid to the integration of religious and spiritual issues in counseling practice. This poster session will introduce a new paradigm of multicultural and spiritual competency which points the individual toward an increase in self awareness and professional development. A practical holistic approach is presented with attention paid to the importance of appropriate and ethical assessment of client spirituality and how the individual spiritual process can facilitate and deepen multicultural understanding.

Community counselors, school counselors, and counselor educators will recognize the significance of spirituality to both the client and the counselor. Counseling and Psychology programs can more effectively integrate spirituality into training and in turn better prepare trainees to address these issues in clinical practice. Religion and spirituality are bound up within ethnicity and culture. Recognition of a new paradigm of multicultural and spiritual growth can only increase self-awareness and strengthen trainees' competence in relation to clinical practice and professional development.

03.06.10 THE PERCEPTION OF BINOCULAR GAZE FOLLOWS THAT OF THE ABDUCTING EYE.

Roger W. West - Northeastern State University, College of Optometry

Purpose. The judged direction of side gaze from a straight head is known to be biased from its true direction. This study reports the specific biases in the perceived direction of gaze from right, left, or both eyes when targets are in the plane of the observer or in a plane in front of the observer.

Methods. Two sets of 16 observers judged the direction of gaze from each of two models whose LCD-imaged heads gazed toward points that were either on the plane of the observers' faces or on a plane that was midway between the models and observers.

Results. For both distant and near targets, straight monocular gaze from the right and left eyes appeared to deviate outward mildly, as expected due to the typical misalignment of their optics, but straight binocular gaze appeared to be straight. However, when gaze was to the side, the perceived direction of monocular gaze differed greatly between the two eyes. In this case, binocular gaze followed that of the abducting (temporally turned) eye.

Conclusion. When the two eyes look to the side, the perceived directions of their monocular gaze do not agree, but the perceived direction of their binocular gaze resolves this conflict by matching that of the abducting eye.

Key Words: gaze, gaze perception, eye contact

03.06.11 THE EFFECT OF POSITIVE PRIME ON RECALL OF POSITIVE, NEGATIVE, AND NEUTRAL WORDS

Dr. Yungfei Kao - Northeastern State University, Psychology & Counseling, Jeff Ray Stroberg - Northeastern State University, Psychology & Counseling

The current study was to investigate word recall from taboo/negative, neutral, and positive words. The idea was that if a prime was given to the experimental group they would then recall more of the positive words whereas the control group was expected to recall more of the negative words. Because of the power of negative words it was found that this prime had no effect. The benefit of this study is that future research is able to elaborate on the relationship among word perception and its effect on memory and emotion.

03.06.12 DECIDING WHAT TOYS ARE BENEFICIAL OR NEGATIVE FOR CHILDREN

Ms. Katie Ann Patton - East Central University, Education, Ms. Maegan Renee' Russell - East Central University, Education

Katie Patton
Maegan Russell
October 5, 2009

Abstract

The topic for our research poster is Deciding What Toys are Beneficial or Negative for Children!! We will be explaining the toys which are beneficial to a child's education, as well as the toys that will make children express negative behavior. The poster will discuss the beneficial issues that today's educational toys have to offer and the harmful influences that some toys might have on children.

It will display a list of things to consider when deciding which toys to purchase for your child. The poster will also include examples of beneficial and negative toys that are available in today's society. The goal of this poster is to help parents and educators better understand ways to determine which toys to purchase for children. The importance of understanding how toys influence children will be displayed in this poster presentation.

03.06.13 THE RISING NUMBERS OF SINGLE PARENT HOMES AND STRESSES ON FAMILY MEMBERS

Desa Smith - East Central University, Education

Research has shown that single parents and their children endure more stress, have fewer social supports, and

experience increased stress in comparison to two parent families. Research also indicates the numbers of single parent homes are expected to increase. Based upon a review of the information, it appears to this researcher, much more social support could reduce stress for these families, resulting in healthier relationships, possibly leading to fewer problems in early adulthood.

03.06.14 DYNAMIC VISUAL MEMORY

Doug Preddy - University of Central Oklahoma, Psychology

People who searched for a single target amid 8, 16, and 24 distracters in static and dynamic visual arrays produced no reliable response time effects. That is, static arrays should produce faster RTs if participants can rely on their memories of previously searched locations-this result led Horowitz & Wolfe (2003) to conclude that visual search is amnesic. Klein (2006) hypothesizes that for Horowitz & Wolfe's conclusion to be valid we must assume that searching static and dynamic arrays relies on a common search strategy. On the other hand, eye movement recordings during static and dynamic searches may be quantifiably different. Eye movements may reveal the phenomenon of inhibition of return in the static task. Participants will search for the target letter 'N' among 8, 16, or 24 other letters. A left mouse-button press will indicate a present target and right button press will indicate an absent target. Target stimuli will be serif, capital letters arranged randomly across the screen. In the static condition, the items are motionless: in the dynamic condition, the items move every 500 ms until 5 seconds have passed. Participants will generate RT, error rate, and eye movement data to determine if search strategies appeared to change across conditions. We expect the RT and error rate to replicate Horowitz & Wolfe but also expect eye movements to be different across static and dynamic conditions. Such a difference would indicate active memory in visual search.

03.06.15 THE HUMAN-ANIMAL BOND: CULTURE, HEALTH, AND THE BIOPSYCHOSOCIAL MODEL

Elizabeth G. Shoemake - University of Central Oklahoma, Psychology

The human-animal bond (HAB) is the dynamic relationship that exists between people and animals where both humans and nonhuman animals influence the psychological and physiological state of one another (Anderson, 2007). Research has demonstrated that the HAB is capable of positively impacting human health through animal-assisted intervention; however, there are several unresolved issues surrounding HAB research

and the practice of using animal-assisted intervention strategies. One of the principal challenges facing the future of HAB research is establishing a comprehensive theoretical model that will allow HAB researchers and practitioners to integrate the beneficial aspects of the HAB into modern medical treatment plans. Presently, the Biopsychosocial model is the most appropriate theoretical framework for employing the HAB to address issues of human health and wellness. The current study will examine cross-cultural attention, attitudes, and social expectancies towards animals in social situations using eye-tracker technology and a variety of cultural and social scales. The purpose of the study is to develop further understanding of the underlying mechanisms of the HAB and support the use of the Biopsychosocial approach as an appropriate model for interpreting and implementing animal-assisted interventions as effective treatment strategies in modern medical settings.

03.06.16 THE ROLE OF TEAMWORK ON COGNITIVE TASKS

Danielle West - University of Central Oklahoma, Psychology, Ross Lents - University of Central Oklahoma, Psychology, Ashalee Hurst - University of Central Oklahoma, Psychology, Matt Korstjens - University of Central Oklahoma, Psychology

A vast amount of literature is dedicated to understanding judgments, attitudes, and opinions people impart on one another. Research has found that people use varying heuristics to simplify their judgments which can lead to the formation of biases. Specifically, intolerance for ambiguity (i.e. need for closure) has been found to influence such biases. Need for closure is considered to be both a motivational and dispositional factor. People are often paired into groups or dyads in order to complete a task at work or school. The present study seeks to determine the role one's distastes and intolerance for ambiguity plays in making interpersonal appraisals towards others while working in groups. Understanding the role of need for closure in interpersonal appraisals may add to or elucidate understanding of areas such as conflict resolution or implicit biases. Participants will be split up into groups based on high/low need for closure. Half will be given a frustration task. After completion of the task, those individuals will be asked to judge the other individual (the confederate) on performance. We hypothesize that the high need for closure group will rate the confederate's performance lower than the low need for closure group.

03.06.17 THE EFFECT OF FEEDBACK AND PERCEIVED COMPETENCE ON IMPLICIT SELF-ESTEEM

James Rose - University of Central Oklahoma, Psychology

The purpose of the research proposed in Experiment 1 is to utilize positive or negative connotations within a social context and measure its affect on a person's implicit self-esteem. We will use the Self-Esteem Implicit Association Test to measure the manipulations affect on the participant. Experiment 2 will subject participants to hard, easy or no math tests. The idea is to induce a feeling of success or failure, then measuring their Implicit Self-Esteem using the Self-Esteem IAT. In Experiment 3, participants will be subjected to false feedback regardless of performance on a math test. If they are in the high competence condition their score will be 4/5, whereas the low competence condition will have a score of 1/5.

03.06.18 THE PERCEPTUAL FOUNDATIONS OF NATURE PREFERENCES

Ms. Whitney Leigh Lawton - University of Central Oklahoma, Psychology, Ms. Danielle West - University of Central Oklahoma, Psychology, Mrs. Sara Salous - University of Central Oklahoma, Psychology, Mrs. Jill Devenport Ph.D. - University of Central Oklahoma, Psychology

Preferences for nature vary greatly among individuals and the goal of this research was to understand what contributes to those differences. One explanation offered by evolutionary theory predicts that people should prefer places where they can hide and see far into the distance (Prospect-Refuge Theory: Appleton, 1975). We surveyed college students about their experiences, preferences, connectedness to nature, and mood. Participants viewed slides of nature and were asked "how often have you spent time in a place like this" and "how much do you prefer a place like this." We used their total scores to rank their preferences. The highest and lowest 15% returned to view slides of nature using an eye tracker. We measured gaze patterns including durations, fixations, gaze points, and pupil dilation. The remaining participants scored images, including those used in the eye tracker, for prospect and refuge. There was some consistency in participants' ability to identify prospect and refuge and a small but significant correlation between preference scores and visual search of those features. We found that high and low preferers have different gaze patterns indicating they view scenes of nature differently. There were significant differences between high and low preferers on the amount of time spent, experiences they have had, and connectedness to nature. Results from this study indicate

EDUCATION

that preferences for nature are related to past experiences and perception.

03.06.19 TEENAGE FEMALE MURDERERS

Alesa Liles - Northeastern State University, Psychology, Dr. Sharon Roberts - Northeastern State University, Psychology

Female involvement in crime has escalated in recent years contributing to an alarming new trend of female juvenile murderers which has caught the eye of many criminologists and psychologists. Because of the limited amount of information regarding female participation in crime in general, this new phenomenon has only recently been studied. These original studies have just begun to identify significant information such as typical social, educational, and family histories, illegal substance usage, mental health issues, and aspects of the crime such as typical victims and weapons used. This information is used to form typologies to explain the factors that contribute to the commission of homicide by adolescent females. The current findings suggest these teens are extremely different from their male counterparts and thus require unique treatment.

03.06.20 VICARIOUS GUN VIOLENCE AND CONCEALED WEAPONS ON CAMPUS

Lorry Youll - University of Central Oklahoma, Psychology, Jeff Jones - University of Central Oklahoma, Psychology, Courtney Hale - University of Central Oklahoma, Psychology, Michael Cross - University of Central Oklahoma, Psychology, Savannah Oliver - University of Central Oklahoma, Psychology, Mickie Vanhoy - University of Central Oklahoma, Psychology

Should concealed firearms be allowed on college campuses? Several recent movements argue that they should even as the effects of such a movement are controversial and unclear. Even vicarious exposure to gun violence can produce changes in self-reported affect and bodily sensations, furthermore, these effects may be moderated by pre-existing perceived stress (Ragonesi & Antick, 2008). What is not known, however, is whether these effects are also moderated by attitudes toward guns. Knowing this may have implications for understanding the physiological and psychological effects of gun violence or potential for gun violence on college campuses. Participants (~30 males and 30 females) will complete the Attitudes towards Guns Scale and the Perceived Stress Scale before viewing a news report about the effectiveness of concealed-carry training for stopping a mass shooting in a college classroom. The video report contains footage from the test of preparedness that entailed simulating a classroom shooting. We expect to

replicate the affect and bodily sensation effects above and also find evidence of increased heart rates and galvanic skin responses (measured with the non-invasive BIOPAC physiological measurement system). Participants with more positive attitudes towards guns are expected to experience less arousal to the simulated gun attack. We will also ask participants how viewing the video changed their opinions toward allowing concealed-carry of guns by students on campus.

03.06.21 ACADEMIC INTELLIGENCE QUOTIENT

Mr. Craig Cruzan - University of Central Oklahoma, Psychology, Dr. Mark Hamlin Ph.D. - University of Central Oklahoma, Psychology

Much research has been done on predicting academic success (e.g. Kuncel & Hezlett, 2007; Lerdau & Avery, 2007; Stephens, 2007); however, research has yet to come up with an accurate measure or develop the ability to quantify the findings into a more recognizable form. The current study aims to develop a psychometric instrument (the Academic Intelligence Quotient, AIQ) to predict academic success by evaluating student preferences regarding the qualities that they value in their instructors. Approximately three hundred students ranging from freshman to graduate students will sort/rank instructor attributes from those that they like the least to those that they like the most. Results are expected to indicate a relationship between AIQ scores and academic success as measured by GPA, ACT, GRE, and retention. A significant difference between graduate and undergraduate students is also expected. Implications for the study include the use of the instrument in an academic environment with the potential use of increasing retention. Further research is also discussed.

03.06.22 ACCURACY IN RECALLING INNATE CHARACTERISTICS; DOES COLOR MAKE A DIFFERENCE?

Brooke Eldridge - University of Central Oklahoma, Psychology

Growing research shows that people track target items successfully when they are the same color. This study will attempt to show that subjects, when presented with objects flashed on a screen, accurately group items by color as opposed to other innate characteristics, such as shape and size. Also, this research explores whether age affects accuracy when recalling target item amounts. Subjects are hypothesized to be more accurate when asked to recall amount of items based on color versus shape or size; additionally subjects between the ages of 18 and 25 will recall more accurately than older subjects.

03.06.23 UNVEILING THE RED BOOK OF CARL GUSTAV JUNG

Buffy Ann Hall - Northeastern State University, Psychology, Dr. Sharon Roberts - Northeastern State University, Psychology

Abstract

Unveiling The Red Book of Carl Gustav Jung

Carl Gustav Jung is a prominent icon in the history of psychology and personality theory. Jungian practitioners use his theories about interpretation of memories, dreams, and the collective unconscious to help clients reveal contents of the subconscious mind. Controversy surrounded Jung's ideas during his lifetime and since his death in 1961. New insight into the man and his theories will be gained with publication December 2009 of what Jung called the Red Book, the product of self-analysis during and after his experience with psychosis. He considered the record of his journey through his own hallucinations and psyche the catalyst for his theories and for his strategies for treating mental illness. This poster explores advance reports and anticipation regarding his writings and elaborate paintings in the Red Book, as well as speculation about how it may lead to new interpretations of Carl Jung's life, theories, and analytical psychology.

03.06.24 CROSS-MODALITY DYNAMICS OF TOUCH AND VISUAL SEARCH

Doug Preddy - University of Central Oklahoma, Psychology, Ashleigh Curtis - University of Central Oklahoma, Psychology, Jenna Parsons - University of Central Oklahoma, Psychology, Jason D. Ferrell - University of Central Oklahoma, Psychology

The relationship between vision and touch/grasp is complex. Historically, researchers have studied these modalities in isolation. For example, standard perspectives do not predict an interaction between intentions toward objects and the number of distracters present in the visual search array (Bekkerings & Negggers, 2002; Wolfe, 2007). Vision does not operate in isolation, however- there is a clear interaction between other sensory modalities and vision. For example, the intention to perceive a stimulus versus the intention to act upon it can differentially influence eye movements (Knill, 2005). Instead of separating visual perception from touch, and thus, perception from action, we will attempt to show that the intention to explain, versus point at, versus grasp an object will differentially affect eye movements and imply that the interaction of perception and action is fundamental to understanding human performance. To

test this hypothesis, participants will view slides containing target objects like pens, pencils, paperclips, spoons, and keys embedded in a field of distracters and variously explain, point at, or attempt to grasp a target object (e.g., "Point at the sharpest object"). We expect that more distracters will reduce visual search efficiency more for point at an object condition than for grasp an object condition, possibly because pointing at objects is usually accompanied by conversation with another but grasping does not involve the same dual task.

03.06.25 MULTITASKING AND EYEWITNESS MEMORY

Julia Blakemore - University of Central Oklahoma, Psychology, Patrick Mayfield - University of Central Oklahoma, Psychology, Jaya Paily - University of Central Oklahoma, Psychology, Crina D. Silasi-Mansat - University of Central Oklahoma, Psychology

Do media multi-taskers actually get more done than people who are less able to multi-task? Perhaps those who rank as high multi-taskers have advantages in cognitive abilities. For example, perhaps those who can listen to an iPod while studying and holding a text message conversation enjoy better memory, concentration, or perhaps they are better at rapid switching between tasks. Despite evidence to the contrary (e.g., Gladstones, Regan & Lee, 1989; Pashler, 1994), some multi-taskers seem to think so. Contrary to this belief, Ophir, Nass, & Wagner (2009) discovered that chronic multi-taskers are more sensitive to interference and they show deficits in task-switching, implying that they do not filter out irrelevant information. Those who are not chronic multi-taskers performed better in all the aforementioned aspects. The present research is designed to examine the differences between high and low multi-taskers (identified with a trait media multitasking index) in the context of eyewitness memory. Participants will view a video of a real-life shooting and then answer factual questions about to the video. Half the participants will receive the video questionnaire immediately after the video, and half after a 30-minute filler task. We expect to replicate Ophir et al.'s results and also find that multi-taskers perform more poorly on the test of eyewitness memory.

03.06.26 AGE AND TRACKING MULTIPLE COLOR-CODED OBJECTS

Brooke Eldridge - University of Central Oklahoma, Psychology

There are many instances in which people must visually track multiple objects (e.g., driving) but tracking more than three or four items is problematic. Color-coding seems to be one way to overcome that limit. Unifying

multiple objects (like players on a team) with a common color increases the accuracy of numerical estimates and may be an automatic process (Halberda & Feigenson, 2006). Older people seem to be less able to either track or report positions of more than three moving objects (Trick, Perl, & Sethi, 2005). This study was designed to replicate and extend these results to people of various ages and to investigate whether color has a special status as an automatic grouping mechanism versus other innate characteristics like shape or size. Participants will estimate the number of objects briefly presented on a computer screen, with the target objects sharing a color, shape, or size. Estimates of color-coded objects embedded in a field of distracters are expected to be more accurate than estimates of shape-coded or size-coded objects. Furthermore, if color is a privileged dimension, then color-coding may help older participants more than it helps younger participants. Such a result would suggest that color-coding commonly tracked objects like medicines would benefit older people.

03.06.27 MYTHS ABOUT SEX

Crystal Stephens - Northeastern State University, Psychology, Dr. Sharon Roberts Faculty Advisor - Northeastern State University, Psychology

Sexual myths have been perpetuated through time sexual organs and activities were not properly studied or identified by the authority figures of their times. For example: gynecologists used to perform exams on women without looking. Still today and across different regions our sexual culture is being influenced by our past. We have myths that continue to influence our culture. It's hard to change an individual's mind, they have to change their own. The main focus is to explore sexual myths in our societies that have been held true in the past and hold true in the present.

03.06.28 AMERICAN INDIAN PERCEIVED LEVEL OF CONTRIBUTION FOR RAPE, CHILD ABUSE, AND RELATIONSHIP VIOLENCE: A PILOT STUDY

Randy Boucher' B.A. - Northeastern State University, American Indian Studies, Tom Jackson Ph.D. - Northeastern State University, Psychology

As beliefs are felt to effect behavior, the underlying constructs related to perceived responsibility for the crimes of rape, child abuse, and relationship violence has been widely studied. A recent paradigm shift from the stigma-laden construct of blame distribution to perceived level of contribution has resulted in what are believed to be more accurate societal attitudes regarding offenders, situations, society, and victims in regard to responsibility for these crimes.

A pilot study was constructed with both American Indian and non-Indian college students to assess differences in perceived level of contribution for the above factors for rape, child abuse, and relationship violence. Due to the small sample size, (N=33), statistical power was not achieved. However, response trends from this study indicate two basic patterns: 1) American Indians in this sample tend to believe that the offender contributes more and the victim contributes less to the three crimes when compared to non-Indian respondents; and, 2) The number of self-reported victimized American Indians for all three crimes was higher than non-Indian respondents. This finding is consistent with reservation-based statistics.

Current replications and extensions of this study include higher numbers of respondents as well as reservation vs. non-reservation American Indians. While not engaging in uniformity myths, the levels of contribution findings are contrary to previous results with American Indians.

03.06.29 PERSONALIZING RELATIONSHIP VIOLENCE: THE CONCEPTS OF BLAME VERSUS LEVEL OF CONTRIBUTION

Tom Jackson Ph.D. - Northeastern State University, Psychology, Marilyn Guhl M.Ed. - Northeastern State University, Psychology, Ms. Hillary Combs - Northeastern State University, Psychology

It is estimated that fully one half of all females in the U.S. will experience relationship violence during their lifetime. Severity may range from mental abuse to homicide. As beliefs have been shown to effect behavior, the concepts of blame distribution and, within the last year, level of contribution of factors for relationship violence have been studied in order to aid in prevention.

The Domestic Violence Blame Scale (DVBS) assesses blame in four areas: offender; victim; situational; and societal. The blame order of the DVBS has historically been situational, offender, societal, and victim. The Contribution to Relationship Violence Scale (CRVS) assesses the same four factors, changing "blame" to "contribution" to remove the stigma of "sitting in judgment".

On a 1-10 scale, with 1=no responsibility and 10=total responsibility, the DVBS has obtained the following scores: situational 7.5; offender 6.7; societal 5.5; and victim 3.1. The CRVS scores were: offender 8.7; situational 6.8; societal 6.0; and victim 4.1.

Implications: Although the factors stayed the same, the order on the CRVS showed the rank order for responsibility for relationship violence as offender, situational, societal, and victim. This is a more realistic order of perceived participation. The most significant increases in scores from DVBS to CRVS was; the offender (1.2) and the victim score (1.0), both with contribution higher than blame. Significant societal implications are discussed.

03.06.30 CAMPUS SAFETY: THE IMPACT OF OBSERVATIONAL LEARNING ON A REGIONAL UNIVERSITY'S CAMPUS EMERGENCY RESPONSE TEAM

Tom Jackson - Northeastern State University, Academic Affairs, Laura Boren - Northeastern State University, Student Affairs, Tim Foutch - Northeastern State University, Administration, Clint Vernon - Northeastern State University, NSUPD, Nancy Garber - Northeastern State University, Public Relations, Dennis Moore - Northeastern State University, Safety

Like all colleges, NSU has been involved in all-hazards, disaster prevention, mitigation, recovery, and continuity for several years. The Campus Emergency Response Team (CERT) has obtained NIMS compliance certification and has been equipping, preparing, and training in order to effectively improve response times and responses for a variety of disasters, incidents, and possible health crises.

Since the recent university shootings, fires, H1N1 outbreaks, and tornados and hurricanes that have struck universities, the NSU CERT has engaged in comprehensive data collection and observational learning of successes and failures of national import in order to improve continuously.

Results involve measured reactions, active multi-agency training, and multi-modal notification/communication systems. The measured responses have been learned from overreactions to the spring 2009 H1N1 outbreak. Throughout this process, CERT has kept in constant communication and consultation with university administration and local, state and national health agencies. The active training has been primarily aimed at responses to possible active shooters and threats of violence against university stakeholders. The multi-modal communications system have been modeled and refined based on other universities' learning curves based on all-hazards, disasters and incidents.

Implications for increasing campus safety through observational learning, national databases and training are discussed.

03.06.31 UNIVERSITY EVALUATION

Dr. Lawrence Weinstein - Cameron University, Psychology & Human Ecology, Tobias Kuhn - Cameron University, Psychology & Human Ecology

As previous research showed, traditional and non-traditional students differ in expectations of universities. Amy Strage showed found that "younger students, and students matriculating straight from high school seemed

to want college to be an extension of high school. (...) Older students, and students transferring from community college described instructors and courses that were, by and large, more rigorous, more serious, and more readily applicable to the real world" (2008). As an extension of Strage findings, this research focuses on demographic differences in what one would see as an ideal university. In total, 143 undergraduate students were surveyed to rank importance of three different constructs including seven questions each. The first construct was to rate the importance of given characteristics of an ideal university, the second of an ideal professor and the third of an ideal on-campus living facility. Seventy four differences were found in total. The age of the participants was the main contributor of differences (31) followed by ethnicity (23), undergraduate classification (18), distance between home and school (4), and gender (2).

03.06.32 COLLEGE TRANSITIONS: SOCIAL AND EMOTIONAL WELL-BEING AS FACTORS TO ACADEMIC SUCCESS FOR AMERICAN INDIAN FRESHMEN

Dr. Pamela Louderback - Northeastern State University, Library

Standardized Aptitude Tests were designed as leading measures to predict college performance. However, research indicates scores do not accurately predict academic success for American Indian students. The purpose of this study was to identify predictors to academic success. Data included demographic data, pre-college academic ability, attitudes/beliefs related to during-college experiences, and first-semester grades. Sedlacek's (1984) Non-Cognitive Questionnaire (NCQ) and institutional databases were used to collect data. Data analysis included correlational and regression analysis. Participants consisted of 112 volunteer freshmen enrolled full-time in Freshman Forum. Results established that successful Native freshmen in this study tended to have positive self-concept and realistic self-appraisal. Direct correlations with self-efficacy and grade goals, self-esteem and motivation existed where positive self-concept and realistic self-appraisal were present. Many Native students possess strong cultural identities with traditions and values distinct from mainstream colleges, creating cultural conflict. Retention of traditional cultural identity facilitates a strong sense of personal self-identity and confidence crucial to academic achievement. Implications include incorporating more effective integration for Native students through improved interactions with socializing agents who are culturally conscious or who espouse similar cultural values.

EDUCATION

03.06.33 WE CARE CAMPAIGN: THE IMPACT OF PROACTIVE OUTREACH TO ADDRESS STUDENT HEALTH AND WELLNESS

Laura Boren - Northeastern State University, Student Affairs, Shelia Self - Northeastern State University, Student Affairs - Student Counseling Services, Libby Rogers - Northeastern State University, Student Affairs - Student Health Services, Heather Adney - Northeastern State University, Student Affairs - Violence Prevention Program, Evelyn Woods - Northeastern State University, Student Affairs

A series of concerning events linked to student health and wellness called to question student knowledge of and trust with campus support services. Student Affairs professional staff developed an outreach program to build positive rapport with students, educate campus community on health and wellness issues and services, and connect to students in need.

The "We Care" Campaign was designed to address program goals in a proactive manner. The "We Care" Campaign started as a social media drive through creative advertising posters addressing issues of sexual assault, depression, and alcohol and other drug abuse. The second phase is focusing on enhancing campus partnerships through the development of the Behavior Intervention Team (BIT). The BIT is a collaborative partnership with professional staff members from Dean of Student Affairs office, Student Counseling Services, Student Health Services, University Police Department, University Housing, University Legal Counsel and Academic Affairs. BIT work together to provide support to the campus community by addressing student behavior issues through an intentional integrated approach.

Student support services have seen a dramatic increase in use in the last 6 months. Campus community members are seeking resources for students in need. The campus environment for health and wellness support appears to be enhances. This longitudinal will explore the influence of a proactive outreach program on student health and wellness.

04 KINESIOLOGY, HEALTH STUDIES, & SPECIAL SERVICES

DEVELOPING A POLICY MANUAL FOR A SUBSTANCE ABUSE DIVISION WITH AN AGENCY

Ms. Patrice Whitfield - University of Central Oklahoma, Education

The purpose of this project was to create a policy manual for the Substance Abuse Division within

Family Development and Intervention Services (FDIS). Developing a policy manual for the Substance Abuse Division created guidelines and program standards for the staff of the agency ensuring consistent treatment for clients. A thorough review of the Oklahoma Department of Mental Health and Substance Abuse Services, Title 450, Chapter 18 Standards and Criteria for Alcohol and Drug Treatment Programs was reviewed to ensure policies within the manual are acceptable and up to standard. This document will be a vital instrument which serves as a reference guide within the Substance Abuse Division. Research on policy from a variety of established county adult Drug/DUI courts and behavioral health treatment centers was retrieved and reviewed which assisted in creating a policy manual. As a result of having a policy manual for reference, the work flow of the Substance Abuse Division will be smooth in referring and making additions to the policy manual as needed.

This learning experience has shown me the importance of policy within an agency and how tedious and time consuming it is in creating a manual that focuses on the needs of the division. I have gained a high respect for those who continuously work on the upkeep and revision of manuals and believe the skills I have learned in creating this manual will help me in developing other policy manuals if needed in the future.

STATIC STRETCHING EFFECTS ON HAMSTRING FLEXIBILITY

Shelby Sharpton - University of Central Oklahoma, Kinesiology, Jennifer Daye - University of Central Oklahoma, Kinesiology, Katie Holloway - University of Central Oklahoma, Kinesiology, Trevor Neville - University of Central Oklahoma, Kinesiology

The purpose of this study is to determine the effect static stretching has on hamstring flexibility by performing the sit-and-reach test. These conclusions will allow us to see the significance of stretching to enhancing performance through muscle elasticity.

The sit-and-reach test will be performed on two days by the same participants. One day the participants will perform the sit-and-reach test with no prior engagement. The next day researchers will lead participants through a series of static stretching which includes four positions held at ten seconds each, for three sets. Hamstring flexibility will be assessed using the Acuflex sit-and-reach test box. Participants are in seated position with legs and back straight, heels against the test box and knees flat on the floor. With one hand over the other, arms are stretched as far forward as possible. The test is then repeated and best result is used for analysis. The results will be analyzed using a dependent t-test to examine differences in hamstring flexibility between the two stretching conditions.

The expected results of this study will help in the development of muscle research and influence exercise and fitness leaders to use stretching in daily routines. This will then lead to improved performance based on flexibility.

INTERNSHIP EXPERIENCE INFANT CRISIS SERVICE, INC.

Ms. Judith Minh-Ha Cope - University of Central Oklahoma, Kinesiology and Health Studies

According to Oklahoma County statistics for the Women, Infant and Children program, over 40,000 children are currently enrolled in their program for basic needs like food and formula. These children are the most vulnerable victims of poverty. My internship site was Infant Crisis Services, Inc. This 501 (C) 3 non-profit began as a Sunday School project over 25 years ago and has grown to serving over 10,000 babies and toddlers last year. The purpose of this project was to find new locations to embed these services to make basic needs like food, diapers and formula more accessible to families during emergent situations.

I stepped out of my comfort zone by visiting locations and seeing first hand the level of poverty that Oklahoma has. This project helped me prepared professionally since I reported to not only my supervisor but to the executive director, members of the ICS board and several committees within the organization. The experience taught me many strategies of social interactions on a professional level and a community level, when I worked directly with our clients. I am thankful for the opportunity this project allowed me. The result was a structure plan for Infant Crisis Services, Inc, when the funding arrives, to make this expansion.

SERVICE DOGS IN THE CLASSROOM

Mrs. Elizabeth Reeve - Western Governors University, MSPP = Masters of Special Education, Dr. Renee Cambiano - Northeastern State University, Educational Foundations & Leadership

Have you ever wondered what the laws are pertaining to service dogs in public or in the school environment? The main investigator seeks to find out the laws on service dogs in the classroom and in public. This research contains national, state, and local information about the American with disabilities laws, how they relate to the educational environment, and some of the court cases done throughout the courts in different areas.

Elizabeth Reeve has raised her own service dog, and is a students at Western Governor's University. As part of her Masters work, she has been researching the topic of service dogs in the classroom. From this research, she

has researched the number of court cases dealing with service dogs in the classroom, analyzed the Americans with Disabilities laws, and looked at the Civil rights of individuals with service dogs. She has compared the least restrictive environment and free and appropriate public education laws to determine what the laws are and put them into context during the research.

Dr. Cambiano, a professor at NSU in the Educational Foundations & Leadership has helped mentor Elizabeth with her research.

Does the place really matter when it comes to service dogs in the classroom? In the long run, the answer is yes it does matter, as the research will strive to show that the service dog matters to the individuals with special needs when it comes to having independence and being able to have equal rights as those without the service dog.

05 PROFESSIONAL TEACHER EDUCATION

DR. ANNIE BLANTON AND MRS. JEAN MCLEOD: PROMOTING EDUCATIONAL EXCELLENCE THROUGH DELTA KAPPA GAMMA

Mrs. Molly McLeod Mirll - University of Central Oklahoma, College of Education and Professional Studies

This study concerns the life of educator Annie Webb Blanton. Blanton was an early pioneer for change, utilizing the same principals that drove women's suffrage to helping improve educational standards first in Texas and then across the nation. She first formed the prestigious Delta Kappa Gamma Society in 1929, and this organization, which offers fellowship and opportunities for professional growth for female educators, has now grown to international proportions. Original research will reveal how Blanton's ideals and hopes for her group have continued since her death in 1945. This will be accomplished by discussing the Zeta Alpha Chapter in Matagorda County, Texas.

As a valued member of Zeta Alpha, Mrs. Jean Collins McLeod has served in every local office since her official initiation in 1965. With her help, open-ended questionnaires were collected for this study. Mrs. McLeod and her fellow "sisters" voluntarily discussed their beliefs about the importance of their organization, changes that have occurred over the years, explained how such a professional affiliation had enriched their lives, and also offered this author interesting information about several aspects of their local chapter's activities.

This study, therefore, links Annie Blanton's past history

as an educator with the reality of how her dream of professional success for her fellow female educators is still being carried forward into the future on a global scale.

THE COLLABORATIVE EFFORTS OF EARLY CHILDHOOD EDUCATION ENTITIES IN PROVIDING PROFESSIONAL DEVELOPMENT TO INDIVIDUALS WORKING WITH YOUNG CHILDREN

Ms. Linda Kay Whaley - University of Central Oklahoma, Curriculum & Instruction

Collaborative work and supportive relationships are highly valued by teachers and administrators (Austin & Harkins, 2008). There is a concern in the field of Early Childhood Education that various agencies and institutions of higher learning do not work regularly with each other to provide a seamless education for those working in the field with young children (LeMoine, 2009). Duplication is costly and slows down individual's progress as they try to receive the schooling needed to work well with young children and their families. Training dollars are being wasted by early childhood teachers taking the same coursework over and over again. Agencies are not always collaborating with each other in delivery of services, even if they think they do. There are silos across agencies where "ownership" becomes more important than cooperation. It is not a collaborative effort if I invite you to my training/event. Since collaboration is mutually beneficial (Wilder, 2001) we need to eliminate the barriers to working together. Sharing resources and knowledge will lead to a jointly developed structure that supports the entity and the individual. This qualitative research project concerns ways Early Childhood Care and Education groups collaborate, as well as possible barriers and recommended solutions to enhance partnerships.

06 PSYCHOLOGY

MULTIFRACTAL SCALING IN VISUAL SEARCH

Aaron Likens - University of Central Oklahoma, Psychology, Mickie Vanhoy - University of Central Oklahoma, Psychology

People skillfully perform complex visual tasks. Pilots guide aircraft safely to the ground; drivers safely negotiate traffic-avoiding other motorists, pedestrians, and unforeseen road construction. These examples exemplify the diverse nature of visual behavior, and suggest that the visual system readily adapts to environmental demands-visual behavior may be task-dependent, and eye movement patterns may reflect shifts in search strategy that depend not only on photometric scene characteristics, but also specific task demands. The

literature contains examples of robust, task-independent eye movements (saccade amplitudes; Aks, et al., 2003). Contrary results indicate task-dependence in button-press response times (Wolfe, 1998) and eye-movement response times (Benjamins, et al., 2009). We sought to resolve this discrepancy by using a wavelet transform modulus maxima (WTMM) analysis to search for evidence of multifractality in eye movements during visual search. Multifractality (a complex representation of behavior at many time-scales) may reveal finer-grain structure in eye movements that task-dependence is a function of measurement scale. Eye movements collected from a visual search task wherein participants searched for a familiar object within a novel scene, displayed multifractality (i.e., multiple scaling exponents), meaning that behaviors at some time-scales are task-dependent while behaviors at other time-scales are task-independent

EYE MOVEMENT PATTERNS IN AUTISM

Cidnee Ray - University of Central Oklahoma, Psychology, Craig Cruzan - University of Central Oklahoma, Psychology, Arpana Dalaya - University of Central Oklahoma, Psychology, Nicole Gibbon - University of Central Oklahoma, Psychology, Jared Gleaton - University of Central Oklahoma, Psychology, Stacey Paddock - University of Central Oklahoma, Psychology, Jinling Zhao - University of Central Oklahoma, Psychology

Autism Spectrum Children (ASC) exhibit deficits in social reciprocity (the ability to engage in conversational give-and-take). A key component in social interaction is eye contact with the eyes and mouth of the conversational partner-ASC tend to avoid eye contact with faces. For this reason, Baron-Cohen (2007) created The Transporters DVD. The Transporters includes characters that are animated vehicles with faces superimposed upon them. The faces show exaggerated emotional expressions congruent with a simple story line. Baron-Cohen was able to show that ASC children were more able to identify emotions after regular exposure to the video, lending support to the hypothesis that increased eye movements to faces may increase emotional recognition and thus, social functioning. We hypothesize that better processing of faces is associated with more eye movements to faces. ASC children will view The Transporters DVD four times over the course of a month. We will track eye movements to faces, particularly eyes and mouths and participants will take a quiz on the first and last session. The quiz requires choosing the correct emotional expression. We expect a positive correlation between viewing time, eye movements toward mouths and eyes, and quiz success. The anticipated applications of this research will be improved social reciprocity in autistic children through concentration of eye movements towards cues on the faces of others.

04 LIBERAL ARTS

01 COMMUNICATION

04.01.01 HARRY POTTER AND THE OPPRESSED WOMEN

Mr. Kristopher Copeland - Northeastern State University, Communication Studies

Harry Potter and the Sorcerer's Stone, by J.K. Rowling, breaks several gender stereotypes by creating strong female characters in the fantasy world constructed. However, these stereotypes are not all that they seem. After creating characters that break the oppression of the patriarchy, Rowling later abates this construct by placing an underlying order on the female characters. This research analyzes book one in the Harry Potter series through a feminist critique.

04.01.02 EMPLOYMENT ADVERTISEMENTS: A STUDY OF STRATEGIES USED TO RECRUIT UNIVERSITY STUDENTS

Brittany Annette Liles - Southeastern Oklahoma State University, Art, Communication, and Theater

The purpose of this research is to identify strategies used in employment advertisements to recruit university graduates and to show what features are preferred. In previous studies, researchers have been interested in recruitment advertisements (e.g., Paulsen, 1990; Sevier, 2007). In this study, I gave a survey to identify strategies for attracting prospective students. I asked them to respond to questions about three advertisements. The first advertisement included only verbal content. The second included both visual and verbal content. The third was from a college grad website for intern positions. Questions consist of information about the advertisement's content. I asked how likely they would contact the company, complete the application, and accept a job offer. I asked what they would like to see in an advertisement. Finally, I asked which advertisement was most effective. From the analysis, I discovered the students responded most favorable to the Staff Right Solutions ad. It included various job positions, people to contact, and how to contact them. I also discovered that more students want to see the name of the company, the salary, skill requirements, job description, and artwork. My study revealed 9 out of 15 students were somewhat likely to contact the companies in all three advertisements, while 7 out of 15 were somewhat likely to ask for a job application. Results showed that overall students were less likely to complete the job application for all three companies.

04.01.03 METHODS FOR RECRUITING STUDENTS INTO COMPANIES: WRITTEN REALISTIC JOB PREVIEWS VERSUS VIDEO REALISTIC JOB PREVIEWS

Jessie Elbert Hopkins - Southeastern Oklahoma State University, Art, Communication, and Theatre

The purpose of this experiment is to determine whether written realistic job previews (RJP) or video realistic job previews are more likely to recruit new members to an organization. This experiment was influenced by Wanous (1973) who suggested it is important to match new employees with organizational talent requirements and characteristics of the job. This experiment attempts to match the applicant with the organization. Twenty college students were divided into two groups. The first group watched a video RJP, while the second group read a written RJP. Both groups were then given a survey. The objective of the survey was to determine the applicant's alignment with the requirements of the organization and which RJP was more effective in persuading prospective employees. An example of a survey question is "After viewing this Realistic Job Preview, do you believe that you are adequately informed about the working conditions of the job?" Sixty percent of the subjects who viewed the video RJP believed they had enough information to make a decision about accepting a position with the organization. In contrast, sixty percent who read the written RJP said they did not have enough information to make a decision. Also, 60% percent who read the written RJP said they would apply for a position with the company, while only 20% of the people who viewed the video said they would apply for a position.

04.01.04 CRISIS NOTIFICATION METHODS PREFERRED BY STUDENTS, STAFF AND FACULTY

Dr. Rodney L. Osborne Ph.D. - Northeastern State University, Communication and Art

The purpose of this study was to determine the best communication methods that students, staff and faculty would prefer to be used to contact them and warn them of an existing crisis situation happening on their campus similar to what happened at Virginia Tech University and Northern Illinois University. A sample of 1,004 students, staff and faculty were taken from a vocational education institution and a four-year university. Subjects were asked to rate on a 5-point Likert Scale the notification methods they would definitely prefer to be used. Subjects rated 19 different types of notification methods that were selected from four broad technological categories: telephones, internet, public address systems, and mass media.

LIBERAL ARTS

04.01.05 "ESTABLISHING A BRIGHTER FUTURE: A CONSULTATION REPORT FOR A CRISIS PREGNANCY CENTER"

Jennifer V Martin - Northeastern State University, Liberal Arts

This is a consultation report for a crisis pregnancy center located in the Midwest. The crisis pregnancy center or "CPC" has provided services to women experiencing a crisis pregnancy for twenty-six years. They are also a licensed adoption agency, and have placed many children with adoptive parents. This nonprofit operates solely on a volunteer basis. The following report reviews the strengths and weaknesses of this organization in the areas of: orientation, the board, volunteers, community coalitions, and the strategic plan. Overall, CPC is fulfilling its purpose of the mission statement, however there is definite room for improvement.

04.01.06 DWELLING TOGETHER IN PEACE: COMMUNICATION AMONG UNITARIAN UNIVERSALISTS IN RURAL OKLAHOMA

Michele Schmidt - Northeastern State University, Communication

This qualitative study focuses on the Unitarian Universalist congregation of a small, rural, Oklahoma town. The study aims to answer the question: Do Unitarian Universalists communicate and interact in a way that is in line with their vision and affirmation?

The researcher will conduct qualitative interviews, observe participants in their natural (congregational) settings, and review previous UU research literature in order to triangulate the findings. Common themes will likely begin to emerge as the number of participants increases.

Key words: vision, affirmation, communication, interaction

04.01.07 FORMAL VERSUS INFORMAL TRAINING: A COMPARATIVE ANALYSIS OF THE EFFECTIVENESS OF EACH.

Mr. Daniel Kenagy - Southeastern Oklahoma State University, Communication, Michael Andrews - Southeastern Oklahoma State University, Communication

In this research we studied the training of new employees within an organization. According to Dr. Larry Cole and Michael Cole M.A. "The socialization of a new employee is often an important element helping employees to hit the ground running." (p31, 2000) We've defined Formal training as a system of socialization set in place by an

organization to inform new members of the policies and procedures of that establishment; as opposed to informal training which emphasizes the culture of the organization and its inner workings, assimilated through interactions with other employees. To conduct this research we passed out a survey to a number of individuals, asking them about their work training experiences to find which type of training they found more helpful, formal or informal. In our research we found that only sixty percent of organizations have a formal training program. We also found that when we asked the participants if their organization suffered or benefited from informal training forty-eight percent said that it benefits. In addition we discovered that over one third of employees didn't feel like they were adequately trained for their jobs indicating that this is an important issue for organizations to address. This research establishes that it is important for organizations to know the pros and cons of each style of training so that they can make an informed decision on which is best for their establishment.

04.01.08 "REFLECTIONS: THE MEDIA AND PRESIDENTIAL DEBATES OF 2000"

Sarah Stephens - Northeastern State University, Communication Studies

Presidential campaigns are paramount to the determination process of the next President of the United States of America. According to Patterson, in 2000, approximately 30 percent of U.S. households viewed the debates, and even more people made decisions based on the news coverage of the debates (2004). These conclusions were perpetrated by the U.S. media and determined by subjective means, which often did not include the actual context of what was argued by each participant and the strengths of the arguments. The examination of the debate transcripts, the media portrayal of the debates by looking at specific issues and how the combination may have affected the end outcome showed the media does impact the decisions made by views.

04.01.09 "BELL HOOKS: A PATCHWORK QUILT OF RHETORICAL THEORY"

Sarah Stephens - Northeastern State University, Communication Studies

The teachings and world views of bell hooks unite to form a rhetorical theory which subsumes feminism and racism; while encapsulating them it has more to offer. It is a working paradigm, a way of seeing and living in the world. This paper will attempt to synthesize her rhetorical theory while exploring the different avenues and how they intersect each other. hooks believes the hierarchal principle should be replaced with an alternative ideology

promoting reciprocity, community, and mutuality, by basing a rhetoric on these alternative values it significantly changes the nature and function of a rhetoric in contrast to the more traditional rhetoric, which draws on hierarchy for framework, (Foss et. al., 2002, p. 283).

04.01.10 "CHANNEL ONE: THE EFFECTS OF CAPTIVE AUDIENCE VIEWING IN THE CLASSROOM"

Sarah Stephens - Northeastern State University, Communication Studies

Through the guise of helping schools by providing them with equipment otherwise unavailable to students, Channel One uses this opening to target students by imposing tailored commercials with a soft news segment. While many believe this is a good thing, a way for corporations to give back to schools, others believe it is an invasion and an attack on critical thinking and higher learning. By allowing corporations into schools, it allows them to really target a very profitable corner of the market with specialized commercials. According to James McNeal, "each year children in the United States spend \$24 billion of their own money and directly influence \$488 billion worth in purchases," (Molnar 1999).

04.01.11 HOLLYWOOD

Introduction

This communication study is over the message that is being sent to America's youth from celebrities. In this study I, Chris Nunley (2009), conduct a study on high school students to see to what extent our youth is being influenced by celebrities. With television and intranet use at an all time high, our youth is being shown celebrity footage almost 24/7. Celebrities being in such a "high power" roll the youth looks up to this "high power." Here recently there have been segments on CBS and NBC that discuss this influence on the youth of America. Some celebrities have had a positive influence on kids. The purpose of this current study is to argue that the youth are being influenced in a negative fashion by celebrities.

Method

Subjects were high school kids. These subjects were given a survey to complete along with an interview. These surveys were given to the students and taken at the same time, while the interviews were done one on one with the student and I. There is one central reason for these interviews and surveys to be given. I felt the interview would allow the high school students to express their opinion more freely and not have to write as much on an open ended question.

Results

Descriptive data from the study shows and supports my

notion that the kids are being influenced in a negative way by celebrities. Out of the 23 high school students that were interviewed and given a survey, 25 of the high school students had been influenced in a bad way.

04.01.12 A COMPARISON OF SOCIALIZATION PROCESSES FOR U.S. RESIDENT STUDENTS AND INTERNATIONAL STUDENTS

Miss Samantha Perera - Southeastern Oklahoma State University, Communications, Miss Ashlie Hodge - Southeastern Oklahoma State University, Communications

The purpose of our research is to explore the socialization process of both U.S. resident students and international resident students at a mid-size regional university. We compare the socialization process of the students by obtaining information about their first impressions of the university. Socialization is defined as "the process by which organizational members became a part of an organization" (Jablin 1982, p.256). Schein (1986) suggests the socialization process involves learning the values, norms and required behaviors that permit one to participate as a member of an organization. For our research, we randomly selected fifteen U.S. and fifteen international students for a survey analysis. The U.S. students were randomly selected from communication classes and the international students were a random selection from the International Student Association. The survey asked questions about their first impression of the campus, faculty, and students. We found U.S. resident students felt secure in their new environment, displayed a more positive attitude, and seem to have fewer complications finding their way around campus. Fourteen out of fifteen international students felt a sense of insecurity upon their arrival at the campus, had a negative attitude, and more complications finding their way around campus. From these results, we believe the socialization process of international students differs from that of U.S. resident students.

04.01.13 AQUAFINA: ACCUSATION AND DEFENSE

Tanisha Wilson - Cameron University, Communication, Ashley DelCiello - Cameron University, Communication, Ronald Price - Cameron University, Communication

We do not live in a perfect world. We err at times in various areas of our lives. It is what we do to fix our errors and how we come out on the other end of them that makes us who we are. We are stronger after we have made and learned from our mistakes. This gives us the tools to make the right decision the next time there is a

LIBERAL ARTS

stumbling block in the metaphorical road. What we do in response to an accusation made against our wrongdoing and how we defend ourselves is the object of study.

We encounter accusations in every aspect of our lives (particularly organizational conflict) at some point in time or another. In my response to this claim, this essay will address and discuss the concepts, approaches and principles of Ryan, Ware and Linkugel. Ryan, Ware and Linkugel discuss the stance, or way an organization defends itself when an accusation is made. This essay will display how the research findings of Ryan, Ware and Linkugel expose the effective strategies used when responding to accusations.

04.01.14 PEOPLE FOR THE ETHICAL TREATMENT OF ANIMALS (PETA) VS. PILGRIM'S PRIDE CORPORATION

Tanisha Wilson - Cameron University, Communication

This essay analyzes the conflict between the People for the Ethical Treatment of Animals (PETA) and the Pilgrim's Pride Corporation. Kentucky Fried Chicken is also included by association. First, the concepts of the four stases discussed by Halford Ryan will be determined. The stases that will be discovered are fact, definition, quality, and jurisdiction. Second, the strategies and postures of Ware and Linkugel will be applied to the accusation and defense. The four postures are absolution, vindication, explanation, and justification (with each posture are two strategies). This essay will also use a war metaphor in order to explain the argument.

Finally, there will be the evaluation of the use of William Benoit's theory of image restoration. This theory offers five strategies. It will be determined which strategies were effective for the accusation and defense. In conclusion, the essay will be able to determine whether or not the postures used and the strategies taken were successful in the defense.

04.01.15 VIRTUAL ADVERTISING STRATEGIES USED BY LOCAL UNIVERSITIES

Caitlyn Camill Steger - Southeastern Oklahoma State University, Communication, Samantha Noelle Willis - Southeastern Oklahoma State University, Communication

The purpose of this research is to compare virtual advertising strategies on websites of local colleges that are used to recruit students. The aspects of these strategies to be explored include a virtual tour that appeals to future students, degree plans available, organizations offered on campus, and aesthetics of each respective school. A virtual

tour is a video giving the history of the campus, degree programs, and testimonies from current students. The schools to be observed are East Central University in Ada, Murray State College in Tishomingo, and Southeastern Oklahoma State University in Durant. The participants in our research included six high school students, three male and three female, from Oklahoma and Texas high schools. Each student previewed the websites and selected which one they felt was most appealing. Four students chose East Central University, two chose Southeastern Oklahoma State University, and none chose Murray State College. The most appealing aspect on the East Central website was agreed to be the virtual tour and the amount of major programs offered. Southeastern was found to be the most aesthetically pleasing for those students who selected it because the application of the color scheme that was consistent throughout the website. Finally, according to the students, Murray State lacked information and was uninteresting.

04.01.16 ORGANIZATIONAL INTERSHIP

David Alton Fannin - Southeastern Oklahoma State University, Communication

David Fannin, Weetah Pool

The purpose of this research is to explore processes used by organizations in the business world to hire interns and the tasks that interns perform for the companies. According to Somerick (2004), the practical approach used by an organization when recruiting or selecting a public relation intern is a very important process for there company. She states that they have to be a well qualified individual and that they are there to help the company as well as learn what it is like to be in that situation in the company. She states that it is an important learning time and that organizations want to get the best out of each of intern (Somerick, 2004), In this particular study, our goal was to see the process that was taken when hiring an intern. We wanted to discover how many interviews a particular company would do, what the requirements were for a person trying to get the internship, and the length of the process. In research conducted by others, we found the usual amount of interviews would be the initial first one and then they bring a select few back and interview from those again before selecting the intern. As far as the requirements for receiving the job, we found that it is important to the company that the person is interested in that particular field. We also found out that the process is usually anywhere between 2-3 weeks.

We find out a lot of companies have a different process, but the majority are mostly similar to each other.

04.01.17 RECRUITMENT AND SOCIALIZATION OF STUDENT WORKERS

Meagan Newman - Southeastern Oklahoma State University, Department of Art, Communication, and Theatre

The purpose of this study is to explore the recruitment and socialization of student workers at a regional university campus. I first conducted a survey of students who worked a variety of jobs on campus. The student employees were randomly selected and were asked five questions about how they learned about their job, applied for it, and trained for the job. Responses from the survey were in a narrative form. There were several common themes running through the answers. For example, the common themes were the similar ways that they learned about the job, very loose and informal training methods, and not taking long to become socialized within the workplace. There are no studies about recruitment and socialization of student workers on university campuses, but when compared to current job market there are some distinct similarity and differences. First, the best way to start looking for a job is to search online and through listings of job openings. Second, the application process is much longer and more tedious. And third, the training and socialization of new employees take a much more formal route (Piotrowski, 2006). While recruitment and socialization of student workers is slightly different than the normal methods used by major corporations. Students are happy and are allowed to work a job that fits with their wants and needs while pursuing their undergraduate degree.

04.01.18 INFORMAL AND FORMAL ORGANIZATIONS: PREFERRED SOCIALIZATION OF NEW MEMBERS

Rebecca Biggs - Southeastern Oklahoma State University, Art, Communication, and Theatre, Leslie Dava Chandler - Southeastern Oklahoma State University, Art, Communication, & Theatre

The purpose of this research is to evaluate, compare, and contrast the socialization of new members into new organizations through informal and formal processes. Formal socialization uses introducing of new members to an organization by segregating them from the original members. Informal socialization does not segregate the newcomer in any way. In previous studies done by Moschis (1976), the reflected appraisal associated with formal socialization is considered one of the influences on the development of self-concept, or how we imagine others see us and comparative appraisal is associated with informal socialization and is the evaluation of one's own relative standing with respect to the belief, ability,

or emotion by observing the behavior of appropriate reference persons. During the study, we observed both types of organization's recruitment processes utilized, along with the adaptation of new members to assess the most effective socialization method. A questionnaire was given to 20 new members from both the informal and formal groups asking them about their socialization experiences. The new members were college students of both men and women, from ages 18-22. It was discovered that sixty-three percent of all subjects polled indicated that new members prefer the informal socialization process as opposed to the formal. The most given reason was because they preferred comparative appraisal and immediate feel of membership.

04.01.19 SOCIALIZATION OF INTERNATIONAL STUDENTS

Mr. David Cory Harbin - Southeastern Oklahoma State University, Communication, Ms. Kayla Sue Robinson - Southeastern Oklahoma State University, Communication

The purpose of this research project is to identify factors that might contribute to the socialization process of international students. Socialization is one of the most crucial factors that can determine the quality of an individual's university experience. This process can prove to be challenging and anxiety provoking in any context. For international students, this may be even more challenging as they face unique challenges during the process of socialization into a foreign academic institution. In this project, we investigated challenges and concerns that international students face during the socialization process of entering a new university. We distributed § surveys to international students to gain insight to the adaptation process into an unfamiliar culture. The survey consisted of five open ended questions focusing on factors of the socialization process, for example "What goals do you have for studying in the United States?" and "Do you feel people treat you differently as an international student?" From the surveys, we learned factors that facilitated socialization and those that hinder it at campus where international students make up only three percent of the study body. The results of the survey suggest that a factor hindering the socialization of international students is fear of being discriminated against. The findings also reveal one factor that facilitates the socialization process is participation in student organizations.

04.01.20 CHANNEL ONE NEWS: "HOW BAD IS IT?" A PILOT STUDY.

Dr. David K. Scott - Northeastern State University, Communication Studies, Dr. Mike Chanslor - Northeastern State University, Mass Communication

Channel One is a newscast that is broadcast directly into secondary schools around the country. Channel One provides \$50,000 worth of AV equipment to each school in return for signing a three year contract to show Channel One daily in their classrooms. Currently, the program is broadcast into more than 350-thousand classrooms which constitute 40% of the country's total. The program itself is comprised of 10 minutes of news and 2 minutes of commercials. Schools that contract with Channel One guarantee that 95 percent of their students will be required to watch the entire 12 minutes of the Channel One broadcast which includes two minutes of commercials targeted at adolescent audiences. The tradeoff of class time and the introduction of commercialism into the classroom has sparked a level of controversy. One aspect of this controversy is the journalistic quality of the program itself. One study concluded that the broadcast was "no more than filler to get students ready for the ads" (Miller, 1997). Another study found that only 20 percent of the content was related to current issues (Hoyne, 1998). However, this poster argues that journalistic judgments are better achieved through comparative analysis. Today, networks such as CNN offer programs (but no AV equipment) to school districts free of cost and commercials. This poster reports the results of a pilot study comparing the journalistic quality of Channel One with CNN Student News and the CBS Evening News.

04.01.21 TO TEXT OR NOT TO TEXT? TYPES OF INFORMATION SENT IN VOICED AND TEXT MESSAGES

Travis Truax - Southeastern Oklahoma State University, Art, Communication, and Theatre

With the rise of electronic communication, cell phones and texting have become the norm. We live in the "Cell Phone Zone" (Gozzi; 2008). Communication sent through text messages leaves gaps, loose interpretations. It opens this question: "Where is the line drawn of what should be disclosed vocally?" This purpose of this study is to discover the line between "textable" conversation and voiced conversation. For the study, "textable" was considered acceptable cellular telephone texting conversation. Voiced conversation includes cell phone calls and face to face encounters. Ten college students were asked to complete a survey. Of these ten students, six were male and four were female. All of which revealed the number of texts they, on average, send per day; ranging

from 5-10, 25-50, or greater than 50. The survey contained ten questions. The questions were developed to see what the subjects had or had not revealed through text such as romantic feelings or emotions. Questions were arranged to see why one calls instead of texting and how likely one would discuss aspects of a relationship. The subjects were finally asked to describe an instance where they felt the need to call a person instead of texting them. All but one of the subjects admitted to becoming frustrated through a texting conversation. All of the subjects revealed some complication while texting, whether it was due to a want for celerity or the conversation was too emotionally enveloped.

04.01.22 TRADITIONAL RECRUITMENT OF RODEO TEAM MEMBERS: EFFECTS OF RECRUITMENT ON MEMBER SATISFACTION

Audra Helms - Southeastern Oklahoma State University, Communication, Scotty Christian - Southeastern Oklahoma State University, Communication

Traditional Recruitment of Rodeo Team Members: Effects of Recruitment on Member Satisfaction.

Audra Helms, Scotty Christian, Communication, Southeastern OK State University, Durant, OK.

This study evaluated the effects of traditional recruitment on the satisfaction of members of an organization. In previous studies, Breaugh and Mann (1984) state that the "realism" hypothesis (Taylor & Schmidt, 1983) is based on the premise that individuals recruited with inaccurate information, will have unrealistic expectations of the organization, and therefore high turnover rates. The subjects for our study consisted of twenty-five current members of a rodeo team. They completed a twelve question survey consisting of nine yes/no questions and three open-ended questions pertaining to their individual recruitment. The purpose of the survey was to explain differences between traditional and realistic recruitment, and allow the member to decide which form of recruitment they experienced. The study revealed that 80% of the members had experienced traditional recruitment, 56% of the traditional recruits, reported being unsatisfied with their experience, and 20% of those recruits would transfer schools if a rodeo suspension was not a risk. The remaining 20% of the team members were recruited using the realistic method, 80% of the recruits reported satisfaction with their experience on the team. The study revealed the realistic method as the most effective at achieving member satisfaction.

04.01.23 HERO TO ZERO: ADVERSE PUBLICITY IN ATHLETICS

Alex Lyons - Cameron University, Communications

Crises cause adverse publicity in every corporate organization. The methods of responding to adverse publicity can strengthen a corporation's image, or abolish the organization completely. Likewise, individuals within organizations are not free from scrutiny. This essay will examine accusations faced by two athletes (Jose Conseco and Andy Pettitte) within team organizations, (Oakland Athletics and New York Yankees), and their coinciding responses. A review of literature will provide a foundation for the rhetorical criticism of their response effectiveness. Ryan, Ware and Linkugel, Millar and Beck, and Benoit are used to analyze the rhetorical responses.

Conseco and Pettitte were selected to demonstrate two different forms of apologia. Their tactics do more than simply respond to adverse publicity and restore desired images. They also provide paradigms for corporate organizations alike; namely teams within Major League Baseball. The latter, along with all its team organizations, can promote accountability and future restoration of ethics on all levels within the team. This, and only this can preserve the integrity of the game and the individuals who devoted honest effort throughout their respectable careers.

04.01.24 AN INVESTIGATION OF THE CONNECTION BETWEEN THE BEHAVIOR OF TELEPHONE-BASED CUSTOMER SERVICE REPRESENTATIVES AND CALLERS

Nicholas Shipman - Southeastern Oklahoma State University, Art, Communication, and Theatre

The purpose of this study is to examine the influence that telephone based customer service experiences have on future business with a company. In particular, the goal is to investigate the connection with the behavior of the customer service representative and the caller. Because the subject of customer service is relatively barren in recent communication journals, some of the most basic information about customer service is spread through common knowledge; such as people passing the word of their displeasure. Naturally, bad news of a company can spread like wildfire, while good news travels slower. For this current study, I hypothesized that a bad experience would yield nothing but trouble, while a good experience can increased rapport between the customer and the business. I also hypothesized that good news of a company will not spread nearly as fast as bad news will. I conducted a survey analysis, using a convenience sample. The data from the surveys supports my common knowledge hypothesis. As I predicted, good

experiences had less of an effect than bad experiences. One survey respondent commented on how he expects good customer service because that is exactly what it is: a service. The conclusion I have drawn from my research is this: customer service is a very large part of why people end their consumership with a business.

04.01.25 THE RELATIONSHIP BETWEEN THE FREQUENCY AND CONTENT OF SOCIAL NETWORKING MESSAGES AND THE FREQUENCY AND CONTENT OF FACE-TO-FACE INTERACTIONS

Kristal Cherrelle Wharry - Southeastern Oklahoma State University, Art, Communication, and Theatre

The purpose of my research is to investigate the relationship between the frequency and content of social networking messages and the frequency and content of face-to-face interaction. Texting, social websites, and instant messaging are referred to as social networking for the purpose of my research. The subjects were users of Facebook, MySpace, e-mail. I created survey on zoomerang.com, a website used to post surveys. I posted the link to the survey on Facebook and MySpace, via status update. I also, sent an e-mail with the link to all of my contacts available. Questions asked about the respondent's frequency of social networking and face-to-face interactions. Seventy-nine percent of the participants indicated social networking made communication easier, the meaning of virtual messages received from the phone or internet were confusing, and that face to face conversation were easier to recall. Eighty-four percent stated they do not get the same information from social networking as they would if they had talked face-to-face. In fact, 63% of the participants said that they disclosed more information about themselves through face-to-face conversations rather than social networking. Majority of respondents indicated social networking is not as accurate as face-to-face communication. Data reveals face-to-face interaction is preferred because it includes more information, such as tone of voice and body language.

04.01.26 THE INFLUENCE OF MESSAGES GIVEN BY CELEBRITIES ON THE BEHAVIOR OF YOUNG ADULTS

Christopher Lynn Nunley - Southeastern Oklahoma State University, Art, Communication, and Theatre

The purpose of this study is to investigate the influence of messages given by celebrities on young adults. I surveyed high school students to learn to what extent they perceive themselves to be influenced by celebrities. Subjects were 25 high school students from four schools along

the Oklahoma Texas border. They were given a survey to complete along with a one-on-one interview that allowed them to express their opinion more freely. Descriptive data from the study supports the claim that the kids are being influenced in a negative way by celebrities. Twenty-three students stated they had tried an alcoholic beverage, a tobacco product, used drugs, and have worn revealing clothing due to the fact one of their celebrities of choice have done it. Two students who said they had not been influenced in a negative way said they did not keep up with "Hollywood" and the current trends, whereas the 23 who had been influenced by the celebrities said they keep up with celebrities. Ten of the high school students who were influenced actually had the TMZ application on their iPhone to keep up with celebrity gossip.

04.01.27 A CRITICAL ANALYSIS OF THE RHETORIC OF THE TEA PARTY MOVEMENT

Ronald Price - Cameron University, Communication

Karl Rove, advisor to former President George W. Bush, has referred to the national tea party movement as "spontaneous, decentralized, frequently amateurish and sometimes shrill." Nevertheless, this grass roots political and social movement, has attracted widespread attention as a rhetorical response to the rise in federal, state, and local taxes. This year in February, 2009, after 15 years without an increase in federal taxes, President Barack Obama raised taxes on cigarettes. Two of the union's largest states, California and New York, passed multibillion dollars tax increases in 2009. Local property and sales tax increases in many cities and counties are also becoming commonplace.

This essay will analyze the rhetorical response of the national tea party movement to two exigencies: (1) The passage of the American Recovery and Reinvestment Plan of 2009 combined with the TARP (Troubled Asset Relief Program) monetary outlays and the (2) National Health Care Debate.

04.01.28 CREATING A BETTER LIFE: A CONSULTATION REPORT FOR A MIDDLE SCHOOL PTA

Ms. Jessica Remer - Northeastern State University, Communications

This is a consultation report for a local middle school Parent Teacher Association. The middle school PTA is a local branch of the National Parent Teacher Association. While the local PTA can at times appear unorganized and insignificant compared with other not-for-profit organizations, the PTA functions well and performs a great service for the city's school system. This report shows

strengths and weaknesses of the organization in five areas: the bylaws and member education, PTA/teacher cohesion (coalition), inclusivity, diversity, and fundraising. Along with the organization's strengths and weaknesses, included are the recommendations I believe will benefit the PTA.

02 ENGLISH

04.02.01 AN ANALYSIS OF MENTAL ILLNESS STIGMA AS PROJECTED BY THE FILM INDUSTRY

Ms. Michaela Worcester - East Central University, English and Languages

Widespread social awareness of the mentally ill has dramatically increased over the last forty years. One main influencer of this increase is the film industry. Filmmakers are extended a creative license to paint different realities for viewers. Whether the realities are false or factual is irrelevant to most movie goers, as long as the movies are entertaining. When filmmakers ventured upon the untapped revenue of portraying mental illness, a way of life that tended to be shunned or ignored, the initial goal was to find a way to provide entertainment. When society did respond to this foreign reality, the business of the mental illness genre was underway. With increased interest and revenue, more and more filmmakers have had the backing to pump out films with mental illness motifs. But with every case of trying to fit reality into a movie script, there have been many detrimental distortions and stereotypes laid upon the mentally ill because of un-factual information presented in movies. This study analyzes mental illness film history, focusing on the benefits and detriments that have come from cinematically publicizing mental infirmity.

04.02.02 UNCOVERING CRITICAL THINKING SKILLS: FINDING HUMANITY IN ZOMBIES, VAMPIRES, AND OTHER UNDEADS

Alexandra Brodt - University of Central Oklahoma, Liberal Arts

When Dr. Wayne Stein, my faculty mentor and I were sitting down and trying to come up with an idea for this year's research grant, we knew we wanted to make an online interactive video to aid with an online class. The idea of creating an online interactive video was just the first step, and it was then that he told me about an online Vampire and Zombie course he was teaching. Learning more about his class itinerary and content I decided to put together a booklet and educational video on being

a Zombie Hunter. My video consists of a person, from their point of view, walking down a dark path in a forest at night. As one walks down the path he or she will hear rustling sounds, animal like noises and other things that go bump in the night. Suddenly a zombie or a human will pop out at you, but you will not know if they are good or bad. You may assume that the zombie is bad and that the human is trustful, but that is where you may make your mistake. My video and guide contain choices for the zombie hunter in training to trust the zombie or human, or to keep walking on the path. You have an end goal, to find a powder that supposedly can save a zombie that still retains some humanity. If you reach the end of the path without getting killed by trusting the wrong being, you obtain the magical dust. The goals are the use critical thinking skills and also to question what zombies represent.

04.02.03 ESL VS. EFL: APPROACHES TO ENGLISH FLUENCY

Mr. Yu Da Kim - University of Central Oklahoma, English, Dr. J. David Macey - University of Central Oklahoma, English

The term "unofficial English" might be used to describe a trend in developing countries around the world. India offers a prime example of a country where popular use of English competes with a designated official language as the major language of business, commerce, and public life. This phenomenon opens a global debate over English's role as a potentially "invasive" language and its displacement over indigenous languages. English is evolving from a subject taken during compulsory levels, or elementary and middle school levels, of education to an economic necessity. This research will provide a comparison between two higher education facilities: Edmond Language Institute (ELI) and SRM University in Chennai, India. ELI instructs students from all over the world. SRM University teaches students all over India. Both facilities use English as the only vernacular for education. This study focuses on the conditions for learning, academic milieu and cultural systems that define instructional techniques and student outcomes at these two institutions. English as a Second Language is a mania that will "run out of gas," whereas English as a Foreign Language accommodates the majority of the future English language learners and is a better fit to fulfill the needs of non-Anglophones.

04.02.04 MUCH ADO ABOUT LANGUAGE

Destiny Ann Ferguson - East Central University, English Department

This project will delve into Shakespearean language, specifically his use of language in the play *Much Ado About Nothing*. It will compare the linguistics of men and women, through the speech of Benedick and Beatrice, comparing/contrasting their typical/atypical use. The research consists of the characters' monologues as well as the conversations they have with one another concerning love, hate, and disinterest. It will also include their own take on language, with examples of compound sentences, interrogative, declarative, and imperative sentences, syntax, morphology, and semantics. Along with this study, I will be presenting a survey in which college freshmen have been tested on their general knowledge and understanding of Shakespeare, which varies in sentence structures, Renaissance vocabulary, metaphors, and allusions.

04.02.05 THE MAGIC OF DISNEY: FROM ONE LONELY MOUSE TO MILLIONS OF MOUSEKETEERS

Jennifer Sanchez - East Central University, English

"M-I-C-K-E-Y, M-O-U-S-E..." This line has become synonymous around the world with both an image and a name which can only be described as anything and everything Disney. Aside from the obvious theme parks, animated films, and the Disney channel, the corporation owns two record companies, numerous film studios and has its toes dipped in everything from the food one eats to the shoes on ones feet. Not many are aware of the company's enormous marketing franchise. Through this paper, research has been done to illustrate a comprehensive look into the history of the Disney Corporation and its many endeavors. A specific look into its current and previous holdings were examined as well. This information then was evaluated by differing ages of students from regional learning institutions. Their opinions on this information was then compared, and their personalized reflection upon the subject matter, applied to the Disney paper's framework.

04.02.06 RAT COMMUNICATION

Siedra Caleb - East Central University, English

When it comes to communication, there is a lot more going on in the rat world than meets the eye, or the ear in some cases. Captive rats have two main ways of communicating with each other and with their human handlers. Vocal communication is one of the two ways. This is the primary means of rat-to-rat communication, but

LIBERAL ARTS

unless the rat is hurt or startled it isn't an effective means of communication between humans and rats because the majority of rat vocals are above the human hearing range. The primary means of rat-to-human communication is body language. How the ears, whiskers, tail, eyes, and fur are positioned is a good indicator of how the rat feels at the moment. This project explores these two types of communication as well as the two groups that are being communicated to.

04.02.07 MURDER FOR THERAPY

Jeff Harrison - East Central University, English

I have a confession to make. I killed my one of my coworkers. I just couldn't take anymore of his constant mistakes. I still had to put up with his oversights after I killed him though because I only killed him on paper. I wrote a short story where I let my imagination run wild in the playground of my mind. I do have to admit that it was great therapy for me. I was able to deal with him much better afterwards. In the process of writing the story, I learned a great deal about the formation of a well-crafted story.

04.02.08 PROJECT SMALL TOWN, OK

Mr. Chase Dearing - University of Central Oklahoma, English

The state of Oklahoma has a vast and unique history marked by a number of places and events that are relevant not only to the state but to the entire nation as well. Too often has the state of Oklahoma been neglected in defining a national literature that captures the historical, social and cultural and economic trends that make up the American cultural tapestry. Even less has been documented about more marginalized Oklahomans: economically lower-class citizens that live in cities and towns of less than five thousand people. Project Small Town, Oklahoma will address the need for this documentation through extensive research and brief but thorough visits to Oklahoma communities that meet a number of criteria. Six communities in Oklahoma meet these criteria: Bristow, Chandler, Lexington, McCloud, Okemah, and Perkins. Visits to these towns, which will include interviews, photography, and library visits, among other things, will be made after extensive research is done concerning the histories of the communities and the relationships of those histories to state and national history. Documentation of these findings will take two forms: a factual, written documentary that expresses everything recorded in these six Oklahoma communities (including photographs, interviews, history, newspaper articles, and general impressions) and a fictional, literary composite of all six of these communities, a book-length work of fiction set in a community that shares attributes of each town.

04.02.09 COMMUNICATION IN VIDEO GAMES

Aaron Buchanan - East Central University, English

Video games have become a multi-billion dollar industry within the last decade, and as the capabilities of both the game systems and the games increase, there becomes an increasing need for communication between the players.

Halo 3 is one of the most popular games in history, and more than a year after its initial release, it continues to be played by more than a quarter of a million people daily.

Halo 3 involves many different game types including objective team games like Capture the Flag, Oddball, and King of the Hill, all of which include the need to have effective communication with one's teammates.

But the communication within this game goes far beyond that of just talking strategy with one's teammates. There are four main types of communication within Halo 3:

- Creative Game Talk
- Conflict Talk
- Insult/Distancing
- Performance/Technical

All four of these employ various and somewhat unique types of language use within the game, but are not limited to just verbal speech, and in fact, non-verbal communication serves a role that is just as important as that of the spoken word within the game.

04.02.10 THE EXILE AND THE MOURNER: GRACE AGUILAR, THE WOMEN OF ISRAEL, AND LITERARY JEWESSES OF NINETEENTH-CENTURY BRITAIN

Mrs. Lindsay Dearing - University of Central Oklahoma, English

This essay seeks to refute common ways of viewing female Jewish characters from popular nineteenth-century novels and to elucidate a new way of understanding Jewish identity. True sympathy for Sir Walter Scott's Rebecca and George Eliot's Mirah comes from a uniquely feminine Jewish perspective. Anglo-Jewish writer Grace Aguilar used biblical stories to impress upon her readers how Jewish and Victorian ideals of femininity intersected in nineteenth-century Britain; Aguilar's *The Women of Israel* illuminates feminine Jewish identity. Asserting that Rebecca and Mirah are flat characters reflects a fundamental ignorance of Judaism and how a woman situates herself within Judaic tradition. Conversely, claiming the women are round or heroic because they do not reject their faith in favor of Christianity admits a

misunderstanding of Judaism. Retaining commitment to their faith is not a triumph over Christianity; this view demonstrates an unawareness of why a Jewish woman chooses Judaism. Grace Aguilar's beliefs about the role of Jewish women in Victorian society allows a more complete understanding of why and how her fictional contemporaries identify themselves as Jewish women and what constructs their relationship to their faith. By examining Sir Walter Scott's Rebecca in *Ivanhoe* and George Eliot's Mirah in *Daniel Deronda* in the light of Grace Aguilar's critical views in *The Women of Israel*, readers gain a more profound appreciation of Victorian Jewish woman characters.

03 FOREIGN & MODERN LANGUAGES

04.03.01 LIVING LITERATURE SEMINAR FALL 2009

Mayrene Bentley - Northeastern State University, Department of Languages & Literature

On October 2-3, 2009, the Department of Languages and Literature at NSU hosted the fall Living Literature Seminar on the Broken Arrow campus. The topic was Native Languages of Oklahoma. Students read the book *Searching for Lost City* by native Tulsan Elizabeth Seay. This book describes the author's effort to find the fluent speakers of Indian languages in Oklahoma. She writes about encounters with speakers of Cherokee, Kiowa, Creek, and Comanche in Oklahoma, and how their aging status is endangering the vibrant continuation of these languages. The issues of language endangerment were elaborated on by invited speakers to the seminar: Drs. Bentley, Foley, Haag, Linn, King, and Montgomery-Anderson.

04 HISTORY

04.04.01 OUR OWN NATION: THE CHEROKEE SOVEREIGNTY STRUGGLE, 1828-2009

Tabatha Toney - University of Central Oklahoma, History/Geography

Building on the previous work of historians Theda Perdue and William G. McLoughlin, *Our Own Nation* examines the treaties, politics, and issues of establishing and maintaining sovereignty. The work also includes primary sources from the Oklahoma Historical Society of Cherokee laws, U.S. treaties, Supreme Court cases, and

interviews from the freedmen and ancestors. In 1828, the Cherokee tribe created its own government and constitution, modeled after that of the United States, in hopes of proving their "civilization" and avoiding removal. In the Treaty of 1828, the U.S. government promised the Cherokee people a permanent homeland never to be placed under the jurisdiction of any territory or state. Despite numerous treaties and promises of the government, the U.S. forced removal of the Cherokees, also called the Trail of Tears, limited the sovereignty of Cherokee Nation, the beginning of an ongoing struggle for their own nation.

After the Civil War, the U.S. required Indian tribes to accept freedmen as full citizens. In March 2009, Cherokee Nation voted to expel descendants of freedmen. The notion of sovereignty returns today, as the Cherokee people believe that as a sovereign nation, they retain the right to determine their citizens.

04.04.02 EARLY WOMEN'S BASEBALL AT THE EASTERN WOMEN'S COLLEGES, 1865-1890

Christina Santiago McDermod - Cameron University, History & Government

The paper discusses the impact on women due to their participation in baseball at Eastern women's colleges from 1865-1890. It focuses on the initial role women played as spectators to early baseball and that role shifted. The cause of this change was a combination of the advent of women's colleges in the Eastern United States as well as the challenging of traditional Victorian views by young college women. Vassar, Mount Holyoke, and Smith Colleges became the catalysts in changing the roles of women in America by not only providing educational opportunities for women, but also encouraging participation in athletics programs. The conclusion drawn from studying these areas was that this early participation had an impact on the future of women's sports and women's roles in society.

04.04.03 JURISPRUDENTIAL THOUGHT OF JOHN STUART MILL

Ms. Kendra Elaine Clark - East Central University,

John Stuart Mill (1806-1873) was a philosopher, economist, and a political thinker. Mill was interested in a liberal form of classical utilitarian philosophy, in which his beliefs were all based on. Mill's very intellectual thought on jurisprudence and 'proof' of utility are his attempts to give a definite content to the idea of happiness by a theory of the higher pleasures, and his proposal that the sphere of morality be coterminous with that of enforceable obligation.

On this poster, I will also come to discuss and describe the substance as a theory of government, this two sided test of progress expresses itself in a tension in his book Representative Government between a concern for participations, conceived as having an educative and improving effect in the citizenry, and a concern for competence, without which existing and unevenly distributed excellences of the community will not be fully utilized.

In a sense of briefly touching bases with these topic and the chronology of John Stuart Mill to summarize my poster project.

04.04.04 ANITA HILL

Ms. Kendra Elaine Clark - East Central University, Legal Studies, Ms. Taylor Shipley - East Central University, Legal Studies

I decided for my poster project topic to be Anita Hill. Anita became a national figure in 1991 when she accused United States Supreme Court nominee Clarence Thomas of sexual harassment during her tenure at the U.S. Department of Education and the Equal Opportunity Admission. Anita had placed the issue of sexual harassment in the national spotlight. She had appeared on national programs, including 60 Minutes and Face the Nation. Her publications have included articles regarding civil rights issues in Newsweek and the New York Times. Moreover, she had authored Speaking Truth to Power and served as the co-editor of Race, Gender, and Power in America: The Legacy of the Hill-Thomas Hearings.

I plan on bring to the poster the motivations of Anita Hill, how she changed the legal landscape, and what contributions did the lawyer make to the law currently.

04.04.05 "EMBLEMS OF PATRIOTISM: LLOYD'S OF LONDON AND THE PATRIOTIC FUND"

Jeffrey Widener - University of Central Oklahoma, History and Geography, Hugh Long - University of Central Oklahoma, History and Geography, Dr. Jessica Sheetz-Nguyen - University of Central Oklahoma, History and Geography, Dr. Randall Ice - University of Central Oklahoma, Department of Finance

Lloyd's Patriotic Fund was established to honor veterans from the Napoleonic Wars. Images such as vases, swords, and medals were given to reflect Lloyd's enthusiasm for building up the spirit of Trafalgar and Lord Nelson. This poster will illustrate those images and explain the honors of each.

05 GEOGRAPHY

04.05.01 THE INVETERATE LANDSCAPE: LATINO SPACE IN OKLAHOMA CITY

Jeffrey Widener - University of Central Oklahoma, History and Geography

One of the early culture groups to begin settling in Oklahoma, specifically in Oklahoma City, was the Latinos. Latinos are currently the third largest minority group in Oklahoma. Unfortunately, the people of this unique culture have not been able to, have had little interest in, or have not been encouraged to preserve their geography and history in this area of the world. Even though the Latino cultural and historical impact is perceptible today in many rural towns and urban cities in Oklahoma, few Oklahoma geographers or historians have exhibited interest in its inimitable importance. The Latinos came, persisted in settling, and continue to maintain a strong presence in Oklahoma today, particularly in Oklahoma City. Their existence in the city has been constant; but over recent years it has become more perceptible-not because of the number of Latinos in the city but because of their increasingly noticeable modifications to the landscape of Oklahoma City itself. They acclimatized themselves to American culture, created cultural landscapes, and, in the process, established their own traditions in the city of Oklahoma City. Latinos have come to stay. Their mark on the landscape not only makes it a place for them; it also signifies a cultural change that is apparent and has taken hold in this American city. This poster conveys how Latinos have been able to Latinize portions of Oklahoma City through cultural and social geographies.

04.05.02 UTILIZING GEOGRAPHICAL INFORMATION SYSTEM (GIS) TECHNOLOGY TO CREATE AN INTERACTIVE CAMPUS INFORMATION PORTAL.

Jason Redden - Cameron University, Computing & Technology, Mark Polson - Cameron University, Computing & Technology

The Campus Information Portal project was proposed to create a user friendly information center for new and current students at Cameron University. The first phase was to develop base layers using GIS technology for an online ArcIMS server system. The Portal will be able to provide information to students about Cameron University features and facilities. Additional information may include local entertainment areas, food establishments, local government facilities, postal locations, and other features that can enhance the student's life while attending Cameron University.

04.05.03 EL CERRITO REVISITED, EVOLUTION OF A SMALL NEW MEXICAN VILLAGE

Salena Elaine Etzler - University of Central Oklahoma, Department of History & Geography

Irving Rusinow photographed the small village of El Cerrito, New Mexico in 1942 for the Bureau of Agricultural Economics. El Cerrito was founded after 40 claimants were awarded land from the San Miguel del Vado land grant in 1824 (Nostrand). By 1841, El Cerrito had a population of 321 people. One hundred years later, around the time of Rusinow's visit, the population was 140. However, by 1956 there were only 34 people living in El Cerrito. Since that time, the population of El Cerrito has dwindled down to its current population of a dozen people. I traveled to El Cerrito in May 2009 to revisit the locations photographed by Rusinow. I repeated many of his photos and found several changes and similarities in the 2009 and 1942 photos. Maturing of the physical landscape can be seen in the abundance of trees in and around the village. Other changes that have occurred can be contributed to the crumbling and disintegration of abandoned structures while a few homes have been restored and expanded. The schoolhouse is currently being rebuilt after a fire destroyed the structure in the late 1950s (Nostrand). The basic outline of the town remains the same. Keywords: El Cerrito, New Mexico, historical geography, repeat photography.

04.05.04 LANDSCAPE-LEVEL MAPPING OF EASTERN REDCEDAR ENCROACHMENT AT THE SELMAN LIVING LABORATORY

Dr. Brad Watkins - University of Central Oklahoma, History & Geography, Dr. Gloria Caddell - University of Central Oklahoma, Biology, Jonathan Blazs - University of Central Oklahoma, History & Geography, Michael Reid - University of Central Oklahoma, Biology

Understanding the dynamics of plant communities within the context of landscape is fundamental for the development of better management strategies for environmental protection. The majority of the mixed-grass prairie ecosystem of North America has been lost because of human activities including fire suppression, and much of the rest is currently threatened by invasion of eastern redcedar (*Juniperus virginiana* L.). The goal of this study is to better understand the rate of encroachment and the conditions under which eastern redcedar can become established in mixed-grass prairies at its western limit in Oklahoma. The proposed research is being conducted at the Selman Living Laboratory, a biological field station owned and operated by the University of Central Oklahoma, and which is located in a mixed-grass prairie

and gypsum outcrop environment. We will use the global positioning system to map growth characteristics and site conditions around individual eastern redcedar trees and use geographic information systems to analyze their distribution. This study will help lead to the development of strategies to protect native mixed-grass prairie from future eastern redcedar encroachment.

04.05.05 A GEOGRAPHICAL RELATIONSHIP BETWEEN FORECLOSURE AND CRIME IN TULSA, OKLAHOMA

Dr. Cari Keller - Northeastern State University, Criminal Justice and Legal Studies, Patti Buhl - Northeastern State University, Criminal Justice and Legal Studies

The City of Tulsa is the largest city within the twenty-three county region that Northeastern State University serves. It spans greater than 182 miles and is populated by more than 385,000 inhabitants. The national housing market peaked in 2005. Foreclosures began to increase significantly between 2006 and 2007. Criminal Justice researchers have theorized that a relationship exists between foreclosure rates and crime trends. This research will examine the geographic location of foreclosures within the city limits of Tulsa between 2005 and 2009 and compare this data to the crime patterns of that time frame. This presentation will also discuss crime and foreclosure prevention measures enacted by other cities and present a potential model program for the City of Tulsa.

07 PHILOSOPHY

04.07.01 JURISPRUDENTIAL THOUGHT IN NATIVE AMERICAN LAW

Mr John G Briggs - East Central University, Legal Studies/Jurisprudence

John Briggs
Jurisprudence
10/08/2009

Jurisprudential Thought in Native American Law

This poster describes the history and influences Native American jurisprudential thought had on the developing jurisprudential thoughts of the newly established United States of America. Additionally, a chart within the poster compares and contrasts some key jurisprudential elements of both the systems. Finally, the poster outlines some interesting elements of Native American jurisprudential thought that the founding fathers did not adopt but later generations have. The influence of Native American Jurisprudential thought

on evolving jurisprudential thought of the United States is easily traced. Many of the founding fathers, particularly Benjamin Franklin, were impressed and intrigued by many aspects of the Iroquois Charter which "contained many features absent in other governments at the time." These features included the concept that "elected officials were never masters but remained servants of their constituencies," and rights for women. Ideas include establishing Equal rights for women, arbitration as an effective means of resolving civil disputes, and protections for all peoples regardless of age, race, religion, color disability, national origin, etc.

04.07.02 THE PHILOSOPHICAL WORKS OF JEAN JACQUES ROUSSEAU OVER THE DISCOURSE OF ONE AND TWO

Edward Stilwell - East Central University, Legal Studies

Abstract: Jean Jacques Rousseau, an 18 century Jurisprudence Philosopher born in Geneva, Switzerland. Shortly after he was born his mother passed away and he was raised by his father who eventually fled Geneva at the age of 10 and leaving young Jean Jacques Rousseau to be raised by his aunt and uncle. Rousseau wondered for my years before settling in Paris, where he worked many jobs including working as an assistant for an ambassador. One of Rousseau's major works that shot him to fame was his essay called "Discourse on the Arts and Sciences" which in the essay he argued that the arts and science advancements were in no way beneficial to early man and that the art and sciences had corrupted man. He believed that knowledge had made government powerful in its own way and had striped individual's liberties. He also wrote a second worked called "Discourse on the Origin and Basis of Inequality Among Men" which he argued over the inequalities of natural law and politics in which he viewed civil society had strayed away from his natural state. In which man gave in to his needs and personal desires and give up his freedom for this so-called society. Rousseau felt civil society was all smoke and mirrors made by the highest power of that society in order to maintain the wealth and power over the weak.

08 POLITICAL SCIENCE

04.08.01 TEACHING ELECTORAL BEHAVIOR AND POLITICAL RESEARCH METHODS THROUGH A COURSE ON ELECTION FORECASTING

Randall J. Jones Jr. - University of Central Oklahoma, Political Science

For more than 20 years I have taught an undergraduate course on election forecasting during presidential election semesters and sometimes during midterm semesters, as well. The objective has been to generate student interest in the campaign, to help students identify factors that influence the election outcome, and to acquaint them with theories underlying the electoral process and other aspects of political research. This poster presentation summarizes experiences from this course and assesses the course's value in achieving these objectives. Class activities described include:

- * conducting a public opinion poll, in which class members learn survey techniques and are introduced to probability theory
- * identifying key quantitative indicators that can forecast election results, which are used in creating simple cutpoint graphs and in building regression models
- * tracking prices of candidate contracts in futures markets that have accurately predicted elections outcomes in the past, notably the Iowa Electronic Market
- * replicating studies that have found that perceived competence of candidates, evident only from their facial appearance, is usually an accurate predictor of election winners
- * combining forecasts from various methods to increase predictive accuracy, as demonstrated in the PollyVote project

04.08.02 ROLE OF POLITICAL CONSULTANTS IN THE OKLAHOMA LEGISLATURE

Dr. Christine Pappas - East Central University, Political Science and Legal Studies, Dr. Rebekah Herrick - Oklahoma State University, Political Science

This research summarizes part of a larger project that probes the role of political consultants in state-level races and public policy making. In conducting interviews with 10 legislators and political consultants in Oklahoma, we are able to make comparisons between Oklahoma and the other states in our study. We present our typology of relationships between candidates and consultants and make predictions regarding how effective each of these

relationships will be in winning races and in the public policy process. Oklahoma's political culture also plays a role in defining the relationship between consultants and lawmakers.

04.08.03 THE MINORITY REPORT PHILOSOPHY

Randell Shrouder - East Central University, Legal Studies

I AM GOING TO EXPLAIN THE SIGNIFICANCE OF THE MOVIE "THE MINORITY REPORT" TO THE JURISPRUDENCE OF LAW. THE MOVIE IN ITS MAJORITY DEALS WITH MANY ASPECT OF THE PHILOSOPHY OF LAW, LIKE PORTRAYING THE VIEWS OF BENTHAM, PLATO, ST. THOMAS MOORE, AND THE WHOLE IDEA OF UTILITARIANISM. THE MOVIE TRIES TO OBTAIN A UTOPIA FROM MURDER. MY POINTS ARE GOING TO SHOW HOW THE MOVIE REACTS AND JOINS THESE PHILOSOPHERS AND THEIR IDEAS INTO ONE ACTION PARADOX.

04.08.04 THE EMBRYONIC LIFE OF DUE PROCESS IN THE UNITED STATES

Mr. Checed Rodgers - East Central University, Legal Studies

My poster will document key instances of the use of the due process clause in America's early history. The purpose of my poster will be to demonstrate both the meaning of the clause and the application of the clause in the Colonial and early Federal periods. My documentation will be focused primarily on court decisions, though some mention may be made of early state constitutions and relevant expert commentary. The time period to be covered begins in the late 17th century and extends into the mid 19th century. Tentatively, cases to be covered include *Zylstra v. Corporation of Charleston*, 1 Bay 382 (Court of Common Pleas, S.C. 1794); *In re Dorsey*, 7 Port 293 (Ala. Sup.Ct. 1826); *Taylor v. Porter and Ford*, 4 Hill 140 (N.Y. Sup.Ct. 1843); *White v. White*, 4 How. Pr. 102 (New York County Sup. Ct. 1849), and *Wynehamer v. New York*, 2 Parker Crim. Rep. 490 (N.Y. Court of Appeals 1856).

04.08.05 CHOPPED TO PIECES: EVIDENCE SLASHES THE LIZZIE BORDEN MYTH

Tyffany Osborn - East Central University, Political Science

Lizzie Borden took an axe
and gave her mother forty wacks.
When she saw what she had done
she gave her father forty-one.

This rhyme has been handed down from generation to generation since the mid 1900s. The way that this story has been passed down has transformed it from a factual case to a horrible myth. Although it is factual that someone did kill Lizzie Borden's father and step-mother with an axe, no one was ever convicted for the crime. Lizzie Borden was tried for both murders and acquitted on both counts. There are many specualtions as to why she was not convicted; such as the jury did not believe that a woman could have committed such a heinous crime and during her trial she had many members of the church rally behind her in her defense. However, these same members deserted her after the trial was over. Although Ms. Borden was never convicted, her guilt is sung by school children everywhere. This begs the question, if Lizzie Borden was so obviously guilty then why was she not convicted? New theories have emerged that support the claim that Lizzie Borden was innocent after all.

04.08.06 PLESSY V. FERGUSON

Matthew Daniels - East Central University, Political Science

The 1896 case of *Plessy v. Ferguson* was a landmark case in the United States. Segregation was an institution since the Civil War but *Plessy* made it a law. In 1890 Louisiana passed a statute that segregated railroad cars. Homer Plessy was chosen to test this new statue. On June 7, 1892 Plessy boarded a train in New Orleans, LA he sat in the whites only section and was arrested. Ablion Tourgee, Plessy's lawyer, tried to block the trail on the notion that segregation violated the U.S. Constitution. Judge John Ferguson denied Tourgee's motion and the trail moved to the Louisiana Supreme Court. Chief Justice Francis T. Nicholls, who was the governor of Louisiana in 1890 that signed the statute into law, denied Plessy's case and now Tourgee and Plessy moved to the U.S. Supreme Court.

Justice Henry B. Brown wrote the opinion of the court. In the opinion the court found that separation was not a violation of the 14th amendment. Justice Brown wrote "If one race be inferior to the other socially, the Constitution of the Untied States cannot put them upon the same plane..." Chief Justice Marshal Harlan wrote the lone dissent. Justice Harlan said that the constitution needed to be color Blind.

The United States used *Plessy v. Ferguson* used "Separate but Equal" to segregate everything until it was overturned by *Brown v. Board of Education*. Brown said that " separate was inherently not equal."

LIBERAL ARTS

04.08.07 LINDBURGH KIDNAPPING: WAS KAUPTMANN GUILTY?

Sandra Steele - East Central University, Legal Studies

The kidnapping of Charles A. Lindbergh, Jr. son of the aviator Charles and Anne Lindbergh was reported by most news media to the "Crime of the Century". The media failed to report the fraud and abuse committed by local and state law enforcement agencies, including the FBI, twisting the truth, witnesses being coerced to committing perjury by falsifying their previous testimonies, not following up on leads. With Lindbergh, himself falsifying his own testimony and worse an innocent man, Bruno Richard Kauptmann, was not given a fair trial and finally executed. Many questions have risen with this case, why were strangers, underworld members, and Lindbergh allowed to investigate this heinous crime? Why was so much emphasis placed on the poorly designed ladder (Kauptmann was a very skilled carpenter)? Why were no fingerprints found in the nursery? How could the person who supposedly climb up a ladder that did not properly reach the window (with winds blowing 35 mph outside) carry out a baby, leave a note on the window sill and close the window? Handwriting experts did not match Kauptmann's writing with the ransom note. Kauptmann was instructed to write notes for comparison with instructing to misspell words under much abuse. He was not allowed have his financial records of his and his business partner introduced as evidence during the trial. His car did not match the description of the vehicle that was supposedly reported to be in the Lindbergh neighborhood.

04.08.08 BLACK SOX EFFECT

Randell Shrouder - East Central University, Legal Studies

I will be talking about and trying to prove that famous Black Sox trial played a huge part on the prosecution of all future gambling trials against players and other corrupt sports.

04.08.09 THE MINORITY REPORT IN LAW

Randell Shrouder - East Central University, Legal Studies

I WILL BE EXPLAINING THE COMPARISON BETWEEN THE MOVIE "THE MINORITY REPORT" AND THE JURISPRUDENCE OF LAW. I WILL ALSO EXPLAIN THAT "THE MINORITY REPORT" HAS MANY PHILOSOPHY ALREADY IN THE MOVIE ITSELF. THE MOVIE PORTRAYS THE THEORY OF UTILITARIANISM TO THE EXACT THAT HAS BEEN TAUGHT BY BENTHAM, PLATO, AND ST. THOMAS MOORE.

04.08.10 ONE MAN, ONE VOTE: A CASE STUDY OF CITY COUNCIL WARDS IN ADA, OK

Ms. Jennifer Marie Hicks - East Central University, Department of Political Science and Legal Studies

In Oklahoma, City District Wards are to be formed and framed of compact and contiguous territory and be substantially equal in population. This project researches into helpful resolutions and possibilities for the purpose to help aid and formulate better structure for under-represented voting populations within the Ada Oklahoma's City ward districts.

In my research I asked five questions.

1. When were the Ada district wards set up?
2. Why were they set up this way?
3. How can they be changed and in what ways?
4. What should happen next to effectively make a change, if possible?
5. I researched into what affect and bearing does Baker v. Carr have on redistricting in Ada?

I examined the history of Ada's City Charter and Oklahoma statutes, and the role of Charles Spencer, to gain better perspective of the when Ada's Ward Districts were set-up and reasons of why they are set up in the boundaries and apportionments that they are. It was in Baker v. Carr, 369 U.S. 186, 82 S.Ct. 691, that I discovered the permissibility for citizens to be able to request and desire Ward District re-apportionment standards.

In this research of statutes I discovered that there are ways to modify the district ward boundaries and the number of district wards.

This project concludes with statements of my recommendations and explanation of why and what I feel are the best options to go about pursuing enhancing the votes of Ada's under-represented citizens.

04.08.11 A ZEALOUS REPRESENTATION

Neville Thornhill - East Central University, Legal Studies

Clarence Seward Darrow fought and was a veteran in many wars. These wars did not take place on a battle field, but as a practicing attorney Darrow crusaded in the courtroom. Darrow campaigned against injustices that he deemed to be intolerant and destructive to mankind. With the deck stacked against his clients, Darrow would use his legal paintbrush to paint a "beautiful" defense, much like a piece of art. Two of the most notable cases argued by Darrow were the Scopes-Monkey trial and the Leopold-Loeb case. Darrow believed that the ends were more

important than the means. He took this idea to heart, and was charged with bribery which sullied his career late in life. Darrow proclaimed that the only crime he had committed was standing for the weak and the poor.

04.08.12 ENEMY OF THE STATE

Dustin Parris - East Central University, Legal Studies

The trial of Zacharias Moussaoui has been regarded by some as a clear show of willingness by the United States to give due process, to provide a fair trial, and to uphold constitutional rights to enemies of the state. However, many remain critical of the great lengths to which the court tolerated the outrageous and threatening courtroom behavior of Moussaoui. Still, others question whether or not Mousaoui had any part or knowledge of the September 11th attacks at all. Initially Mousaoui, claimed was not involved in the September 11th attacks but was instead planning another terrorist attack for Al Qaeda. This claim is reported to have been confirmed by other members of Al Qaeda but prosecutors were adamant that this story had no merit. Moussaoui later admitted guilt to having been involved in the September 11th attacks however after sentencing, he recanted his trial testimony and again asserted his initial claim. Osama Bin Laden himself has stated that Moussaoui had no part in the September 11th attacks and suggested that his confessions had been forced or were a result to pressure. Claims such as these add to the allure of this bizarre case and further blur the already sketchy details.

09 SOCIOLOGY & SUBSTANCE ABUSE

04.09.01 AN EVALUATION OF A COMMUNITY INITIATIVE UTILIZING SOCIAL DISORGANIZATION THEORY

Sarah Lawhead - University of Central Oklahoma, Sociology, Dr. Kenneth Kickham - University of Central Oklahoma, Political Science

In this study the researcher evaluated a community initiative using theory as a lens. The theory that is chosen is social disorganization theory, because it thoroughly addresses neighborhood structural characteristics and community dynamics and their relation to crime. The community initiative chosen for evaluation is three Weed and Seed sites located within the greater Oklahoma City area. According to Social Disorganization theory, Weed and Seed has the potential to negatively impact crime. The variables for the study were derived from Weed and Seed crime and Census data, which came from performance accountability reports and both Midwest

City and Oklahoma City Police Departments. Using rates of aggravated assault and robbery as dependent variables, the researcher tested the effect of the Weed and Seed intervention on all three Oklahoma sites by employing a time series regression analysis incorporating terms to capture the effects of the intervention. Although the sample size wasn't large, the results support the hypothesis-Weed and Seed significantly impacted aggravated assault and robbery in the three site areas.

04.09.02 CODEPENDENCY AND THE COLLEGE EXPERIENCE

Mrs. Amy Simpson - University of Central Oklahoma, Substance Abuse, Dr. Elaine Bartgis - University of Central Oklahoma, Sociology & Criminal Justice

In this paper the researcher explores codependency in college students as it relates to determination to succeed in college, trust in people, grade point average, and students' overall satisfaction with their college experience. Data was gathered using multiple survey instruments. The sample consisted of 189 diverse participants from a large commuter college. The researcher used a Pearson Correlation Statistical Analyses and Frequency testing for the demographics. Results were consistent with prior findings and revealed a significant association between codependent students and their trust in people. Students, who reported higher codependent scores, had a decreased amount of trust for people. Further research is warranted since codependency has been shown to be a negative factor in the aggregate college population.

04.09.03 ARE YOU COVERED?

Ms. Cassie Hoyle - East Central University, Social Work Program, Mrs. Rebecca Ann Rankins - East Central University, Social Work Program, Ms Felisha Gabriela Harris - East Central University, Social Work program, Ms. Melodie LeAnn Parker - East Central University, Social Work Program, Dr. James Burke - East Central University, Social Work Program

Being presented by: Cassie Hoyle, Felisha Harris, Melodie Parker, and Rebecca Rankins.

The purpose of this study is to assess the different levels of awareness among college students regarding healthcare. THE National Debate is demonstrating that a lot of myths and misinformation exists concerning healthcare. This study will question students' level of understanding regarding health issues and current knowledge about their own healthcare coverage. It is predicted that students who pay for their own healthcare coverage will be more knowledgeable, and that non traditional students will be more informed about healthcare overall.

LIBERAL ARTS

04.09.04 "DOES SOCIAL WORK EDUCATION MAKE A DIFFERENCE?"; ASSESSING THE PREPAREDNESS OF SOCIAL WORK GRADUATES IN THE FIELD OF CHILD WELFARE.

Mr. Roger Crumpton - East Central University, Social Work Program, Mrs. Sharon Denton - East Central University, Social Work Program, Mrs. Karen Walls - East Central University, Social Work Program

Previous studies have shown child welfare workers who do not have the education and training in the field of social work are more likely to have a higher rate of professional turnover within their field. The purpose of this study is to determine how social work professionals who have graduated from East Central University's Social Work program feel it has prepared them for a career in child welfare. Surveys will be used to assess how social work professionals feel that the education and training has helped them to be more prepared, and satisfied in their field. The survey will also assess their future plans in the field of child welfare. It is our hypothesis that social work professionals in child welfare who have completed the Social Work program will feel more prepared in the field, graduates will report a higher level of job satisfaction, and will plan to remain in the field of child welfare longer.

04.09.05 SEX EDUCATION: DOES IT MAKE A DIFFERENCE?

Shelby Garvin - East Central University, Social Work Program, Kylee Gillum - East Central University, Social Work Program, Rana Sanner - East Central University, Social Work Program, Chandra Shores - East Central University, Social Work Program

Sex education in schools has been a controversial issue for a long time. In recent years abstinence only programs were the only sex education programs funded by the government. The purpose of our study is to determine what impact sex education programs have on college students' attitudes and decision making regarding their sexual behavior. Questionnaires will be administered to students pertaining to what type of sex education they had and the influence they felt it had on them.

04.09.06 HOMOPHOBIA AMONG SOCIAL WORK AND NON-SOCIAL WORK STUDENTS

Ms. Lesly Walker - East Central University, Social Work Program, Ms. Tamra Bell - East Central University, Social Work Program, Ms. Breanna Hill - East Central University, Social Work Program, Ms. Mikella Whatley - East Central University, Social Work Program, Ms. Courtney Smith - East Central University, Social Work Program

Social work programs have been criticized for lacking emphasis on homosexuality content within curricula. Helping professionals that commit to serving at-risk and diverse populations should focus attention on these groups. Previous studies have indicated that practitioners who possess homophobic attitudes are less effective in helping their homosexual clients (Greene, 1994). The focus of this study is to compare the degree of homophobia between social work and non-social work students. Students survey about their perception or various issues were assured that the study was voluntary and anonymous. It is our hypothesis that social work students are less homophobic than non-social work students.

04.09.07 A STUDY OF THE RELATIONSHIP BETWEEN GENDER OF UNIVERSITY STUDENTS AND THEIR ATTITUDES RELATING TO GUNS PERMITTED ON UNIVERSITY CAMPUSES

Dr. Philip Holley - Southwestern Oklahoma State University, Social Sciences, Dan Brown - Southwestern Oklahoma State University, Social Sciences

Guns permitted on university campuses represent a controversial matter for politicians as well as university administrators and those in charge of university security. Among others, faculty members and students have vested interests in any legal or administrative changes that would permit guns on campuses. To date, student attitudes represent a rare voice in the debate. This project represents an effort to examine the attitudes of students regarding guns on campus.

The present study examines a portion of the results of a survey given to a convenience sample of over 500 students at a small state university in Oklahoma during the spring 2009, semester. We examined perceptions of safety and security on campus as well as attitudes relating to the possibility of changes in Oklahoma laws that would permit certain classes of people to possess concealed guns on university campuses. Specifically, we examined the role of gender as related to perceptions of campus safety and safety if various classes of individuals were permitted to have concealed weapons on.

04.09.08 BORDER PATROL METHODS OF STOPPING ILLEGAL DRUGS

Robert Kerbo - Southwestern Oklahoma State University, Social Sciences

- The poster is about how the Border Patrol is a solution to stopping illegal drugs from coming across the borders. The Border Patrol is a Department of Homeland Security with responsibility for stopping and securing

illegal drugs. They use various methods to stopping the drugs at the border. The drugs they are working to stop include marijuana and methamphetamine.

- The US Border Patrol works on the entire boundary of the US. The Mexico border is the most affiliated with drugs. They have numerous checkpoints going from Florida all the way to California to prevent substances from coming in.
- Methods used for patrolling the border are by video camera, foot, ATV, boat, and air.
- At border crossings, the methods include stopping and checking people and vehicles using visual inspections and dog searches.

04.09.09 SEXUAL TRAFFICKING OF TEENAGE GIRLS IS CONTEMPORARY SLAVERY

Melissa Nichols - Southwestern Oklahoma State University, Social Sciences

- Teenage sexual trafficking refers to an organized movement of unwilling teenage girls ranging in age from about 9 to 19 with the average age being 11 taken from one place to another where they are involved in different practices of sex for financial benefit or sexual indulgence. This poster involves a description of the different types of sexual trafficking of teenage girls and the process through which it is done.
- Sexual trafficking is the third most profitable criminal activity, following only drug and arms trafficking. Annual estimates of almost \$10 billion are generated in revenue from trafficking activities, with at least \$4 billion attributing to the worldwide brothel trafficking industry.
- Sexual trafficking includes a single owner over the girls where they are required to engage in forced prostitution for money, or ritual trafficking for religious practices.
- Sexual trafficking is commonly present in Latin America and Eastern Europe. These girls are required to practice local prostitution and sex tourism until they are forced into sexual trafficking.

04.09.10 DOG FIGHTING: THE ULTIMATE BLOOD SPORT

Cara Nicole Walz - Southwestern Oklahoma State University, Social Sciences

- The purpose of my research is to describe what dog fighting is and what happens before, during, and after a dog fight.
- Dog fighting is a contest where two dogs that

have been trained and conditioned to fight are placed into an enclosed space to fight each other for spectator entertainment and betting.

- The poster will discuss the different levels or "leagues" of dog fighting and the breeds that are most commonly used.
- Included will be description of the consequences of getting caught dog fighting.

04.09.11 CRACK BABIES: HOW THE MEDIA CAUSES MORAL PANICS

William Warren - Southwestern Oklahoma State University, Social Sciences

- ? The poster will describe how the media was involved in creating the "crack baby" scare of the 1980's. The attitude was that poor black mothers were sacrificing the little ones resting in their wombs for the pleasures of crack cocaine. The fear was that these babies were going to be afflicted with the drug and that they would be in the welfare system their entire lives from suffering health problems and brain damage.
- ? The poster will also describe how the women who were being investigated already had other influencing health problems. They were malnourished, and had other addictions to alcohol and other drugs in addition to "crack."
- ? Studies of this scare have found that the "crack baby" panic of the 1980s was greatly overblown.

04.09.12 GEOGRAPHIC MAPPING OF FOOD PANTRY CLIENTS IN CHEROKEE COUNTY

Dr. Sara Brown - Northeastern State University, Sociology (emeritus), Dr. Ernst Bekkering - Northeastern State University, Information Systems and Technology

For years, the Tahlequah Food Pantry has provided assistance to the less privileged in Cherokee County by providing monthly food staple supplements. Without the assistance of the pantry, more people would go hungry in Cherokee County. This includes not only adults, but also children and the elderly. A substantial number of clients served are also members of minority populations.

In recent years, the pantry has seen a significant increase in the need for assistance. Coupled with the economic crisis and the resulting decline in contributions, has made it more difficult to meet the mission of the pantry. Applications for grants and other third party contributions have to be sought. To strengthen the importance of financial support, location of the clients of the pantry on a map of Cherokee County will be used. We use the food pantry database and the MapPoint application to

LIBERAL ARTS

demonstrate where clients and client groups, such as children or minorities, live in Cherokee County.

04.09.13 ARE WE SUPPORTING OUR TROOPS? A SURVEY OF NATIONAL GUARD MEMBERS' AND FAMILIES' AVAILABILITY TO RESOURCES DURING A DEPLOYMENT CYCLE

Wendy Bell-Sample - Northwestern Oklahoma State University, Social Work

The types of care needed for National Guard soldiers and their family members are unique to those of regular Army personnel and families. After active duty, many Guardsmen encounter demobilization without having access to benefits or support due to the distance and availability of military installations for reserve component service members. Additionally, the families do not have the support networks which regular Army families receive from the on-post community. Preliminary research, conducted among a sample of National Guard families, demonstrated a lack of awareness regarding the resources available to them. In addition, the resources are only obtainable at a military base which may be located a considerable distance from rural attachments. The National Guard soldiers and their families require these support systems to cope with stressors to maintain healthy relationships before, during, and in preparation for future deployments.

04.09.14 PERCEPTIONS OF THE SOCIAL WORK PROFESSION AMONG NON-SOCIAL WORK MAJORS

Dr. Satara Armstrong - Northeastern State University, Social Work, Trisha Creamer - Northeastern State University, Social Work, Rachel Randall - Northeastern State University, Social Work, Sally Townsend - Northeastern State University, Social Work, David Udovenko - Northeastern State University, Social Work, Marianne Woltjer - Northeastern State University, Social Work, Virginia Harrington - Northeastern State University, Social Work, Sara Hemel - Northeastern State University, Social Work

The profession of social work often evokes images of welfare workers and other specific images involving child welfare work. The National Association of Social Workers (NASW) has launched an education and awareness campaign to try educate the public about the scope and breadth of the profession, as well as enhance the image of professional social work in general. However, many social work students at Northeastern State University speculate that their non-social work major peers do not understand

the curriculum rigor and values embedded in becoming a professional social worker, nor the roles social workers play in society. To explore how non-social work majors view the profession, researchers will invite non-social work students to participate in a qualitative study using focus groups. Snowball sampling will be used to recruit participants and the focus groups will be audio-taped. The data will then be transcribed and chunked into consistent themes. The results will then be discussed in light of the recent efforts by the NASW to enhance the public image of the profession. Students will present their findings to the National Association of Student Social Workers at Northeastern State University and can help guide future studies and potential recruitment efforts

04.09.15 ACADEMIC PREPAREDNESS: FIRST GENERATION PERCEPTION OF SUCCESS

Crystal Mohamed - University of Central Oklahoma, TRIO - Student Support Services, Ms. Chez Redmond - University of Central Oklahoma, TRIO - Student Support Services

The purpose of this study is to determine the perceived academic success of first generation college students based on an academic preparedness survey. A first generation college student, as defined by the U.S. Department of Education is a student whose parent has not received a bachelor's degree (Choy, 2001). In a large study of research, first generation college students have been the focus of many retention factors. Compared to other students, the first generation seems to be at a disadvantage when trying to complete a four year degree. In fact, the researcher Choy in 2001 found that out of those students starting in the four year programs, 34 percents of students were first generation and of those who started in two year programs, 53 percent of students were first generation. These groups of students were not as likely to finish their degree (Choy, 2001). Therefore, it is important to look at ways for retention because dropout rates are high in most institutions but the first generation group of students has an even higher dropout rates. A student's perception of success can have an impact on graduation. Fischer finds that students who enjoy the college experience have less chance of dropping out of college. The experience of feeling connected to someone on campus such as a faculty member or being active on campus can allow a student to feel a part of the university which may lead to encouragement to graduate (2007).

04.09.16 DINING IN DEVIANCE: BULIMIA IN TEENAGE GIRLS

Reanna Barker - Southwestern Oklahoma State University, Social Sciences

- o Bulimia, also known as bulimia nervosa, is an eating disorder in which the person secretly eats excessive amounts of food followed by "inappropriate methods of weight control, such as self-induced vomiting (purging)."
- o Eating disorders such as bulimia begin between 13-17 years old and can lead to a 15% or more drop in body weight.
- o Bulimia is becoming more common in these modern times because teenage girls are obsessed with losing weight and dieting. They have begun to glorify thinness that is shown in magazines and movies.
- o The focus of this poster will be the link between media's display of thinness and teenage girls' growing obsession to obtain the weight that is seen on TV, in magazines, on billboards, etc.

04.09.17 DOMESTIC VIOLENCE PREVALENCE IN TEENS AND YOUNG ADULTS

Crystal Mohamed - University of Central Oklahoma, Violence Prevention Project, Ms. Kathryn Toahy - University of Central Oklahoma, Violence Prevention Project

Domestic Violence is a pattern of behavior used to establish power and control over another person through the use of fear and intimidation, often including threat or use of violence. Domestic Violence includes abuse that is emotional, economic, sexual, using children, threats, intimidation, isolation, and a variety of other behaviors used to maintain fear, intimidation, power and control. 24,105 Domestic Violence cases were reported to law enforcement agencies in 2006 resulting in: 47 homicides, 3,636 felony assaults, 733 violent sex crimes, 19,690 felony assault & battery. Only 50% of intimate violence incidents are reported to law enforcement(OSBI 2006 UCR).

Violent relationships begin when teens are about 15-years-old and become involved in serious relationships. The victims of dating violence are usually young women. Teenagers who have been abused as children are more likely to become involved in an abusive dating relationship. Lethality Risk's include: Objectification- Abuser sees them as an object (More willing to kill them), Jealous accusations, Increased physical abuse (non-cover injuries), Abuse happening in public, Abuser unemployed (free-time, planning), Drugs and alcohol use, and Mental Illness.

04.09.18 HIGHER EDUCATION OPPORTUNITY ACT : STUDENT SUPPORT SERVICES

Tymia Robinson - University of Central Oklahoma, TRIO - Student Support Services

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. These Programs are funded under Title IV of the Higher Education Act of 1965 and are referred to as the TRIO Programs (initially just three programs). 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. Student Support Services is a federally-funded grant program designed to provide assistance to students who are low-income, first generation college students, and/or students with a disability. 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. TRIO Programs currently serve nearly 866,000 low-income Americans. Thirty-seven percent of TRIO students are Whites, 35% are African-Americans, 19% are Hispanics, 4% are Native Americans, 4% are Asian-Americans, and 1% are listed as "Other," including multiracial students. Current statistics show that 46% of low-income adult students are non-white, 35% are married, and 64% support dependent children.

04.09.19 THE RELATIONSHIP BETWEEN ECONOMIC HARDSHIPS AND MARITAL DOMESTIC ABUSE.

Tammie L. Moss - Southwestern Oklahoma State University, Social Sciences

For the past two years the United States has experienced a prolonged economic recession. Record numbers of bankruptcies are being filed. Unemployment rates are at a 30-year high. The Department of Justice statistics indicate that there is a significant increase in the number of cases of reported domestic abuse in this country. Domestic abuse can be defined as a pattern of abusive behavior that is used by one to gain or maintain control over another intimate partner. Husbands who abuse their wives do so for a variety of reasons. Research suggests a strong correlation between economic conditions and spousal abuse perpetrated by the husband. This poster is about how the financial difficulties of a faltering economy often lead to an increase in the number of husbands who abuse their wives.

LIBERAL ARTS

04.09.20 CRIMES OF GLOBALIZATION: THE IMPACT OF U.S. CORPORATOCRACY IN THIRD WORLD COUNTRIES

Mr. John Flores-Hidones - University of Central Oklahoma, Sociology/Criminal Justice/Substance Abuse Studies

The fast pace of technology development and the imperative need to build strong relationships among the nations of the world have force us to adopt a philosophy of globalization. Such philosophy -first introduced as a way of connecting, helping and empowering nations- has been transformed and use by corporations to gain control of international markets, the global economy, and governmental power among many countries. Corporations go to great lengths to portray a good image for themselves in hopes of conquering new markets, gain access to emerging countries, exploit their resources, as well as the people working for them. Most corporations, if not all, seek the maximization of their profits and they are willing to do anything to accomplish such goal, even if it means to incur in white collar crime activities, violations of environmental laws and/or human rights. The following study has as its main objective to show the detrimental effect of U.S. Corporation's practices in third world countries, the impunity of which they seem to be entitled, and the devastating reality of their malpractices.

04.09.21 SOCIAL NETWORKING: WORD OF MOUSE VS. PERSONAL COMMUNICATION

Ms. Regina Anderson - East Central University, Social Work, Dawna Williams - East Central University, Social Work, Robin Robinson - East Central University, Social Work, Tamy Davenport - East Central University, Social Work, Rochelle Payne - East Central University, Social Work

Assessing the Difference of
Social Networking Among College Students

Computerized social networking has become a popular form of communication among college students. The purpose of our study is to assess how college students use computerized social networking and prefer non-verbal communication rather than conventional socialization methods.

Students will be assessed which form of communication they prefer or if they utilize any social networking sites, based on the type and frequency of their choice of social networking. Students will be assessed on how frequently they used social networking sites such as myspace, twitter and facebook, and what they are primarily used. Additionally we will inquire about the frequency and

preference in regard to text messaging as opposed to conventional telephone communication. Traditional College Students are more likely to use computerized social networking and impersonal, non-verbal communication, whereas non-traditional college students prefer conventional socialization methods

04.09.22 CONSTITUTIONAL CHALLENGES TO ADULT CERTIFICATION OF JUVENILES Michelle Rogers - Northeastern State University, Criminal Justice

The juvenile court has always had the ability to transfer, try and convict juvenile offenders in adult court. The traditional method of transfer has always been a judicial waiver. In a judicial waiver a judge determines whether a juvenile should be tried as an adult. Many states have moved away from the judicial waiver in favor of a direct file transfer. A direct file transfer is a statute that lists at what age a juvenile can be certified as an adult and tried in adult court for committing a certain crime. The Oklahoma statute authorizes adult certification and the direct file of criminal charges in adult court for juveniles ranging in age from 13 to 17 who have committed one of the listed violent crimes. This research will explain Oklahoma's adult certification law and the constitutional challenges to adult certification of juveniles.

01 COMMUNICATION

IS RADIO EDUCATION DEAD IN TODAY'S CONVERGED BROADCAST CURRICULUM? A PILOT S

Dr. David Allen Nelson - University of Central Oklahoma, Mass Communcation

It's no secret that radio has faced many challenges in its long history, but nothing like it faces today. With the implementation of satellite radio, iPods, Internet radio, and other audio technologies, many critics believe radio is heading towards a crisis. To counter new competition, radio has often turned to higher education for assistance in the understanding and implementation of new technologies. However, times are changing. New convergence models in mass communication education have negatively impacted the once symbiotic relationship between radio education and the radio industry. Mass communication educators have pushed to consolidate their broadcast programs by shrinking and deleting radio courses from described "converged" curricula that have either depleted or watered-down the radio component of their programs. As radio education fades in higher education a message of hopelessness resonates

through the ranks of those in mass communication education and the radio industry. Consequently, this practice may negatively influence the current and future working relationship between the two entities regarding internships, scholarships, partnerships, and research.

This pilot study examines the effect this national trend has on the attitudes and perceptions of Oklahoma broadcast educators and radio professionals regarding radio education role in today's converged curriculum.

THE PROMOTION OF ACTION TOWARDS HUMAN RIGHTS: A RHETORICAL CRITICISM ON HILLARY CLINTON'S SPEECH, "WOMEN'S RIGHTS ARE HUMAN RIGHTS"

Jennifer V. Martin - Northeastern State University, Liberal Arts

The ideology of domination and oppression of marginalized cultures have continually been an obstacle in society. Although many feminists believe that true feminism seeks eradication from oppression for all people, the oppression of women is usually the first most people encounter or recognize. During the 1995 United Nation's Fourth World Conference for Women in Beijing, China, Hillary Clinton gave a powerful speech entitled "Women's Rights are Human Rights." The purpose of this paper is to perform a rhetorical criticism on Clinton's speech while identifying whether or not the ideology of domination is supported or resisted. Her passion for the topic is clearly highlighted through her words, "If there is one message that echoes forth from this conference, it is that human rights are women's rights - and women's rights are human rights".

THREAT TO DEMOCRACY: AMERICA'S STRUGGLE WITH CORPORATE GREED, WHITE SUPREMACY, AND RADICAL RELIGIOUS IDEOLOGY

Michele Schmidt - Northeastern State University, Communication

For the purposes of this rhetorical criticism, the researcher analyzes Cornel West's speech, 'What it means to be a leftist in the 21st century,' using Burke's Cluster Analysis. In his speech, West aims to tell fellow Americans what he thinks it means to be a leftist in today's political landscape. However, the implications of his rhetoric go far beyond what it means to be a leftist, and offer a sobering look at some of the major issues resting on the shoulders of America. As a leftist himself, West has dedicated his life to highlighting and eliminating corporate greed, white supremacy, and radical religious ideology.

West's rhetoric brings these issues to light, while looking

at some of their origins, and calling for change within society. The ways in which he does this could someday help to assess the rhetorical strategies used in initiating social change in America and all over the westernized world.

The key terms studied to understand West's worldview are: leftist, corporate greed (or corporation), dominance, and ideology. They were evaluated for frequency and intensity throughout the speech and then compared to words used in conjunction with them.

A COMPARATIVE APPROACH TO TEACHING PUBLIC SPEAKING

Dr. Samuel Grayson Lawrence Jr. - University of Central Oklahoma, Mass Communication

This essay describes a method of public speaking instruction. The pedagogical strategy draws attention to differences between public speaking and ordinary conversation. Contextual comparisons help students to understand how their conversational competencies provide resources in preparing and making presentations; yet, these resources are not sufficient to meet the interactional challenges of public speaking. For example, the suspension of turn-taking in public speaking weakens the audience's incentives for listening. Students learn how to incorporate rhetorical techniques and imagery in order to restore (in part) these incentives. They come to see how the overall structure of speeches, coupled with standard organizational practices, help audiences to absorb large volumes of talk. They learn why replacing search particles (um/uh) with silence is sensitive to the public speaking context. This essay describes the application of this method in an advanced public speaking course. It details how the overall structure of the course, speaking assignments, and exercises implement the comparative approach. The use of recordings and transcripts for illustrating differences between public speaking and conversation is featured. It concludes by outlining a research agenda that examines public speaking as interaction, student performances, and the extent to which students internalize the core principles of the comparative approach.

"NOBODY PUTS BABY IN THE CORNER": THE EMPOWERMENT OF WOMEN THROUGH DANCE AS EXEMPLIFIED IN DIRTY DANCING (1987)

Amy Sanders - Northeastern State University, Communication Studies

In response to Susan Faludi's theory that films from the 1980s are women-degrading backlash films, this

LIBERAL ARTS

paper argues an exception, discussing "How a 1980s American Film (in particular, Dirty Dancing) expresses the empowerment of women through dance." This critique of the 1987 Vestron Pictures production, Dirty Dancing, begins with a narrative criticism before viewing the film through a feminist lens, therefore the findings in this paper are a result of this blend. Dirty Dancing, surely does not meet the requirements of a backlash film, as it presents the rewarding story of a young girl nicknamed "Baby" who is journeying towards empowerment and eventual transformation into the independent woman, "Miss Frances Houseman," by learning to dance. Through the analysis of dance as Hollywood's chosen tool in the portrayal of the empowerment of women in the 80s, three major elements of the empowerment process emerge: Self-expression, Confidence in Self, and Sexual Discovery.

"SMOKE HUTS AS AN ALTERNATIVE TO A TOBACCO-FREE POLICY"

Dylan T. Medeiros Mr. - Northeastern State University, Liberal Arts

This paper explores the current tobacco policy at the author's university and discusses an alternative to the tobacco-free direction in which the campus is moving. The author discusses the problems with the current tobacco policy, how those problems will be increased by a new tobacco-free policy, and a final solution that meets both the needs of smokers and nonsmokers alike.

"IMPLEMENTING RIVERHAWK RIDES: A SAFE ALTERNATIVE TO DRINKING AND DRIVING"

Christopher P. Larcade Mr. - Northeastern State University, Liberal Arts

This paper will call for better alcohol awareness programs at the author's university, while focusing on a need for programs that actively discourage students from drinking and driving. The author will describe the proposed RiverHawk Rides program, why there is a need for it, and how it will benefit the university's students as well as the community.

MACHO MEN: HOW PROFESSIONAL WRESTLING COMMUNICATES MESSAGE OF MASCULINITY

Sarah E. Turner - Northeastern State University, Communication, Dustin McGowen - Northeastern State University, Political Science

A growing concern for scholars are the mediated messages regarding masculinity that are sent to audiences.

Examining the world of professional wrestling is a great way to identify messages of masculinity. This paper examines the artifact WrestleMania 22 using a fantasy theme approach, seeking to identify the worldview of the group of rhetors who constructed the artifact, looking closely for any messages of masculinity. The method of analysis used in this rhetorical criticism is Ernest Bormann's fantasy themes approach. Using this method, the paper will first seek to identify fantasy themes then attempt to construct a rhetorical vision for the group of rhetors by deriving meaning from the themes present in the artifact. Some of the themes that are present within this analysis include the following: love of God and country, the ideal body, don't back down from a challenge, winning is the only option, and violence as entertainment. From these themes, a rhetorical worldview presents itself. Using the fantasy theme analysis, it is evident that the group of rhetors believe that a particular kind of masculinity can be seen within professional wrestling, which is what defines true manhood to this group of rhetors, whether that be realistic in nature or not. In the future, research topics could look at how men negotiate the differences between the perceived masculinity within professional wrestling and the masculine messages they must communicate on a daily basis.

THINK TO THE FUTURE: A STRATEGIC PLAN FOR A PUBLIC SCHOOLS FOUNDATION

Sarah E. Turner - Northeastern State University, Communication

This paper presents a strategic plan for a Midwestern town's public schools foundation. Using a SWOT analysis to identify the nature and history of the organization, this paper recommends several actions steps that the group can use to improve its services to the community at large. Utilizing specific goals, as well as a timeline to incorporate them, this paper lays out the strategic plan that should enable the organization to increase its credibility within the community. Some suggestions include improving financial operations to provide more funds for the school system, creating and maintaining organizational documents, bringing about awareness of the foundation through creation of community image, and developing among board members a sense of ownership and understanding of the nature of the organization. Achieving these goals within two years is laid out in a viable plan for the organization, and some future recommendations for improvement are also included. By improving the public school foundation, the university is directly impacting the community around it, which in turn will produce responsible students who may be credible students at the institution.

"WE NEED TO START A RIOT": A LIFE CYCLE ANALYSIS OF THE RIOT GRRRL MOVEMENT

Ms. Jessica M. Remer - Northeastern State University, Communications

Social movements are, at times, regarded as axiomatic truths, without substantiation or argument. The Riot Grrrl Movement of the early 1990s, an underground feminist music movement and basic ideology of a specific wave of feminism, is a demonstration of the previous statement. With the publication of the Riot Grrrl's manifesto, the movement reached its zenith as many bands sought social change through the lyrics of their music. This paper strives to prove the legitimacy of Riot Grrrl as a movement by examining its life cycle and to explain why the movement essentially died.

TWILIGHT: A LOOK AT THE INFLUENCES OF A MAJOR RELIGION ON POPULAR YOUNG ADULT FICTION

Ms. Jessica M. Remer - Northeastern State University, Communications

The purpose of this analysis is to look at the relationship between popular young adult fiction and the beliefs of a major religion. An analysis of the first installment of the saga, Twilight, follows. Throughout this analysis, this paper will examine the world of Twilight to gain a more clear knowledge of the novel and the impact it has had upon those that consume its rhetoric. The paper will then turn to the methods of analysis in an effort to better acquaint the reader with the lenses being used, more specifically how they are being used in relation to the material.

02 ENGLISH

"DESIRING INCREASE": SHAKESPEARE'S SONNETS AND THE IMMORTALITY OF THE LOVER

Tahrea Milberry - East Central University, English and Languages

In my paper, I will explore several of Shakespeare's Sonnets, particularly several of the first sixty whose content examines the relationship between Shakespeare and the mysterious man he is writing to. My main focus will be on Sonnet One, since it best describes my theory about Shakespeare and how he feels toward this young man. This particular sonnet seems almost like a precursor to the first set of poems, as Helen Vendler remarks in her book, *The Art of Shakespeare's Sonnets*: "Such a wide sweep [in the poem] leads me to think that the sonnet may

have been deliberately composed late, as a 'preface' to the others". (Vendler 3). With this as a basis, I will examine word choices and insinuated meanings in this and related sonnets. I will also explore the possibilities of who the sonnets were written for, and try to figure out why they were never published before Shakespeare's death. My paper will include biographical information on the Earl of Southampton, Shakespeare's apparent lover, and on Shakespeare himself; his failed marriage, successful career, and scandalous exploits. The main point of my paper will be the explanation of these first set of sonnets, and the relationship between the intended reader and the writer, and to figure out what we can understand about Shakespeare from these his most personal of works.

ANARCHY, MARXISM AND FIGHT CLUB: SPLIT PHILOSOPHIES

Olaf Standley - Northeastern State University, English

Marxism and Anarchy are two of the most feared political philosophies in United States consciousness. They share the idea that the existing status quo or governmental system must be overthrown. Still, the philosophies vary greatly. Whereas Anarchy is primarily about the governing of one's self, Marxism is based on community and organization. Although these philosophies are taboo in American culture, a large portion of the American male population has unknowingly adopted them through the glorification a popular, fictional character. Chuck Palahniuk's *Fight Club* is inundated with both philosophies, and the novel's charismatic, anti-hero antagonist Tyler Durden progresses through Anarchic ideals into Marxist ones, while he rejects the society in which he lives. Ultimately, this paper will argue that because Tyler is the model for these ideas within the novel, Palahniuk is actually critiquing Anarchy and Marxism.

03 FOREIGN & MODERN LANGUAGES

JAPANESE LOAN-WORD USAGE IN TAHLEQUAH, OK

Mr. Morton Baker - Northeastern State University, English

Abstract: This paper is intended to serve as a corpus of English loan-words inserted into the speech of native Japanese students in Tahlequah, Oklahoma. Due to the increase of the proportion of loan words into the Japanese language the type of loan-words being used needs to be chronicled in order to understand the change in the nature of the language. The way in which loan-words are adapted to the Japanese language has changed as has the type of words being borrowed. Though new types of loan-

words are being used, this does not mean that the original types like place name adaptations are being phased out though they are used proportionately less often. This paper discusses the following areas of loan-word usage among Japanese speakers in Tahlequah, Oklahoma being: traditional place name adaptation, noun to verb adaptation, adjective adaptation, borrowed discourse markers, and changes in grammar.

04 HISTORY

THE FRENCH REVOLUTION AND THE DISMANTLEMENT OF THE OLD REGIMES' LIBRARIES

Dr. Alix Mazuet - University of Central Oklahoma, Modern Languages, Literatures and Cultural Studies

This presentation concentrates on the cultural history of France, in the after-math of the 1789 Revolution. I focus on the dismantling of the Old Regime's private libraries that took place in France, in the 1790s, and I argue that the Revolution, although it marked a decisive step towards the dissemination of written acculturation in that country, was accompanied by a double movement: the Old Regime's overthrow opened access to certain areas of knowledge but somewhat closed others.

To begin with, I will describe the tremendous difficulties faced by those who dismantled the Old Regime's private collections. A great number of texts and documents were stolen or lost, or they deteriorated so much that they could not be restored. I will then explain how others were destroyed and also, how these destructions manifest the rejection of certain types and genres of works. Since the inventory of the seizing operations was never completed, it is impossible to establish with certainty the full extent of the losses. However, if access to written acculturation significantly improved with the opening in the nineteenth century of numerous public libraries and reading rooms (cabinets de lecture) throughout the country, the passage from one mode of thought to another would not come without drawing other edges around the space of knowledge that did not quite embrace the idea of a heterogeneous body of learning

AMISTAD TRIALS

Miss Ashley R. Renee Greene - East Central University, Political Science

This paper will reveal the trials and tribulations of the enslaved passengers aboard the Amistad and how this case helped African Americans. The Amistad was a slave ship that transported passengers (slaves) from Africa to Cuba. The reason why this case is famous because slaves overtook the crew and tried to sail away but they were

caught by the United States Navy. The Amistad civil case was tried before District Judge Andrew Judson. The trial began on November 19, 1839 in Hartford. On January 13, 1840, Judge Judson announced his decision. Roger Baldwin and John Quincy Adams were they lawyers representing the captives. The captives were set free and the trial was dismissed.

LLOYD'S OF LONDON: CAPITAL FORMATION AND POLITICAL ENGAGEMENT

Mr. Hugh Long - University of Central Oklahoma, History and Geography, Dr. Jessica Sheetz-Nguyen - University of Central Oklahoma, History and Geography, Dr. Randal Ice - University of Central Oklahoma, Finance

Lloyd's of London, the world's premier marine underwriting market, originated as one of many such venues in the late seventeenth century. Over the next one hundred years, the organization slowly gained clients until it had a virtual monopoly in the Britain's underwriting industry. During the nineteenth century, however, Lloyd's gained immense power through personal, political and financial networks. Underwriting, or the taking of risk on a property, did more than protect personal investment. Shipping, as the vehicle through which the British Empire was created, would not have reached such a pinnacle if risk overshadowed potential rewards from investment. Using primary source materials from the British Library, Guildhall Library, and the London Metropolitan Archives obtained during nearly one month of research in London, this presentation will explore Lloyd's unique position in British society and empire. By aiding in the growth of merchant activity, particularly in the nineteenth century, the corporation created wealth. Concurrently, its leaders actively engaged, publicly and privately, in cooperation with government, particularly Admiralty, officials. By focusing on the vast intelligence network Lloyd's developed over the century to promote its interests, the mutual benefit derived from it for government and private individuals will be brought to the forefront. Furthermore, the study of Lloyd's of London in this context will offer new insight into British economic development.

VIEWS AND REACTIONS TO THE UNION'S USE OF BLACK TROOPS

Shae Vaughn Parmer - East Central University, History

The Union's use of black troops during the American Civil War presented immense philosophical questions of race to participants on both sides. Northern soldiers frequently resisted the inclusion of black soldiers within their ranks, at least in part because many people doubted that black men could accomplish the same tasks as white men. Moreover, hailing from the North certainly did not guarantee that Federal soldiers were prepared to die

for the cause of emancipation. Finally, black soldiers themselves played an active role in forcing others to accept them as participants in the fight for their own freedom.

CONFEDERATE WARTIME REACTION TO THE FORT PILLOW MASSACRE

Meghan Elizabeth Day - East Central University, History

On April 12, 1864, Nathan Bedford Forrest's Confederate cavalry massacred hundreds of Union soldiers, black and white, at Fort Pillow, Tennessee. The action has long since been controversial, particularly in light of Forrest's well-documented activities before and after the war. But what were the immediate reactions? Predictably, Northerners judged it evidence of racism and considered it a tragic massacre. Southerners denied this accusation and claimed that their soldiers had done nothing wrong, and in some instances even praised Forrest and his men. Although today virtually all historians agree that a massacre took place that day in 1864, no consensus exists with regard to the immediate effects of the incident on the Confederate war effort. This research will show exactly what effect the divided Northern and Southern views had on the Confederacy and indeed, why the views of the two sides were so completely different.

06 HUMANITIES

PARADIGMS LOST: NEW INTERPRETATIONS OF REVITALIZATION MOVEMENTS

Benjamin Kracht - Northeastern State University, Social Sciences

In recent years, anthropologists and historians have reexamined older revitalization movement theories dating back to the "stress" and "equilibrium" models utilized in the 1950s and 1960s. Newer paradigms presumably offer broader interpretations of movements once thought to be the domain of tribal peoples adjusting to Colonialism. Based on the notion that new theories can be used to interpret old ethnohistoric data, this paper analyzes such movements among the Kiowa and the Maya.

07 PHILOSOPHY

WHAT'S WRONG WITH ALIENATION?

Ms. Heidi Mae-Marie Silcox - University of Central Oklahoma, English

Can art encourage social progress without invoking empathy? Bertolt Brecht thought so. He built convention violations into his plays in order to alienate audiences

from their empathetic responses. He did this in order to encourage reasoned responses among his audience members. In so doing, Brecht ran the risk that spectators would imaginatively resist the play and focus exclusively on the convention violations. This kind of imaginative resistance does in fact undermine Brecht's purpose of achieving social progress. Contrary to Brecht's assessment, empathy is cognitive in nature and is a vehicle by which Brecht could have effectively realized his goal.

HARRY POTTER & GOBLET OF FIRE

Stacy Lynn Maher - East Central University, Legal Studies

In Harry Potter, I'd like to draw your attention to the existence of house elves, small creatures who are enslaved to do their human master's bidding unless freed by being presented with clothing. Harry's friend Hermione try to free the house elves from their enslavement, the other students seem unconcerned, as do the house elves themselves, who appear to relish the idea and regard freedom with horror.

In my poster I will contrast the reactions of the two house elves to freedom and show the difficulty of finding a legal system that meets the rights of all members of the community. Dobby relishes his freedom, but he "feels that, as far as freedom goes, there could be too much of a good thing. Winky, on the other hand, feels her freedom is a "disgrace and a source of shame."

The novel shows "that rights discourse, and indeed the law itself, might be highly problematic strategies for change, something that you can't live with, and can't live without. For how do you change a system's status inequities-its gender, race, and class intersections' overdetermined in the figure of Winky-through the very instrument of those inequities, namely the law?"

08 POLITICAL SCIENCE

"THE IMPACT OF POLITICAL PARTY COALITIONS ON CORRUPTION IN EUROPEAN GOVERNMENTS"

Aleksandra Murgoska - East Central University, Political Science

There has been much research on political parties in Europe. Also, political corruption is becoming more of a focus especially after the fall of The Soviet Union and the collapse of Yugoslavia. Very little research existsto examine the impact of political party coalitions on the prevalence of corrpution in Europe. This research hypothesizes that there is a connection between political parties and

corruption. States that have party coalitions government instead of one major party are less likely to be corrupt. I will examine corruption data from Freedom House and other sources to test my hypothesis.

AFRICAN AMERICANS AND OKLAHOMA POLITICS

Miss Ashley R. Renee Greene - East Central University, Political Science

This paper will reveal whether African American legislators address problems in the African American community more than would a non African American legislator? Looking at factors such as the total percentage of African Americans in Oklahoma, the percentage of African Americans registered to vote, and their educational levels. Community development legislation will be the focus of this paper.

STOPPING THE CYCLE OF ABUSE: THE EFFECTIVENESS OF LEGISLATION AND GOVERNMENT PROGRAMS ON REPORTED NUMBER OF ABUSE CASES

Tyffany Osborn - East Central University, Political Science

Since the dawn of man, it has been natural and proper for a man to control his wife by any means necessary. It has been culturally accepted that men must use physical and mental abuse to keep their women subordinate. Not until the early 1900s did women begin to stand up for themselves and demand a change in the way society has allowed them to be treated. Since then, new legislation has emerged that has made it easier for women to receive help and protection against abuse. However, has the legal system made a difference in the lives of abused women? Government funded programs like CIRCAW (Campus Initiative to Reduce Crimes Against Women) have been enacted on college campus' across the United States, but have they made a difference in the number of reported rapes and cases of abuse- are these programs effective? Have these programs made it easier for women to receive nonjudgemental help? Through the research conducted using various sources, the answers to these questions are being found.

09 SOCIOLOGY & SUBSTANCE ABUSE

OKLAHOMA'S METHAMPHETAMINE PROBLEM POST-IMPLEMENTATION OF HOUSE BILL 2176

Dr. Rashi Shukla - University of Central Oklahoma, Sociology, Criminal Justice & Substance Abuse, Dr. E. Elaine Bartgis - University of Central Oklahoma, Sociology, Criminal Justice & Substance Abuse

Oklahoma was the first state in the nation to pass strict legislative precursor controls in response to the clandestine methamphetamine laboratory problem. Specifically, Oklahoma House Bill 2176 restricted and limited access to pseudoephedrine, a key precursor chemical being used to manufacture methamphetamine in the state. While this legislation served as a model for other state and federal laws, little is known about the effect of Oklahoma House Bill 2176 on the methamphetamine problem. This study examines Oklahoma's methamphetamine problem in the years following the passage of 2176. Data were gathered through mail surveys sent to all Oklahoma law enforcement agencies between 2007 and 2008. Forty-percent of agencies responded to the survey. Preliminary findings indicate that the methamphetamine problem changed after the passage of House Bill 2176. Reductions in clandestine manufacturing were offset by growing concerns about trafficking. Methamphetamine and other illicit drugs continue to pose problems for local law enforcement.

JEFFREY DAHMER: THE MAKING OF A SERIAL KILLER

Cora Bradley - University of Central Oklahoma, Criminal Justice

This paper examines the major points of Jeffrey Dahmer's life--his troubled childhood, his teenage alcoholism, his young adult life, and his breaking point, which sent him over the edge and into a life as a serial killer. At each point along the way, there were critical indicators that precluded his need for help. This paper will demonstrate what those indicators were in his life and how his getting the right treatment at these significant stages might have ended up saving many lives.

RACE AND RELIGION: IMPACT ON STATE DIVORCE RATES

Kenneth Kickham Ph.D. - University of Central Oklahoma, Political Science

This study tests the notion that race/ethnicity and religion have an impact on divorce prevalence. Using Current Population Survey data and a pooled time-series regression model, we test for these effects across states over multiple years. We hypothesize that states with high concentrations of moderate or conservative religious denominations will have lower divorce prevalence. We further hypothesize that divorce prevalence is higher in states with higher concentrations of African-Americans and lower in states with higher concentrations of White or Hispanic families. Results show that the proportion of a state's population that is African-American is a significant predictor of divorce prevalence, while the Hispanic proportion is not. We also find significant negative effects from Moderate Protestant, Mormon and Catholic concentrations. Conservative and miscellaneous religious categories are negatively associated with divorce prevalence, though not at statistically significant levels.

WHO KILLED KURT COBAIN? THE MYSTERIOUS DEATH OF AN ICON

Miss Christen Moroz - University of Central Oklahoma, Criminal Justice

This paper critically examines the events and circumstances leading up to the death of rock icon Kurt Cobain and the in-depth investigation that took place shortly after his death. While the public was informed that Cobain had committed suicide by using a shotgun, there is strong scientific evidence that suggests otherwise. Data were drawn from numerous sources including the work of investigative journalists, a chemist, and the private investigator originally hired to find Cobain when his wife, Courtney Love, claimed he was missing. It has been suggested that the extremely high amount of morpheine found in Cobain's blood, would make suicide by shotgun scientifically impossible. A number of controversies surrounding this case that raise questions about the real cause of death will be reviewed.

AN INTEGRATED (HOLISTIC) APPROACH TO HEALTH AND DISEASE

Dr. Ande Kidanemariam - Northeastern State University, Social Sciences

The purpose of this presentation (paper presentation) is twofold: First, it attempts to provide a detailed critical assessment of existing models of health promotion and disease prevention, namely, the bio-medical model, life-

style change model, and the political economy model by looking at their theoretical/ideological underpinnings in order to fully understand their inherent strengths and weaknesses.

Second, it proposes a comprehensive integrated model of disease prevention and health promotion - a holistic approach that takes into account not only the medical, psychological and behavioral aspects of health and disease but also the broader social context in which all behaviors are embedded. The proposed model is based on the view that disease is as much social as it is medical, psychological and behavioral. It will address not only the proximate behavior risk factors but also the "fundamental causes" of disease in an integrated manner. Hence a combined medical, behavioral and social intervention strategies coalescing into broad-based societal interventions that could have the potential to produce substantial health benefits are proposed.

THE HISTORY OF THE EXECUTION OF WOMEN IN OKLAHOMA

Dr. Cari Keller - Northeastern State University, Criminal Justice, Shaina Scoggins - Northeastern State University, Criminal Justice, Ms. Amy Proctor - Northeastern State University, Criminal Justice

Historically, the execution of women in the United States has been a rarity. In fact, of the states that reserve death as a sentencing option, most have never executed a woman. Oklahoma stands in stark contrast to these states, having executed three women in the same year. This presentation compares and contrasts the trials and executions of these women to better understand the execution of women in Oklahoma. The presentation will discuss policy implications for the future of the death penalty for women, as well as suggestions for future research.

05 MATH & SCIENCE

01 BIOLOGY

05.01.01 EFFECTS OF ALLOPURINOL ON URIC ACID CONCENTRATIONS, XANTHINE OXIDOREDUCTASE ACTIVITY AND OXIDATIVE STRESS IN BROILER CHICKENS

Maria Carro Ph.D. - Universidad de León, Departamento de Produccion Animal, Elizabeth Falkenstein - West Virginia University, Division of Animal & Nutritional Sciences, William Radke Ph.D. - University of Central Oklahoma, Academic Affairs, Hillar Klandorf Ph.D. - West Virginia University, Division of Animal and Nutritional Sciences

This study determined the effects of allopurinol (AL) on xanthine oxidoreductase (XOR) activity and uric acid (UA) levels in chickens. Thirty five week-old broilers were divided into three groups and fed 0 (control), 25 (AL25) or 50 (AL50) mg AL per kg of body mass for five weeks. Chicks (n=5/group) were weighed twice weekly and leukocyte oxidative activity (LOA) and plasma purines levels were determined weekly. Chicks were sacrificed after two or five weeks and tissue samples were taken for analysis of XOR activity. Plasma UA concentrations were lower ($P < 0.001$) and xanthine and hypoxanthine concentrations were greater ($P < 0.001$) in AL25 and AL50 birds compared to controls. No differences ($P = 0.904$) were detected in allantoin concentrations. By week five body mass was reduced ($P < 0.001$) to 84.0% in AL25 birds and 65.1% in AL50 birds compared to controls. LOA was 4.1 times greater ($P < 0.05$) in AL25 compared to control birds. Liver XOR activity increased 1.1 times in AL25 and 1.2 times in AL50 birds. There was no change ($P > 0.05$) in XOR activity in the pancreas and intestine. These results suggest that AL effects on XOR activity are tissue dependent.

05.01.02 FACTORS INFLUENCING DENSITY AND STANDING BIOMASS OF SALT CEDAR (TAMARIX SPECIES) ALONG A NORTHWEST TO SOUTHEAST TRANSECT IN OKLAHOMA

Mr. Shay M. Still - University of Central Oklahoma, Math and Science (Biology), Dr. Brooke Stabler - University of Central Oklahoma, Biology

Tamarix species, collectively known as tamarisk or salt cedar, is a genus of invasive, riparian shrubs found in much of the southwestern United States. It has a high tolerance for arid climate and saline soils and has been reported to increase soil salinity, a characteristic that

can give it competitive advantage over native species with lower tolerance for saline soils. The objective of this study was to examine the density and standing biomass of tamarisk along waterways in a northwest to southeast transect in Oklahoma. Our hypothesis was that the density and standing biomass of tamarisk would be greater in the northwest than in the southeast due to differences in climate and soil salinity along the transect. Fourteen sites along the North and South Canadian Rivers, the Cimmaron River, and their tributaries were sampled during spring and summer 2009. Soil samples were collected at each site and conductivity measurements were made to determine relative salinity of soils from each site, and to determine if soil salinity was higher at the base of tamarisk relative to other plant species. Correlation analysis showed that density and biomass of tamarisk were significantly related to location and all climatic variables but not to soil salinity. Soil salinity was not higher at the base of tamarisk relative to soils collected under other species. These results suggest that the invasive potential of tamarisk in eastern Oklahoma is likely limited by climate and not by soil salinity.

05.01.03 AN INNOVATIVE THERAPEUTIC PROTOCOL FOR CHILDREN WITH CHROMOSOME 22Q11.2 DUPLICATION DISORDER

Christina Truong - University of Central Oklahoma, Biology, Dr. Wayne Lord - University of Central Oklahoma, Biology, Mrs. Debra Lord - Special Care Incorporated, Physical Therapy, Ms. Linda Luna - University of Central Oklahoma, Biology

In this preliminary study, we examined a 35 month old patient with a rare chromosomal anomaly, 22Q11.2 duplication disorder. Patients with this genomic duplication often display limited cognition, delayed psychomotor development, growth retardation, and hypotonia. Observations of patient psychomotor function were made in an outpatient pediatric physical therapy clinic during weekly therapy sessions over a six week period. Assessments of patient psychomotor skills and therapeutic challenges were documented and subsequently compared to a non-chromosome 22Q11.2 duplication individual of similar age, gender, and ethnicity. In the child with the chromosome duplication, a prominent lack of balance and constant focus on spatial awareness significantly hindered locomotion, unsupported sitting, and consistent participation in classic physical therapy protocols. In an effort to improve patient attention span and participation, a dance-based intervention, targeted at balance control and spatial orientation, was designed. Implementation of the dance and music based intervention appeared to captivate both study participants

and improve therapy participation. Preliminary observations of this intervention showed potential promise as an additional therapeutic strategy for children suffering from 22q11.2 duplication and a wide variety of balance-limiting disorders.

05.01.04 FOURIER DOMAIN OPTICAL COHERENCE TOMOGRAPHY (OCT) ANALYSIS OF RPE LAYER AND RNFL IN RETINITIS PIGMENTOSA (RP).

Navrin Dhamani - Northeastern State University, Optometry, Dr. Earlena McKee - Northeastern State University, Optometry

Background: RP is a group of inherited eye diseases. Recently, OCT has been used to analyze RNFL of retinitis pigmentosa patients. This new technology of Fourier-Domain OCT may prove very useful to monitor progression of RP as we are able to examine all the retinal layers. It also provides us with a new research tool which may lead to prevention or treatment of this disease in the future. We analyzed qualitatively the RPE layer and quantitatively the RNFL layer in Retinitis Pigmentosa subjects to look for thinning or thickening using Fourier-Domain OCT.

Method: This is a case control observational study of eight patients with RP who were examined with a Fourier-domain OCT (Carl Zeiss Meditec Inc Dublin, CA), and compared with healthy gender and age-matched control subjects.

Results: The average NFL thickness of the temporal quadrant (left and right eyes) of the RP patients was significantly thicker than normal control patients ($p = 0.044668$). Mean foveal thickness excluding eyes with CME of the right and left eye was significantly thinner for the RP patients ($p = 0.002348$ and $p = 0.000304$) respectively.

Conclusion: Our hypothesis was the RNFL in patients with RP would be thinner compared to control subjects. The RNFL in only the temporal quadrant was found to be significantly thicker in RP patients compared to the control group. Mean foveal thickness excluding eyes with CME suggests foveal atrophy.

05.01.05 SENIOR FITNESS AND MOOD: ASSESSMENT AND COMPARISON OF ASSISTED-LIVING AND INDEPENDENT-LIVING POPULATIONS

Ms. Latrina Bray - University of Central Oklahoma, Biology, Dr. Darla Fent - University of Central Oklahoma, Kinesiology, Ms. Teri Lake - University of Central Oklahoma, Kinesiology

The purpose of this study was to assess and compare senior fitness levels and mood between assisted-living and independent-living populations who inhabit the same retirement community. It was hypothesized that an older population that engages in higher levels of daily physical activity will have lower levels of negative affect. In addition, these individuals would be predicted to have higher levels of positive affect and improved fitness. SPSS was used to evaluate the correlation between physical fitness and mood within the independent-living residents and the assisted-living residents. Independent t-tests were used to compare physical fitness components between the two groups. There were no statistically significant findings, however, notable mean differences and trends were observed (e.g. handgrip test ($t = -1.041$, $p = .309$)). An additional independent t-test was conducted to compare the mood of the independent-residents with the assisted-living residents. There was a significant difference in the negative affect score between the two groups ($t = -2.387$; $p = .026$). Pearson's product moment correlation coefficients were used to examine the relationship between physical fitness and mood within each group. No significant correlations were observed between mood and the physical fitness components. However, important conclusions could be drawn from the results of both groups.

05.01.06 MAPPING THE DISTRIBUTION OF EURASIAN COLLARED-DOVES AND WHITE-WINGED DOVES IN OKLAHOMA COUNTY, OK

Mr. Eric L. Judd - University of Central Oklahoma, Biology, Dr. Christopher Butler - University of Central Oklahoma, Biology, Mr. Christopher Roy - University of Central Oklahoma, Biology, Ms. Lisa Pham - University of Central Oklahoma, Biology, Mr. Nathaniel Burgess - University of Central Oklahoma, Biology

The Eurasian Collared-Dove, (*Streptopelia decaocto*), White-winged Dove (*Zenaida asiatica*), and Inca Dove (*Columbina inca*) have recently begun breeding in Oklahoma. We hypothesized that these three doves are growing in population and expanding their range in Oklahoma County. We used Christmas Bird Count (CBC) data from the National Audubon Society to evaluate changes in the number of wintering individuals of these species. We also recorded sightings of the three species along seventy-five randomly generated transects during fall 2008 and spring 2009 and requested observations from the public. The combined data was used to determine the distribution of these species in Oklahoma County. The CBC data shows that all three populations of doves have been increasing statewide; however only the Eurasian Collared-Doves are increasing significantly

in Oklahoma County. During spring 2009 we observed 72 Eurasian Collared-Doves on 29 of the 75 observation points. Eight White-winged Doves were also found and were primarily restricted to Northwest Oklahoma City and Midwest City. Inca Doves were not observed on any of the 75 observation points in 2008 or 2009, however they were observed by the authors in other locations Oklahoma County during this study and it is suspected that they may be present in low densities in the county.

05.01.07 A COMPARISON OF POPULATION DENSITY, DIFFUSION DISPERSAL AND DEMOGRAPHICS OF THE MEDITERRANEAN GECKO (HEMIDACTYLUS TURCICUS) IN TWO CENTRAL OKLAHOMA HABITATS

L. Brooke Stabler Ph.D. - University of Central Oklahoma, Biology

The Mediterranean Gecko is a nocturnal species that colonizes urban and suburban areas subsequent to long distance dispersal facilitated by human beings. We compared population density, dispersal rate, and demographics of populations of geckos at the University of Central Oklahoma(UCO)and the Oklahoma City Zoo(OCZ). In cities geckos are most often found on the exterior surfaces of buildings. We hypothesized that higher building density at UCO would facilitate diffusion dispersal there relative to OCZ. Mark and recapture sampling was conducted at UCO during 2005-2008 and at OCZ during 2007-2008 and the sizes of the populations were estimated used the Schnabel method. Population densities were calculated as the total population size divided by the total land area occupied and total population size divided by building area occupied. Age class of captured animals and sex of adults were determined at both sites. Dispersal rate was calculated as the distance dispersed from the point of release per unit time since release at each site. Population density was similar at both sites in animals per ha of entire area populated. Population density per ha of building area was higher at OCZ than at UCO. Dispersal rate was similar at the two sites. There was a male sex bias at OCZ that did not exist at UCO. The high density of geckos on the occupied buildings at OCZ suggests that there might be constraints to diffusion dispersal there relative to UCO.

05.01.08 B CELLS EXPRESSING A SYSTEMIC LUPUS ERYTHEMATOSUS RISK HAPLOTYPE OF TNFAIP3 HAVE AN ALTERED RESPONSE TO LPS, TNF-A, AND CD40 LIGAND COMPARED TO MATCHED CONTROLS

Ms. Roselynn R. Simpson - East Central University, Biology, Mr. Jarrod King - University of Oklahoma Health Sciences Center, Microbiology and Immunology & Medicine, Ms. Mary Beth Humphrey - University of Oklahoma Health Sciences Center, Microbiology and Immunology & Medicine

Systemic Lupus Erythematosus (SLE) is an autoimmune disease highly associated with altered B cell development and chronic inflammation. Toll-Like Receptor (TLR) and Tumor Necrosis Factor-family receptors stimulate B-cells, promoting inflammation through synthesis and degradation of specific proteins. TNFAIP3 encodes a deubiquinating protein known as A20 that controls protein degradation. SLE risk alleles of TNFAIP3 have recently been identified. In this study we determined whether TNFAIP3 risk haplotypes promote altered responses to TLR and TNF stimulation. Human EBV-transformed B cell lines from age, sex, and race-matched TNFAIP3 risk and non-risk individuals were stimulated with LPS, TNF-a, or CD40 Ligand over various times. Proteins A20, I?B, and phospho-I?B were analyzed by western blotting. In all conditions, SLE-risk cell lines expressed less A20 than non-risk haplotypes. The ratio of phospho-I?B to I?B was significantly increased in the SLE- risk lines compared to non-risk lines. These results suggest that the risk haplotype confers increased activation of NF?B signaling compared to the non-risk haplotypes as indicated by the increased phospho-I?B to I?B ratio. The altered signaling correlates with decreased A20 protein expression. We conclude that the SLE-risk haplotype of TNFAIP3 results in enhanced cellular activation of B cells in response to TLR and TNF-family receptor stimulation.

Funding was provided by NIH grants P20RR016478 and P20RR0201143.

05.01.09 MECHANISMS BY WHICH BLOOD GLUCOSE LEVELS AFFECT OCULAR ABERRATIONS

Christopher McDaniels - Northeastern State University, Optometry, Sarah Wade - Northeastern State University, Optometry, Thomas Salmon O.D., Ph.D. - Northeastern State University, Optometry

Purpose: Instruments such as aberrometers or corneal topographers can measure subtle changes in the eye's

optics, and these may provide a way to indirectly monitor changes in blood sugar levels. This may provide a non-invasive alternative to current blood sugar home testing devices that puncture the skin to obtain blood samples. Our purpose was to use these and other instruments to study the mechanism by which blood sugar changes affect ocular aberrations.

Methods: Blood glucose levels, aberrometry, corneal topography, keratometry, pachymetry, axial length and anterior chamber depth were measured before hyperglycemia was induced, then every thirty minutes thereafter. We looked for correlations between blood glucose levels and each of the optical measurements. **Results:** Several correlations were found between blood glucose levels and certain topography, aberrometry and keratometry data within individual eyes. These correlations were not consistent between eyes of the same subject or between experiments with the same subject. The mechanism by which blood glucose levels affect ocular aberrations was not able to be determined.

Conclusions: Standardized methods of monitoring blood glucose levels via optical measurements are not possible at this time, however it may be possible to calibrate an instrument for a particular patient. This warrants further study.

05.01.10 CHARACTERIZATION OF OFLOXACIN RESISTANCE IN ENVIRONMENTAL ISOLATES OF CITROBACTER FREUNDII

Samantha Henderson - Northeastern State University, Natural Sciences, Sue Paine - Northeastern State University, Natural Sciences, Cindy R. Cisar - Northeastern State University, Natural Sciences

Objective: As part of a project looking at the impact of wastewater treatment plant effluent on antibiotic resistance, we have characterized ofloxacin resistance genes in isolates of *Citrobacter freundii* from creek sediments.

Methods: Ofloxacin resistance can be conferred by mutations in chromosomal genes for DNA gyrase and topoisomerase IV and/or by plasmid-encoded genes. The quinolone resistance determining regions (QRDRs) of the chromosomal genes *gyrA*, *gyrB*, *parC*, and *parE* were amplified by PCR and sequenced. Mutations were identified by comparison with wild-type sequences. Plasmid-encoded ofloxacin resistance genes (e.g. *qnr* and *aac(6')-1b-cr* genes) were also amplified and sequenced.

Results: Both *C. freundii* isolates contained missense mutations within the QRDR of the *gyrA* gene at codon 83 (Thr83Ile). In addition, both isolates showed mutations

in the *parC* gene QRDRs. One isolate had a mutation at codon 80 (Ser80Ile) and the other at codon 84 (Glu84Gly). There were no alterations in the *gyrB* and *parE* QRDRs. Furthermore, one of the isolates had a plasmid-encoded ofloxacin resistance gene, *qnrB*.

Conclusions: Ofloxacin resistance in these environmental *C. freundii* isolates is mediated in both isolates by chromosomal mutations in the *gyrA* and *parC* genes and by plasmid-mediated resistance in one isolate. The *parC* codon 84 (Glu84Gly) mutation has not been reported previously.

05.01.11 THE EFFECTS OF INDIRUBIN ON MYOFIBROBLAST DIFFERENTIATION

Ms. Shaquita Banks - University of Central Oklahoma, Biology, Dr. Melville Vaughan - University of Central Oklahoma, Biology

Indirubin is a chemical known to induce apoptosis. Testing this effect, indirubin was added to cells to determine if it is able to cause myofibroblast differentiation while also causing cell death. After determining that it is capable of reducing cell count while increasing stress fiber appearance, the hallmark of myofibroblast, indirubin was tested with transforming growth factor-beta (TGF β) to see if more realistic conditions would produce the same effects. After tests were conducted, it was found that indirubin could, in fact, produce the same effects.

05.01.12 THE EFFECTS OF CURCUMIN ON MYOFIBROBLAST CELLS

Ms. Kiya Harrison - University of Central Oklahoma, Biology, Dr. Melville Vaughan - University of Central Oklahoma, Biology

Diseases associated with scarring are extremely prevalent all over the world. At the site of a wound, specialized cells called myofibroblasts generate large amounts of collagen in order to close the wound. When they generate too much collagen, the scar forms. The cytokine, transforming growth factor beta (TGF- β), is a key mediator of wound healing and it drives the conversion of fibroblasts into myofibroblasts. Since TGF- β greatly contributes to scarring, biologists have tested different drugs that may possibly inhibit myofibroblast formation. Because oxidative damage plays a major role in furthering the tissue damage after an injury, researchers have looked into the use of antioxidant therapy to help with the healing process. Curcumin is isolated from turmeric, a bright yellow spice used in Indian cooking. It has been proven to exhibit anticarcinogenic, anti-inflammatory, and antioxidant properties. In this experiment, curcumin was used on human skin cells in order to determine whether it

MATH AND SCIENCE

effectively reduces antioxidant myofibroblast formation. First, four dose response experiments were performed in order to obtain the most effective dosage of curcumin to use. This dose was used in the treatment of the cells. There were inconsistencies in the results of the three experiments, but it can still be concluded that curcumin in most cases reduced the number of myofibroblasts.

05.01.13 USING THE FRUIT FLY AS A GENETIC MODEL OF HUMAN DISEASE

Joseph Ahlander Ph.D. - Northeastern State University, Natural Sciences, Aavron Estep - Northeastern State University, Natural Sciences, Lani Falwell - Northeastern State University, Natural Sciences, Misty Grady - Northeastern State University, Natural Sciences, Michelle Montague - Northeastern State University, Natural Sciences, Abbigale Rygg - Northeastern State University, Natural Sciences

Cancer is a disease characterized by multiple genetic changes that give rise to unrestrained tissue growth that can interfere with normal organ function and eventually lead to death. Scientists are actively searching to understand the genetic changes that promote cancer formation in order to know how to treat and prevent cancer. We utilize the fruit fly *Drosophila melanogaster* as a genetic system to study the function of genes that are linked to human disease, including cancer. A recent study identified a gene named CDC5L that is overexpressed in osteosarcoma, a malignant bone cancer. On the other hand, other studies have suggested that lowered expression of CDC5L might contribute to cellular aging or multiple sclerosis. Unfortunately, it is not well understood how CDC5L works nor how its altered expression might lead to disease, such as cancer. We study the consequences of altered CDC5L expression in the developing *Drosophila* eye. We show that RNAi knockdown of CDC5L gives rise to abnormal eye tissue. This "diseased" eye phenotype is being used as a basis for a genetic screen to uncover the genes that are involved in CDC5L function. This research will help us to better understand how altered CDC5L expression might contribute to disease.

05.01.14 DEVELOPING BIOMARKER-BASED TESTS FOR RHEUMATOID ARTHRITIS

Abigail Ntrel - Southwestern Oklahoma State University, Chemistry

Objective: Rheumatoid arthritis (RA) is a chronic inflammatory disease that can result in severe joint damage and disability. If RA patients are treated rapidly and with appropriate therapy the disease is easier to control. Unfortunately, current disease assessment tools

used in practice are subjective and poorly correlated to disease activity; therefore therapy may not be optimized for a given patient. We are identifying serum proteins that are highly correlated to disease activity. These "biomarkers" will then be made into a laboratory test to aid in treatment.

Methods and Results: My work focused on patient recruitment and sample processing. During recruitment patient clinical data are collected. This includes assessing tender and swollen joint counts, obtaining patient reported symptoms using validated questionnaires, and blood is collected for biomarker and laboratory testing. Bar coded single use aliquots of serum from each patient is bio-banked for future analysis.

Conclusion: During my time in lab we collected samples and clinical data from over 100 study subjects. Bio-banked samples will be screened for serum markers associated with disease activity. Measures of disease activity will be determined from the clinical assessments performed on the patients at the time of collection. It is hoped that these studies result in identification of quantitative and objective markers of disease activity and that these can be translated into a clinically useful test.

05.01.15 TALLGRASS PRAIRIE BIRD NESTS: ECOLOGICAL IMPLICATIONS OF BISON HAIR AND WOOL AS NEST COMPONENTS

Dr. Bryan Coppedge - Tulsa Community College, Science and Mathematics

A preliminary study at the Tallgrass Prairie Preserve from 2002-2004 found that bison hair and wool was present in significant quantities in 44% of the passerine nests collected. A follow-up study initiated in 2007 was comprised of two components: 1) an artificial nest experiment using the presence/absence of bison wool to examine the potential effects of hair and wool on nest predation; and 2) bison wool and hair use by nesting Red-winged Blackbirds (*Agelaius phoeniceus*) was documented to determine if the presence of hair and wool affected nest success. The addition of bison hair significantly reduced predation on artificial ground nests, though not on shrub nests, partially supporting the hypothesis that inclusion of bison hair as a nest component reduces nest predation. Forty-three blackbird nests were monitored, but only five contained bison hair and wool with no discernible difference in nest fate.

05.01.16 AQUATIC INVERTEBRATE COMMUNITY STRUCTURE IN WATER-FILLED BRACTS OF HELICONIA CARIBAEA FROM SABA

Courtney Bass - University of Central Oklahoma, Department of Biology, David Bass - University of Central Oklahoma, Biology Department

The aquatic invertebrates living in the liquid-filled bracts of *Heliconia caribaea* inflorescences were studied on Saba, a small island in the northeastern Caribbean Sea. All inflorescences that were sampled had invertebrates living in their bracts. A total of 18,482 individuals and 20 species were collected from 52 *H. caribaea* inflorescences. Immature dipterans and hydrachnids composed the most abundant groups found in the inflorescences. Based on these samples, an average of 6.2 species and a confidence interval of 355 ± 163 individuals for each inflorescence were calculated. A Spearman's rank order value indicated a correlation existed between the volume of liquid and the number of individuals in each inflorescence, a finding that supports the species-area aspect of island biogeography theory. The Mann-Whitney statistic indicated there were no significant differences in numbers of individuals in collections made at higher elevations of Saba when compared to those from lower elevations of the island. The Mann-Whitney statistic also indicated there were no significant differences in numbers of individuals in collections made on the windward side of Saba when compared to those from the leeward side of the island.

05.01.17 PRELIMINARY INVESTIGATION OF MACROINVERTEBRATES AND WATER QUALITY IN AQUATIC HABITATS OF THE NICKEL PRESERVE, OK

David Bass - University of Central Oklahoma, Biology Department, Toby FitzSimons - University of Central Oklahoma, Department of Biology, Daryn Lu - University of Central Oklahoma, Department of Biology, Rory Telemeco - Iowa State University, Department of Biology

Samples of water and aquatic macroinvertebrates were collected from four aquatic sites at the Nickel Preserve in northeastern Oklahoma on 24 January 2009. Purposes included determining basic water quality characteristics from those sites and compiling a preliminary list of invertebrates occurring in the aquatic habitats. Dip nets and careful visual examination of microhabitats were employed to collect invertebrate samples for a period of one hour at each site. All invertebrates collected were preserved in 70% ethanol and transported to the laboratory for sorting and identification. Generally, the

measurements indicated water quality in the freshwater habitats was very high. This data suggest the greatest stressors/limits to productivity in the aquatic environments in the preserve are likely low nutrient availability. The low carbon dioxide levels may limit photosynthesis and ultimately primary production. Altogether, 40 species of aquatic invertebrates were collected during this investigation. Many of the species encountered at each site are pollution intolerant, providing additional evidence that the freshwater habitats in the Nickel Preserve have high water quality.

05.01.18 THE BIOINFORMATICS ANALYSIS OF GALACTOSEMIA

Jordan White - Northeastern State University, Natural Sciences, James Jones - Northeastern State University, Natural Sciences, Katie Shapiro - Northeastern State University, Natural Sciences, Dr. Kathi McDowell - Northeastern State University, Natural Sciences

Galactosemia is a rare genetic metabolic disorder that affects an individual's ability to metabolize the sugar galactose properly. It is an inherited disorder that occurs in approximately one out of 30,000 live births. Galactose-1-phosphate uridylyltransferase catalyzes the interconversion of galactose-1-phosphate and glucose-1-phosphate via transfer of uridine mono-phosphate. The region surrounding this mutation is the most highly conserved domain in the homologous enzymes of *E. coli*, yeast, and humans. OMIM database results indicate patients with classic galactosemia have a methionine-to-lysine change at codon 142 of the GALT gene, which results in reduction of the specific activity of the mutated protein to about 4% of normal. The population genetics section of the OMIM search indicated that by the end of 1998 more than 150 different base changes in the GALT gene were recorded in 24 different populations and ethnic groups of 15 countries worldwide (Tyfield et al. 1999). A Blast search concluded there were 167 matches on the query sequence to include the rhesus monkey. Although the rhesus monkey had additional information in the RNA sequence, a subsequent Spidey database analysis concluded there was a 96.8% identity match to *homo sapiens*. MMD showed a related protein in 682 species. The bioinformatics databases mentioned above provided valuable information on the normal galactosemia gene allowing for analysis of mutant genes.

05.01.19 EFFECTS OF CHRONIC ENVIRONMENTAL ARSENIC ON THE RESPONSE TO ACUTE INFLAMMATION

Ms. Yasmeeen Renee Shumate - Langston University, Biology

Objective: Microarray data from our laboratory has suggested that environmental levels of arsenic result in a general downregulation of inflammatory gene expression. The overall goal of this project was to determine whether inflammatory signaling is impaired by chronic exposure to environmental levels of arsenic.

Methods: Human umbilical vein endothelial cells (HUVEC) were exposed to 0.75 and 7.5 ppb sodium arsenite for 14 days followed by a 1 hour challenge with LPS, IL-1 β and TNF α . Whole cell lysates were collected and western blot analysis of inflammatory markers (VCAM-1, ICAM-1, I β B, pSTAT3) were measured.

Results: It was shown that exposure to arsenic alone resulted in an increase in the expression of inflammatory markers. In contrast, the acute induction of the same markers in response to LPS, TNF α and IL-1 β was attenuated after arsenic exposure. In general, 7.5 ppb arsenic resulted in a more substantial change in expression as compared to 0.75 ppb arsenic.

Conclusions: We conclude that chronic exposure to environmental levels of arsenic below the drinking water standard of 10 ppb result in significant alterations in inflammatory signaling and could affect the response to microbial insult and chronic inflammatory syndromes.

05.01.20 SPHERICAL ABERRATION AND CONTRAST SENSITIVITY WITH COMFILCON A AND BALAFILCON A CONTACT LENSES

Elizabeth R. Batchelor - Northeastern State University, Optometry, Jackie L. Burress - Northeastern State University, Optometry, Latricia Pack O.D. - Northeastern State University, Optometry

Purpose: This study evaluated the ability of Comfilcon A (Biofinity, CooperVision) and Balafilcon A (Purevision, Bausch and Lomb) contact lenses to reduce the spherical aberration (SA) of the eye and to evaluate whether this reduction leads to an improvement in contrast sensitivity (CS).

Methods: Data was gathered from one eye of thirty subjects with refractive errors between -1.50 D and -9.00 D with \leq -0.50 D of astigmatism. SA measurements were taken without correction, while wearing Comfilcon A, and while wearing Balafilcon A. Monocular CS measurements were taken while wearing a trial frame spectacle lens, Comfilcon A, and Balafilcon A.

Results: The average SA of the 30 eyes without correction was 0.1062 μ m. The average SA while wearing Comfilcon A and Balafilcon A was -0.068 μ m and -0.044 μ m, respectively. Comfilcon A created a significantly larger change in SA (-0.17 μ m) compared to Balafilcon A (-0.15 μ m) when all eyes were analyzed together ($p = 0.008$). There was not a statistically significant difference in the CS measured between a trial frame and Comfilcon A ($p = 0.172$), between a trial frame and Balafilcon A ($p = 0.402$), or between Comfilcon A and Balafilcon A ($p = 0.674$).

Conclusion: Both Comfilcon A and Balafilcon A lenses showed a statistically significant change in SA measurements. On average, both lenses overcorrected the SA of the eye. There was not a statistically significant improvement in CS with either of the contact lenses.

05.01.21 ANTIBACTERIAL PROPERTY OF CURCUMIN-DERIVED COMPOUNDS

Rose Marie Cooper - Langston University, Department of Chemistry

Antibacterial property of Curcumin-derived compounds
Rose Marie Cooper¹, C. King², P. Lagisetty², S. Awasthi³
Department of Chemistry, Langston University, Langston Oklahoma. College of Pharmacy, University of Oklahoma Health Sciences Center.

OBJECTIVE: Curcumin, a compound in turmeric (*Curcuma longa*), has been shown to exhibit anti-inflammatory, antimicrobial and anticancer properties. Efforts are underway to design synthetic curcumin analogs with improved pharmaceutical properties. In this regard, we studied the antibacterial property of three synthetic curcumin analogs- 3,5-Bis(2-fluorobenzylidene)-4-piperidone (1), [3,5-Bis(2-fluorobenzylidene)-N-formyl-4-piperidone (2) and 1,7-Bis-[3,5-bis(2-fluorobenzylidene)-4-oxo-piperidin-1-yl]-1,4,7-triazahexane-1,7-dione-1,4,7-triacetic acid (3).

RESULTS: Compound 3 decreased the OD significantly at 3 h and onwards in a concentration dependent manner. The bacterial counts were lower by ~20-50 folds after 17h of treatment with compound 3. Compound 1 showed only 2-4 folds decrease in the bacterial counts. In contrast, compound 2 was not found to affect the growth of *E. coli*.

CONCLUSIONS: Our results suggest that compound 3 has a potential to be developed as an antimicrobial agent. Future work is needed to test these compounds in other bacteria and to elucidate the mechanism of this phenomenon.

GRANT SUPPORT: College of Pharmacy, University of Oklahoma Health Science Center. LINC, Langston Oklahoma

05.01.22 EXPRESSION OF MOUSE ARRESTIN WITH NANOCERIA

Henry Le - University of Central Oklahoma, Engineering and Physics, Steve A. Sezate - University of Oklahoma Health Sciences Center, Ophthalmology, Lily L. Wong - University of Oklahoma Health Sciences Center, Ophthalmology, James F. McGinnis - University of Oklahoma Health Sciences Center, Ophthalmology

Within the rods and cones, translocation and compartmentation of arrestin in response to light exposure is a significant process for light adaptation. In order to gain more insight into its function, we set out to develop a way to successfully clone arrestin and visually track the protein. Furthermore, because nanoceria particles (CNP) enhance cellular viability we asked if they increase the efficiency of transfection or the expression of transfected arrestin in RPE-19 cells. Mouse arrestin was cloned into an expression vector, and designed to be expressed with a dual-tagged N-terminal Met-3XFLAG and C-terminal c-myc. The recombinant vector was then transfected in HEK293T and CNP treated RPE-19. BCA assay and western analysis was performed to determine concentrations and identify expression of arrestin. In HEK293T and RPE-19 cells, the dual-tagged protein achieved expression and was detected by western analysis. There was no significant increase in arrestin expression within the RPE-19 cells when treated with CNP. Our results indicate that the fusion can be tracked and visualized in HEK293T and RPE-19 cultures. CNP has little effect on increasing RPE-19 expression of recombinant mouse arrestin. Future studies will involve testing for expression and function of the protein in mouse eyes. A better understanding of the pathways and mechanisms by which arrestin participates in phototransduction will contribute to the current efforts to cure and prevent retinal diseases.

05.01.23 SEASONAL FECUNDITY MODELS IN BIRDS: OVERVIEW ASSESSMENT OF ISSUES AND DIRECTION

Joseph Grzybowski - University of Central Oklahoma, Funeral Service

Population growth is a function births minus deaths. For birds, an intrinsic measure of births is seasonal fecundity, thus central to answering questions concerning population dynamics, selection, conservation and management. However, measuring seasonal fecundity has had a long, problematic history. Advances have been modeling efforts that largely accommodate incomplete data, including that for nest success and renestings. Missing data create accommodating assumptions about poorly known or simply unobservable factors.

Recent developments have created a diverse and rather idiosyncratic array of increasingly complex models, frequently motivated and applied to a particular species, a specific circumstance, or a specific data set or issue. Our goal is to provide an overview of the system, how it fits more broadly into population models, examine structure of models and some commonalities. We will discuss the various assumptions to assessing renesting, a key and critical variable that remains a critical component of models to estimate seasonal fecundity. We will end with some thoughts on model sensitivity (as compared to the more widely discussed parameter sensitivity), concepts of competing risks, and linking models describing different processes (e.g. births and deaths).

05.01.24 YELLOW RAILS IN OKLAHOMA

Jill Stinedurf - University of Central Oklahoma, Biology

Yellow Rails (*Coturnicops noveboracensis*) are a secretive, nocturnal, and rare bird species that breeds in the Northern US and Canada and winters along the southeastern coast. They have recently been found to be regular fall migrants in southeastern Oklahoma at Red Slough Wildlife Management Area, McCurtain County, with a few records into December and a single record in January. We hypothesized that these birds may overwinter in southeastern Oklahoma. We made seven trips (three in November 2008 and one per month from December 2008 through March 2009) to Red Slough Wildlife Management Area in McCurtain County (Oklahoma) to catch and band Yellow Rails and to quantify the vegetation preferences of this species. A total of 25 Yellow Rails were banded and birds were observed during each month. The Yellow Rails were found in marshy areas that were primarily dominated by *Sporobolus* sp., averaging 44cm in height, in areas with 4cm or less of standing water. Stable isotope analysis using deuterium on the outermost rectrices of the birds that we banded demonstrated that these Yellow Rails bred primarily in the western half of their Canadian breeding range. We plan to conduct additional banding at Red Slough during this fall and winter and use additional stable isotope analyses to further refine where these birds bred.

05.01.25 DOES INTERSPECIFIC COMPETITION AFFECT MORPHOLOGICAL TRAITS OF *DIPODOMYS ORDII* AND *CHAETODIPUS HISPIDUS*.

Cassie Prather - University of Central Oklahoma, Biology, William Caire - University of Central Oklahoma, Biology

The niche variation hypothesis states that when a species's environment changes, the species might become more specialized or generalized to adapt to these changes.

MATH AND SCIENCE

Two factors which could stimulate niche variation are increased or decreased interspecific competition. In some locals of Fisher County, Texas, Ord's Kangaroo Rats (*Dipodomys ordii*) and Hispid Pocket Mice (*Chaetodipus hispidus*) occur in the same area and in others only one species is present. This offers an opportunity to examine the response of these two heteromyid species to changes in interspecific competition. A previous study of the food habits of these species in this area of Texas noted similarities in diets which suggest the possibility of food resource competition. If food resource competition is occurring, then it might be reflected in morphological changes. To examine this, we compared morphological features of the two species in a habitat where both species were present to those where only one species occurred. In relation to feeding specifications, we compared the mechanical advantage of the incisors and molars. We found no significantly different changes in the morphological features of the two species. This suggests the possibility of microhabitat separation which would decrease food resource competition.

05.01.26 GLYCOSYLATED HEMOGLOBIN LEVELS AND THE ATROPHY OF THE RETINAL NERVE FIBER LAYER IN DIABETIC PATIENTS WITH PRIMARY OPEN ANGLE GLAUCOMA, A PILOT STUDY

**Sarah Gallagher - Northeastern State University,
Matthew Krein - Northeastern State University,
Oklahoma College of Optometry**

PURPOSE: To determine whether there is a correlation between diabetic control, measured by glycosylated hemoglobin levels (HbA1c), and the rate of thinning in the retinal nerve fiber layer (RNFL) in type 2 diabetics with primary open angle glaucoma (POAG).

PATIENTS & METHODS: A subject needed 1) To be diagnosed with primary open angle glaucoma, 2) Have at least 2 prior imaging examinations including Confocal Scanning Laser Polarimetry (GDx), 3) Have a diagnosis of Type 2 diabetes and HbA1c levels within 120 days of each imaging exam. GDx Nerve Fiber Index (NFI), Average Thickness values (TSNIT), and HbA1c were recorded for each of the 38 qualifying subjects. Pearson Coefficients were used to assess correlations.

RESULTS: No statistically significant correlations were found when comparing mean NFI & TSNIT & mean HbA1c, overall change in NFI & TSNIT & mean HbA1c, individual change in NFI & TSNIT & individual change in HbA1c, and change/year NFI & TSNIT & mean HbA1c. Highest Pearson Coefficient for all data was $R = -0.5108$ for individual TSNIT change vs individual HbA1c change.

CONCLUSION: This study found no statistically significant link between the indicator of diabetic control, HbA1c,

and changes in the RNFL as measured by GDx NFI and average thickness values. This study suggests the level of diabetic control should not affect clinical decision making with respect to the treatment of POAG, however; a larger more controlled study would be beneficial.

05.01.27 THE EFFECTS OF PH ON THE STABILITY OF CRYPTOSPORIDIUM PARVUM OOCYSTS

Miss Jessica Ferguson - East Central University, McNair Scholars Program

Cryptosporidium parvum (*C. parvum*) is a coccidian protozoan parasite known as a waterborne pathogen. These microorganisms are released into the environment through infected human or animal feces. The environmental resistant form of *C. parvum* is referred to as the oocyst. Because of their thick cell wall, oocysts often remain live in most natural soil and aquatic systems. Their ability to survive outside their host organisms in harsh environmental conditions presents one of the most challenging tasks in research for understanding their fate and transport in natural environments. The sorption mechanisms that control the fate and transport of oocysts in the environment are largely unknown. Batch experiments were conducted to evaluate the effects of pH on oocysts and Copper (II) Oxide (CuO) nanoparticles stability in water. In this study, CuO nanoparticles were used to remove oocysts from water. Our results indicated that within the pH range of 6 to 11 oocysts have negatively charged surfaces. At pH 7.4, the surface charge of CuO in DI water had an average of + 15.0 mV for zeta potential measurements. We observed that the point of zero charge for CuO nanoparticles can be achieved near pH of 8.2. The findings suggest that oocysts will attach to CuO in water over the range of pH values measured for sorption batch experiments.

05.01.28 UNDERGRADUATE RESEARCH EXPERIENCES IN CONSERVATION BIOLOGY

Patty B. Smith - Tulsa Community College, Division of Science and Math, West Campus, Jina Bock - Tulsa Community College, Division of Science and Math, West Campus, Simone Franze - Tulsa Community College, Division of Science and Math, West Campus, Carl Hudson - Tulsa Community College, Division of Science and Math, West Campus, David Reed - Tulsa Community College, Division of Science and Math, West Campus, Houston Wells - Tulsa Community College, Division of Science and Math, West Campus, Jeremy Wooten - Tulsa Community College, Division of Science and Math, West Campus

Most community college settings emphasize teaching with few or no opportunities for undergraduate research.

“Undergraduate research is not only the essential component of good teaching and effective learning, but also that research with undergraduate students is in itself the purest form of teaching” (Gentile 2000). The sciences are based on conclusions and concepts formed from research experiences. However, many students assume science is based on opinions, beliefs, or politics. This project will provide students the opportunity to explore conservation biology through research experiences.

Students will participate in field studies of the native Crosstimbers located on TCC West Campus. The Crosstimbers survey includes collecting, preserving, and archiving voucher specimens. Voucher specimens serve as permanent records of the biological diversity. The field collections typically include plants and animals; however, other living organisms, such as protozoans and fungi, are collected.

The Crosstimbers at TCC West Campus provides a unique opportunity for students to survey a native landscape, which has existed long before European settlement of North America. The history and age of the Crosstimbers has been studied; however, few studies have actually surveyed the flora and fauna of the Crosstimbers.

05.01.29 GENE EXPRESSION ANALYSIS OF EVL DIFFERENTIATION IN POKY MUTANT EMBRYOS

Mr. Marshall Devon Bailey - Langston University, , Ms. Celine Santiago - Rice University, Biochemistry and Cell Biology, Ms. Cindy Fukazawa - Rice University, Biochemistry and Cell Biology, Dr. Daniel Wagner - Rice University, Biochemistry and Cell Biology

The aim of our research is to understand the role of *chuk/ikk1/poky* and related genes in the embryonic development the zebrafish, *Danio rerio*. *poky* is a maternal mutation, which causes the enveloping layer (EVL) of zebrafish embryos to fail. The EVL of the zebrafish blastoderm consists of squamous epithelial cells and becomes the “skin” of the early embryo. Mutation of the homologue to CHUK in human beings causes squamous cell carcinoma, a common skin cancer. By comparing the results of a survey of different genes expressed in the EVL of wild-type zebrafish to that of *poky* mutants, we will understand the role of *Chuk* in the development of zebrafish and certain forms of skin cancer. We hypothesize that *poky* mutants express some genes characteristic of EVL cells but lack the expression of others causes EVL instability and eventual failure. We have identified a set of genes that have specific expression in the EVL of wild type embryos. These have been prioritized based on their expected function giving preference to genes that

function in cell adhesion. Gene expression in wild type and *poky* mutant zebrafish embryos will be compared via riboprobe in situ hybridization. Preliminary data seems to indicate the *poky* mutation lacks several genes involved with the ability to maintain cell adhesions and tight junctions on a certain level which correlates with the *poky* mutant phenotype. Future works include analysis of expression of the target genes of in situ hybridized embryos.

05.01.30 A PRELIMINARY PHYLOGENY OF TRICHOLOMA BASED ON THE RRNA ITS REGION

Dr. Clark L. Ovrebo - University of Central Oklahoma, Biology, Dr. Karen W. Hughes - University of Tennessee, Ecology and Evolutionary Biology, Dr. Roy E. Halling - The New York Botanical Garden, Institute of Systematic Botany

DNA was extracted from dried mushroom tissue 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 direction with alignment and trimming done manually. Related sequences were obtained from GenBank. Alignment difficulties required deletion of approximately 100bp of data for analysis of the data set. A majority rule consensus tree of 1000 equally parsimonious trees was obtained using PAUP. The resulting tree included two distinct clades comprising ca.18 subclades. A comparison of the clades to the infrageneric classification of Rolf Singer reveals some similarities of morphology with DNA sequencing. In the Singerian classification, *Tricholoma* subg. *Tricholoma* is composed of two main sections, sect. *Tricholoma* and sect. *Genuina*. Most of sect. *Tricholoma* is represented by a monophyletic clade in the ITS phylogeny. The subclades within sect. *Tricholoma* agree well with stirpes of Singer and pose no alignment problems. Section *Genuina*, with species like *T. caligatum*, *T. fulvum*, and *T. focale*, appears in a well supported clade together with other morphologically unrelated subgenera *Pardinicutis* and *Contextocutis* and a *T. myomyces* subclade, the latter belonging to sect. *Tricholoma*. *Tricholoma saponaceum* and variants belong to subg. *Contextocutis* and appears as a separate clade but with low bootstrap support.

05.01.31 CHEMICAL STIMULATED STRESS PROTEINS OF CHAETOMIUM GLOBOSUM, A COMMON HOUSEHOLD MOLD

Jennifer Anne Young - East Central University, Biology,
Dr. Charles Biles - East Central University, Biology, Dr.
Terry Cluck - East Central University, Biology

Objective: *Chaetomium globosum* is a fungus commonly found on water-damaged building materials. It has been implicated as an allergen and can cause severe human diseases, especially in an immune-compromised individual. Previous research has indicated that *C. globosum* reproduction is inhibited by low concentrations of potassium chlorate (KClO₃). In addition, fungus expressed halophilic characteristics when exposed to NaCl and KCl. Our objective was to investigate the molecular response of *C. globosum* to various chemicals.

Methods: The Presque Isle 932 isolate of *C. globosum* was grown in potato dextrose broth cultures for eight days. Six of the broth cultures were inoculated with chemicals: 100 mM KClO₃, 10 mM KClO₃, 1 mM KClO₃, 100 mM KCl, 10 mM KCl, and 1 mM KCl. Hyphae was collected by vacuum filtration and proteins extracted using liquid nitrogen. A spectrophotometer was used to measure the protein content of each sample. SDS-PAGE (10%) was conducted and silver stained. HPLC analysis was also used.

Results: Banding patterns showed that a high molecular weight protein was stimulated in the presence of 10 mM KClO₃, 100 mM KClO₃, and 100 mM KCl. HPLC analysis showed several peak variations when comparing KClO₃, KCl, and potato dextrose broth controls.

Conclusions: Further experiments are being conducted to identify high molecular weight stress proteins.

05.01.32 COMPARISON OF FINGER COUNTING VERSUS ARCUATE VISUAL FIELD TESTING IN THE DETECTION OF FIELD LOSS

Mr. Scott B. Mendell - Northeastern State University, Optometry, Mr. Ryan C. Emrick - Northeastern State University, Optometry

Purpose: To compare the detection rates, sensitivities and specificities of arcuate visual field screening versus finger counting visual field screening.

Methods: 8 "patients" had front surface mirror-coated lens blanks taped over each of their eyes. We placed tape on the back of the lens blanks to induce different severities of quadrantanopias. Of the 16 lens blanks, 4 had no defect, 4 had a mild defect, 4 had a moderate defect and 4 had a severe, complete quadrantanopia. 21 "examiners" performed an arcuate visual field screener and a finger

counting visual field screener on each "patient". The examiners then recorded if they observed a defect and specified where.

Results: The examiners using the arcuate method identified 220/336 defects correctly (65.4%). The same examiners identified 241/336 defects correctly using the finger counting method (71.7%) We obtained a p value of .0854. The sensitivity of the arcuate method was 59.1% and the specificity was 84.5%. The sensitivity of the finger counting method was 65.1% and the specificity was 91.7%. No significant differences were found at any of the different severities although finger counting had a higher detection rate than arcuate at each.

Conclusions: Finger counting had a higher detection rate, specificity and sensitivity than arcuate. We recommend finger counting method be administered during optometric exams.

Key Words: visual field, screening, arcuate, finger counting, confrontation fields

05.01.33 HARNESSING SOLAR ENERGY USING PHOTOSYNTHETIC AND ORGANIC PIGMENTS

Toby FitzSimons - University of Central Oklahoma, Biology, Michael Baigent - University of Central Oklahoma, Biology, Dr. Paul Kochie M.D. - University of Central Oklahoma, Biology, Dr. James Enderby Bidlack Ph.D. - University of Central Oklahoma, Biology

Photosynthetic and organic pigments are being evaluated as potential light receptors used in the construction of thin-film photovoltaic cells, based upon a design using tin-coated glass plates treated with titanium dioxide and pigment (cathode) or carbon (anode). Experiments are being conducted to determine: 1) if incorporation of plant pigments into photovoltaic cells results in discernable differences in voltage readings in the light and in the dark; 2) if differences exist in voltages obtained from various plant pigments and preparations thereof. Two experiments are being implemented: 1) a basic study using incorporation of crude extracts from various plant sources, and 2) a refined study using chlorophyll isolation from spinach as well as commercial preparations of chlorophyll and other pigments. A 12-hour day with a radiant flux density in excess of 25 watts per square meter is being followed by a 12-hour night to monitor voltages produced by photovoltaic cells that measure approximately 2.5 square centimeters. Preliminary results indicate that use of pigments in photovoltaic cells increases voltage produced in the light compared to the dark, and different preparations of these pigments significantly affect voltages produced in the presence of light. Preliminary voltage readings from cells treated with different pigment preparations currently vary from 100 to

500 mV in the presence of light, with significantly lower voltage readings in the dark.

05.01.34 ASTROCYTE IMMUNE RESPONSES TO ACTIVATION: RELEVANCE TO NEUROINFLAMMATION AND NEURODEGENERATION

Ms. Jamila Kamaria Harris - Langston University, Chemistry

Astrocytes, also known as astroglia, are characteristic star-shaped glial cells in the central nervous system (CNS). Astrocytes have a principal responsibility in the repair and scarring method of the brain and spinal cord following traumatic injuries. In CNS diseases that involve inflammation, such as HIV-1-associated neurological disorder, astrocytes become activated with virus and inflammatory products. It is thus important to decipher the role and response mechanisms of astrocyte activation in context of disease. Through astrocyte's change in morphology and production of inflammatory molecules, it is possible to assay the astrocytic response to Interleukin-1 Beta (IL-1b) activation, a model pro-inflammatory cytokine. We measured monocyte chemoattractant protein (MCP-1) production in activated astrocytes using ELISA tests. Several lines of evidence show that MCP-1 plays a significant role in inflammatory processes and in HIV-1 disease. We also assayed changes in glial fibrillary acidic protein (GFAP), an intermediate filament (IF) protein that is specific for astrocytes. Increased expression of this protein is evident in astrocytic activation and brain injury. Our studies showed that MCP-1 was upregulated in activated astrocytes along with enhanced expression of GFAP. These studies will allow further evaluation of whether or not the activation of astrocytes is contributing to inflammatory diseases and other central nervous system diseases.

05.01.35 THE EFFECT OF DISTANCE RUNNING ON INTRAOCULAR PRESSURE IN HIGH SCHOOL ATHLETES

Stephanie Clay - Northeastern State University, College of Optometry, Kristen Teague - Northeastern State University, College of Optometry, Alissa Proctor O.D. - Northeastern State University, College of Optometry

Purpose: The objective of this study is to determine the effect of a 5 kilometer (5K) workout on intraocular pressure (IOP) immediately following and two hours following the 5K in high school male and female cross country runners. The information attained through this study may change the way we manage those with increased IOP.

Methods: A total of 7 healthy subjects ranging from 14 to 18 years of age participated in the study. IOPs were

measured using a Tono-pen on each subject's right eye prior to the 5K, immediately following the 5K, and two hours following the 5K with 95% precision readings. **Results:** The readings immediately following completion of the 5K showed a nonsignificant decrease from baseline. The readings taken two hours following completion of the 5K showed a significant decrease from baseline. When subjects were divided according to gender, the females' mean showed a nonsignificant increase immediately following the 5K. The males' mean showed a nonsignificant decrease immediately following completion of the 5K. Two hours following completion of the 5K, both the females' and males' means showed a nonsignificant decrease from baseline.

Conclusions: Individuals with ocular hypertension or glaucoma who run should do so with caution since data immediately following the 5K gave inconclusive results. Running is likely to result in a decrease in IOP in men. However, women who run are at a greater risk of an increase in IOP immediately following the 5K.

05.01.36 SOME PRELIMINARY FINDINGS ON YEAST AND BACTERIAL GROWTH IN HUMMINGBIRD FEEDERS

Dr. Chris Butler - University of Central Oklahoma, Dept. of Biology, Steven Frazee - University of Central Oklahoma, Dept. of Biology, Jill Stinedurf - University of Central Oklahoma, Biology, Ralph Jones - University of Central Oklahoma, Biology

In 2006 it was estimated that 48 million people were bird-watchers, the vast majority of which (88%) were considered to be backyard bird watchers. No published figures are available on how many people feed hummingbirds, but it seems likely that millions of people engage in this pastime. Recommendations on how often to change the food in hummingbird feeders can easily be found in books and online, but there are no published papers that back up these suggestions with data. In order to describe what grows in hummingbird food and quantify the growth rates, we filled feeders with a 3:1 and 4:1 sugar to water concentration during fall 2009. We investigated whether exposure to sunlight and/or temperature affected turbidity. We found that yeast (in the order Saccharomycetales) and a bacterium tentatively identified as *Methylobacterium extorquens* grew in both concentrations of the solution. There was a weakly significant increase in turbidity through time. However, the concentration of the solution had no effect on turbidity over the trials, nor did the exposure to sunlight or the temperature, although it is worth noting that the sample size is small. Future research to better quantify the effects of temperature, sunlight, and sugar concentrations are planned.

MATH AND SCIENCE

05.01.37 LAST CHANCE FOR THE DIANA GUENON

Giselle Alverson - Northeastern State University, Natural Sciences, Erik Terdal - Northeastern State University, Natural Science

Diana guenon (*Cercopithecus diana*) monkeys are facing possible phase-out in zoos unless reproduction can be increased. This species' AZA population went from over a hundred individuals in the 1970's to the 2009 twenty-eight individuals in twelve zoos. With two to three births per year, this population can merely maintain its present size. Four births per year would be the minimum to increase this population's growth rate. Due to a thirty percent decrease in the wild population over the past twenty-seven years this species is listed as vulnerable by the IUCN. The OWMTAG lists Diana monkeys as "critical." Captive-born Dianas have been less successful in breeding than have wild-born individuals. Only five facilities have had births in the last ten years. Each of these facilities has had more than one birth in that time. In total, there have been sixteen births in these five facilities since 1997. Factors that contribute to these facilities' breeding success have not previously been identified. We investigated social grouping and habitat structure as contributory factors in a web-based survey study. We present the quantitative and qualitative data from the surveys and conclude with suggestions for improved husbandry of Diana monkeys.

05.01.38 MOLECULAR CLONING AND OVEREXPRESSION OF DICTYOSTELIUM'S ALKALINE PHOSPHATASE

Muatasem Ubeidat - Southwestern Oklahoma State University, Biology, Steven Bozell - Southwestern Oklahoma State University, Biology, Christopher Omari - Southwestern Oklahoma State University, Biology, Huy Do - Southwestern Oklahoma State University, Biology

In *Dictyostelium*, alkaline phosphatase (ALP) is a membrane bound enzyme and regulated during the life cycle of the organism. To study alkaline phosphatase, a large amount of the protein will be needed. Therefore, the gene will be overexpressed in *E. coli*, then purified and studied and analyzed. A cDNA clone was obtained from the *Dictyostelium* cDNA project in Japan. The ALP gene is about 1800 bp in length and the estimated molecular weight of the protein is approximately 60kDa. We were able to release a fragment of 1680bp of the gene (94% of the gene) from pSPORT vector by restriction digestion with BamHI. The fragment was purified from agarose gel then ligated to a BamHI linearized pUC19 vector. Colonies were screened by PCR and restriction digestion for the presence of the gene insert. Colonies with the recombinant plasmid were selected. For further

analysis, maxi-prep was performed to produce a large amount of DNA. The next step is subcloning alkaline phosphatase gene in an expression vector called pET32a. The recombinant vector will be digested with BamHI, and then the gene will be ligated to pET32a. Colonies with recombinant plasmid will be selected. Then the plasmid will be transformed into an expression host. The gene will be induced by IPTG and protein synthesis will be monitored by SDS-PAGE. The enzyme will be purified using conventional methods.

05.01.39 THE NUMBER OF TUBERCLES AND THEIR DISTRIBUTION ON THE EARS OF MEXICAN FREE-TAIL BATS (*TADARIDA BRASILIENSIS*)

Kerstin Allison - University of Central Oklahoma, Biology, Eileen Parks - University of Central Oklahoma, Biology, Dr. William Caire - University of Central Oklahoma, Biology

The Mexican Free-tail Bat, *Tadarida brasiliensis*, has small tubercles along the dorsal ridges of their ears. We hypothesize these tubercles serve an aerodynamic function similar to the hydrodynamic function of the tubercles along the pectoral flippers of the Humpback Whale, *Megaptera novaeangliae*. To examine this hypothesis, a descriptive morphological analysis of the tubercles of 52 *T. brasiliensis* (23 males and 29 females) was conducted. For all males and females combined, we noted a range of 5-12 tubercles on each ear with a median of 9. Males have a median of 9 tubercles on the left and right ears, ranging from 6-12 on both ears. Females have a median of 8 tubercles on the left ear and a median of 9 tubercles on the right ear, ranging from 5-11 on both ears. We compared male and female tubercle counts on the left and right ears, and there was no significant difference. Descriptive statistics and statistical comparisons of the distances between all the tubercles on the left and right ears of each sex and between the sexes were also made.

05.01.40 BROWNSVILLE COMMON YELLOWTHROAT GEOTHLYPIS TRICHAS INSPERATA METAPOPOPULATION DYNAMICS

Christopher Roy - University of Central Oklahoma, Biology, Chris Butler - University of Central Oklahoma, Biology

Habitat fragmentation is particularly severe in the Lower Rio Grande Valley (LRGV) of south Texas where 95% of the native brushland has been affected by not only agriculture but also urban development. This fragmentation effectively divides bird populations into smaller "populations within a population", or metapopulations.

A good model for studying the effects of fragmentation in the LRGV is the Brownsville Yellowthroat (*Geothlypis trichas insperata*), a subspecies of the Common Yellowthroat warbler. Its distribution is now restricted to southern region of Cameron County, Texas and possibly in adjacent north Tamaulipas, Mexico. Because they utilize wetlands, I hypothesized that the Rio Grande acts as a corridor for this species and as a result, individuals and subpopulations should be more closely related to each other than to other individuals north of the river. Blood samples were collected from 128 individuals (males, females, and juveniles) for microsatellite testing. These data were used to test for heterozygosity in the birds as well as exploring immigration and emigration between subpopulation in the LRGV.

05.01.41 CYTOKINE INDUCED MICROTUBULE DISASSEMBLY IN CORNEAL ENDOTHELIUM DURING ALLOGRAFT REJECTION

Shabree Nichols - Langston University, Department of Biology

Corneal transplantation is often used by ophthalmologist to treat disorders such as keratoconus and Fuch's dystrophy. Since the body's ultimate job is to protect itself, the introduction of foreign tissue may be processed as a threat. The transplanted tissue may be rejected. In this response, the recipient's T-cells initiate an immune response involving release a variety of factors. A prominent molecule released during immune rejection is Tumor Necrosis Factor-alpha. This cytokine, in turn, can act upon TNFR1 and/or TNFR2 expressed on the transplanted endothelial cells leading to activation of a stress kinase called p38 MAP kinase. This kinase is known to bring about a variety of effects on endothelial cells but a prominent early effect includes microtubule disassembly, which is known to break down barrier integrity of the endothelium. In this study, I have used paclitaxel, a known microtubule stabilizing agent, to prevent the effects of TNF-alpha. I have also used nocodazole as a test reagent to deliberately induce microtubule disassembly. In our experiments, we found that treatment with the designated drugs had the desired effects with paclitaxel strengthening microtubules and nocodazole causing disorganization of microtubules. In essence, paclitaxel may be used by doctors in the future as a form of preventative treatment for patients seeking corneal transplantation. The findings of this work will be useful to develop therapeutic drugs to prevent transplantation failure.

05.01.42 SPATIAL LEARNING IN THE COMMON FIVE-LINED SKINK, PLESTIODON FASCIATUS

Brian Michael Becker - Northeastern State University, Natural Sciences, Mark A. Paulissen - Northeastern State University, Natural Sciences

Small lizards run directly under retreats such as rocks or logs when pursued by a predator; the only way a lizard could know where these retreats are located is if the lizard previously learned where the retreat was located through Spatial Learning. The capacity of lizards to learn or remember the location of specific retreats has been studied in only a few species. The purpose of this study was to determine if the lizard *Plestiodon* (*Eumeces*) *fasciatus* (the Common Five-Lined Skink) is capable of learning the location of an escape retreat. The methodology involves placing a lizard in an chamber with two retreats and chasing it until it ran under the pre-determined "correct" retreat. Eight trials were run: trials 1-4 on Day One and trials 5-8 on Day Two 48 hours later. A significant decrease in the amount of time the lizard takes to escape to underneath the "correct" retreat from trial 1-8 indicates Spatial Learning. Adult *P. fasciatus* did not show significant improvement in escape time indicating poor Spatial Learning ability. However, juvenile *P. fasciatus* did show improvement in escape time, though the change was marginally non-significant ($P=0.052$) and showed significantly greater improvement in escape times than adults, suggesting that juvenile *P. fasciatus* may be better Spatial Learners than adults. However, adults showed lower escape times, indicating that adults were better than juveniles at escaping from predators before they were tested in our lab.

05.01.43 THE EFFECTS OF PHYTOCHEMICAL FRACTIONS ON INFLAMMATION

Judy Williams - Southeastern Oklahoma State University, Biological Science, Stanley Rice - Southeastern Oklahoma State University, Biological Science, Randi Sue Sewell - Southeastern Oklahoma State University, Biological Science

In previous research, it was found that an extract from a rare tree species X was effective in reducing inflammation in rats. In this experiment, the extract from species X was divided into five different fractions using a solid phase extraction tube in an attempt to find the fraction involved in reducing inflammation. Inflammation was induced in rat heels by injecting 0.1 ml of Freund's adjuvant at time 0 hours. Then 1 ml of the different fractions was administered to rats at times 0 and 3 hours. Heel width was measured at times 0, 3, and 6 hours. All five fractions

MATH AND SCIENCE

significantly reduced inflammation relative to the control. This type of column chromatography was unsuccessful in isolating the anti-inflammatory substance into a single fraction.

05.01.44 PREY SELECTIVITY OF SONORAN MUD TURTLES (KINOSTERNON SONORIENSE)

Erica Catherine Becker - University of Central Oklahoma, Biology Department, Brian D. Stanila - University of Central Oklahoma, Biology Department, Paul A. Stone - University of Central Oklahoma, Biology Department

We compared invertebrate abundance and diversity in Sonoran Mud Turtle (*Kinosternon sonoriense*) fecal samples to abundance and diversity of invertebrates in aquatic habitats in the Peloncillo Mountains, New Mexico, in order to test the hypothesis that Sonoran Mud Turtles are generalists, selecting prey from the environment in proportion to their availability. We used core and net samples to measure invertebrate diversity in two stock tanks, Blackwater Hole and Buckhorn Tank. We used rarefaction curves to compare diversity of prey items in fecal samples to diversity of invertebrates in environmental samples to determine the degree of prey selectivity. Using rarefaction curves we also compared the diversity of invertebrates in fecal samples from Blackwater Hole and Buckhorn Tank. Finally, we compared diversity of invertebrates in aquatic habitats from Blackwater Hole and Buckhorn Tank. Invertebrate diversity from environmental samples from the two tanks was very similar. Likewise, fecal samples from Buckhorn Tank and Blackwater Hole had similar diversity. Rarefaction curves comparing environmental samples to fecal samples revealed that fecal samples had greater diversity than environmental samples in both tanks. This surprising finding may be explained by the presence of terrestrial arthropods in fecal samples, which leads us to propose that Sonoran Mud Turtles may be acquiring food not only from aquatic habitats but from terrestrial habitats too.

05.01.45 DISTRIBUTION OF ECHINOCEREUS BASED ON TERRAIN, POSITION AND SOIL DEPTHS ON OR NEAR MOUNTAIN SITES AND GRASSLANDS OF THE WICHITA MOUNTAINS WILDLIFE REFUGE.

Eric Wheeler - University of Central Oklahoma, Biology, Michael Todd Reid - University of Central Oklahoma, Biology

The *Echinocereus* is found in the southwest United States and northern Mexico where climate and environment provide adequate habitat. In Oklahoma, *Echinocereus* is fairly common in the Wichita Mountains Wildlife Refuge. We hypothesized that the distribution of *Echinocereus* is affected by soil depth, slope, aspect, elevation and land cover. Using Hawth's Analysis Tools in ArcGIS, five random transects were generated in the Wichita Mountains and Global Positioning Systems (GPS units) were used in this experiment to navigate to transects. Each transect was approximately 1 km in length, and at every 50 m soil depth and land cover was recorded as well as the number of cacti present. The recorded locations were imported into the Geographic Information System software ArcGIS 9.3. Aspect and slope were derived from a digital elevation model (DEM). Logistic regression was not successful in separating areas with cacti from areas without cacti. However, we found that the cacti grew in more shallow soil depths in grasslands with exposed granite outcrops; elevation, slope, and aspect were not significant factors in the distribution of *Echinocereus* in the refuge for this experiment. This study is an important step in right direction to help protect and conserve an Oklahoma native plant.

05.01.46 EXAMINATION OF THE PHYLOGEOGRAPHY OF THE HUMAN Y CHROMOSOME TO MALE ANCESTRY

Dr. Diana Spencer - Tulsa Community College, Science and Mathematics, Mona Easterling - Tulsa Community College, Science and Mathematics, Donita Gray - Tulsa Community College, Science and Mathematics, Satonye Groden-Crown - Tulsa Community College, Science and Mathematics, Kelly Wisley - Tulsa Community College, Science and Mathematics

The Y chromosome provides a means for investigating human migration. Mutations within Y chromosome markers correspond to an established timeline. Markers are mutations, and an increase in specific mutations indicates duration of genetic lineage. A minimum of ten men will donate samples to compare the presence or absence of Marker 9 on their Y chromosome. Saliva

samples will be collected from consenting male faculty along with a primary country of origin questionnaire. We plan to extract DNA from these samples, amplify the DNA in the presence of Marker 9 primers with PCR, visualize the DNA on an agarose gel, and sequence the results when appropriate. We anticipate these studies will increase our understanding of the correlation between primary country of origin and presence or absence of Marker 9.

05.01.47 ESTIMATING THE VOLUMES OF THE EAR TUBERCLES OF THE MEXICAN FREE-TAILED BAT

Eileen Elizabeth Parks - University of Central Oklahoma, Biology, Kerstin Allison - University of Central Oklahoma, Biology, William Caire - University of Central Oklahoma, Biology

The Mexican Free-tail bat, *Tadarida brasiliensis*, has small tubercles along the dorsal ridges of their ears. We hypothesize these tubercles serve an aerodynamic function similar to the hydrodynamic function of the tubercles on the pectoral flippers of the Humpback whale, *Megaptera novaeangliae*. As an initial step in examining this hypothesis, we conducted a morphological analysis of the tubercles. The volumes of the tubercles of the 52 *T. brasiliensis* (23 males, 29 females) were estimated. They ranged from $5.29 \times 10^6 \mu\text{m}^3$ to $1.20 \times 10^7 \mu\text{m}^3$. Male tubercles ranged from $5.29 \times 10^6 \mu\text{m}^3$ to $1.20 \times 10^7 \mu\text{m}^3$, and female tubercles ranged from $5.45 \times 10^6 \mu\text{m}^3$ to $1.97 \times 10^7 \mu\text{m}^3$. The volumes were greatest for the most medially located tubercles and decreased towards the distal edge of the ear. This pattern of the greatest volume in the most medial tubercle with decreasing volume towards the distal tubercle was consistent for most specimens. Statistical comparisons of the tubercle volumes between the left and right ears of males and females as well as between sexes were made.

05.01.48 CHAETOMIUM GLOBOSUM GROWTH, REPRODUCTION, AND PIGMENTATION AT DIFFERENT TEMPERATURES

Colton Edwards - East Central University, Biology, Jennifer Young - East Central University, Biology, Charlie L. Biles - East Central University, Biology, Terry W. Cluck - East Central University, Biology

Fungi are ubiquitous in the air, but they have become a major indoor air quality health concern. *Chaetomium globosum* is a fungus that grows well on building materials and the spores, hyphae, and mycotoxins can cause human health disorders. This fungus also causes discoloration of pages in books and documents.

Experiments were conducted to investigate the growth, reproduction, and pigment production of this fungus at 4 different temperatures; 5, 25, 33, and 37°C. The fungus was grown on potato dextrose agar (PDA) and radial growth was measured every 3 days. The discs (0.5 mm) from the agar were melted in water, and the absorbance of the solution measured with a spectrophotometer. A hemocytometer was used to quantify ascospore production. Hyphal growth was greatest at 25 and 30°C, when compared to growth at 5, 33, and 37°C. Pigmentation was greatest at 30°C. Ascospore production was higher at 30°C for 3 of the isolates and similar at 25 and 30°C for the other 3 isolates. *C. globosum* grows well at 30°C, produces a high level of ascospores and soluble extracellular pigments at this same temperature. Increasing the temperature to 33°C significantly ($P=0.05$) inhibits *C. globosum* growth, sporulation, and pigmentation. Manipulating the temperature in an indoor environment may be a possible control strategy for this indoor mold. This work was funded by the INBRE and SURE-STEP grant programs.

05.01.49 EFFECT OF FLY NAP® ON OVIPOSITING AND FERTILITY IN BASC MUTANT AND WILD TYPE DROSOPHILA MELANOGASTER

James Todd Ottman - University of Central Oklahoma, Department of Biology

The objective of this study is to determine whether wild and Basc mutant genotypes of *Drosophila melanogaster* treated with the anesthetic Fly Nap® displayed significant differences in their egg deposition and subsequent egg fertility when compared to etherized wild type and Basc mutants. Ovipositing of Basc mutants exposed to Fly Nap® was significantly ($p<0.05$) lower than etherized Basc during the first 24 hours post-treatment. After 40 hours the most significant ($p<0.01$) difference appeared between Basc mutants and wild type flies both treated with Fly Nap®. The ovipositing of Basc mutants treated with Fly Nap® remained significantly ($p<0.01$) lower than that of similarly anesthetized wild types from 40 hours post-treatment through the remainder of the post-treatment time course. Fertility was assessed by taking 25 eggs from each group at post-treatment intervals, then counting the number of flies that had fully eclosed as adults. Fly Nap®-treated Basc mutants showing significantly ($p<0.01$) lower egg viability than wild type flies treated concurrently with Fly Nap®. These results indicate that ovipositing of the Basc mutant, while characteristically lower than the wild type, is even further reduced after exposure to Fly Nap® anesthetic; with an accompanying significant reduction in viability in offspring.

MATH AND SCIENCE

05.01.50 CONSTITUTIVE OVER-EXPRESSION OF PROTEIN PHOSPHATASE 5 (PP5) WITH REDUCED CATALYTIC FUNCTION IN TISSUE CULTURE CANCER CELLS

Rebekah Ritchie - Southeastern Oklahoma State University, Biological Sciences, Richard Taylor - Southeastern Oklahoma State University, Biological Sciences, Aristóteles Villamil - Southeastern Oklahoma State University, Biological Sciences, Shelena Thomas - Southeastern Oklahoma State University, Biological Sciences, Teresa Golden - Southeastern Oklahoma State University, Biological Sciences

Serine/threonine phosphatase 5 (PP5) is an enzyme that has an emerging role in the regulation of signal transduction and altered PP5 activity appears to contribute to tumor development and maintenance. While protein kinase enzymes catalyze the transfer of a phosphate group to proteins in signaling pathways, protein phosphatases, in turn, reverse the action of kinases by removing phosphates. PP5 belongs to the PPP-family of enzymes, which also includes PP1 and PP2A. PP5 has been implicated in cancer growth because it has a negative regulatory role in p53-mediated signaling leading to G1/S-phase growth arrest. Expression of PP5 is also responsive to estrogen and hypoxia inducible factor-1 (HIF-1), which are both positive factors in the development of human breast cancer. Constitutive over expression of PP5 promotes cell survival during oxidative stress (common in tumors) and converts MCF-7 breast cancer cells from an estrogen-dependent into an estrogen-independent phenotype. Recently, increased PP5 expression has been shown by tumor microarray to have a positive correlation with breast cancer. Thus, altered PP5 activity may contribute to tumor development. Studies in progress indicate that over expression of PP5 promotes cancer cell survival during exposure to several types of cell stress. To facilitate these over expression studies we are using PP5 expression plasmids with altered catalytic domains to further examine PP5's role in cancer cell survival.

05.01.51 PULMONARY NEMATODIASIS (NEMATODA: PSEUDALIIDAE) AS A POTENTIAL CONTRIBUTING FACTOR IN THE BYCATCH DEATH OF AN ATLANTIC HARBOR PORPOISE (PHOCOENA PHOCOENA)

Dr. Wayne Lord - University of Central Oklahoma, Biology, Kristen Bliss - University of Central Oklahoma,

Marine mammals are essential to ecosystem balance and their protection is warranted by society, hence the enactment of the Marine Mammal Protection Act of 1972. One such mammal, the harbor porpoise (*Phocoena*

phocoena), is well adapted for existence in coastal and near-shore environments of the North Atlantic, North Pacific, and the Black Sea. Harbor porpoises are an essential predatory component of coastal and near-shore marine habitats. The spatial, temporal, and behavioral characteristics of harbor porpoises frequently bring them into contact and potential conflict with humans. Therefore, understanding potential causes of adult and juvenile mortality within harbor porpoise populations is essential to the ongoing protection of this species.

We investigated the death of one such animal collected as bycatch in a commercial fishing haul off the New England coast in the summer of 2009. Necropsy revealed a massive pulmonary infection of parasitic lungworms (Nematoda: Pseudaliidae). Microscopic and histological examinations of the parasites were conducted. Respiratory limitations, caused by the heavy worm burden, may have limited the mobility of the animal, rendering it less able to avoid net entanglement. More detailed studies of the epidemiology, natural history, and pathology of the lungworms is warranted.

05.01.52 EFFECTS OF LYCOPENE ON TISSUE CULTURE CELLS

Aristóteles Villamil - Southeastern Oklahoma State University, Biological Sciences, Bradley Jones - Southeastern Oklahoma State University, Biological Sciences, Penny Perkins - North Carolina State University, NC Research Campus, Teresa Golden - Southeastern Oklahoma State University, Biological Sciences

Lycopene is an antioxidant from the carotenoid family of phytochemicals produced in plants. It imparts the red color found in some fruits and vegetables such as watermelon and tomatoes. Unlike many other carotenoids it lacks a terminal beta-ionic ring and provitamin A activity. It is a relatively stable and easily absorbed molecule that can cross the blood brain barrier and is distributed throughout the body by the circulatory system. Lycopene has been explored in nutritional and clinical studies focused on prevention of prostate cancer and cardiovascular disease. While many studies focus solely on the antioxidant properties of lycopene, other mechanisms of action have also been indicated including gene functional regulation, hormone or immune regulation, carcinogen metabolism and others. Many questions still remain. We are using tissue culture as a model to further examine the roles of lycopene, including its effects on cancer cell growth and its potential protective roles induced in response to cell stress.

05.01.53 INOSITOL PHOSPHATES IN THE BIOMEDICAL RESEARCH MODEL ORGANISM DICTYOSTELIUM

Muatasem Ubeidat - Southwestern Oklahoma State University, Biology, Gunter Vogel - University of Wuppertal-Germany, Biochemistry

InsP5 3/5-kinase is the first inositol pentakisphosphate kinase purified from Dictyostelium. The kinase appears to be the enzyme responsible for the synthesis of InsP6 from inositol tetralis- and pentakisphosphates. It displays selectivity for Ins(1,2,3,4,6)P5 and (Ins(1,2,4,5,6)P5. InsP5 3/5-kinase has a broad spectrum of substrates. SDS-PAGE indicated that the final enzyme preparation predominantly comprised a band of 43 kDa. Furthermore, InsP5 3/5-kinase displays a broad pH-optima (5.5-7.5) using both substrates. InsP5 3/5 kinase could be the enzyme responsible for the homeostasis of InsP6 in *D. discoideum*. This would be reached by the combination of the forward and the backward reactions or the futile cycle of kinase/InsP6-phosphohydrolase. The other functions could come from the combination of the reactions of the kinase with that of InsP5/InsP4 phosphohydrolase and InsP6-phosphohydrolase as a source for the production of the lower phosphorylated inositol phosphates which could play a physiological role in *D. discoideum*. The kinase can be used for the assignment of absolute configuration of several synthetic or natural inositol polyphosphates or to produce pure enantiomers of specific inositol polyphosphates. It can be also used alone or in a combination with the other enzymes mentioned above as a tool to synthesize specifically labeled and non-labeled inositol phosphates.

05.01.54 EXTRACTION OF TOXINS FROM CHLOROPHYLUM MOLYBDITES AND AMANITA PHALLOIDES IN COMPARISON TO TOXINS STORED IN TERRAPENE CAROLINA AND TERRAPENE ORNADA

Walter Morris - East Central University, Biology, Kenia Castillo - East Central University, Biology, Dr. Ken Andrews - East Central University, Biology

Humans have been consuming box turtles as a food source for thousands of years. There have been large numbers of antidotal and recorded instances of these humans becoming severely sick or even dying from ingesting these turtles. The purported cause of this human poisoning being that the turtles eat toxic mushrooms and storing the toxins in their tissues, and therefore transfer the toxins to the humans that consume them. Several toxins have been identified in the mushroom *C. molybdites*. It was undertaken to extract

the toxin lepiotin B from *C. molybdites*. Several grams of the mushroom were extracted with methanol for 90hrs. The extract was filtered and the solvent evaporated. The residue was reconstituted in an organic solvent/water system composed of ethylacetate/water (EtOAc/H₂O). The ethyl acetate fraction was collected and concentrated by evaporation and partially purified using silica gel column chromatography with a mobile phase of hexane/EtOAc (1:1). After complete purification, the lepiotin B should give a colorless oil. Once the toxins are extracted from the mushrooms, they will be used as a basis to extract those same toxins from the box turtle tissues that have been collected from wild caught turtles this summer. The exact location of the toxin storage in the turtle tissues is the goal of this research. Further studies would be to determine the method of storage within the tissues determined by this study.

05.01.55 DO KINOSTERNON SONORIENSE EAT TADPOLES?

Leah Bates-Albers - University of Central Oklahoma, Biology, Marie E. B. Stone - University of Central Oklahoma, Biology, Paul A. Stone - University of Central Oklahoma, Biology

Animals living in ephemeral aquatic habitats must obtain crucial resources (i. e. food) in a desiccating habitat. Sonoran mud turtles, *Kinosternon sonoriense*, inhabiting ephemeral canyon pools opportunistically feed on vertebrates such as garter snakes, birds, and toads. *Kinosternon sonoriense* in the Peloncillo Mountains, New Mexico, commonly share rain-filled rock pools with tadpoles. Our goal was to investigate tadpole density in a desiccating canyon in the Peloncillo Mountains, and determine if *K. sonoriense* eat tadpoles under controlled conditions. From 10-12 August 2009, we measured tadpole density by collecting tadpoles from 10 rain-filled rock pools for an average of 115 minutes. We calculated the number of tadpoles/L of water in the pools, and determined tadpole density (mean \pm SD = 0.495 \pm 0.7115 tadpoles/L). We conducted 7 feeding experiments during 10-12 August 2009. During each trial, we placed 10 tadpoles, either *Hyla arenicolor* or *Bufo punctatus*, in a tank with either an adult or hatchling *K. sonoriense*. In 3 of 7 trials, *K. sonoriense* ate tadpoles. Based on the population densities of tadpoles and the results of our feeding experiments, tadpoles are a likely food source for hatchling and adult *K. sonoriense*.

MATH AND SCIENCE

05.01.56 DETECTION OF GENETICALLY MODIFIED PLANTS IN FOODS ON THE SUPERMARKET SHELVES

Muatasem Ubeidat - Southwestern Oklahoma State University, Biology, Steven Bozell - Southwestern Oklahoma State University, Biology

Genetically modified plants are plants with foreign genes added to them to give rise to a new phenotype. This phenotype is either to increase the content of certain biological molecule or to make the plant resistance to pest or resistant to a chemical used in treatment of pests. The most common methods for detection GMO in food samples are PCR and ELISA. In this study we used PCR to detect the common promoter (S35) used in the plant genetic modification. Food samples were obtained from local supermarkets or department stores. Two PCR reactions were performed for each food sample, one to detect viable DNA and one to detect the GMO. We food a large number of food items on the shelves with genetically modified plants. Some of these items need to be labeled by the FDA as genetically modified because of the delicate immune system of the consumers.

05.01.57 INSULIN RECEPTOR SIGNALING IN CONE PHOTORECEPTORS

Miss Halie Dawn Ferguson - University of Central Oklahoma, Department of Biology, Raju V.S. Rajala Ph.D. - University of Oklahoma Health Sciences Center, Departments of Ophthalmology and Cell Biology

Purpose: In diabetic retinopathy there is down-regulation of insulin signaling that leads to cone photoreceptor starvation and ultimately death. Recently it has been shown that systemic administration of insulin rescues the death of cone photoreceptors; however, the key proteins that are involved in the insulin receptor (IR) signaling pathway in cones is not known. Our objective was to characterize the IR signaling pathway in cones to determine which proteins are essential for insulin signaling.

Methods: 661W mouse cone derived photoreceptor cell line was used to characterize the IR signaling pathway.

Results: The IR signaling proteins such as IR, PTP1B, P110 a-p85, all three Akt isoforms, PDK1, mTOR, p70S6 kinase, 4EB-P1, GSK3 and Grb14 were expressed in 661W cone cell line. A novel finding in this study was the absence of Akt phosphorylation in 661W cells and this absence was inversely correlated with the predominant expression of PTP1B in 661W cells.

Conclusions: Our studies demonstrate the existence of

an IR signaling pathway in cone photoreceptor cells. Postmitotic neurons require Akt activation for its survival and our data suggest that Akt activation could be under the control of PTP1B. Our studies also suggest that PTP1B antagonists could be potential therapeutic agents to treat diabetic retinopathy.

05.01.58 N-ACETYL-L-CYSTEINE REDUCES TGF-SS-DRIVEN COLLAGEN LATTICE CONTRACTURE

David E. Bishop - University of Central Oklahoma, Biology, Melville B. Vaughan Ph. D. - University of Central Oklahoma, Biology

A myofibroblast is a type of fibroblast that develops contractile characteristics by expressing a-smooth muscle actin stress fibers and is important in the closure of wounds during healing. Myofibroblasts have been shown to be involved in contractile diseases such as Dupuytren's disease, a condition where contraction of the palmar fascia results in irreversible contracture with loss of function of the digits. Transforming growth factor- β 1 (TGF- β) is known to promote myofibroblast differentiation from fibroblasts. N-acetyl-L-cysteine (NAC) is an anti-oxidant that can decrease the concentration of a-smooth muscle actin present. Our study uses collagen lattices to generate tension and tests the effect of NAC on the ability to revert myofibroblasts back to fibroblasts. If successful N-acetyl cysteine could be developed into possible treatments for diseases such as Dupuytren's. Our experiment included three groups of cells; control with no treatment, cells treated with TGF- β , and cells treated with TGF- β then followed by NAC. Our preliminary results showed that cells treated with NAC contracted less than the cells treated with TGF- β and the control cells. This suggests that the amount of myofibroblasts present after treatment with NAC is reduced resulting in a lower degree of contraction. The mechanism of NAC's ability to inhibit TGF- β signaling pathway is unclear and requires further research.

05.01.59 DNA EXTRACTION AND SEQUENCING IN THE TURTLE GENUS TERRAPENE.

Ms. Stacey Ann Halsey - East Central University, Biology

The evolutionary relationship between species within the genus Terrapene is unclear (Milstead, 1969). There are two different species of the genus Terrapene found in Oklahoma; *Terrapene carolina trigunguis* and *Terrapene ornata ornata*. There have been reports of the two species interbreeding. DNA was extracted from both species as well as putative hybrids for analysis. DNA was extracted from liver tissue and processed using the DNeasy kit. DNA

was also sequenced for further analysis. It is hoped that these two processes will allow for a clearer understanding of the possible interbreeding of these species.

05.01.60 THE EVOLUTION OF DIET IN RATTLESNAKES

Aaron J. Place - Northwestern Oklahoma State University, Natural Sciences

As a group, rattlesnakes consume a wide range of prey. Some rattlesnakes consume mostly birds and mammals, while others focus on invertebrates, amphibians, and reptiles. The evolution of diet can be constrained by phylogenetic history and a variety of adaptations. The current study analyzes the role of body size, head length, fang length, and venom composition on the evolution of diet in rattlesnakes. Adaptations which might be better suited to a diet of endotherms were predicted to include: larger body size, longer heads, longer fangs, and more potent venom. Statistical comparisons were made using phylogenetically independent contrasts. Analysis indicated that snakes with longer heads and longer fangs consumed a higher proportion of endotherms than rattlesnakes with shorter heads and fangs. Maximum body length and venom composition were not related to diet. Endotherms tend to be bulkier than ectotherms hence longer heads and fangs are better equipped to handle these types of food items. Endotherms also tend to contain more calories per unit mass than ectotherms, hence longer heads and fangs are feeding adaptations. Recent studies suggest venom does not increase digestive efficiency, while the present study likewise indicates venom does not facilitate the capture of larger prey. Future investigations need to consider alternative measures for venom toxicity and study diet evolution in the context of resource partitioning among rattlesnakes.

05.01.61 COMPARATIVE PHYLOGEOGRAPHY OF TWO SPECIES OF PEROMYSCUS IN OKLAHOMA AND ADJACENT STATES.

Tiffany Loren Cloud - University of Central Oklahoma, Biology, Kimberly Koppari - University of Central Oklahoma, Biology, Dr. Michelle Haynie - University of Central Oklahoma, Biology, Dr. Gregory Wilson - University of Central Oklahoma, Biology, Office of Research & Grants

Phylogeographic theory has been used to assess processes governing geographic distributions and population genetic structure for a diverse array of species. Most of these studies have focused on intraspecific relationships of a single species over a broad geographic range using only data from mitochondrial markers. Few

studies have compared gene genealogies from multiple, co-distributed species, and even fewer have incorporated nuclear markers. The white-footed mouse (*Peromyscus leucopus*) and the deer mouse (*P. maniculatus*) occur sympatrically throughout Oklahoma and adjacent states. Both of these species are considered habitat generalists and are distributed fairly continuously throughout their range. *P. leucopus* prefers woody or brushy habitats, whereas *P. maniculatus* predominately resides in grass or prairie habitats. In order to investigate the population genetic and phylogeographic structure of these co-distributed species, I propose to utilize microsatellite data as well as DNA sequence data from the control region of the mitochondrial genome.

05.01.62 REPRODUCIBLE ASSAY FOR PROTOMYOFIBROBLASTS

Sarah Chukwuma - University of Central Oklahoma, Biology

The objective of this study was to further analyze the structural behavior of protomyofibroblasts to produce a detailed method of fixing and staining these specific cells. The transition from fibroblast to myofibroblast begins with the appearance of protomyofibroblasts. Fibroblasts make up the cells that maintain the dermis of skin, whereas myofibroblasts are evident in normal wound healing due to the contraction effect of stress fibers. Protomyofibroblasts are made up of the necessary stress fibers that contain β and γ -cytoplasmic actins, yet lack α -smooth muscle actin to become a complete myofibroblast. In order to observe this transition phase, CT4hT cells are cultivated to isolate the protomyofibroblast cells, the phenotype is then induced with TGF β , a transforming growth factor, and the cells are then grown in clonal populations. From there the cells are stained continually within a 48 hour interval in order to help visualize this transition and produce definite images to obtain repeatable data. Further studies of the protomyofibroblast will be used to further establish the role of fibroblasts. Funding for this experiment was provided for by the National Science Foundation and the Sure-Step program at the University of Central Oklahoma, as well as OKINBRE.

05.01.63 COMPARATIVE HISTOLOGY OF THE GASTROINTESTINAL TRACT IN THE BOX TURTLES (TERRAPENE CAROLINA AND TERRAPENE ORNATA).

Ms. Elizabeth A. Brown - East Central University, Biology, Ms. Morgan J. Brown - East Central University, Biology

The histology of the Testudine gastrointestinal tract have been repeatedly reported as undifferentiated. This lack

MATH AND SCIENCE

of specialization of the intestines is in some doubt as the digestive tract of all mammals and many other groups of vertebrates have been described in great detail. The intestines of both species were extracted. Both cross sections and longitudinal sections were dissected from the stomach, small intestine (3 regions), and large intestine. The tissues were then fixed with 10% formalin. The tissues were embedded with paraffin and sectioned with a microtome. Slides were stained with Hematoxylin and Eosin (H+E) and coverslipped. The slides were compared to commercial slides of the human intestines to compare general morphology and the presence or absence of specialized cells. Tables of the comparative regions were analyzed for the similarities and differences from mammalian tissues from similar locations. The research will help with the current understanding of the methods utilized by Testudines for digestion and absorption of nutrients.

05.01.64 ARTHROPODS ON OKLAHOMA FLESHY FUNGI: A FIRST LOOK

Dr. Clark L. Ovrebo - University of Central Oklahoma, Biology, Dr. Wayne Lord - University of Central Oklahoma, Biology, Hannah Davidson - University of Central Oklahoma, Biology, Craig Koenigs - University of Central Oklahoma, Biology, Brantlee Olinger - University of Central Oklahoma, Biology

The current project was initiated to document the insects/arthropods and other invertebrates that occur on fleshy fungi fruiting bodies in Oklahoma. Fungi sampled include gilled mushrooms, boletes, puffballs and bracket fungi. The collection of fungal specimens was carried out after rainy weather when fruiting bodies were plentiful. Most fungi were collected in the hardwood forests of central Oklahoma but a few fungi were collected in the hardwood/pine forests of eastern part of the state. Fungi were returned to the lab for identification and inspected for the presence of adult insects or larval stages. Specimens with adult insects were placed in a Berlese Funnel where the insects or larvae dropped into 70% ethanol. Fungi with larval development were set up in rearing chambers with specimens placed on 2 cm of vermiculite, and the rearing chambers were monitored for the appearance of adult stages. Insects have been isolated or reared from fungi such as *Chlorophyllum molybdites*, *Leucopaxillus laterarius*, several species of *Amanita*, *Lactarius* and *Russula*, three genera of boletes, and several wood-rotting fungi. Insect groups isolated or reared include families Endomychidae, Mycetophilidae and Muscidae. Research of this nature lends itself nicely to the involvement of undergraduates in research, a strong priority at the University of Central Oklahoma.

05.01.65 A SURVEY OF THE HELMINTH PARASITES OF THE FROG RANA CATESBEIANA FROM POTTAWATOMIE CO. OKLAHOMA

Mr. Michael L. Lackey - East Central University, , Dr. Kenneth D. Andrews - East Central University, Biology

A total of 24 Bullfrogs, *Rana catesbeiana* were collected from 5 farm ponds and a tributary of the North Canadian River during the summer of 2008 and inspected for helminth parasites. This survey revealed 6 species of digenetic flukes and 5 species of nematode. The sex of the individuals was determined by the presence of testes or ovaries during dissection. It was determined that 15 bullfrogs were male and 9 females. The specimen's snout-vent length was taken as well as the weight. The weight of the frogs ranged from 23.1 g to 352.8g. Total number of parasites collected from the 24 frogs was 142. The average number of helminthes per host frog being 5.9. Nineteen of twenty-four Bullfrogs were infected (prevalence =79.1%) with one or more parasites. Parasites were identified to genus and species when species could be determined. The abdominal cavity, urinary bladder, heart, lungs, gall bladder, liver, digestive tract and subcutaneous layer were searched for parasites.

05.01.66 BIOINFORMATIC ANALYSIS OF BETA THALASSEMIA

Brooke Burkhalter - Northeastern State University, Biology, Angel Askins - Northeastern State University, Biology, Melissa Price - Northeastern State University, Biology, Dajuan Woody - Northeastern State University, Biology, Ellen Couch - Northeastern State University, Biology, Jd Stauffer - Northeastern State University, Biology, Kathi Mcdowell, Ph.D - Northeastern State University, Biology

The alpha and beta loci determine the structure of the 2 types of polypeptide chains in hemoglobin, Hb A, of adults. Mutant beta globin that sickles causes sickle cell anemia. Absence of beta chain causes beta-zero-thalassemia. Beta-thalassemia is divided into three groups thalassemia major(the most severe), thalassemia intermedia (intermediate), and thalassemia minor(asymptomatic). To better understand this genetic disease our group used the bioinformatic databases OMIM, GenBank, Blast/Spidey, and Protein. OMIM is a tool used by medical professionals and research scientists to study human genes and genetic diseases. In this database, we learn general scientific information about the gene. It also tells us where exactly on the gene that it is located. In our case it is 11p15.5. With this information we are able to go into GenBank. This is a genetic sequence database. This is where we find the length of our gene

which is 626 base pairs. The source of our sequence is mRNA in humans. The Blast/Spidey database is used to compare DNA sequences. We compared our sequence to other similar sequences in the database. The comparison is measured in an e-value. Lastly, we went into the protein database where we illustrate the protein of our gene which is NP_000509.1. From there we used a molecular modeling database to examine the three dimensional structure.

05.01.67 SOURCE OF INFECTIVE FUNGI IN GRASSHOPPERS

Kimber Williamson - East Central University, Biology, Ajeena Joy - East Central University, Biology, Terry W. Cluck - East Central University, Biology, Charles Biles - East Central University, Biology

There are primarily two main groups of pathogenic fungi that attack grasshoppers: the Entomophaga grylli complex from the zygomycetes and from the deuteromycetes, Beauveria bassiana, Metarhizium anisopliae, and Aspergillus flavus. These four species are the most common infective fungi in grasshoppers world wide. We collected grasshoppers from a mixed grass pasture where reduced population counts of grasshoppers had been correlated with large fungal spore counts. The grasshoppers were anesthetized using cold, surface sterilized using bleach, and dissected after hemolymph was collected using a sterile needle. Brain, leg muscle, midgut, hemolymph, head, thorax, and abdomen were placed on potato dextrose agar. Preliminary results indicate that no fungi from plant samples have been found in the grasshoppers. However, three fungi from the air were also found in the interior of 15 grasshoppers. This implies that infections from fungi in these grasshoppers are not likely from ingesting plants, but can occur through the spiracles (trachea) or the surface of the grasshopper.

05.01.68 STRENGTH AND STRUCTURE OF THE FEMORA OF OKLAHOMA TURTLES (ORDER TESTUDINES).

Ms. Erin Miller - East Central University, Department of Biology, Dr. Kenneth D. Andrews - East Central University, Biology

To determine comparative strength of turtle femora to withstand the stresses placed on the limbs by added weight of shell (carapace and plastron) to the mass of the organism. Femora were extracted from turtles collected within Oklahoma. The following data were collected for each specimen: Species, weight, sex, straight carapace length, and collection locality. The extracted bones were measured. Measurements taken were: total length, circumference, narrow diameter, narrow right bone collar

radius, narrow left bone collar radius, long diameter, long top bone collar radius, and long bottom bone collar radius. Data was used to calculate strength of the bone. Two values were derived from these measurements. K is the ratio of outer bone collar diameter compared to inner marrow cavity diameter. R/t is the ratio of radius of complete femur compared to the thickness of bone wall. This data was compared within different turtle species as well as other vertebrate data to comparative strength. Differences between K and R/t values of land dwelling turtles and water dwelling turtles was found in specimens examined. Clear differences were also observed between these values for turtles compared to other vertebrates (without shells). This data suggests that the shell weight causes the remodeling of bone collars to become more dense to carry the increased mass of the shell while on land.

05.01.69 CASTILLEJA INDIVISA EMBRYOLOGY

Rene Savage - East Central University, Biology

Castilleja indivisa is a hemiparasitic annual native to the grasslands of Oklahoma, Arkansas, Texas and Louisiana. It has recently been moved from the Scrophulariaceae in with holoparasites of the Orobanchaceae. Because the embryology of the two families has been reported as being different, a comparative examination was undertaken to test the new classification. The ovule of Casteillja is anatropous, unitegmic, and tenuicellular. The megasporangium is slightly bent chazally with a bulge in the antipodal region. The suspensor is filamentous and unbranched and withers with age. The suspensor cell nearest the embryo becomes a hypophysis in the globular stage of the embryo. As the tissues of the embryo differentiate, cotyledons begin to develop. This embryo is surrounded by cellular endosperm. Most of the characteristics are similar to those reported for Orbanche and Striga, so this study supports the placement of Castilleja in Orbancheaceae.

05.01.70 A STUDY ON THE CYST AND PARASITE EGGS FOUND IN THE TURTLE (TRACHEMYS SCRIPTA ELEGANS)

Ms. Erika Armstrong - East Central University, Biology Department, Ms. Chelsea Downs - East Central University, Biology Department, Dr. Kenneth Andrews - East Central University, Biology Department

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

MATH AND SCIENCE

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.

05.01.71 PARKINSONS DISEASE: LEUCINE-RICH REPEAT KINASE 2 ANALYZED BY BIOINFORMATICS

Janae Robinson - Northeastern State University, Natural Sciences, Halie Mckee - Northeastern State University, Natural Sciences, Lacie Paddock - Northeastern State University, Natural Sciences, David Reed - Northeastern State University, Natural Sciences, Daphne Leach - Northeastern State University, Natural Sciences, Dr. Kathi Mcdowell - Northeastern State University, Natural Sciences

The objective of our report is to provide educational information to the public about the leucine-rich repeat kinase 2 (LRRK2) gene, which encodes the dardarin protein, and its role involving Parkinson's disease (PD). We used several databases including: The Online Mendelian Inheritance in Man (OMIM), GenBank, Protein structures, Spidey, and the BLAST search. The BLAST database gave us a list of all similar genes and the percent similarity they have to our LRRK2 gene. There were 441 hits on the query search. There are also non-human genes that will align with the LRRK2 gene, e.g. mouse. The Spidey database was used to compare two similar LRRK2 genes between a human (*Homo sapiens*) and a mouse (*Mus musculus*). Our results for this comparison showed multiple similarities and an overall 83% match between the genes. With the OMIM and GenBank we found various kinds of information about the gene itself including alternate symbols, gene structure, gene function, chromosomal location, mRNA designation, protein designation and more. In the protein database we were able to construct a 3D picture of the dardarin protein related to our gene and Parkinson's disease. The accession number for the protein information for the LRRK2 gene is NP_940980.3. The NP portion of the accession number

indicates that it is a protein sequence. In conclusion, analysis of the LRRK2 gene and its resulting protein has provided information on the structure and function of this gene.

05.01.72 EFFECTS OF MELATONIN ON C. ELEGANS LOCOMOTION AND IDENTIFICATION OF POTENTIAL MELATONIN RECEPTORS.

Justin R. Gates - East Central University, Biology, Bridget K. Toews - East Central University, Biology, Dr. Stephen D. Fields - East Central University, Biology

Melatonin is a ubiquitous signaling molecule best known for its role in circadian rhythms. However, recent studies have linked melatonin to regulation of neuronal plasticity in learning and memory pathways. Melatonin is present in the model organism, *Caenorhabditis elegans* and appears to down-regulate crawling rate of adult worms. We have begun characterizing the effects of melatonin on other forms of locomotion in order to develop a screen for melatonin receptors, which have not been definitively identified in nematodes. In the presence of 1 mM melatonin, L4 stage swimming rates decrease by 20%. Interestingly, when temperatures are raised to 28°C, 26% of worms exposed to melatonin become completely paralyzed, compared to 6% in M9 buffer alone. Other stressors may also induce this synergistic effect on *C. elegans* swimming behavior.

Vertebrate melatonin signaling is mediated through two melatonin receptors (MEL-Rs), MT1 and MT2, both of which are G-protein coupled receptors (GPCRs). We have performed homology searches by blasting each of the human MEL-Rs against the *C. elegans* GPCRs, many of which have available mutants. We have identified 15-20 uncharacterized neuronal GPCRs as potential MEL-Rs. Our goal is to determine if any of these *C. elegans* GPCRs act in melatonin signaling. We expect that mutations in putative melatonin receptors will cause worms to become insensitive to melatonin so that they exhibit normal thrashing in the presence of melatonin.

05.01.73 LOCATION OF FUNGAL INFECTIONS IN GRASSHOPPERS

Ajeena Joy - East Central University, Biology, Terry W. Cluck - East Central University, Biology, Kimber Williamson - East Central University, Biology, Charles Biles - East Central University, Biology

Fungi are so successful as pathogens of insects that some fungal strains are available as insecticides. Of the fungi that attack grasshoppers, the most successful are the *Entomophaga grylli* complex from the zygomycetes

and from the deuteromycetes, *Beauveria bassiana*, *Metarhizium anisopliae*, and *Aspergillus flavus*. These four species are the most common infective fungi in grasshoppers world wide. We collected grasshoppers from a mixed grass pasture where reduced population counts of grasshoppers had been correlated with large fungal spore counts. The grasshoppers were anesthetized using cold, surface sterilized using bleach, and dissected after hemolymph was collected using a sterile needle. Fifteen grasshoppers from 9 genera were dissected. Brain, leg muscle, midgut, hemolymph, head, thorax, and abdomen were placed on potato dextrose agar. Fungal isolates were grown from the original plates. Preliminary results indicate that the same fungi were present in different genera. Of the fungi identified, *Phoma* was present in three different genera at four different locations (midgut, leg muscle, head and hemolymph). *Alternaria* was in leg muscle from *Spharagemon*. In addition, different fungal genera were isolated from the same grasshopper. The pathogenicity of these fungi for grasshoppers awaits determination.

05.01.74 AN ELECTROPHYSIOLOGICAL ANALYSIS OF THE TAIL SHAKER COMPLEX IN WESTERN DIAMONDBACK RATTLESNAKES WITH THE USE OF ELECTROMYOGRAPHY (EMG)

Johnathon Oswald - Northwestern Oklahoma State University, Department of Natural Science

The six muscles that make up the tail shaker complex are some of the most specialized of all vertebrates. These muscles are dedicated to performing rattling behavior, and are armed with an array of metabolic and physiological mechanisms to sustain them. The tail shaker muscles can progress at speeds up to 95Hz with contractions occurring every 12msec. Despite early anecdotal evidence, there have been no systematic investigations of the maximal duration of rattling or the pattern of fatigue these specialized muscles may exhibit. Snakes were made to rattle for a continuous four hour period in an attempt to fatigue the tail muscles. Although the snakes showed no signs of fatigue at high frequencies for prolonged durations, the study was still successful in its attempts to observe and record data for a prolonged bout of rattling. Tail shaker muscle and human heart muscle share similar physiological and metabolic demands. Future investigations of these unique muscles may uncover new treatments for human heart disease.

05.01.75 THE PSEUDOPEPTIDE CARCININE PROTECTS PHOTORECEPTORS FROM TOXIC PRODUCTS OF OXIDATIVE STRESS

Tiffany Palmer - University of Central Oklahoma, Biology, Lea Marchette - University of Oklahoma Health Sciences Center, Ophthalmology, Anna Giraud - University of Oklahoma Health Sciences Center, Ophthalmology, Anne Kasus-Jacobi - University of Oklahoma Health Sciences Center, Ophthalmology

Carcinine has a set of biological activities that help prevent oxidative modification of cellular macromolecules, representing a high potential for clinical applications. The goal of our project is to evaluate if carcinine can protect photoreceptor cells against oxidative injury and explore the mechanism(s) of protection. First we looked at how carcinine influenced oxidative modification of protein by 4-hydroxynonenal (4-HNE) in vitro using known concentrations of retinal proteins, 4-HNE and carcinine. Second we used HEK 293 cells and treated them with known concentrations of carcinine and 4-HNE. Third we injected mice intravitreally with carcinine and subjected the mice to oxidative stress inducing endogenous production of 4-HNE. We then quantified 4-HNE-protein adducts and cell death. Carcinine reduces 4-HNE protein adduct formation (oxidative modification) in vitro by preventing and reversing 4-HNE modification of retinal proteins. Lower cell death was seen in HEK 293 cells and photoreceptors that received carcinine compared to those that did not. This suggests that carcinine can be transported inside the cells and that this compound is sufficiently resistant to degradation to be used in vivo. Oxidatively modified macromolecules appear to contribute to the pathway of many neurodegenerative conditions and our results show that carcinine efficiently protects photoreceptor cells against oxidative injury which suggests multiple applications in sight threatening diseases.

05.01.76 HM-CSF EXPRESSION IN CHO CELLS CELL LINE

Nona Nicole Kelley - Langston University, Biology and Chemistry

Nona Kelley¹ Department of Biology, Langston University Langston, OK; Kathleen Borgmann², Anuja Ghorpade³ Department of Cell Biology and Anatomy UNTHSC, Fort Worth

Macrophage colony stimulating factor(M-CSF) was originally discovered in serum, urine, and other biological fluids as a factor that could stimulate the formation of macrophage colonies from bone marrow hematopoietic progenitor cells. The present study uses a Chinese

MATH AND SCIENCE

Hamster Ovary (CHO) cell-line that is genetically engineered to secrete human (h)M-CSF. The main objective is to standardize the hM-CSF production from CHO/M-CSF cells in order to use this recombinant product for in vitro differentiation of monocytes into monocytes-derived macrophages (MDM). Monocytes and macrophages are white blood cells found in the immune system. MDM, an important target for HIV-1 infection, will be the model for further studies on how the virus affects the central nervous system. The standardization of the hM-CSF production in CHO cells included assays for hM-CSF production over time in order to evaluate peak production time window, stability of the hM-CSF after freeze-thaw cycles and finally, to test the effectiveness of the recombinant protein by differentiating human monocytes into macrophages in vitro. These studies demonstrate that recombinant hM-CSF expressed by CHO cells was capable of differentiating human monocytes into macrophages; however stability studies that used freeze-thawing significantly reduced M-CSF levels.

05.01.77 IMPACT OF WWTP EFFLUENT ON ANTIBIOTIC RESISTANCE IN AEROMONADS

Maegan L. Dallis - Northeastern State University, Department of Natural Sciences, Dr. Cindy Cisar - Northeastern State University, Department of Natural Sciences, Samantha Henderson - Northeastern State University, Department of Natural Sciences, Chrystal Moore - Northeastern State University, Department of Natural Sciences, Hollie Moses - Northeastern State University, Department of Natural Sciences, Kelley Dixon - Northeastern State University, Department of Natural Sciences, Sue Paine - Northeastern State University, Department of Natural Sciences

Background

Aeromonads are opportunistic human pathogens that are ubiquitous in freshwater ecosystems. Our objective in this study was to determine whether wastewater treatment plant (WWTP) effluent contributes to antibiotic resistance in these bacteria.

Methods

Ampicillin resistant bacteria were isolated from Tahlequah Creek sediments upstream and downstream of the WWTP in May 2008. Isolates were identified by sequencing their 16S rRNA genes. Aeromonads were tested for resistance to multiple antibiotics.

Results

Forty-two aeromonad strains were isolated from sediment samples taken upstream of the WWTP and 43 aeromonad strains were isolated from sediment samples taken downstream of the WWTP. Forty-one of the upstream isolates were resistant to at least one

antibiotic with 25 exhibiting multidrug resistance, while 39 of the downstream isolates were resistant to at least one antibiotic with 24 exhibiting multidrug resistance. Seventy-eight isolates were resistant to cefazolin (41 upstream, 37 downstream), 41 isolates were resistant to amoxicillin plus clavulanic acid (17 upstream, 24 downstream), and 14 isolates were resistant to cefoxitin (11 upstream, 3 downstream). None of the isolates were resistant to ciprofloxacin/ofloxacin, tetracycline, ceftazidime, imipenem, aztreonam, ceftazidime, or cefotaxime.

Conclusions

Statistical analysis of the data indicates that WWTP effluent does not contribute to antibiotic resistance in aeromonads in Tahlequah Creek.

05.01.78 SITE-DIRECTED MUTAGENESIS OF THE SALMONELLA ENTERICA TYPE III SECRETION SYSTEM PROTEIN PRGK

Robyn Burns - Oklahoma State University Center for Health Scienc, Biomedical Sciences, Dr Anand Sukhan - Northeastern State University, Natural Sciences

The Salmonella enterica type III secretion system (TTSS) protein PrgK belongs to a family of proteins that are predicted to form one of the inner membrane localized ring substructures of the TTSS needle complex. A previous study of the analogous Pseudomonas aeruginosa TTSS protein PscJ showed that a number of conserved residues are essential for the function of this protein. PscJ mutation K52E resulted in a complete loss of expression of PscJ, while mutations A107E, G126C and H133S resulted in nonfunctional proteins. In the current study, we mutated the four homologous PrgK amino acid residues and examined their expression and function. Two of these substitution mutations (K48E and H129K) resulted in functional proteins. In contrast, PrgK mutations A103E and G122C resulted in nonfunctional proteins. The strain expressing the A103E mutant protein failed to produce detectable levels of needle complex while the strain expressing the G126C mutant protein assembled the base substructure but failed to produce the needle. These results suggest that i) PrgK residue A103 is located in a region important for the assembly of the ring substructure, and ii) PrgK residue G122 is located in a region important for the secretion and/or assembly of the needle substructure.

05.01.79 WILSON'S DISEASE: THE ROLE OF THE ATP7B GENE IN THE RETENTION OF COPPER IN THE BILE AND NEURO-PATHWAYS

Dale Switzer - Northeastern State University, Math and Sciences: Biology, Darrin Means - Northeastern State University, Math & Sciences: Biology, Jason D Nichols - Northeastern State University, Math & Sciences: Biology, Jake Davis - Northeastern State University, Math & Sciences: Biology, Kyle Owens - Northeastern State University, Math & Sciences: Biology, Dr. Kathi McDowell - Northeastern State University, Math Sciences: Biology

Wilson's Disease is a recessive autosomal genetic disorder which manifests when copper is retained in the liver instead of being excreted in the bile. It is documented in the Online Mendelian Inheritance in Man (OMIM) website as #277900. The disease is caused by a defect in the ATPase (ATP7B) gene. The ATP7B gene is highly conserved through evolution and has been found in rat, mouse and wolf cells. In the presence of ATP, this protein functions to transport copper across a membrane against a concentration gradient. It is located on the 13th human chromosome at Gene map locus 13q14.3-q21.1. The OMIM designation for this gene is *606882. Genbank lists two isoforms of the gene involved in Wilson's disease. Isoform A which is the dominant, healthy form of the gene. The unhealthy form (Isoform B) of the gene is smaller. This protein fails to successfully transport copper out of the liver cells and into the hepatic matrix. It is misconfigured in the Actuator or A-domain. This is the regulatory domain of the protein and is required for the phosphatase step of the catalytic cycle.

05.01.80 INHIBITION OF RAS-KERATINOCYTES USING GELTREX LIQUID BASEMENT MEMBRANE ON SKIN EQUIVALENTS AND DED

Kimberly Coughlin - Redlands Community College, Science

Kimberly Coughlin, M. Vaughan
Redlands Community College, University of Central Oklahoma

Objective: Normal skin is composed of two layers, the dermis and epidermis. Ras is a specific protein associated with skin cancer that when in a certain environment has been shown to invade the dermal layers. Preliminary results suggest that de-epidermized dermis (DED) can inhibit ras-keratinocyte invasion. It is reasonable to hypothesize that an artificial basement membrane would inhibit keratinocyte invasion on skin equivalent models

consisting of fibroblasts, collagen, and keratinocytes. We constructed a skin equivalent containing a liquid basement membrane.

Methods: We used three different skin equivalent models to test our hypothesis. A fibroblast populated collagen lattice with and without liquid basement membrane and de-epidermized dermis. Ras-keratinocytes were then plated upon these three models. After maturation they were analyzed with immunostaining.

Results: Some invasion occurred in the control skin equivalent with not liquid basement membrane. No obvious difference was seen in the skin equivalents with liquid basement membrane. Invasion was completely inhibited in the DED. Strong collagen IV staining showed basement membrane presence in the DED, some presence in the liquid basement membrane samples, and none in the controls.

Conclusion: These results show the keratinocytes' ability to invade is affected by their environment.

05.01.81 REGISTRY OF PREGNANCIES EXPOSED TO CHEMOTHERAPY

Stephanie Dawn Walter - Redlands Community College, Science

Stephanie Dawn Walter, S. Hassed, J. Mulvihill
Redlands Community College,
Department of Pediatrics, University of Oklahoma Health Sciences Center

Objective: The registry was created to help expecting mothers with cancer make informed decisions and understand the risk of embryonic fetal exposure to chemotherapy. The objective of the registry is to catalog the effects of chemotherapy exposure during pregnancy. Methods: Cases were found using published articles, self referrals and physician referrals. Information from each case was abstracted and input into a Microsoft Access data base. Literature search was updated July 2009.

Results: To date there are 718 cases in the registry. 629 live births occurred, with 479 (76%) having no health problems. 44 (6%) spontaneous abortion or stillbirth, 55 (8%) with structural birth defects, and 110 (15%) with other adverse pregnancy outcomes. Structural birth defects, or course, were most common after first trimester exposures. Of pregnancies with chemotherapy confined to one trimester, the rates of birth defects after the first, second, and third trimester exposures were 19%, 9% and 21%.

Conclusions: Chemotherapy during pregnancy does not often prove fatal to the fetus. It has been documented to cause adverse pregnancy outcomes, as well as structural birth defects, but at very low percentages.

Funding was provided by INBRE grant P20RR016478

MATH AND SCIENCE

05.01.82 UNDERSTANDING ADENOSINE DEAMINASE (ADA) DEFICIENCY AND ITS EFFECT ON THE IMMUNE SYSTEM THROUGH THE USE OF BIOINFORMATIC ANALYSIS

Sherrita Sweet - Northeastern State University, Genetics - Dr. McDowell, Adam Spotts - Northeastern State University, Genetics - Dr. McDowell, Erica Hood - Northeastern State University, Genetics - Dr. McDowell, Brian Stamile - Northeastern State University, Biology: Genetics - Dr. McDowell, Adrienne Goodman - Northeastern State University, Biology: Genetics - Dr. McDowell

Adenosine Deaminase (ADA) Deficiency is a rare but dangerous disorder that causes the immune system to malfunction which can lead to infection from bacteria and virus. Most individuals with ADA are diagnosed with SCID (severe combined immunodeficiency), a disorder that affects the immune system. ADA is caused by a mutation in a gene on chromosome 20 that codes for the enzyme adenosine deaminase. Adenosine Deaminase enzyme is used to eliminate a molecule called deoxyadenosine. The enzyme converts the toxic deoxyadenosine, which destroys infection-fighting immune cells to lymphocytes into a molecule, called deoxynosine that is not harmful. Based on our findings from OMIM the gene map locus is 20q13.11 and this enzyme catalyzes the irreversible deamination of adenosine and deoxyadenosine in the purine catabolic pathway. The enzyme is found in the DNA of Homo sapiens. The main gene identifier is Homo sapiens adenosine deaminase (ADA), found in the mRNA. From the molecular database we viewed PDB ID: 3IAR which is called "The Crystal Structure of Human Adenosine Deaminase" and is the Homo sapiens structure. This protein structure has 1 occurrence of 2'-deoxyadenosine, Nickel, Nitric Acid and Glycerol. On the Spidey sequence using NM_000022.2 and NC_000020.10 we found that 12 exons are present with an overall percent identity of 99.9%. This gene is important because mutation in this gene can cause conditions that are life threatening.

05.01.83 GENETIC RESEARCH OF MARFAN SYNDROME

Mr. Benjamin Josiah Freeman - Northeastern State University, Department of Natural Sciences, Ms. Sherry Zaffrullah - Northeastern State University, Department of Natural Science, Mr. Charles Martin - Northeastern State University, Department of Natural Science, Mr. DiMarco Livingstone - Northeastern State University, Department of Natural Science, Dr. Kathi McDowell - Northeastern State University, Department of Natural Sciences

Marfan syndrome is a genetic mutation that affects numerous organs including the heart, blood vessels, bones, joints, eyes, and skin. Marfan syndrome affects the heart through enlargement of the aorta, separation of the layers of the aorta, and mitral valve prolapse. The affect on bones include: lengthened bone structure, scoliosis, and lack of arch in the foot. Perhaps the most debilitating is its effects on the eyes such as, severe myopia, dislocated lens, detached retina, and early cataracts. Mutations within the fibrillin-1 gene cause Marfan syndrome (MFS). Fibrillin 1, also known as FBRN 1, at Gene Map Locus 15q21.1, has an estimated size of 200 kb. It has been demonstrated that fibrillin molecules bind calcium. The human Fibrillin 1 gene has accession number NM_000138. Fibrillin-1 is a mosaic protein mainly composed of 43 calcium binding epidermal growth factor-like (cbEGF) domains arranged as multiple, tandem repeats. Backbone dynamics data confirm the extended structure of cbEGF12-13 protein. These results provide important insight into the potential consequences of MFS-associated mutations for the assembly and biomechanical properties of connective tissue microfibrils. It is found that the genetic mutation of the genomic sequence coding for Fibrillin-1 yields a highly mutated protein unable to properly assemble microfibrils in connective tissue. This information has been obtained using public databases including OMIM, GenBank, BLAST, Spidey and Molecular Modeling.

05.01.84 REPRODUCTIVE SUCCESS OF THE ENDANGERED AMERICAN BURYING BEETLE

Dr. Amy D. F. Smith - Northeastern State University, Natural Sciences, Dr. Craig W. Clifford - Northeastern State University, Natural Sciences, Dr. Mark Paulissen - Northeastern State University, Natural Sciences

American burying beetles (*Nicrophorus americanus*) were trapped and mating pairs were placed on rat carcasses in Cherokee Wildlife Management Area to determine reproductive success. Carcasses and mating pairs were covered with a bucket to reduce scavenging and beetle escape. Burial chambers were excavated and any large larvae were weighed 13- 15 days post burial. One hundred and thirty-five carcasses were placed at 15 replicate sites between 22 May and 2 June 2009. Sixty-five percent of all carcasses were buried within two days. Burial chambers averaged 11 cm in length, 8 cm wide and were 8 cm deep (average). Sixty-one of the carcasses produced larvae. Larvae ranged in size from 0.1-2.7 g (N=732) with an average brood size of 20 larvae. The size of the rat carcass did not influence the number of larvae produced (P=0.5) or the size of larvae (P=0.2). Larger brood size correlated with smaller individual larvae (P=0.05). Compared to previous studies, it appears that preventing scavenging increases reproductive success eleven fold.

05.01.85 GENOME WIDE ANALYSIS OF THE OSMOTIC SHOCK RESPONSE IN ESCHERICHIA COLI

Mercedez Bernard - Southwestern Oklahoma State University, Biological Sciences, Angela Foust - Southwestern Oklahoma State University, Biological Sciences, Cassandra Guthmueller - Southwestern Oklahoma State University, Biological Sciences, Tyler Shadid - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences, Arden Aspedon - Southwestern Oklahoma State University, School of Allied Health Sciences

Bacterial cells show a wide array of responses to osmotic stress that serve to promote growth and cell survival. *Escherichia coli*, a gram-negative enteric bacterium, was recently shown to have a sophisticated mechanism for the promotion of survival under osmotic stress. For instance, *E. coli* cells contain various genes encoding proteins that mediate the increased uptake or synthesis of osmotically active solutes i.e. osmoprotectants. These osmoprotectants serve to maintain cytoplasmic (water) volume and turgor pressure necessary for cell wall expansion, growth and survival. Many genes are thought to be involved in the osmotic stress response in *E. coli*. However, only three genes i.e. *kdp*, *proU*, and *ompF*, have been shown to be osmoregulated and expressed at higher levels during osmotic upshock. To better understand the gene expression pattern during adaptation to osmotic upshock, we performed a genome wide microarray analysis of the *E. coli* transcriptome after NaCl-mediated osmotic shock. *E. coli* cells were grown in a minimum medium and osmotically shocked via addition of NaCl (0.3M NaCl final concentration). After 15 minutes incubation, mRNA was extracted, purified and used to produce single stranded cDNA. The cDNA was tagged with a fluorescent compound and hybridized to *E. coli* DNA microarrays. The fluorescent cDNA probes were detected using a microarray scanner. Induced and repressed genes, currently being determined, are detected via fluorescence color.

05.01.86 ANALYSIS OF THE GENETIC EXPRESSION PROFILE OBSERVED IN NEMATODES CONTAINING INCREASED SYNAPTIC FUNCTION

Takara Hawkins - Southwestern Oklahoma State University, Biological Sciences, Parfait Nkomo - Southwestern Oklahoma State University, Biological Sciences, LaKesha Seals - Southwestern Oklahoma State University, Biological Sciences, Dan Stefanovic - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences

A signaling pathway is the transmission of molecular signals from one cell to another cell. Some of these molecular signals are sent out by a process known as exocytosis. At the synapse, exocytosis is also involved in neurotransmission of cells, where upon a calcium ion influx a synaptic vesicle releases neurotransmitters from the presynaptic neuron; which then attach to a receptor on the postsynaptic cell. Once bound this triggers depolarization that turns into an action potential and a reaction takes place. SNARE proteins are shown to be essential for vesicle fusion of secretory vesicles with the plasma membrane. VSM-1, a protein associated to the v-SNAREs *snc-1* and *snc-2* and the t-SNARE *sso-1*, was identified as one of many SNARE regulators in yeast cells. Thus, we hypothesize that in neurons, VSM-1 has the potential to bind to the v-SNARE called synaptobrevin preventing SNARE complex from forming and inhibiting synaptic function. Preliminary studies using *C. elegans* nematodes have shown that the *vsm-1* mutants have enhanced synaptic function and increased synaptic connections. To decipher the molecular bases of such *vsm-1* mutant phenotype, we began a genome-wide study involving the analysis of genes that are induced or repressed in the mutant strain. This study will reveal new insight regarding genetic interaction taking place during synaptogenesis.

05.01.87 PRELIMINARY INVESTIGATION OF VISIBLE LIGHT ACCLIMATION AND UVB RADIATION EXPOSURE EFFECTS ON THE PRODUCTION OF UV-B ABSORBING COMPOUNDS AND CELL MORPHOLOGY IN FOUR GENERA OF FILAMENTOUS ALGAE.

Rye Wilhite - Southwestern Oklahoma State University, Biological Sciences, Scott Carter - Southwestern Oklahoma State University, Biological Sciences, James Decker - Southwestern Oklahoma State University, Biological Sciences, Sari Tawe - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences, Steven O'Neal - Southwestern Oklahoma State University, Biological Sciences

While light is beneficial to photosynthetic algae, UV-B radiation (wavelength 280-315 nm) can degrade organic molecules, causing damage to proteins and nucleic acids and affecting their normal functions. Recent studies involving mat-forming algal genera *Zygnema*, *Spirogyra*, *Mougeotia*, and *Pithophora* demonstrated that these algal genera differ in the sensitivity to UV-B exposure and photoacclimation to high and low PAR modifies this sensitivity. To better examine cellular adaptations underlying differential tolerances to UV-B exposure, we designed experiments where photoacclimated *Zygnema*, *Spirogyra*, *Mougeotia*, and *Pithophora* filamentous algae were exposed to UV-B and studied. Briefly, we cultured these four algae in temperature and lighting controlled chambers to produce photoacclimated algal mats that were subsequently exposed to UV-B radiation for a week. Algal mat material from different treatments was collected after initial photoacclimation, and again following UV-B exposure. Control algal mats that were not exposed to UV-B radiation were also cultured and evaluated. The algal material was then analyzed to determine whether the production of UV-B absorbing compounds was stimulated by the treatments. Algal cells from the treatments and controls were imaged to look for UV-B induced changes in chloroplast morphology and other cellular characteristics. Results from the study are currently being analyzed and will be presented at the meeting.

05.01.88 UNDERSTANDING THE MACHINERY REGULATING SYNAPTIC VESICLE EXOCYTOSIS

Danielle Gross - Southwestern Oklahoma State University, Biological Sciences, Bethany Hess - Southwestern Oklahoma State University, Biological Sciences, Robyn Taylor - Southwestern Oklahoma State University, Biological Sciences, Maggie Yoder - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences

Nervous system communication between cells is mediated by exocytosis of neurotransmitters. Exocytosis consists of three phases which are the docking of vesicles with the plasma membrane, priming, and fusion of vesicle releasing the chemicals within the synapse. Various protein families are involved as membrane associated proteins that interact to form the SNARE complex that is responsible for neurotransmitter release. These SNAREs are essential for membrane fusion. A selected protein that interacts with v-SNARE and t-SNAREs in the single celled yeast is known as VSM-1. VSM-1 protein regulates exocytosis by inhibition of the SNARE complex formation. In a yeast cell, VSM-1 binds to t-SNAREs (*Snc1/2*) and v-SNAREs (*Sso1/2*) to regulate exocytosis. We hypothesize that neuronal VSM-1 in *C. elegans* will bind to t-SNARE (syntaxin) and v-SNARE (synaptobrevin) which are homologs to yeast SNAREs. In order to test this hypothesis we will run co-immunoprecipitations along with antibody assays. To this end, neuronal VSM-1 fused to GFP (green fluorescent protein) will be extracted from *C. elegans*. Then, VSM-1::GFP will be immunoprecipitated using anti-GFP antibody and interacting partners will be detected using Western blotting. Results from these tests will be presented at the meeting.

05.01.89 VSM-1, AN INHIBITOR OF SYNAPTIC FUNCTION AND SYNAPSE FORMATION

Melanie Graham - Southwestern Oklahoma State University, Biological Sciences, Carissa Fischer - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences

Exocytosis is a fundamental mechanism employed by eukaryotic cells for the controlled secretion of substances. In the nervous system, exocytosis mediates neurotransmitter release from nerve terminals. The SNARE proteins play a central role in this process. Assembly of these proteins into a ternary SNARE complex is thought to be essential for vesicle fusion *in vitro*. Progress has been made in identifying the

fusion machinery, but the mode of action of SNARE interacting proteins is controversial. Therefore, the focus of our project is to determine the role of *C. elegans* v-SNARE master protein 1 (VSM-1) in vesicle fusion at the synapse. Analysis of a *vsm-1* mutant showed that the strain RB1339 is missing 820 bp containing part of the 5' upstream regulatory element and *vsm-1* exons 1 to 3. RT-PCR results demonstrated that *vsm-1* mutants transcribe a smaller form of the mRNA lacking exons 1 - 3 nucleotides that potentially mimics a lost of function mutant phenotype. Pharmacological assays using Aldicarb and Levamisole suggest that the *vsm-1* mutants have abnormal pre-synaptic function with a normal postsynaptic reception. This presynaptic defect was reiterated by the results of the immunological tests where smaller synapses and increased density were found. These data suggest that loss of VSM-1 function may result in more exocytosis and enhanced vesicle priming. This prediction is currently tested by means of Aldicarb sensitivity in animals lacking VSM-1 and UNC-13.

05.01.90 GENERATING MOLECULAR TOOLS TO STUDY VSM-1 FUNCTION IN VIVO

Dana Poling - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences

Exocytosis is the process by which a cell directs the contents of secretory vesicles out of the cell. SNARE proteins that are attached to the vesicular and plasma membrane mediate this excretory process. We know that the protein VSM-1 (v-SNARE master protein 1) plays a role in exocytosis, but it is not known how or what the role of VSM-1 is in synaptic vesicle exocytosis. Thus, our goal is to determine the molecular machinery underlying VSM-1 function at the synapse. To accomplish this goal we will first need to generate a VSM-1 antibody. To this end, we began producing and affinity purifying a recombinant VSM-1 protein to use as an antigen. Then we sent the recombinant product to Cocalico where is currently being use to immunize guinea pigs. The guinea pigs will be bled soon and we will use the raw sera to purify affinity the VSM-1 polyclonal antibody. Then we will use the antibody for immunoprecipitation and immunostaining studies. We will then compare and contrast the results from immunoprecipitations and immunostainings to determine where VSM-1 expresses in *C. elegans* and which proteins are interacting with VSM-1 in vivo.

05.01.91 EXAMINING THE EFFECTS OF LANTHIONINE KETIMINE ESTER (LKE) AT NEMATODES' SYNAPSES

Erica Benda - Southwestern Oklahoma State University, Biological Sciences, Kenneth Hensley - The University of Toledo, Proteomics Facility, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences

Lanthionine ketimine ester (LKE) is a nontoxic, synthetic cell permeable ester that mimics the endogenous Lanthionine ketimine found in the vertebrate nervous system. Moreover, recent studies demonstrated that NSC-34 cells treated with LKE have more and longer neurites suggesting that this metabolite positively regulates the development of cells in culture, however the mechanism involved is unknown at this point. In this study, *C. elegans* nematodes developing in the presence of LKE were analyzed and synaptic function was determined. To our surprise, we found that wild type animals grown in the presence of LKE have normal release of ACh while animals overexpressing YFP in neurons and grown in the presence of LKE have a reduced cholinergic release rate. Moreover, this phenotype was found to be mediated via UNC-18, a neuronal protein regulating synaptic vesicle exocytosis. Taken together, preliminary studies involving LKE show that this drug slight improves the survival of nematodes in the presence of the acetylcholinesterase inhibitor, Aldicarb. Further analysis of LKE mode of action will be presented at the meeting.

05.01.92 EFFECTS OF DROUGHT STRESS IN ARABIDOPSIS THALIANA

Lydia Meador - Oklahoma State University, Department of Botany

Water stress is a ubiquitous abiotic factor influencing plant populations. Plants have evolved different mechanisms to deal with drought stress, including dehydration avoidance and drought escape. Here, we examine whether *Arabidopsis thaliana* responds plastically with respect to dehydration avoidance and drought escape traits when grown in different soil moisture conditions. Twenty-six European ecotypes of *A. thaliana* were grown under well-watered or drought conditions. We quantified the effect of watering regime for plant growth and reproduction (chlorophyll content, rosette diameter, and total reproduction), drought avoidance (leaf hair production), and drought escape (flowering time) traits. Drought stress reduced plant size and chlorophyll content but did not affect total fruit production. The ecotypes responded plastically to drought with respect to flowering time and leaf hair density; plants experiencing drought flowered earlier and produced leaves with greater leaf hair

MATH AND SCIENCE

density. We found significant genetic variation among the ecotypes for plasticity in flowering time and leaf hair density, indicating the potential for plasticity in these traits to evolve via natural selection. Future experiments are planned to examine whether the drought-induced plasticity in flowering time and leaf hair density are adaptive.

05.01.93 SEARCHING FOR SWAINSON'S WARBLERS IN OKLAHOMA: 5 YEARS, 27 PUBLIC LAND AREAS, 10 NEW POPULATIONS!

Dr. Mia R. Revels - Northeastern State University, Natural Sciences and Health Professions

Determining the distribution and abundance of Swainson's Warblers in Oklahoma will allow conservation and government agencies to determine the status of this protected migratory bird species. If populations are located on federal or state conservation lands, steps can be taken to manage the habitats and these populations. Historically, Swainson's Warblers were found throughout eastern Oklahoma in appropriate habitat. Records exist for the following 10 counties: Cherokee, Delaware, Johnston, Mayes, McCurtain, Payne, Pushmataha, Rogers, Tulsa, and Washington. In this study, surveys were conducted in appropriate habitat on publicly managed lands in the eastern half of Oklahoma. Surveys were conducted by driving, hiking, biking, and paddling rivers within the area. When Swainson's Warblers were detected, they were mist-netted and banded when possible, or their location documented with GPS when netting was not possible. Within the 5 years encompassed by this project, 27 Oklahoma Wildlife Management Areas and National Wildlife Refuges were surveyed. Swainson's Warblers were detected in 11 of these in 8 counties. Three of these represent new county records for Swainson's Warblers as Okmulgee, Muskogee, and LeFlore counties had not previously been documented to contain SWWA. The other 16 locations either did not support suitable habitat types, or had characteristics that made their bottomland forest habitat unsuitable for Swainson's Warbler territories (e.g. flooding, grazing, etc.).

05.01.94 AFFECTS OF SCIENCE FAIR ACTIVITIES ON STUDENT PERCEPTIONS OF UCO

Mrs. Melissa Telemeco - University of Central Oklahoma, Biology, Dr. Elizabeth Allan - University of Central Oklahoma, Biology

Science teachers across the nation believe that students enjoy participation in science fairs and learn a good deal

from them - especially regarding the scientific method. The University of Central Oklahoma (UCO) not only holds a regional science fair, but creates fun scientific activities for the young students to attend and finds organizations who would like to donate prizes such as money and scholarships. At the end of the day UCO has pooled its resources and has about 125 people working the day of the science fair (judges, tour guides, activity directors, and crowd control). This study is designed to determine if the science fair activities made any changes in the perceptions of UCO for potential students.

05.01.95 PRELIMINARY FLORISTIC SURVEY OF GUM SPRINGS AND HICKORY FLAT AREAS OF TENKILLER STATE PARK

Monica Macklin - Northeastern State University, Natural Sciences

Tenkiller State Park, a division of the state park system of Oklahoma, lies at the southern end of Lake Tenkiller in Sequoyah county. At the request of the park naturalist, floristic surveys of two specific sites were initiated. Members of the Oklahoma Native Plant Society conducted surveys in the springs between 2001 and 2008. Additional surveys were conducted as service learning projects by two classes at Northeastern State University. Students in Systematic Botany (Botany 4114) visited Gum Springs in April of 2008 while students in Oklahoma Flora (Botany 3213) visited the Hickory Flats area in October 2008. The student surveys recorded the presence of all herbaceous species while in flower or fruit while arborescent species identification relied on vegetative features only. Easily identifiable species were reported as "observed" and non-identified species were collected for later identification. This report will present the number of species identified to date and the number of plant families represented in the two areas. Additional field work will be conducted during the summer and winter seasons to complete the survey.

05.01.96 INFLUENCE OF TLR AGONISTS ON DIFFERENTIATION OF FOLLICULAR T HELPER AND REGULATORY T CELLS

Sean A. Olsen - Redlands Community College, Science

Sean A. Olsen, RCC

Chris Horten, OUHSC

Background: Follicular T helper cells (T_{fh}) are a CD4⁺ T helper cell subset that localizes to the germinal center of secondary lymphoid organs. A desirable vaccination strategy would enhance T_{fh} differentiation that will induce protective antibodies. Adjuvants impact the quality of vaccination responses by stimulating Toll-like receptors (TLR) on antigen presenting cells, resulting in delivery of full stimulatory signals to CD4⁺ T cells that direct their differentiation into various

T helper subsets. The hypothesis that a subset of Toll-like receptor agonists will promote Tfh differentiation and expansion and/or differentiation of Foxp3+ regulatory T cells (Treg) in the setting of vaccination was tested.

Methods: Mice were immunized with KLH emulsified in CFA, KLH in IFA, or KLH/IFA that also contained agonists of TLR2,3,4,9 on Day 0. Draining lymph nodes were removed on Day 7 and the cells analyzed by flow cytometry.

Results: CFA and LPS, agonists of TLR2 and TLR4, significantly increased the fraction of Tfh, while a synthetic TLR2 agonist did not. Agonists of TLR2 and TLR7 significantly reduced the fraction of CD4+ T cells in the draining lymph nodes with a Treg phenotype.

Conclusions: TLR2 and TLR4 agonists significantly promote Tfh differentiation while likely opposing differentiation of other Th cell types. This provides implications for vaccine design and for autoimmune diseases that are promoted by Tfh cells.

05.01.97 PRELIMINARY ANALYSES OF GROWTH PATTERNS OF MIXED BACTERIAL POPULATIONS FROM FOUR DIFFERENT HABITATS.

Nina Sarathy - Oklahoma State University, Microbiology & Molecular Genetics

We examined the ability of natural populations of bacteria to degrade plant polymers (cellulose, hemicelluloses, and lignin). Microcosms were established in minimal media with "wood-eating" bacteria from Cow creek (Stillwater, OK), two thermal ponds (Yellowstone, Wyoming), or gut microbes from a cow and termites. These microcosms were amended with a plant polymer as the only source of carbon and mineral salts. We studied growth of these mixed bacterial populations by periodically withdrawing samples of culture from each microcosm and determining increase in cell protein. The growth patterns of bacteria on plant polymer from four different environments was studied by analyses of the protein concentrations over a twelve week period. After a preliminary analysis of the data a cyclic two peak curve instead of the usual S-shaped growth curve is observed in at least two instances. An attempt is made to explain this pattern.

05.01.98 ASSESSMENT OF AVIAN AND BAT FATALITIES AT A WIND-ENERGY INSTALLATION IN WESTERN OKLAHOMA

Elizabeth A. Burba - University of Oklahoma, Department of Zoology, Dr. Gary D. Schnell - University of Oklahoma, Sam Noble Oklahoma Museum of Natural History, Dr. Joseph A. Grzybowski - University of Oklahoma, Sam Noble Oklahoma Museum of Natural History

To help offset the US energy deficit with renewable energy, wind-energy production has grown from 10 megawatts (MW) in 1981 to 25,170 MW in 2008. Yet, wind energy only accounts for about 0.5% of current US energy production. Although wind energy has environmental benefits, detrimental impacts have also been associated with it. Most notably, bird and bat fatalities caused by collisions with wind turbines have been reported. We report on a bird and bat fatality study conducted at the Blue Canyon II Wind Power Project. Fatality searches took place approximately weekly over a period of 8 months annually for 2006-2008. Over the 3 years of study, an average of 15.3 ± 0.58 bird fatalities and 40.0 ± 3.61 bat fatalities were recorded per year. Searcher-detection probabilities and carcass-removal rates will be used to adjust the number of estimated annual fatalities. Avian fatalities were evenly spread among survey months, but bat fatalities were concentrated during fall migration, with $66.0 \pm 3.31\%$ occurring within a 3-week interval beginning in late August. Almost one-half of the detected bird fatalities were of turkey vultures (*Cathartes aura*), whereas bat fatalities were primarily of hoary bats (*Lasiurus cinereus*, 60.8%) and eastern red bats (*L. borealis*, 21.3%). The reason bats are particularly susceptible to wind-turbine collisions is unknown. Continued research is needed to determine how bat fatalities might be mitigated with minimal impact on wind-energy production.

05.01.99 THE ROLE OF NECTAR IN PLANT COMPETITION WITHIN NATIVE AND NON-NATIVE ISLAND ECOSYSTEMS: THE CASE OF YELLOW STAR-THISTLE

John Barthell - University of Central Oklahoma, College of Mathematics and Science, Meredith Clement - University of Central Oklahoma, Biology, Brett Freeman - Exeter High School, Science, Manuel Giannoni - University of Puerto Rico, Biology, Lucy Liu - University of North Carolina at Chapel Hill, Biology, Miyeon Presky - State University of New York at Oneonta, Chemistry, JeAnna Redd - University of Central Oklahoma, Chemistry, Paige Ricci - Bloomsburg University of Pennsylvania, Biological and Allied Health Sciences, Blake Stevison - Oklahoma State University, Zoology, Theodora Petanidou - University of the Aegean, Geography, John Hranitz - Bloomsburg University of Pennsylvania, Biological and Allied Health Sciences, Harrington Wells - The University of Tulsa, Biological Sciences

We compared nectar production by the noxious, invasive weed species yellow star-thistle, *Centaurea solstitialis* L., with other plant species in two island ecosystems. These species included *Grindelia camporum* Greene on Santa Cruz Island (SCI) in California (USA) where the thistle is

MATH AND SCIENCE

non-native, and *Vitex agnus-castus* L. on the Northeast Aegean island of Lesvos (Greece) where it is native. On SCI, average nectar production per floret by *C. solstitialis* was greater than for its native counterpart, *G. camporum*. Conversely, on Lesvos, nectar production by *C. solstitialis* was lower than its competitor *V. agnus-castus*. At each locale, experimental introductions of the higher nectar-producing plant species resulted in lower average visitation rates by bees to the lower nectar-producing species paired with it. Implications of our study include the realization that *C. solstitialis*, a plant species that requires outcrossing, has benefited from honey bees since the mid-1800s when they were introduced to California. In the native environment on Lesvos, however, this plant species is not as frequently visited by honey bees due to competition from the more effective competitor *V. agnus-castus*. Biological invaders therefore appear to be strongly influenced by the initial conditions they encounter in the environments they invade, especially from the effects of positive (e.g., mutualism) and negative (e.g., competition) ecological interactions.

05.01.100 HONEY BEE FORAGING BEHAVIOR AT ARTIFICIAL COMPOSITE FLOWERS: THE ROLES OF REWARD QUALITY AND FLOWER COMPLEXITY

Meredith Clement - University of Central Oklahoma, Biology, Ms Lucy Liu - University of North Carolina at Chapel Hill, Biology, Miyeon Presky - State University of New York at Oneonta, Chemistry, JeAnna Redd - University of Central Oklahoma, Chemistry, Dr. John Barthell - University of Central Oklahoma, College of Mathematics and Science, Dr. Harrington Wells - The University of Tulsa, Biological Science

Honey bees, *Apis mellifera* L., have been used as a model system for foraging and behavioral studies. The current study examined how these insects handled artificial flowers which were meant to represent composite flowers in the natural world. A reward of sucrose solution was deposited into the wells of the artificial flowers. We varied both reward and the numbers of wells in each of the flowers. The number of wells in each of the artificial flowers was either one or four. The nectar volume was held constant at 2 μ l. The experiments were performed using 2.0 M vs. 0.5 M and 1.75 M vs. 0.75 M sucrose rewards. When comparing artificial flowers with the same number of wells, the honey bees consistently chose the flowers that held the higher sucrose concentration (2.0 M or 1.75 M). When the reward was held constant and the number of wells was varied, the honey bees preferred the simpler artificial flower. However, when both reward and well number were manipulated, the bees chose the flowers containing the higher concentration rewards even

if the flower was more complex. Handling and flight times were also measured using both flower designs, and the complexity of the flower does not seem to limit the time that the honey bees spent foraging at the artificial flowers. The implications of these results could help us to better understand how and why some plant species are more successful during biological invasions.

05.01.101 COMMUNITY-ASSOCIATED MRSA

Dr Eric Paul - Southwestern Oklahoma State University, Allied Health, Dr Gary Wolgamott - Southwestern Oklahoma State University, Allied Health

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a bacterium that causes infections in various parts of the body including the skin, surgical wounds, lungs, and the urinary tract. MRSA is a strain of *Staphylococcus aureus* that's resistant to the broad-spectrum antibiotics commonly used to treat it. These antibiotics include methicillin and other common antibiotics such as oxacillin, penicillin and amoxicillin.

MRSA has long been regarded as an infection occurring predominantly in hospitals or other health care settings. It's known as health care-associated MRSA (HA-MRSA) and infects older adults and people with weakened immune systems. Recent evidence suggests the spread of another type of MRSA among otherwise healthy people in the wider community without significant health care contact. This community-associated MRSA (CA-MRSA) is responsible for serious skin and soft tissue infections and can lead to death. MRSA in athletic settings have been dubbed "Locker room bug".

The intention of this study was to establish a surveillance program at SWOSU among students for CA-MRSA and *Staphylococcus aureus*. Tests performed documented the presence or absence of CA-MRSA and *Staphylococcus aureus*.

05.01.102 TELOMERASE EFFECTS ON DUPUYTREN'S DISEASE FIBROBLASTS: IMPLICATIONS FOR LONG-TERM STUDY CAPACITY

Miriam Noon - University of Central Oklahoma, Biology, Dr. Melville Vaughan - University of Central Oklahoma, Biology, Alexandra Gary - University of Central Oklahoma, Biology

Addition of telomerase to cells allows unlimited growth without affecting their normal function. This study aimed at determining whether human telomerase enzyme reverse transcriptase (hTERT) has an effect on the contractility of Dupuytren's fibroblasts. We predicted that the phenotype of the fibroblasts would be unaffected

by this immortalizing agent. To test this, we studied the ability of these cells to exert tension on their environment by suspending them in collagen lattices. Upon release of the lattices, we measured their diameter over time and observed contraction. We added transforming growth factor beta (TGF- β) in an attempt to induce the fibroblasts to differentiate into myofibroblasts. As expected, the lattices with TGF- β contracted at a quicker rate and to a smaller diameter than lattices without TGF- β . These preliminary results indicate that hTERT allows Dupuytren's fibroblast to differentiate similar to non-immortalized fibroblasts. Fibroblasts exerted tension on their environment and more so, when stimulated by TGF- β . These characteristics are also seen in cells without hTERT. In addition to these, the cells' ability to migrate is also currently being tested. Future examination of these cells will include fluorescence microscopy to ensure that increased contraction is a result of the myofibroblast phenotype. Creating a cell line that is immortal but still capable of functioning and differentiating like normal cells is critical for studying Dupuytren's Disease.

02 CHEMISTRY

05.02.01 VIGAMOX UPTAKE AND RELEASE FROM COMMERCIALY AVAILABLE CONTACT LENSES

Dr. Jeff Miller - Northeastern State University, Oklahoma College of Optometry, Dr. John Mattice - University of Arkansas, Crop, Soil, and Environmental Sciences, Tyler Glaze - Northeastern State University, Oklahoma College of Optometry, Tory Dotson - Northeastern State University, Oklahoma College of Optometry, Jacoby Dewald - Northeastern State University, Oklahoma College of Optometry

Background: Recently, contact lenses have been considered and used off label as therapeutic drug delivery devices. Due to Vigamox's unique characteristics, such as being an unpreserved preparation and having a high potency, it is an ideal therapeutic agent for use in a contact lens drug delivery device. In this study, we evaluated the uptake and release of Vigamox from five commercially available contact lenses. Methods: Four silicone hydrogel lenses and one standard hydrogel lens were soaked in commercially available moxifloxacin ophthalmic solution for varying amounts of time, and the antibiotic concentration sorbed and desorbed by the various lenses was measured using High Performance Liquid Chromatography. Results: The conventional hydrogel lens, etafilcon, sorbed significantly more antibiotic than the other lenses ($P < 0.05$), and there were no significant differences between the amount sorbed by the remaining four silicone hydrogel lenses ($P > 0.05$).

Etafilcon released a significantly larger amount and also a significantly larger percentage of sorbed moxifloxacin than the other lenses. Etafilcon also had a higher rate of release over a longer period of time than the other lenses. Conclusion: Based on the results of this study, a conventional hydrogel lens, such as etafilcon, would serve as a more effective therapeutic drug delivery device for moxifloxacin despite the oxygen transmissibility advantages of a silicone hydrogel lens.

05.02.02 ANALYSIS AND QUANTITATION OF PHTHALATE PLASTICIZERS IN SURFACE WATERS USING SOLID PHASE MICROEXTRACTION (SPME) AND GAS CHROMATOGRAPHY MASS SPECTROMETRY

John Bowen - University of Central Oklahoma, Chemistry, Sharome Goode - University of Central Oklahoma, Chemistry, Basil Mathews - Putnam City North High School, Chemistry, Wesley Thomas - Putnam City North High School, Chemistry, Dr. F. Albahadily - University of Central Oklahoma, Chemistry

Goode, Sharome*, Mathews, Basil, Thomas, Wesley and John Bowen, University of Central Oklahoma, Department of Chemistry, Edmond, OK 73034

Abstract

This study investigates the concentration of plasticizers in surface water using a Solid Phase Micro Extraction fiber (SPME). The SPME utilizes a coated fiber that is used to isolate and concentrate analytes into a range of coating materials. After the analytes are adsorbed onto the SPME fiber, they are desorbed into the injection port of the GC/MS where they are analyzed and identified.

Quantitation was accomplished by using a diffusion based calibration method, with sensitivities into the ppb levels. We also considered the use of internal standards and standard addition.

These were used to detect phthalates including di-methyl phthalate and others in natural surface waters from the Oklahoma City area. These studies will be expanded to include areal mapping of phthalate pollution in Oklahoma Rivers and Reservoirs.

05.02.03 CDTE QUANTUM DOT SYNTHESIS UNDER HYDROTHERMAL CONDITIONS

Andrew C. Tretiak - University of Central Oklahoma, Department of Chemistry, Hyunjoo Han - Syracuse University, Department of Chemistry, Mathew M. Maye* - Syracuse University, Department of Chemistry

The synthesis of highly luminescent nanocrystals consisting of CdTe quantum dots (QDs) in an aqueous solution were

prepared using a mercaptocarboxylic acid stabilizing agent, thioglycolic acid following a synthetic approach recently developed in the laboratory. The growth process of luminescent properties of CdTe quantum dots in water at different heating times and temperatures are investigated via Microwave Assisted Process Synthesis in hydrothermal conditions. Use of a microwave reactor has proved to generate advantages when synthesizing nanocrystals by greatly reducing reaction time from 3-5 hours with the traditional reflux method to 1-3 minutes rendering a nearly perfect nanostructure. This technique has demonstrated that by controlling variables such as temperature, heating time and power the growth of the QD is controlled. After microwave synthesis the TGA-stabilized CdTe QDs are characterized through ultraviolet-visible spectra (UV-Vis) and photoluminescence spectra (PL). Experimentally the results show that when the reaction time is increased using the same modifier, the ultraviolet absorption peak and fluorescent emission peak present obvious red shifts and the diameters of the QDs continuously increase. Thus the size and shape dependent properties of each QD can be further investigated.

05.02.04 DETECTION AND ANALYSIS OF CHEMICAL COMPOUNDS IN OKLAHOMA SURFACE WATERS USING SOLID PHASE MICROEXTRACTION AND HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

John Bowen - University of Central Oklahoma, Chemistry, Andrew C Tretiak - University of Central Oklahoma, Chemistry, Al Albahadily - University of Central Oklahoma, Chemistry

Tretiak, Andrew*, Bowen, John, Albahadily, Al, University of Central Oklahoma, Department of Chemistry, Edmond, OK 73034

Over the last 10-15 years, the increasing use of liquid chromatography (LC) has led to a revolution in an environmental analysis, providing a new analytical tool that enables the identification of highly polar organic pollutants without derivatization, down to nanogram per liter levels in various sources of waterbodies¹. By combining the use of a simple and rapid method of quantitative monitoring known as solid-phase microextraction (SPME) and the analysis of High Performance Liquid Chromatography (HPLC) the detection technologies have the potential to analyze environmental priority pollutants in water systems throughout Oklahoma. Such pollutants including pharmaceuticals, caffeine, and even plasticizers. Due to the inability of wastewater treatment plants to chemicals in the treatment of bacteria, these chemicals, including pharmaceuticals are found both in ground and in surface waters. These can include non-steroidal anti-inflammatory

drugs (NSAID) and antibiotics are considered to be some of the most common. By identifying the presence of these compounds in Oklahoma surface water collected by SPME analysis offers an excellent and reproducible method to determine what techniques need to be devised to maintain low concentrations of antibiotics in drinking sources, thus inhibiting the resistance of antibiotics in pathogenic bacteria.

05.02.05 TRACKING DYNAMIC CONFORMATIONAL CHANGES IN E. COLI CYTIDINE-5'-TRIPHOSPHATE SYNTHETASE

Kayla Wallis - Southwestern Oklahoma State University, Chemistry and Physics, Jonathan Walker - Southwestern Oklahoma State University, Chemistry and Physics, Dr. Jason L. Johnson - Southwestern Oklahoma State University, Chemistry and Physics

Proteins within the Glutamine Amidotransferase Family (GATs) catalyze the hydrolysis of glutamine and coordinated transfer of nascent ammonia to an acceptor-substrate within a separate domain during the synthesis of nitrogen-containing compounds. We seek to elucidate the allosteric transitions directing such synchronization within the GATs by focusing on the example enzyme CTP synthetase (CTPS). CTPS catalyzes the synthesis of CTP supporting DNA replication and thus is a pharmaceutical target for arresting the rapid growth of cancer cells. Our method is to evaluate changes in the fluorescence properties of tryptophan residues in response to the binding of substrates, products, and allosteric effectors. Preliminary studies have identified a complex matrix of ligand-induced changes in the collective fluorescence properties of CTPS's three native tryptophans. However, it is impossible to determine directly which individual or combination of tryptophans contributes to any given response. We have therefore genetically engineered protein variants in which each contains only one of the native tryptophans, with the remaining substituted with tyrosines. The responsiveness of each isolated probe to the binding of ligands will identify which of the many hypothesized modes of inter-domain communication are being reported via native fluorescence, perhaps revealing unique structural targets for CTPS's pharmaceutical control. Funding provided by Oklahoma State Regents Grant.

05.02.06 NOVEL COUPLING INTERACTIONS REVEALED WITHIN CYTIDINE-5'-TRIPHOSPHATE SYNTHETASE FROM E. COLI

TaRynn Carder - Southwestern Oklahoma State University, Chemistry and Physics, Dr. Jason L. Johnson - Southwestern Oklahoma State University, Chemistry and Physics

CTP synthetase (CTPS) dictates intracellular CTP levels supporting nucleic acid synthesis and, hence, has become a target of anti-cancer drugs. The enzyme is regulated by GTP; however, whether GTP both activates and inhibits CTPS activity is disputed in literature. We seek to clarify mechanisms for the allosteric regulation of CTPS via a systematic, linked-function analysis, in which the dependence of the rate of CTP synthesis and the partial rate of glutaminase activity on a matrix of varying substrate (Gln, ATP, UTP) and effector (GTP) concentrations is evaluated to deduce kinetic and allosteric parameters. Our results indicate that the rates of CTP formation are enhanced 60-fold by GTP when all substrates are saturating; V-type inhibition by GTP is not detectable. Likewise, the partial glutaminase activity of CTPS is activated 1.2-fold by UTP, 1.4-fold by ATP, and 3.2-fold by their combined presence. Together, GTP, UTP, and ATP enhance the rate of glutamine hydrolysis by 90-fold. Hence, we conclude that GTP is a V-type allosteric activator of CTPS, enhancing the rate of glutamine hydrolysis, and concomitantly CTP synthesis. In addition, the substrates UTP and ATP are synergistic, allosteric activators of glutaminase activity. The purported GTP inhibition of CTPS is not apparent in our analyses, questioning the notion that GTP analog chimeras would naturally serve as anti-cancer drugs. Funding was provided by NIH #2P20RR016478 from the INBRE Program of NCRR.

05.02.07 DESIGN OF AN INTERACTIVE INTERFACE FOR CHEMICAL ELEMENT SOURCES PART III - ELEMENT SOURCE COMPILATION

Andrew Tretiak - University of Central Oklahoma, Chemistry, Luis D. Montes - University of Central Oklahoma, Chemistry

An element locator website is being designed with data compiled from the United States Geological Survey website for each of the elements on the periodic table. This website will provide scientists and educators with information regarding the major producers of each element. Although many element sources are available from the USGS, information on elements that are either

very common or very rare must be obtained from other sources. Some questions that will be answered include how to determine the sources for these other elements. Element source information is useful for guiding scientists in choosing to study systems using elements that are more readily available. Further, knowledge of elements that have low global reserves allows scientists to better focus research and development of materials using elements that are not as difficult to obtain. This website will also allow teachers to present a more global perspective of chemistry and its role in a global society.

05.02.08 PROGRESS TOWARDS THE ASYMMETRICAL SYNTHESIS OF THE SIDE CHAIN OF THE NOVEL CANCER CHEMOPREVENTIVE AGENT, 1-ALPHA-HYDROXYVITAMIN D5

Dr. Dragos Albinescu - Northeastern State University, Natural Sciences

The novel cancer chemopreventive agent 1-alpha-hydroxyvitamin D5 was first synthesized in 1997, via a 18 step linear process. The product was found to be active in breast cancer prevention. We propose a new convergent synthetic approach, in which two independently synthesized moieties (a "triene system" and a chiral side chain) are connected via a Cu(I) mediated reaction. This research project presents the first step in the 6 step asymmetrical synthesis of the 1-alpha-hydroxyvitamin D5 chiral side chain. In this step, a chiral auxiliary (R-binaphthol) is attached to the side chain precursor (vinylacetic acid). The resulted ester is further asymmetrically alkylated and after hydrogenation and reductive cleavage, a chiral alcohol is generated. The alcohol is converted into the corresponding alkyl bromide and then into the final alkyl magnesium bromide. The first step was successfully completed with a chemical yield of 84%. The product (chiral ester) is ready to be used in the next critical step, which is a chiral alkylation.

05.02.09 PHOTO-INDUCED ELECTRON TRANSFER PROCESSES INVOLVING CYANOAROMATICS

Paritosh K. Das - Cameron University, Physical Sciences

The charge transfer quenching of singlet excited states of cyanoaromatics by electron-rich aromatic substrates opens up multiple pathways that lead to interesting photochemistry involving radicals, radical-ions, and triplets, the latter being formed through electron-transfer-induced intersystem crossing. Employing nanosecond laser flash photolysis in acetonitrile at room temperature, we have generated data on kinetics and yields with

MATH AND SCIENCE

1,4-dicyanonaphthalene as the singlet acceptor and a number of aryl alkanes and phenols as ground-state donors. This paper will present and analyze these data, and thereby elucidate the various pathways arising from the charge transfer quenching.

05.02.10 A COMPUTATIONAL STUDY OF ENERGETICS OF CHAIN TERMINATION STEPS IN METALLOCENE-CATALYZED ETHYLENE POLYMERIZATION

Paritosh K. Das - Cameron University, Physical Sciences, Daniel J. Brown - Cameron University, Physical Sciences

In this poster, we will present energetics data, computed by density functional methodology, on chain termination by beta-hydrogen transfer to metal center in the course of ethylene polymerization catalyzed by both CH₂-bridged and non-bridged zirconocene systems, [X_n-CpCH₂Cp-X_n]ZrCH₂CH₂CH₃ and [X_nCp]₂ZrCH₂CH₂CH₃⁺, with X = F and CH₃. We will compare these data with those of chain propagation and chain termination by beta-hydrogen transfer to monomer (ethylene). We will show that the nature of substituents (i.e., electron withdrawing or electron-donating) and the bite angle between the two Cp ligands affect the relative energetics of the various reaction steps in a significant manner.

05.02.11 CLONING, EXPRESSION, AND PURIFICATION OF YEAST AMINOTRANSFERASE

Lilian Chooback - University of Central Oklahoma, Chemistry, Zoraya L Reyes - University of Central Oklahoma, Chemistry, William E Karsten - University of Oklahoma, Chemistry, Kostyantyn D Bobyk - University of Oklahoma, Chemistry, Paul F Cook - University of Oklahoma, Chemistry

Lysine is synthesized in *Saccharomyces cerevisiae* via the alpha-aminoadipate pathway. Alpha-aminoadipate is made from alpha-ketoadipate via the action of a PLP-dependent aminotransferase that has not been identified. Sequence alignments and a homology search for conserved amino acid residues were used to identify six aminotransferase genes in *S. Cerevisiae*. Based upon the homology, the identified genes code for two aromatic aminotransferases, two aspartate aminotransferases, one kynurenine aminotransferase and one putative aminotransferase of unknown function. The cloned genes were obtained from the Harvard Institute of Proteomics Plasmid Repository. The genes were subcloned into expression vector pET16b. The expressed his-tagged protein had been purified using a Ni-NTA affinity column. We are at the early stage of kinetic characterization of these enzymes.

05.02.12 DIFFERENTIAL PULSE ANODIC STRIPPING VOLTAMMETRY (DPASV) FOR THE DETECTION OF BARIUM AND LEAD FROM OIL WELL WATER

Desiray Cannon - Southwestern Oklahoma State University, Chemistry and Physics, Crystal Mars - Southwestern Oklahoma State University, Chemistry and Physics, Gwendolyn Ramon - Southwestern Oklahoma State University, Chemistry and Physics, Dr. Curt Woolever - Southwestern Oklahoma State University,

Differential pulse anodic stripping voltammetry (DPASV) has been applied for characterization and quantitative detection of barium and lead from oil well water samples. The water samples are from oil wells that have been under waterflood. The development of a differential pulse anodic stripping voltammetry technique for barium and lead detection will be discussed. Included in this discussion are such factors as electrolytic solutions and other DPASV conditions such as pulse amplitude and scan rate.

Previous work for detection of Ba and Pb by use of differential pulse anodic stripping voltammetry (DPASV) has been applied for characterization and quantitative detection of barium and lead from gunshot residues (GSR). This technique allows for simultaneous detection of Ba and Pb that is simple, fast, and non-destructive. This was the first time that Ba had been detected from gunshot residue using DPASV. The determination of Ba and Pb from oil water samples is based off this technique.

05.02.13 CYTOCHROME P450 AND DRUG METABOLISM

Elizabeth Rathgeber - University of Central Oklahoma, Chemistry, Dr. Lilian Chooback - University of Central Oklahoma, Chemistry

Cytochrome P450 is a member of a "super family" of proteins with many functions. The protein is present in almost all living organisms. In humans, cytochrome P450 metabolizes drugs and detoxifies xenobiotic compounds within the liver. Despite many efforts, the mechanism of detoxification is still not fully understood. Cytochrome P450 BM3 is a 119 kDa protein isolated from *Bacillus megaterium*. The protein is composed of a heme domain and FMN/FAD reductase domain on a single polypeptide chain. Cytochrome P450 BM3 has close sequence homology to the eukaryotic cytochrome P450s. Therefore, it is a good model to use to study the detoxification of drugs. An imidazole ring is present in many important drugs, such as the antifungal drugs oxazole, thiazole, and pyrazole. The goal of this project is to study the binding of various imidazole containing ligands to cytochrome P450 BM3.

05.02.14 USING NEWER TECHNOLOGY TO MEASURE THE OCULAR CHANGES ASSOCIATED WITH VISINE (0.05% TETRAHYDROZOLINE HCL)

Lori Barton - Northeastern State University, Optometry,
 Jamie Dunn - Northeastern State University, Optometry,
 Dr. Michelle Welch - Northeastern State University,
 Optometry

Introduction: As optometric physicians, many of our patients use an over-the-counter decongestant to “get the red out.” Visine (0.05% Tetrahydrozoline) is one of the most commonly recognized ophthalmic decongestants in the United States. The aim of this study was to investigate the effects Visine has on pupil size and anterior chamber angle to determine if there is significant mydriasis and if patients with occludable angles or narrow angle glaucoma are at increased risk for acute angle closure.

Methods: Baseline measurements were taken, including a slit lamp exam, intra-ocular pressure, blood pressure, heart rate measurement, visual acuity, pupil size and anterior chamber angle via AC-OCT. Participants were given a masked bottle of either Visine or artificial tears. Two drops from their bottle were instilled. Measurements were then repeated 30 minutes and 60 minutes after the first instillation. Participants were instructed to instill two drops in each eye every 6 hours for seven days. Measurements were again taken on day seven.

Results: There were two areas that had a statistically significant change: (1) the IOP measurements of the right eye at 30 minutes ($p=0.0336$), and (2) the IOP measurements of the right eye at 60 minutes ($p=0.00170$).

Conclusion: In this study, AC-OCT images provided a more objective measurement to coincide with previous studies that found no significant affect on pupil size or the anterior chamber angle while using Visine as recommended.

05.02.15 SPECIES IDENTIFICATION USING THE DNA BARCODE CYTOCHROME B

Maria Engel - Oklahoma City Community College,
 Biotechnology

The objective of this project was to establish a standard protocol using the gene Cytochrome b (CYTB) which is located in the mitochondria genome (fig 1), to identify unknown species. The protocol was tested using the DNA from buffalo, whitetail deer, lamb, bear, and pig sources. The first step was to amplify a short fragment of CYTB. To accomplish these conditions Universal Primers and Polymerase Chain Reaction (PCR) were optimized. The second step was to sequence the amplicon produced by the PCR using Capillary Electrophoresis. The final step was to compare the CYTB DNA sequence produced, with the DNA sequences from other specimens. The percentage

of similarity between the sequences generated by this project and those in Genbank (an NCBI genetics database) were as follows: Buffalo (Bison bison) 98%, Whitetail deer (*Odocoileus virginianus*) 93%, Lamb (*Ovis aries*) 97% , and Pig (*Sus scrofa*) 97%. The percentages of similarity between the DNA sequences confirms that this protocol can be used to determine species using the CYTB gene.

05.02.16 COMPATIBILITY OF CEFTAROLINE FOSAMIL FOR INJECTION WITH OTHER DRUGS DURING SIMULATED Y-SITE CO-ADMINISTRATION

Wen-Ting Yang - Oklahoma State University Center for Health Scienc, Biotechnology

Using visual observation, turbidity measurement and electronic particle count, the physical compatibility of ceftaroline fosamil, during simulated Y-site co-administration, was evaluated when combined with 5 mL of 74 other drugs. At higher concentrations than normally used in clinical practice, 5 mL samples of ceftaroline fosamil, 2.22 mg/mL was evaluated undiluted or diluted in 5% dextrose injection, 0.9% sodium chloride and/or lactated Ringer’s injection. Using fluorescent light and a Tyndall beam (high intensity monodirectional light beam) to enhance visualization of small particles and low-level turbidity, visual examinations were performed with the unaided eye. The turbidity and the microparticulate content of each sample was also measured. Evaluation of the samples was performed initially and at both one and four hours increments after the preparation.

Of the drugs combined with ceftaroline fosamil, 62 drugs were considered to be physically compatible. The measured turbidity of the ceftaroline fosamil control solutions and the compatible test samples both remained essentially unchanged throughout the duration of the study. However, the other 12 drugs exhibited microparticulate formation or precipitation within four hours and therefore were considered to be incompatible with ceftaroline fosamil 2.22 mg/ml injections and should not be administered at the same time, via Y-site, with ceftaroline fosamil.

05.02.17 EVALUATION OF EFFECTS OF ETHANOL ON DISSOLUTION OF VARIOUS TYPES OF MODIFIED RELEASE DOSAGE FORMS

Dr. Rahmat Talukder - Southwestern Oklahoma State University, Pharmaceutical Sciences, Robyn R. Dowdy - Southwestern Oklahoma State University, Pharmaceutical Sciences, Michael C. Pilkington - Southwestern Oklahoma State University, Pharmaceutical Sciences

Objectives: In-vitro evaluation of effects of ethyl alcohol on dissolution behaviors of various types of controlled release dosage forms.

Methods: In-vitro evaluations of the dosage forms were conducted in 900 ml of USP simulated gastric fluid without the enzyme (SGF) and in SGF with different levels of ethyl alcohol (5%, 10%, and 20%).

Results: The delayed release dosage forms, Ecotrin and Asacol tablets, did not exhibit significant change in their drug release behaviors due to the presence of 20% ethanol in the dissolution media. In the case of prolonged release dosage forms, e.g., propranolol ER and Effexor XR capsules, only about 2 % more drug release took place in the presence of ethanol than in SGF alone. Under the similar conditions, Nifedipine ER tablets, however, released about 4% more of their contents than in the SGF alone in four hours. This behavior is attributed to the higher solubility of the drug in ethanol than in aqueous media. For Pentasa capsule, on the other hand, the drug release was reduced by about 3% in presence of ethanol.

Conclusions: Presence of alcohol in dissolution media may impair the drug release from a modified release dosage form. When the solubility of the active ingredient varies between aqueous and hydro-alcoholic media, significant increase or decrease in drug release is possible in the presence of higher level of alcohol.

05.02.18 IS THREE GREATER THAN TWO? C3-SYMMETRIC TRIS-LINKED BRIDGED TETRAAZAMACROCYCLES AS POTENTIAL CXCR4 ANTAGONISTS

Courtney Dawn Garcia - Southwestern Oklahoma State University, Chemistry

Courtney D. Garcia¹, B. N. Shockey¹, B. Gridley², S. J. Archibald², T. J. Hubin¹

¹Department of Chemistry and Physics, Southwestern Oklahoma State University, ²Department of Chemistry, University of Hull

Objective: This SWOSU-Hull collaboration has produced

well over 50 metal complexes of bis-tetraazamacrocycle ligands for screening as CXCR4 antagonists. The bis-linked complexes are highly efficient antagonists, while single-macrocycle analogues are much less effective. Our objectives were to synthesize C3-symmetric tris-linked analogues of our most effective bis-tetraazamacrocycle metal complexes and to characterize their chemical and physical properties in preparation for determining if the added macrocycle enhances their antagonism of CXCR4.

Funding was provided by Research Corporation (CC6505); the Oklahoma State Regents for Higher Education; and NIH Grant P20 RR016478 from the INBRE Program of the National Center for Research Resources.

05.02.19 SYNTHESIS OF PRECURSORS OF NEW DIHYDROFOLATE REDUCTASE SUBSTRATE ANALOGS MODIFIED AT THE PARA-AMINO BENZOYL MOIETY

Brenna Beeleer - Northwestern Oklahoma State University, Natural Sciences, Crystal Benson - Northwestern Oklahoma State University, Natural Sciences, Alyssa Logsdon - Northwestern Oklahoma State University, Natural Sciences, Sean McAnarney - Northwestern Oklahoma State University, Natural Sciences, Dr. Cornelia Mihai - Northwestern Oklahoma State University, Natural Sciences

DHFR (dihydrofolate reductase) is one of the most important enzymes involved in DNA biosynthesis and an important clinical target. The objective of the proposed research is to synthesize several new DHFR substrate analogs modified at the p-aminobenzoyl moiety (PABA). Different substituents in the PABA ring will alter the pKa values at the N10 position and, eventually, at the N5 position where the chemical step catalyzed by DHFR occurs. The new dihydrofolate analogs proposed will be used to develop a better understanding of the mechanism of hydride transfer catalyzed by DHFR and they might be of unique medical importance. The DHF analogs will be synthesized via two different convergent synthetic approaches, in which three independent moieties will be coupled. The current research project presents the synthesis of several precursors of the new DHF analogs

05.02.20 COMPLEX I INHIBITION BY FLEX-HET ANTICANCER DRUGS DOES NOT INVOLVE INHIBITION OF NADH OXIDASE ACTIVITY.

Mr Monte E. Stone - Southwestern Oklahoma State University, Chemistry and Physics, Dr. William Kelly - Southwestern Oklahoma State University, Chemistry and Physics

Objective: Flexible heteroarotinoids (Flex-Hets), a novel class of retinoid anti-cancer drug, induce apoptosis in multiple types of cancer cells. The lead Flex-Het, SHetA2, is also a powerful inhibitor of NADH:Ubiquinone oxidoreductase in bovine heart muscle submitochondrial particles (SMP's). Recent efforts in our laboratory suggest that SHetA2 is an uncompetitive inhibitor of ubiquinone reduction, probably via indiscriminate binding in the hydrophobic membrane bound region. However, inhibition of NADH oxidase activity (partial Complex I activity) could not be ruled out. By employing potassium ferricyanide (K₃FeCN₆), a reagent known to intercept electrons between the NADH oxidation site and the first Iron-sulfur site in Complex I, we can probe the effect of Flex-Het drug directly on the NADH oxidase site independently of the Ubiquinone reductase site.

Methods: The effect of drug on NADH Oxidase activity was assessed using SMP isolated from bovine heart muscle mitochondria. NADH Oxidase activity was assayed spectrophotometrically using the decrease in absorbance of K₃FeCN₆ following the addition of NADH and in the presence of various amounts of inhibitors. A second set of experiments measured the Michaelis-Menten parameters V_{max} and K_m for NADH oxidase activity in the presence of various amounts of inhibitors.

Results: Flex-Hets are not inhibitors of NADH oxidase activity. Addition of up to 30 microM SHetA2 do not affect NADH Activity as measured by the K₃FeCN₆ method.

05.02.21 CYTOTOXIC EFFECTS OF FLEXIBLE HETEROAROTINOID ANTICANCER DRUGS ON HUMAN OVARIAN CANCER CELLS AND INHIBITION OF MITOCHONDRIAL COMPLEX I.

Travis J. Bernhardt - Southwestern Oklahoma State University, Chemistry and Physics, Starla D Bernhardt - Southwestern Oklahoma State University, Chemistry and Physics, Dr. William Kelly - Southwestern Oklahoma State University, Chemistry and Physics

Background: Flexible heteroarotinoids (Flex-Hets), a novel class of synthetic retinoid, inhibit proliferation of human tumor cell lines by inducing apoptosis. Studies have shown

that Flex-Hets directly target mitochondria, increase reactive oxygen species and inhibit respiration in A2780 ovarian cancer cells. Since other inhibitors of mitochondrial Complex I exhibit antitumor activity, the goal of this work has been to define the molecular mechanism of Flex-Het cytotoxicity by examining the effect of drug on Complex I activity.

Methods: Complex I inhibition studies employed crude mitochondrial isolates from A2780 cultures and bovine heart muscle sub-mitochondrial particles (SMP). Enzyme activity was assayed as the decrease in absorbance of NADH at 340nm. IC₅₀ values were obtained by curve fitting dose response curves to the Hill-Slope equation. V_{max} and K_m were obtained by nonlinear regression curve fitting the Michaelis-Menten steady state equation.

Results: Flex-Hets are inhibitors of Complex I activity at physiological concentrations with IC₅₀ values between 4-17 μM. In contrast, rotenone, a known inhibitor of Complex I had a measured IC₅₀ of 0.6 μM. The results of Michaelis-Menten steady state kinetic analysis strongly suggest that Flex-Hets are uncompetitive inhibitors of ubiquinone reduction.

Conclusion: Flex-Hets represent a new class of Complex I inhibitors and further illustrate the role of Complex I inhibition in the therapeutic treatment of cancer.

05.02.22 CONFINEMENT EFFECTS ON THE THERMAL AND CONDUCTIVITY PROPERTIES OF LIPF6-DIMETHYL CARBONATE SOLUTIONS

Mr. Justin Atchley - Northeastern State University, Department of Natural Sciences, Mr. Eric Butson - Northeastern State University, Department of Natural Sciences, Dr. Christopher M. Burba - Northeastern State University, Department of Natural Sciences

Lithium rechargeable batteries typically perform poorly at low temperatures, partly due to the electrolyte formulations that must be used to maintain high ionic conductivities and low freezing points. The current strategy for preparing electrolytes for low-temperature applications is to add low-freezing-point co-solvents to the battery electrolyte solutions. However, confining the electrolyte solutions within nano-porous materials might afford an alternative strategy for enhancing low-temperature performance. According to the Gibbs-Thomson equation, the thermodynamic melting point of a liquid is lowered when it is confined inside a porous matrix, with the degree of the melting-point depression inversely proportional to the average pore radius of the confinement host. Although the Gibbs-Thompson equation has been tested for a large number of solvents, there are very few instances where the validity of the equation has been examined for solutions. Therefore,

we used differential scanning calorimetry to assess the thermal properties of a series of LiPF₆-dimethyl carbonate solutions confined inside mesoporous silicas. Melting point shifts for confined, pure dimethyl carbonate obeys the Gibbs-Thompson equation. However, confinement strongly affected the thermal properties of the LiPF₆-dimethyl carbonate solutions. For instance, confined solutions exhibited second-order thermal transitions compared to first-order transitions observed for the bulk solutions.

05.02.23 METAL IONS DETECTIONS USING LUMINESCENT EXCIPLEXES INVOLVING PLATINUM DIPHOSPHIE COMPLEXES

Dr. Mo. Chehbouni - Southeastern Oklahoma State University, Chemistry, Computer, and Physical Sciences, Nisa T. Satumtira - University of North Texas at Denton, Chemistry, Dr. Oussama El-Bjeirami - King Fahd University of Petroleum & Minerals, Chemistry, Dr. Mohammad A. Omary - University of North Texas at Denton, Chemistry

Platinum phosphite complexes, in particular potassium tetrakis(u-diphosphito)-diplatinate (II) dihydrate, K₄[Pt₂(POP)₄]*2H₂O ("PtPOP"), display an intense green phosphorescent both in the solid state and in aqueous solutions with high quantum yield in the latter. The chemistry and spectroscopy of the platinum complex has been extensively studied.

The effectiveness of PtPOP in the detection and removal of heavy metals, such as lead, arsenic, and mercury from aqueous solutions was also investigated. Herein, we report that the interaction of PtPOP with some metal ions, such as lead, thallium, and tin, resulted in the quenching of the phosphorescence intensity of the platinum complex. This important feature has been used for a real time detection of heavy metals from aqueous solutions since PtPOP is highly soluble in water. Furthermore and more interestingly, the water soluble PtPOP showed luminescence-based oxygen sensing capabilities. The intensity of the emission spectra of PtPOP decreased when the complex is purged with oxygen. Such finding, can be utilized to explore oxygen detection and sensing in biological systems.

05.02.24 EVALUATION OF CENTAUREA AMERICANA AS A POTENTIAL BIODIESEL OILSEED CROP.

Dr. Nancy L. Paiva - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Dale W. Daniel - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Tucker Harrison - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Jeff B. Hill - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Kati Crawford - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Michael C. Pilkington - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Kelli Baze-Fulks - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences

Centaurea americana (American basket flower) is a wildflower native to Oklahoma and the central US. The plant produces numerous thin-shelled, oil-rich seeds. GC-MS fatty acid methyl ester (FAME) analysis of 50/50 chloroform/MeOH 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. 15 to 17%(w/w) of hexane-extractable oil was obtained from commercial seed samples. The fatty acid profile of *Centaurea* oil is very similar to soybean and corn oils, and therefore may serve as an excellent alternative for modern production of biodiesel fuel. Current efforts are investigating possible variations in oil composition due to genetic variation or environmental differences, estimating yields of seeds and oil per acre from wild populations and planted plots, and identifying profitable uses for extracted seed meal. The seed meal may provide valuable protein, but older studies reported that un-extracted seed meal was rejected by some animals, and it is not known if oil extraction removes unpalatable substances. Other studies indicate that *Centaurea* seeds may also be a source of useful compounds which act as insect growth inhibitors. (Funded by Oklahoma Center for the Advancement of Science and Technology (OCAST) Oklahoma Applied Plant Science Research Grant #PSA08-03.)

05.02.25 ALTERNATIVES TO TRADITIONAL SOLID ACID CATALYSTS

Daniel Pardue - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Abbey Monreal - Oklahoma State University, Chemistry, Rosimar Truitt - Oklahoma State University, Chemistry, Gaumani Gyanwali - Oklahoma State University, Chemistry, Dr. Jeff White - Oklahoma State University, Chemistry

One common method for the production of biodiesel involves esterification of long-chain free fatty acids (FFAs) using a soluble acid catalyst such as sulfuric acid. Problems with this method are that it requires a high amount of heat energy input and the catalyst is not recovered when it is separated from the product mixture. This is costly because the catalyst is used only once. An ideal catalyst is a solid catalyst that can be easily separated from reaction mixtures and reused several times, but many available solid acid catalysts are expensive. For this study, candidate solid catalysts were prepared from natural products such as glucose. Glucose was incompletely carbonized, which results in a material containing small polycyclic aromatic carbon sheets. The aromatic carbon sheets are also bonded in a three-dimensional sp³ structure. This material was then sulfonated to introduce a high density of active sites. Tests indicated that there was no leaching of sulfuric acid sites into the reaction when tested with various types of FFAs, implying that the catalyst can be reused without loss of activity. Thus, a high-performance catalyst was prepared cheaply from naturally occurring molecules that can be reused efficiently numerous times.

This work was funded by OSU Chemistry Research Experiences for Undergraduates in Integrated Nanosciences, National Science Foundation Award #0649162. Daniel Pardue received travel support from NASA Oklahoma Space Grant Consortium.

05.02.26 PRODUCTION OF USEFUL MATERIALS FROM THE REACTION OF MOLYBDENUM TRIOXIDE WITH AMINO ACIDS

Anthony Banks - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Kevin Barber - Oklahoma State University, Chemistry, Derek Bussan - Oklahoma State University, Chemistry, Bhawani Regmi - Oklahoma State University, Chemistry, Allen Applett - Oklahoma State University, Chemistry

Several years ago it was discovered that molybdenum trioxide reacts with a half-molar equivalent of glycine to produce a product where the glycine is most likely intercalated into the MoO₃ layered-structure and

coordinated to the molybdenum (VI) centers. We have reinvestigated this reaction and expanded it to several other amino acids with the intent of producing useful materials. It was found that non-basic, non-chelating amino acids behave similarly to glycine but the coordinating or strongly basic amino acids produced soluble products instead. Also some amino acids were capable of reducing the molybdenum trioxide to form dark blue molybdenum bronze species. Among the useful discoveries that were made are materials that are capable of extracting heavy metals (such as copper) from water, novel flame-retardants, and new colorimetric compounds for detection of strong oxidants and improvised explosives. There is also on-going work with the soluble amino acid/MoO₃ products to test them as corrosion inhibitors.

Funding to support this work was provided by OSU Chemistry Research Experiences for Undergraduates in Integrated Nanosciences, National Science Foundation Award #0649162, Oklahoma Center for the Advancement of Science and Technology (OCAST) and the Oklahoma Transportation Center. Anthony Banks also received support from Oklahoma-Louis Stokes Alliance for Minority Participation (OKAMP/NSF-LSAMP) and NASA Oklahoma Space Grant Consortium (OSGC).

05.02.27 COMPARISON OF ABL HEIGHTS DERIVED FROM COSMIC RO AND THE RUC MODEL

Sharome Goode - University of Central Oklahoma, Chemistry

This study investigates two approaches for determining the height of the Atmospheric Boundary Layer (ABL): analyzing radio occultation (RO) observations and using NOAA's Rapid Update Cycle (RUC) model. The first approach determines the ABL height by examining radio wave bending angle profiles from the Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC). The second approach examines the vertical structure of meteorological parameters reproduced by the RUC model. This study compares the values of collocated ABL heights obtained by each approach over the North America and adjacent ocean for both summer and winter months to determine seasonal variations. Significant differences in the ABL heights were found for the two approaches, as well as seasonal variations. High-precision comparisons were not produced between RUC and COSMIC ABL heights, because this ABL analysis did not include RUC model data for water vapor and turbulence. To perform a better comparison, the RUC ABL should be better characterized by accounting for water vapor and turbulent mixing data. Both methods measure the ABL, but they measure different parts of the ABL. COSMIC is measuring where the strongest decrease

in water vapor and humidity occurs. RUC on the other hand just reports the height that fits its definition; this might not always be the true ABL height.

05.02.28 PREPARATION OF 4-ETHOXYPHENYLUREA USING MICROWAVE IRRADIATION

Joshua Coats - Northeastern State University, Natural Science, Dr. Spence Pilcher - Northeastern State University, Natural Science

Two reactions typically performed in the undergraduate organic laboratory were conducted using microwave energy with the purpose to speed reaction rates and increase purity. The synthetic reactions being studied were the synthesis of benzoin from benzaldehyde and the synthesis of 4-ethoxyphenylurea. Initial results suggest for these reactions the addition of microwave energy causes the formation of byproducts in the case of the benzoin synthesis. The product yield for 4-ethoxyphenylurea varied from 4.3% to 27.3% over a temperature range of 100°C to 120°C respectively under microwave power for 5 minutes. The yield for the same reaction done using conventional heating methods to heat the mixture at reflux for 30 minutes was 10.0%.

05.02.29 A COMPUTATIONAL CHEMISTRY STUDY OF VOLATILE COBALT HYDROXIDES

Alisha R. Shepherd - East Central University, Chemistry, Dr. Dwight L. Myers - East Central University, Chemistry

Formation of volatile hydroxides at elevated temperatures is an important mechanism for corrosion of metal alloys or oxides in combustion environments. Thermodynamic data for these species is obtained by studying the reaction of water vapor with a metal oxide in a flowing gas stream. We are currently studying the reactions of cobalt oxides with water vapor. In addition to experimental methods, computational chemistry methods are useful because they allow one to evaluate the geometry and expected vibrational modes exhibited by the metal hydroxides. Such methods are necessary because most of the volatile metal hydroxides cannot be produced in sufficient concentrations to perform spectroscopic measurements. We have examined the equilibrium geometry and vibrational modes for CoOOH(g) , $\text{CoO(OH)}_2\text{(g)}$, and $\text{Co(OH)}_3\text{(g)}$, using the ab initio computational chemistry program GAMESS (M.W.Schmidt, K.K.Baldrige, J.A.Boatz, S.T.Elbert, M.S.Gordon, J.H.Jensen, S.Koseki, N.Matsunaga, K.A.Nguyen, S.J.Su, T.L.Windus, M.Dupuis, and J.A.Montgomery, *J. Comput. Chem.* 14, 1347-1363(1993). Partition functions and energies for each molecule will be presented. The ultimate goal is to obtain a G2 level energy calculation for comparison to

experimental data. Preliminary results and the current status of this project will be presented.

05.02.30 OXYGEN CONTENT AND X-RAY DIFFRACTOMETRY OF COBALT-DOPED YTTRIUM-BARIUM-COPPER OXIDE SUPERCONDUCTORS

Newton Koo - East Central University, Chemistry, Dr. Dwight L. Myers - East Central University, Chemistry

It is well known that addition of small amounts of other transition metals to the yttrium-barium-copper oxide (YBCO) superconductor increases T_c and ultimately eliminates superconductivity in YBCO. We have prepared $\text{YBa}_2\text{Cu}_3\text{-xCoxO}_y$ superconductor samples doped with Co at levels up to $x = 0.2$. From the composition at which superconductivity ceases, one can calculate the theoretical average distance between cobalt atoms in the Cu-O chains, and therefore the effective Cu-O chain length for the superconductor. X-ray diffraction data provide d-spacings and crystal structure data. Oxygen content of the superconductor samples was determined by means of iodometric titration (Appelmann et al. *Inorg. Chem.* 26, 3237 (1987)). Preliminary results will be presented and discussed.

05.02.31 NOVEL FUNCTIONALIZATION OF ARENES AND PREPARATION OF DIAZONIUM SALTS USING MILD CONDITIONS,

Charlene Warren - Cameron University, Department of Physical Sciences

Single-wall carbon nanotubes (SWNT) can be considered one of the building blocks for nanoscale science and nanotechnology. Chemical functionalization of SWNTs is a prerequisite for many of the possible applications. The derivatized tubes differ from the pristine nanotubes in both solubility and chemical reactivity. SWNTs can be functionalized with para substituted anilines by reacting the SWNT with the aniline derivatived. The aniline derivative proceeds through a diazonium salt which introduces a para substituted phenyl group as a functional group on the side walls of the SWNT. Isoamyl nitrite is usually used to produce the diazonium salt but it reacts with thiols to produce esters. The goals of this research project was to prepare diazonium salts using mild conditions and to attach them to carbon nanotubes while maintaining the integrity of the carbon nanotubes. Anthracene was used as a model compound to test the various methods. UV Photolysis was tested as a possible method for attaching the diazonium salts to the arenes.

05.02.32 DEVELOPMENT OF PH STIMULI RESPONSIVE VESICLES

Adam Martin - Cameron University, Department of Physical Sciences, Dr. Douglas S. English - Wichita State University, Department of Chemistry, Lucinda A. Brothers - Wichita State University, Department of Chemistry

An important goal for drug delivery is to develop drug carriers that release their cargo in response to the decrease in pH that occurs in endosomes after internalization by cells. We are interested in developing vesicles as drug carriers that are pH responsive and will release their cargo when pH is decreased. "Catanionic" vesicles are vesicles that form spontaneously from mixtures of anionic and cationic single-tailed surfactants. My research has focused on developing new catanionic vesicle formulations that can respond to changes in pH. Working from a known vesicle-forming formulation of cetyl trimethylammonium tosylate (CTAT) and sodium dodecylbenzenesulfonate (SDBS), I systematically investigated the effects of adding n-tridecanoic acid (TDA). The vesicles were prepared by incrementally replacing SDBS with TDA while keeping CTAT constant in HEPES sodium salt buffer solution. The buffer solution was titrated to pH 7.4, 6.4, and 5.4 while keeping ionic strength constant by addition of potassium chloride. Formulations that formed vesicles at pH 7.4 but not at pH 5.4 were deemed interesting for further investigation since the goal of this project was to develop vesicles that undergo destabilization in response to pH. The vesicles I studied have a net negative charge and were used to capture and sequester rhodamine 6G, a cationic dye. Using the vesicle-dye system, we investigated the effect of pH decrease on vesicle stability.

05.02.33 SYNTHESIS AND CHARACTERIZATION OF A SERIES OF IRON(II) BIPYRIDINE COMPLEXES FOR POSSIBLE USE AS PHOTSENSITIVE DYES

John R. Gillis - Cameron University, Department of Physical Sciences, Dr. Khamis S. Siam - Pittsburgh State University, Department of Chemistry, Dr. F. D. Souza - Wichita State University, Department of Chemistry, Dr. Paul D. Rillema - Wichita State University, Department of Chemistry, A. J. Cruz - Wichita State University, Department of Chemistry

A series of iron(II) complexes are reported, $\text{Fe}(\text{LL})_3(\text{ClO}_4)_2$, [where LL is: 2,2'-bipyridine(1); 4,4'-dicarboxy-2,2'-bipyridine(2); 4,4'-dimethoxy-2,2'-bipyridine(3); or 4,4'-diethoxy-2,2'-bipyridine(4)]. These complexes give rise to LMCT absorption bands in the visible region of the electromagnetic spectrum. Such complexes can be used

as photosensitizing dyes which can be attached to a TiO_2 semiconductor in dye sensitized solar cells (DSSC's).

05.02.34 CLONING AND EXPRESSION OF THE OXIDATIVE STRESS PROTEIN CASSK1P FROM CANDIDA ALBICANS

Steffan Sigler - Cameron University, Department of Physical Sciences, Dr. Hui Tan - Cameron University, Department of Physical Sciences

The oxidative stress protein CaSsk1p has been shown to play a role in virulence of *Candida albicans*, one of the top four causes of nosocomial infectious diseases in humans. The crystal structure of CaSsk1p may help in developing innovative antifungal drugs. This research attempted to clone CaSSK1 gene into an E.coli expression plasmid, in order to tag CaSsk1p with peptides that helps the protein folding during expression.

05.02.35 ATTEMPTS TO ISOLATE THE PROBABLE MAGNETIC FIELD EFFECTS ON THE OXYGEN REDUCTION REACTION

Dr. Jody Buckholtz - Northeastern State University, Department of Natural Sciences, Beatrice Nicole Lewallen - Northeastern State University, Department of Natural Sciences

In order to achieve diffusion-limited current for the oxygen reduction reaction (ORR), a significant over-potential must be applied to the working electrode. Large over-potentials decrease the lifetime of an electrode. By catalyzing a reduction reaction, a positive shift in the reduction potential can be achieved. Using silane-coated iron (II,III) oxide particles magnetically aligned in a nafion film on gold, a positive shift of the reduction potential for the ORR was observed. This project attempted to isolate magnetic field as the primary driving force behind the observed potential shift.

05.02.36 ISOLATION AND STRUCTURAL CHARACTERIZATION OF SIDEROPHORES PRODUCED BY MARINE FUNGI

Hannah Nichols - Northeastern State University, Department of Natural Sciences, Leane Coppick - Northeastern State University, Department of Natural Sciences, Dr. Jessica Martin - Northeastern State University, Department of Natural Sciences

Siderophores are produced by many microorganisms for binding iron(III) during times of low soluble iron availability in aerobic conditions. Our research focuses on cultivation, isolation and structural identification of siderophores produced from marine fungi. *Sporidiobolus* sp. 05-001

MATH AND SCIENCE

and *Leucosporidium* sp. 03-138 have been determined to produce siderophores. The siderophores have been isolated using XAD-2 followed by RP-HPLC. Each strain was found to produce at least one hydroxamate-type siderophore. The purified samples have been analyzed by electrospray ionization mass spectrometry and tandem mass spectrometry. Structural analysis is underway.

05.02.37 GROWTH AND ISOLATION OF SIDEROPHORES PRODUCED BY MARINE FUNGI

Briana Broad - Northeastern State University, Department of Natural Sciences, Harrison Dragoo - Northeastern State University, Department of Natural Sciences, Lani Falwell - Northeastern State University, Department of Natural Sciences, Callison Hutson - Northeastern State University, Department of Natural Sciences, Lisa Sarten - Northeastern State University, Department of Natural Sciences, Tayler Tryon - Northeastern State University, Department of Natural Sciences, Leane Coppick - Northeastern State University, Department of Natural Sciences, Dr. Jessica Martin - Northeastern State University, Department of Natural Sciences

Almost every organism requires iron to survive. Since iron is not soluble at neutral pH and aerobic conditions, microorganisms have evolved the ability to produce molecules called siderophores. Siderophores are secreted into the organism's habitat where they bind iron and take it back to the cell. The purpose of this experiment was to screen marine fungal strains for the production of siderophores. The strains that were studied were: *Leucosporidium* sp. 03-045, *Leucosporidium* sp. 03-138, *Leucosporidium* sp. 03-120, *Cystofilobasidium bisporidii* ATCC24496, *Penicillium raistrickii* ATCC42470, and *Pichia* sp. 05-028. All seven strains were found to produce siderophores.

05.02.38 MARINE FUNGAL SIDEROPHORES

Jessica Martin - Northeastern State University, Department of Natural Sciences

Although iron is the fourth most abundant element on the earth's surface, it is only sparingly soluble in the aerobic, near neutral conditions under which most microbes grow. Iron limitation is thus a major factor influencing the growth of microorganisms, from infection of a mammalian host (where iron is tightly controlled by protein complexation) to aquatic and marine environments (where iron is not soluble or is complexed by organic ligands). Many microorganisms produce low-molecular-weight, iron(III)-specific chelators called siderophores to compete for

iron. Like their terrestrial counterparts, the marine bacterial species studied thus far have been shown to produce siderophores. Marine fungi, however, have not been extensively studied. At this time, three structures of siderophores produced by marine fungi have been reported. We report here investigations into the structures of marine fungal siderophores from diverse environments (including undersea volcanoes and Antarctic sands).

05.02.39 MICROWAVE POLYMERIZATION OF STYRENE AND METHYL METHACRYLATE IN MICROEMULSIONS USING VARIOUS INITIATORS: CONVERSION STUDY AT VARIABLE POWER

Skylar Williams - Northeastern State University, Natural Science, Dr. Spence Pilcher - Northeastern State University, Natural Science

Microwave irradiation was used as the thermal energy source for the free radical polymerizations of both styrene and methyl methacrylate in microemulsions using cetyltrimethylammonium bromide (CTAB) as the surfactant (surfactant/monomer = 0.5). Polymerizations were performed for 30 minutes at 60 degrees Celsius using various initiators. Initiators employed in the polymerizations included either potassium persulfate (KPS), 2,2'-azobis(2-methylpropionamide) dihydrochloride (V-50), or azobisisobutyronitrile (AIBN). Comparisons were drawn between the percent conversions of each polymer sample (estimated from the percent recoveries of each polymer) and the power settings of the microwave.

05.02.40 VAPORIZATION STUDY OF ZIRCONIUM OXIDE AT HIGH TEMPERATURES

Tyler C. Vandever - East Central University, Chemistry, Dr. Dwight L. Myers - East Central University, Chemistry

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. Formation of volatile hydroxides from reaction of water vapor at high temperatures is an important mechanism for corrosion of metal alloys or oxides in combustion environments. We are currently studying the reactions of zirconium oxides with water vapor. Zirconium(IV)Oxide has been heated to temperatures ca. 1300 K under atmospheric pressure to determine mass losses under these conditions. Reaction with atmospheric moisture to produce volatile metal hydroxides is one possible mode of material transport. X-ray diffractometry has been used to characterize starting and ending phases. Fourier-Transform

Infrared Spectrometric measurements have been performed to look for evidence of adsorbed water. Results to date will be presented.

05.02.41 ANALYZING LEAD IN PLANTS AND SOIL IN PICHER OKLAHOMA

Prakash Thapa - University of Central Oklahoma, Chemistry

Analyzing Lead in Plants and Soil in Picher Oklahoma

Hix Misti, Reyes Zoraya, Keisha Parnell, Thapa Prakash. University of Central Oklahoma

Picher was part of a Tri-State Mining District, which was the nation's leading producer of lead and zinc during the early and mid 1900s. This area produced nearly twenty seven percent of the nation's supply of iron and zinc. The goal of this project was to collect various samples of the flora and soil in this town and test for the levels of lead that these samples contain. The method used to test for these contaminants was flame atomic absorption spectrophotometry. These samples were compared to unfertilized flora samples from the town of Mannford and to some pure samples of lead. unknown samples were the samples from Picher, the known was a lead nitrate sample diluted to various concentrations, and the Mannford sample was going to be used as the known for normal amounts of lead in soil. The Mannford sample was around 0.32 ± 0.05 ppm, with an RSD of 157 ppm. The Picher samples ranged from 9.93 ± 0.28 to 120.12 ± 4.52 ppm, with RSDs of 28.01 ppm and 37.65 ppm. The dangerous level of lead in soil is above 500ppm. These results show that the samples in Picher, Oklahoma are not in the dangerous levels. This could be because the government actually removed a lot of soil and replaced it with fresh soil in the late 1990s. The difference between Mannford and Picher is still significant and could show the soil is being recontaminated.

03 COMPUTER SCIENCE

05.03.01 A SIMPLE SHOOTING GAME

Rad Alrifai - Northeastern State University, Mathematics and Computer Science, Daisuke Hisada - Northeastern State University, Mathematics and Computer Science

Many video games are getting more complex day after day. This places more demand on the players to learn many techniques and follow many instructions before they can enjoy these games. Subsequently, stripping the game from all of the fun and thus rendering the average user dissatisfied. Consequently, this project is intended to return the fun to game playing. Thus, players will no

longer be obligated to read prolonged instructions and develop skills in many techniques before they can enjoy a game. The project is intended to reveal the mysteries of playing a game without laboring in the extensive study of "How to get started." The game runs in the Windows operating system platform, developed in C++, and uses DirectX to handle multimedia content.

05.03.02 "ON-GAKU": THE TUNES OF JAPAN

Rad Alrifai - Northeastern State University, Mathematics and Computer Science, Chiaki Wakamatsu - Northeastern State University, Mathematics and Computer Science

ON-GAKU is a web-based application that promotes Japanese music. The application is developed in HTML, PHP, Flash, Microsoft Access, and Java. In addition to disseminating information about Japanese music, On-Gaku enables the exchange of information on concerts, photos, and music stars. The four primary components of this software are: an application board, Information board, authentication system, and a photo album. While the application board allows for the overall management of the software application, the information board facilitates a better understanding and appreciation of Japanese culture by people from around the world. The authentication system secures access to information, and, the photo album allows for sharing pictures of music artists.

05.03.03 HUNTING & FISHING EXCHANGE

Phil Howell - Northeastern State University, Mathematics and Computer Science, Rad Alrifai - Northeastern State University, Mathematics and Computer Science

While most web sites for hunting and fishing cover the entire state of Oklahoma, and thus may give the site users a short circuit due to sensory overload, this web site is devoted to those interested in hunting and fishing in Northeastern Oklahoma. Hunting & Fishing Exchange consists of several components: An information section to supply information on lake conditions, fishing reports and dam outputs. A resources section to provide external links for finding information about local events, sporting news and fishing and hunting regulations. And a blog section to enable users to exchange stories and photos related to hunting and fishing.

MATH AND SCIENCE

05.03.04 INTERACTIVE FICTION DEMO

Jeff Ehlers - Northeastern State University, Mathematics and Computer Science, Rad Alrifai - Northeastern State University, Mathematics and Computer Science

Despite having an easy to use user interface, graphical programs demand for huge CPU processing power and main memory can significantly restrict users and developers from supporting functions greedy for such resources. Interactive Fiction, however, is a game that overcomes the previously listed limitations by adopting a text-based user interface while at the same time allowing players to choose their own adventure without compromising the thrill found in other games. Interactive Fiction is developed in Java and uses an approach similar to that found in text adventures such as the famous "Zork" series. In such approach, objects are configured as "rooms" that contain other objects ("items" and "people", for example) that the player can interact with freely.

05.03.05 PUBLIC LIBRARY: AN ONLINE PRESENCE

Jason Gonzales - Northeastern State University, Mathematics and Computer Science, Rad Alrifai - Northeastern State University, Mathematics and Computer Science

Presently, public libraries are immersed in a significant transitional phase of harvesting the many benefits of the Internet. Even though the prevailing, traditional frame of mind may contend that Internet is replacing libraries, the relevant existence of a public library today, is demonstrated by a library portal that can extend its services beyond its physical walls and into the community. A primary challenge in developing such portal is the creation of a standard framework that meets the needs of independent departments within the same library. The library's portal is developed in PHP, XHTML, and CSS. The portal allows individuals to search the library's catalog, interact with library staff, access online databases and related resources, and disseminate library events and programs. A user friendly portal is an invaluable resource for public libraries as they face viability in an increasingly technological savvy world.

05.03.06 IMANAGER: AN ONLINE INVENTORY TRACKER

Rocklyn LeBeau - Northeastern State University, Mathematics and Computer Science

iManager is developed using ASP.NET and Microsoft Access to track the inventory of a Network Department. iManager forms a basic building block that can be expanded to track other larger Inventory bases. The

software is portable, scalable, and easy to use. Its databases can be easily expanded and customized to meet the needs of individual departments. Also, due to its portability, iManager can be adapted by other type of businesses. This application provides a higher level of efficiency and accountability in an expanding or established business setting. Once this application is launched on the internet, it will be accessible from anywhere in the world.

05.03.07 NSU READING AND WRITING CENTER TUTORING WEB APP

Mr. Kyle Cates - Northeastern State University, Department of Mathematics and Computer Science, Dr. Rick Matzen - Northeastern State University, Department of Mathematics and Computer Science

In the fall of 2008 the head of the NSU Reading and Writing Center, Dr Mary Stanley, approached a group of Computer Science students that were enrolled in her Technical Writing class. She was in need of someone to develop a website for the center that could keep track of all tutoring sessions as well as facilitate an online tutoring feature, which would provide the ability for tutors to post their available times so students could schedule appointments with them accordingly.

05.03.08 COMPUTER SCIENCE ALUMNI DIRECTORY

Mr. Chris Cummings - Northeastern State University, Department of Mathematics and Computer Science, Mr. Rick Matzen - Northeastern State University, Department of Mathematics and Computer Science

Northeastern State University's Computer Science faculty has a list of alumni that they want to incorporate into a central directory accessible by all Computer Science faculty. This would allow for all faculty to update the directory as needed. The current method only allows for the list to be updated by one person, then sent to the rest of the faculty in the Computer Science department. What was needed was an easy way for the list to be updated in one central location and accessible to all the faculty. The goal of this project is to create an alumni directory that will allow all faculty and student workers to add, modify and remove alumni from the directory, as well as generate mailing lists based on contact preference. The program was developed with the C# programming language with SQL commands to access a database. Microsoft Access was used to build the database. The mailing lists are generated in the program and easily imported into the NSU GreenMail system.

The program is connected to a remote database on a server for all the updating purposes. Any user who has

access to log in is considered to be administrator. After logging in, the user will be able to add, modify, delete and view other users, as well as add, modify, remove and view alumni. The user will also have the ability to generate a mailing list as well as perform database backup functions.

05.03.09 WORK ORDER SYSTEM

Mr. Timothy Williams - Northeastern State University, Department of Mathematics and Computer Science, Dr. Rick Matzen - Northeastern State University, Department of Mathematics and Computer Science

A local computer store needed a program for keeping track of work performed for customers. For this project the goal was to create a program that could be used to keep track of customers, employees and the work performed. This program was created in Visual Studio 2008 using ASP.NET with C# and SQL for the databases. This is a web based program that is used to display the customer information along with any work orders they have with the company. The program also keeps track of the employees that perform the work to allow a customer to always have the work performed by the same employee if they so wish. The work order system allows for an easier and more efficient way for keeping track of work orders.

05.03.10 DEVELOPING A QUERY ALGORITHM FOR PROTEIN HOMOLOGY DETECTION USING THE HIDDEN MARKOV MODEL

Gang Qian - University of Central Oklahoma, , Preston Cofield - University of Central Oklahoma, Computer Science

Protein sequences that are remotely related to a protein family can be detected using a profile hidden Markov model (HMM) that represents the protein family. However, a search using a profile HMM is usually conducted by dynamic-programming algorithms, which have a high time complexity. We implemented an indexed-based search algorithm that takes a profile HMM as the query object and searches the index to find sequences that are related to the given HMM. Instead of aligning the HMM with every sequence in the index, the search algorithm compares the HMM with sequence groups organized within the index. Those groups with lower matching scores can be pruned by the algorithm immediately without examining individual sequences within the group, resulting in an improvement in search performance. We will compare the implemented algorithm with HMMER, a famous HMM search algorithm, to verify the efficiency of our approach.

05.03.11 BEOWULF CLUSTER USING OSCAR

Mark Polson - Cameron University, Computing & Technology

For this research project, a cost effective Beowulf-style computer cluster was designed and built using five desktop computers. One computer was designated as the master. The other four computers are the slave computers. Ubuntu Linux was used as the operating system. The cluster was created to do research on parallel algorithms.

OSCAR was installed on the master. OSCAR is Open Source Cluster Application Resources which includes a message passing interface. The system includes an 8 port Ethernet switch.

05.03.12 DISTRIBUTED TESTING AND DIAGNOSIS IN A MOBILE AD-HOC WIRELESS NETWORK

Daniel Phelps - Southeastern Oklahoma State University, Dept. Chemistry, Computer, and Physical Sciences, Dr. Ming-Shan Su - Southeastern Oklahoma State University, Dept. Chemistry, Computer, and Physical Sciences, Dr. K. Thulasiraman - University of Oklahoma, Dept. of Computer Science

Continuing advances in the semiconductor technology have made possible the development of very large digital systems comprising hundreds of thousands of components or units. Yet it is impossible to build such systems without defects. Testing of such systems becomes extremely difficult due to their large sizes. In 1967, Preparata, Metzger and Chien proposed a model and a framework, called System-Level Diagnosis, for dealing with this problem.

In recent years, the rapidly expanding technology of cellular communication, wireless LANs and satellite services will make information available anywhere and at any time. The resulting computing environment, often referred to as mobile or nomadic computing, does not require users to maintain a fixed and universally known position in the network and allows almost unrestricted mobility. This new mobile computing environment has given rise to a host of new research challenges in areas such as address management, mobility management, data distribution, security and bandwidth management.

Following this trend, in this research we propose to investigate the following project: Distributed testing and diagnosis in a mobile ad-hoc wireless network. Through our application, we demonstrate that some of the above problems can be solved and that the improvement of fault

MATH AND SCIENCE

management through distributed diagnosis in a mobile computing environment is feasible.

05.03.13 A DISCRETE EVENT DRIVEN SIMULATOR TO EVALUATE CPU SCHEDULING ALGORITHMS

Dr. Lie Qian - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences, Mr. Jackson Nathaniel - Southeastern Oklahoma State University, Chemistry, Computer & Physical Sciences

This simulation is assigned as a course project in Operating System Concept class. In this project, students are required to implement a discrete event simulator using programming language of their choice and use it to evaluate CPU scheduling algorithms (FCFS, preemptive SJF, non-preemptive SJF, and Round Robin). A discrete event-driven simulation is a popular simulation technique, in which a priority queue is used to store a representation of "events" that are waiting to happen. This queue is stored in order, based on the time the event should occur, so the smallest element will always be the next event to be modeled. As an event occurs, it can spawn other events. These subsequent events are placed into the queue as well. Execution continues until all events have been processed. The purpose of this project is to encourage students to integrate skills of programming, knowledge of event driven concept and CPU scheduling algorithms to create a simulator to evaluate the performance of CPU scheduling algorithms under different parameter configuration. After the completion of this project, students are having better understanding of the mechanism and tradeoff of these scheduling algorithms. In addition, with the experience of building a discrete event simulator, students will be able to build their own simulator in the future to evaluate computer solutions in their work or academic research.

05.03.14 A LOW-COST APPROACH TO AN INTERACTIVE WALL FOR THE TOM P. STAFFORD AIR AND SPACE MUSEUM

Dr. Warren Moseley - Southwestern Oklahoma State University, Accounting, Computer Systems, and Entrepreneurship, Brandon Phillips - Southwestern Oklahoma State University, Accounting, Computer Systems, and Entrepreneurship, Andy Hill - Southwestern Oklahoma State University, Accounting, Computer Systems, and Entrepreneurship

Located in Weatherford, Oklahoma, birthplace of astronaut and flight pioneer General Thomas P. Stafford, the Stafford Air & Space Museum houses an amazing collection of air and space exhibits, an interactive aviation gallery that spans the history of flight, more than 20

historic aircraft, unique space flight artifacts. During this past year Southwestern Oklahoma designed and produced a poster that covered the sixties. It covers the Vietnam War, to the Civil Rights Movement, the Race to the Moon, and U.S. politics. The purpose of this display was to call attention to the twenty month period of the Gemini Space Program and to highlight its accomplishments in light of the turmoil of the sixties. This poster session is about the cost-effective means of creating an interactive wall to make the poster come alive.

05.03.15 A PORTAL TO THE OK-SMART-COP (OKLAHOMA SCIENCE MATHEMATICS ASSOCIATION OF RURAL TEACHERS COMMUNITY OF PRACTICE)

Warren Moseley - Southwestern Oklahoma State University, Accounting, Computer Systems and Entrepreneurship, Victoria Abernathy - Southwestern Oklahoma State University, Accounting, Computer Systems, and Entrepreneurship

The Oklahoma State Department of Education through the "No Child Left Behind" sponsors a program called SMART: Science Math Association of Rural Teachers. 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. This poster outlines a portal built to simplify the interface to the virtual community. This community has undergone expansion, redefinition and re-evaluation during the past four years. This poster session will reflect the reshaping of the foundations of the SMART-COP, its expansion phases, and its current status. 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.

05.03.16 A STEP TOWARD RESEARCH ON THE LIFETIME OF A WIRELESS SENSOR NETWORK FROM CS1

Mr. Paul Wiechmann - University of Central Oklahoma, Computer Science, Dr. Myung Ah Park - University of Central Oklahoma, Computer Science

Undergraduate research has usually targeted only upper-level students. However, even first-year students can learn certain research methods and apply them to subjects they will encounter later in the course of their study. In this work, we present our first step taken from CS1 toward research on the lifetime of a single-hop wireless sensor network. In a network considered in our work, a base station is located at the center of a grid. Sensors monitor

targets in the grid, periodically gather data of the targets, process it, and transmit it to the base station. We consider parameters such as the number of targets, the ratio of energy consumption, the size of grid, and the moving speed and direction of a sensor and investigate how these parameters have impacts on the lifetime and energy efficiency of the network through simulation.

05.03.17 CS1:AN EYE-OPENING TOOL TO THE UTILITY OF COMPUTER SCIENCE AND BEYOND

Dr. Myung Ah Park - University of Central Oklahoma, Computer Science

Gaming has been paid much attention in computer science curriculum for student engagement in learning, enrollment increase, and retention. We observed that students with a strong motive for the study of computer science are usually game programming-oriented. However, there is a much more significant portion of student population at low level who do not have prechoice for gaming career. They choose the subject study simply because they like math, logical thinking, playing with computers, or bet for a bright future career. Taking this into account, we believe that students' exposure to different applications of computer science at early stage of subject study may give a significant impact on students' view of the subject and their career path. In this work, we discuss our practice of how CS1 has been used as an eye-opening tool to the utility of computer science and even as a tool to help students take their first steps toward research. We also discuss our courseware that may be effective in implementing the idea.

05.03.18 A CYBERWAR BEHIND SEARCH ENGINE OPTIMIZATION

Mr. Hendrikus Kwan - University of Central Oklahoma, Computer Science, Dr. Myung Ah Park - University of Central Oklahoma, Computer Science

Search Engine Optimization(SEO) is the process of increasing the exposure of a web site to search engines. It benefits web community by helping web authors create high-quality pages in structure and contents. However, it can also be used to boost relevancy ranks of undeserved web sites in search results, which causes downgrade of a search engine. In order to combat such web sites, there have been considerable research efforts in recent years. In this work, we present a survey on SEO black hat techniques called web spamming and how web spam can be detected and filtered in search results.

05.03.19 ENGINEERING A CAMPUS-WIDE VIRTUAL SUPERCOMPUTER USING BOINC

Dr. Anil Lawrence Pereira - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship, Dr. Charles Warren Moseley - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship, Mr. Christopher Goree - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship

The Berkley Open Infrastructure for Network Computing (BOINC) has been deployed in the Computer lab at Southwestern Oklahoma State University (SWOSU), Weatherford. BOINC is open source software used by several projects worldwide (for example, SETI@Home) for building distributed High Performance Computing (HPC) Systems from existing computational and networking resources. The possibility of building a Virtual Supercomputer across the SWOSU campus is being explored. BOINC can be deployed on all the computers on Campus. When a computer is idle BOINC turns on a screen saver and performs computation in the background. A BOINC server can be used to distribute a problem among several idle computers and they work in parallel to solve the problem, effectively reducing the time it takes to arrive at a solution. A Problem that takes days or weeks to solve on one computer can be solved in a matter of hours or even minutes. Several issues in Security and Large Scale applications will be investigated. These issues include latency in network communication, fault tolerance, load balancing and diverse Security Models. Various departments in the University (for Example, Biology) will benefit from the availability of Supercomputing like processing power at low cost, to run their computation and data intensive applications. Performance will be evaluated both theoretically and through standard HPC Benchmarking.

05.03.20 A STUDY OF SECURITY VULNERABILITIES IN THE LINUX OPERATING SYSTEM

Dr. Anil Lawrence Pereira - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship, Mr. Christopher Goree - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship, Mr. Jonathan Faulkner - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship

Linux is a UNIX like Operating System. Linux is widely used in academia and industry, especially in High Performance Computing systems. Home users in increasing numbers are also using Linux. Linux is widely considered to be more

stable than the Windows Operating System, and many of its distributions are Open Source. With its popularity growing, there is an increasing number of malware and hacking tools targeting its Security vulnerabilities. We have investigated several problems in Linux Security that may create vulnerability in a computer system, and we offer solutions to these problems. Furthermore, we have explored new Security models that may be used to enhance Security in Linux.

05.03.21 REAL TIME IMAGE PROCESSING ON SINGLE INSTRUCTION STREAM MULTIPLE DATA STREAM (SIMD) ARCHITECTURES

Dr. Anil Lawrence Pereira - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship, Mr. Sulav Regmi - Southwestern Oklahoma State University, Accounting, Computer Science and Entrepreneurship

Single Instruction Stream Multiple Data Stream (SIMD) Architectures examine a High Performance Computing (HPC) architecture that can be used to improve the performance of existing parallel algorithms. SIMD is used to achieve data level parallelism. SIMD is inherent in most Graphics Processors (GPUs). Multiple cores (a core is a single processing unit) in the GPU can each execute the same instruction on different data elements simultaneously. A high-end GPU can typically execute more than a thousand threads simultaneously. Each thread is a separate instance of the same computer program. Memory access in GPUs is extremely fast. Image processing algorithms involving complex computation for Real-Time applications can be accelerated with GPUs. For example, a large number of different objects and their relative motion can be detected simultaneously from a video stream. Each core in the GPU can process a different frame from the video stream by simultaneously accessing a different portion of GPU memory where each frame is stored. Real-Time Image processing tasks are widely employed in scientific and commercial applications such as remote surveillance, recognition of facial features and expressions, and hand gesture recognition. We will evaluate the performance of our algorithms in terms of their Speed-up over existing parallel algorithms for image processing.

04 FORENSIC SCIENCE

05.04.01 MORPHOLOGICAL COMPARISON BETWEEN LUCILIA SERICATA AND LUCILIA MEXICANA

Elizabeth O'Bannon - University of Central Oklahoma, Forensic Science Institute, Emily Mary Stine - University of Central Oklahoma, Forensic Science Institute

Entomological evidence collected at crime scenes often holds valuable information relating to the time of death of a person. Commonly, specimens present on a decaying corpse are blowflies of the family Calliphoridae. These flies are of significant forensic merit when determining postmortem interval (PMI). Numerous studies have shown that correct morphological identification of adult Calliphorids is imperative for establishing an accurate PMI, more so since species of Calliphoridae exhibit different growth and maturation rates. Both *Lucilia sericata* and *Lucilia mexicana* exhibit multiple shared morphological similarities. In addition to these shared phenotypical characteristics, habitat overlap is observed. *Lucilia sericata* is one of the most common species of *Lucilia*, and can be found throughout the United States and parts of Southern Canada. *Lucilia mexicana* is found in the southwestern U.S., and even as far south as Brazil. In Oklahoma, it is suspected that *L. mexicana* is more prevalent than *L. sericata*. This shared habitat area, in conjunction with an untrained eye, may lead to *L. mexicana* being incorrectly identified as *L. sericata*. Specimens of both species have been collected in central Oklahoma and were compared to confirm or deny shared morphological features. The use of DNA typing can further establish whether there are true significant genetic differences. These results may possibly aid assessments of *L. sericata* and *L. mexicana*'s behavioral and developmental traits.

05.04.02 PRELIMINARY ANALYSES OF CARRION COLONIZATION BY NECROPHAGOUS FLIES (DIPTERA: CALLIPHORIDAE) IN CENTRAL OKLAHOMA: CLIMATIC INFLUENCES, DISPERSAL LIMITATIONS AND ISLAND BIOGEOGRAPHY.

JeAnna Redd - University of Central Oklahoma, Forensic Science and Biology, Wayne Lord, Ph.D. - University of Central Oklahoma, Forensic Science and Biology, Emily Stine - University of Central Oklahoma, Biology, Craig Koenigs - University of Central Oklahoma, Forensic Science

Necrophagous flies are important ecologically and forensically. Central to an understanding of their ecological and forensic significance is knowledge of

the environmental factors potentially limiting carrion detection, access, and colonization. This study examined the impact of high temperatures and surface winds on the colonization of carrion by necrophagous diptera. Standardized samples of beef liver were placed in two habitats in Central Oklahoma. Environmental factors were measured at each site and correlated with carrion fly colonization rates and species diversity.

Study results indicated a clear difference between habitats, with the turf field characterized by stronger winds, higher temperatures, more rapid carrion desiccation, reduced fly colonization rates, and lower species abundance and diversity. Vegetative stratification, characteristic of the suburban woodlot habitat, provided mediation of wind and heat effects and facilitated increased carrion fly abundance, diversity, and activity. The study demonstrates the potential influence of environmental factors on carrion colonization by necrophagous flies and is currently continuing in the northwest region of Oklahoma, where there exists vast prairies and gypsum cave systems. Preliminary findings suggest the potential importance of Troglonozones, areas of vegetative diversity and climatic stability surrounding cave entrances, as insular pools for carrion arthropods and focal points for intra and supra-cave colonization.

05.04.03 NEO-NATAL ABDUCTIONS

Dr. Wayne Lord - University of Central Oklahoma, Forensic Sciences, Dr. John Mabry - University of Central Oklahoma, Forensic Sciences, Nicholas Badzinski - University of Central Oklahoma, Forensic Sciences

Infant abductions, while relatively infrequent compared to other crimes, attract a large amount of attention from the media and law enforcement. Increased interest can create problems as entire bodies of investigative teams may become involved in the cases, threatening the efficiency of the distribution of law enforcement resources. Up to date information regarding characteristics that appear frequently in cases involving infant abduction is vital towards increasing the efficiency of these investigations. The intent of the current study is to verify and expound existing information regarding patterns of infant abduction as well as to provide a fresh look at current patterns in victimology, offender traits, severity, and possible recent shifts in acquisition techniques used by offenders. The results of this study will provide valuable information for retrieval and study by investigative teams assigned to child abduction cases, as well as educational material for law enforcement agencies and civilians.

05 MATHEMATICS & STATISTICS

05.05.01 ENCLOSING ROOTS OF POLYNOMIAL EQUATIONS AND THEIR APPLICATIONS TO ITERATIVE PROCESSES

Ioannis Konstantinos Argyros - Cameron University, Mathematical Sciences

We introduce a special class of recurrent polynomials of degree m , with unique positive roots, which are decreasing as m increases. The first root, as well as the last one are expressed in closed form, and enclose all in between roots.

This technique can be used to locate roots of polynomials, and also provide weaker sufficient convergence conditions for some popular iterative methods such as Newton's.

05.05.02 STABILITY ANALYSIS OF COUPLED MODEL USING LINEARIZATION TECHNIQUE AND LYAPUNOV FUNCTION

Dr. Robert R. Ferdinand - East Central University, Mathematics, Mr. Brandon M. Rosa - East Central University, Mathematics

This paper studies a mathematical model simulating phenomena in physics and engineering. This model is a coupled system of two nonlinear differential equations. First we find equilibrium points for this model and use the linearization technique to find stability condition(s) for each equilibrium point. Next we use a Lyapunov function to find condition(s) under which the above equilibrium points are stable. Results for both methods are compared. Note: This is joint work with undergraduate East Central University (ECU) mathematics major Brandon Rosa.

05.05.03 CAG REPEAT MUTATIVE REPAIR ERRORS

Vanessa Canfield - University of Central Oklahoma, Mathematics, Dr. Daniel Endres - University of Central Oklahoma, Mathematics & Statistics

The purpose of this study is to model the growth of the CAG repeat through mutative repair error that causes Huntington's disease. Huntington's disease is currently without a cure. Research on this subject is minimal and knowledge of how it progresses is virtually unknown. A model needs to be made so the growth of the repeat will be known. The hypothesis is that this will be possible through a process of statistical analysis on data that has been harvested from the cerebellum, striatum, and tail of transgenic Huntington's mice. The previously harvested data was analyzed using chi-squared distribution, a Genetic optimization Algorithm program in Matlab to

MATH AND SCIENCE

determine model parameters for a Markov chain mutation model and the Mann-Whitney U-Test in SAS.

05.05.04 TRILINABLE POINTS OF CURVES

Dr. Michael McClendon - University of Central Oklahoma, Mathematics and Statistics

Given a curve in the Euclidean plane, any point x in the plane is said to be m -trilinear if and only if there are three points on the given curve, say x_1 , x_2 and x_3 , such that $d(x, x_1) = d(x, x_2) = d(x, x_3) = m$, where $d(a, b)$ is the distance between points a and b . If there exists a number m such that x is trilinear then we say that x is a trilinear point. We examine the sets of points in the plane that comprise the trilinear points of polygons, of the conic sections, and of curves in general. Furthermore, we discuss the relationship that trilinearity has with curvature.

05.05.05 PROJECT SCHOLAR: STATISTICAL CONSULTING HELP FOR ORGANIZATIONAL LEADERS AND ACADEMIC RESEARCHERS

Adam Anderson - University of Central Oklahoma, Mathematics and Statistics, Faryal Bokhari - University of Central Oklahoma, Mathematics and Statistics, Amanda Johnston - University of Central Oklahoma, Mathematics and Statistics, Jessica Newton - University of Central Oklahoma, Mathematics and Statistics, Dr. Tracy L. Morris - University of Central Oklahoma, Mathematics and Statistics, Dr. Cynthia K. Murray - University of Central Oklahoma, Mathematics and Statistics

Project SCHOLAR is a team of faculty, graduate students, and undergraduate students in the Department of Mathematics and Statistics. It is our objective to promote student interest in statistical research through active learning. Our current projects include statistical analysis with the Oklahoma Smart Start program, cell re-growth and wound healing analysis with Dr. Melville Vaughan at UCO, and the retrospective analysis of UCO's Statistics program with Dr. Cynthia Murray. Students involved in Project SCHOLAR will have an opportunity to work with professors and specialists from different areas of research during each project. They will work as a team to analyze the data using various statistical methods and software under the direction of statistics professors. After this, they will prepare professional written and oral presentations to be given to the department or company that submitted the project. Each year students will also prepare a poster for Oklahoma Research Day showcasing and explaining their current projects. After the program, students will leave with a deeper understanding of what it is to be a statistician. Students involved in the project will gain valuable experience working with real problems and data in addition to classroom instruction. This program will

not only be beneficial for the students while undergoing their education, but a strong knowledge in real world data analysis will open many doors for them in their future careers.

05.05.06 WATER POLLUTION AND TANK PROBLEMS

Katherine Thompson - Northeastern State University, Mathematics

This project uses differential equations to analyze fluid concentration in two connected tanks. A possible application is the study of water pollution flowing between two bodies of water. This project provides examples of different types of tank problems and shows when each tank reaches its maximum amount of pollutant. It also shows when the tanks each reach the same amount of pollutant. This project also uses eigenvalues to analyze what is going on with both of the tanks. The project concludes with facts about how these tank problems can be related to water pollution being spread between two bodies of water and what effects water pollution from one body of water can have on a connected body of water.

05.05.07 THE GREAT INTERNET MERSENNE PRIME SEARCH

Darryl Linde - Northeastern State University, Mathematics and Computer Science, Mr. Evan Linde - Northeastern State University, Computing and Telecommunications

The Great Internet Mersenne Prime Search (GIMPS) is a worldwide distributed computing project. Participants in GIMPS use their idle computer CPU cycles to perform a Lucas-Lehmer test on an assigned number to determine if the number is prime. There are currently 47 known Mersenne primes with the largest containing over 12 million digits. These primes are closely related to perfect numbers which have generated interest for millennia. Worldwide, GIMPS has over 28,000 individual participants and over 160,000 computers. Northeastern State University has over 1000 computer CPU's working on the project and is producing at the second fastest rate of any team.

05.05.08 REMARKS AND OPEN PROBLEMS REGARDING CERTAIN BACKWARD SHIFT INVARIANT SUBSPACES

Kristi Karber - University of Central Oklahoma, Mathematics and Statistics

This poster presentation is a portion of joint research with John R. Akeroyd. We investigated backward shift invariant subspaces of the form $K_{\perp I}$, the orthogonal complement

of $H^2(D)$ in $H^2(D)$, where I is a certain inner function. Open problems involving K_I spaces, as well as some comments regarding known progress made on these problems will be presented.

05.05.09 "SHORT DIVISION OF POLYNOMIALS"

Alfred DeStefano - Northeastern State University, Mathematics, Jennifer Johnson - Northeastern State University, Mathematics Education, Ronald Stierwalt - Northeastern State University, Mathematics Education

Synthetic division consists of an implicit application of the Euclidean division algorithm whereby repeated multiplications of individual coefficients corresponding with a divisor (degree m) polynomial and dividend (degree n) polynomial generate the coefficients of a quotient (degree $n-m$) polynomial, plus a possible remainder term. The advantage of synthetic division lies in its simplification of the conventional polynomial long division procedure through dependence upon spatial position of resulting calculations to indicate the degree of terms corresponding with a particular coefficient, rather than repeated association with the entirety of the dividend at each stage of the calculation, as well as optimization of total intra-computational operations. The present analysis, demonstrated initially by Li Zhou in the article "Short Division of Polynomials," establishes the result that the synthetic division procedure extends to divisors of arbitrary degree and, hence, need not limit its application to linear factors alone. The case of non-monic divisors and discussion of algorithmic efficiency completes the analysis.

05.05.10 MULTIPLICITY OF POSITIVE SOLUTIONS FOR VARIOUS EVEN-ORDER NONHOMOGENEOUS BOUNDARY VALUE PROBLEMS

Dr. Britney Hopkins - University of Central Oklahoma, Mathematics and Statistics

This poster focuses on a technique for showing the existence of multiple solutions for various types of even order boundary value problems. The technique revolves around transforming even order differential and difference equations into systems of second order equations satisfying homogeneous boundary conditions. Once the new system is obtained, we rely on a triple application of the Guo-Krasnosel'skii Fixed Point Theorem resulting in the existence of at least three positive solutions.

05.05.11 SEEKING OPTIMAL TREATMENT STRATEGIES FOR MALARIA INFECTION

Dr. Jeremy Thibodeaux - University of Central Oklahoma, Mathematics

The malaria parasite inhibits erythropoiesis in two major ways. The first, and obvious way, is the preying upon erythrocytes. But it has been recently discovered that a toxic by-product of digested hemoglobin, called hemozoin, inhibits the development of erythroid precursors. A mathematical model accounting for both of these effects will be presented along with model predictions concerning combined treatments for both of the effects of malaria infection on the erythropoietic system.

05.05.12 PARTICLE SWARM NONLINEAR OPTIMIZATION FOR A DNA MUTATION DYNAMICS MODEL

Igor Ilik - University of Central Oklahoma, Engineering and Physics

Motivation: In dynamic modeling of DNA mutation data, a model set with $n > 3$ parameters must be searched for optimal fit. Further, the parameters are continuous as well as discrete. In such mixed optimizations it is usually unknown whether extrema found are global, or local. Problem: In a mixed optimization for DNA mutation models for triplet-repeat disease progression it is difficult to determine an optimal model fit to the data. Approach: A way to circumvent premature convergence (to a local extreme) is to avoid gradient based optimizations. Particle swarm optimization emulates the behavior and interactions of a population of particles in order to find the optimum of value of an objective function. Each particle is associated with a velocity vector formed by the particle's previous velocity, its best ever position, and the best position in the swarm. Particle swarm optimization outperforms genetic algorithms in more complex unconstrained optimization problems. This and the mixed parameters optimized, imply a swarm algorithm may be preferred over conventional methods. Results: Tests were run comparing pattern search and genetic algorithms from the MATLAB GADS Toolbox to familiarize myself with the optimization. Conclusion: The next step in the design of a swarm algorithm is to search for an efficient approach for tackling this optimization. The optimization should be able to fit a stochastic dynamic model portraying the DNA instability found in triplet-repeat diseases.

05.05.13 ASSESSING AN ONLINE TUTORIAL TEACHING CHEST PAIN DIAGNOSIS

Timothy A. Wolfe - Redlands Community College, Science

Timothy A. Wolfe, Talia B. Magrill, Kiamars R. Golmoradi, Robert M. Hamm
Department of Family and Preventative Medicine
University of Oklahoma Health Sciences Center

Abstract. This study assesses the effectiveness of three methods an online tutorial, using a problem-specific, knowledge-based approach, can instruct the use of patient findings to different diseases. The tutorial uses an artificial intelligence program, KBIT DDx, which simulates the diagnostic ability of experts. This study focuses on nine specific diseases causing chest pain.

Methods. Participants were second-year medical students, undergraduate summer students, and first-year Physician Assistants at OUHSC, and students from ECU. The study consisted of a pre-test, tutorial, post-test, two week follow-up test, evaluation, and demographic questions. The students were randomly assigned one of three tutorials; a one-column prototype, a two-column or a three-column format providing feedback after diagnosing each practice case.

Results. Data showed substantial learning with each format. From pre-test to post-test, the proportion of correct responses showed improvement (0.18, 0.20, and 0.24 respectively). However, students learned approximately the same amount from all the formats.

Conclusion. The degree of improvement was larger in the conditions that we thought would be more helpful, but the differences were not statistically significant.

05.05.14 EMMY NOETHER: LIFE AND MATHEMATICS

Devin Cooper Smith - University of Central Oklahoma, Mathematics and Statistics

"In the judgment of the most competent living mathematicians, Fraulein Noether was the most significant creative mathematical genius thus far produced since the higher education of women began." - Albert Einstein.

We will discuss the life and mathematics of Emmy Noether, 1882-1935. She made great progress in the field of abstract algebra as well as in algebraic topology.

05.05.15 HYBRID CONSTRAINED NONLINEAR MIXED OPTIMIZATION OF A MULTI-DIMENSIONAL DNA MUTATION MODEL USING EVOLUTIONARY ALGORITHMS

Clinton Harris Quisenberry - University of Central Oklahoma, Department of Engineering and Physics, Dan Endres - University of Central Oklahoma, Department of Mathematics and Statistics

Objective: We previously designed Markov Chain models (MCMs), with continuous and discrete parameters in multi-dimensional spaces, to model DNA instability associated with neurodegenerative diseases such as Huntington's. An objective function for model-data comparison was needed to meet the specifications of the MATLAB optimization routines using the Genetic Algorithm Direct Search (GADS) toolbox in MATLAB to search the MCM parameter space. GADS formatting, interim data manipulation, and hybridizing a genetic algorithm (GA) with a pattern search method (PSM) are needed to handle this nonlinear mixed optimization.

Methods: An objective function, including the MCM, log-likelihood ratio, and a sparse matrix exponential, was built to our specifications in MATLAB. The GA and the PSM were integrated to optimize the objective function and efficiency benchmarking was performed.

Results: The GA is more computationally expensive than the PSM; in each generation GA must compute the objective function for a population of x parameter sets. Even at the under-sized population $x = 100$, the PSM temporally outperformed the GA converging in <5 minutes, vs. >40 minutes for GA.

Conclusions: Partitioning parameter space among GA sub-populations emphasizing migration will give a more thorough investigation of the feasible parameter space. Incorporating greater GA sampling density and switching to the PSM upon discovery of minima is the next step to improve algorithm performance.

05.05.16 PYTHAGORAS OF SAMOS: A COMPARATIVE PERSPECTIVE ON HIS ROLE IN HISTORY

Meredith Clement - University of Central Oklahoma, Biology, Luv Grummer - University of Central Oklahoma, College of Education and Professional Studies, Melinda Littlefield - University of Central Oklahoma, Mathematics and Statistics, Devin Smith - University of Central Oklahoma, Mathematics and Statistics, Dr. Charlotte Simmons - University of Central Oklahoma, Mathematics and Statistics, Dr. John Barthell - University of Central Oklahoma, College of Mathematics and Science

Best remembered today for the Pythagorean Theorem, Pythagoras (born ca. 570 B.C.) was the most influential of all western philosophers according to Bertrand Russell. A new book by Kitty Ferguson, "The Music of Pythagoras" (2008), attempts to unravel the legacy of Pythagoras and his followers, digging far deeper than this result and connecting Pythagoras to a history of ideas that provides one of the strongest attempts to resurrect his influence on philosophy and the sciences since Russell's attempt to do so in the 1940s. As an interdisciplinary seminar group of science and mathematics majors, we reviewed Ferguson's book and compared it to Christoph Riedweg's "Pythagoras: His Life, Teaching, and Influence" (2005). Apart from giving students the opportunity to discuss the history and nature of mathematics and science and to develop comparative studies of Pythagoras, this seminar exposed them to critical thinking exercises and the peer-review publication process (a rare experience for undergraduates). Our findings suggest that Pythagoras and his followers are subject to divergent historical interpretations precisely because they wrote so little during the period of their peak activities in modern day western Turkey, Greece and Italy. While their actual contributions are debatable, we suggest that the Pythagorean tradition has been a remarkably effective instrument for advancing new perspectives in the humanities, as well as the sciences and mathematics.

05.05.17 DISTRIBUTED COMPUTING AND NONLINEAR MIXED OPTIMIZATION

Preston Cofield - University of Central Oklahoma, Mathematics and Computer Science, Dr. Dan Endres - University of Central Oklahoma, Mathematics and Statistics

This project provides a distributed computing environment for implementing a working state-of-the-art nonlinear mixed optimization step to fit a stochastic dynamical model to DNA somatic instability data for patients affected by triplet-repeat diseases, e.g. Huntington's,

Fragile X, Friedreich Ataxia.

Computations required to obtain an optimal model fit to a patient's allele spectrum, due to the nonlinearity in the model's parameter dependence and the discontinuous nature of the mutation process modeled, are expensive with serial computation. The optimization's mixed nature together with the expense of the objective function evaluation implies a derivative-free, easily parallelizable algorithm should be used for the optimization. Pattern search methods for nonlinear mixed optimization in a parallel, i.e. distributed, computing architecture are investigated. Pattern search algorithms enjoy favorable parallel speedup when the objective function is slow to evaluate compared with network speed. In the DNA model, the function evaluation needs between 0.1 and 10 seconds on a 3Ghz processor. This is 3 - 5 orders of magnitude slower than the time to pass 1kb across a dedicated GB network; hence, almost perfect speedup will result.

A hybrid of pattern search algorithms from MATLAB's GADS Toolbox, under development in our group, will be implemented in parallel on our isolated network using Condor®, a free grid-distributed load management application that I am currently testing.

05.05.18 YESUDAS RAMCHUNDRA: DEMORGAN'S RAMANUJAN?

Dr. Charlotte Simmons - University of Central Oklahoma, Mathematics & Statistics

Augustus De Morgan (1806-1871) was a nineteenth century mathematician and prolific writer who authored more than 160 papers, 18 textbooks, and 850 Penny Cyclopeda articles. Yet, known for "his desire for justice and scorn of all pretense" and as a "champion of the underdog," some of his most important contributions to mathematics took place behind the scenes. We will examine De Morgan's efforts to bring Ramchundra (1821-1880), a twenty-nine year old self-taught Indian mathematician, to the notice of scientific men in Europe so that he might receive "acknowledgment of his deserts."

05.05.19 PERFECT ORDER SUBSET GROUPS

Dr. Michael C. Fulkerson - University of Central Oklahoma, Mathematics and Statistics

In Abstract Algebra, a finite group is said to have perfect order subsets if the number of elements of any given order divides the order of the group. We investigate here some of the properties of perfect order subset groups.

06 NURSING

05.06.01 VENTILATOR ACQUIRED PNEUMONIA: INTERVENTIONS FOR PREVENTION

Ms. Stephanie Egert - University of Central Oklahoma, Nursing, Ms. Kamille Pamintuan - University of Central Oklahoma, Nursing

Ventilator acquired pneumonia (VAP) is one of the most common and costly hospital acquired infections in adult intensive care units. Strategies to determine and define which of these interventions most effectively reduce the risk of acquiring VAP were investigated. No comprehensive guidelines exist that define the method and frequency of oral care. Tooth brushing is more effective than oral swabs. The combination of brushing and chemical decontamination has the best results for preventing VAP. Head of bed elevation and suction are effective and essential. Additionally, Chlorhexidine is shown to be the most effective chemical used to reduce the rate of VAP. While effective interventions exist, a focus needs to be placed on improving implementation by nurses. Therefore, a qualitative, 5-point, open-end questionnaire has been composed to identify, "What barriers inhibit nurses from performing oral care in intubated patients in Adult ICU's?" The questionnaire will be anonymous, and presented via the internet to 60 registered nurses working in a 30 bed intensive care unit at a metropolitan teaching hospital. Data will be analyzed separately by 2 doctorate-prepared nurse researchers using Van Kaam's method, and reviewed by a content expert. The results of this research can lead hospitals and nurses toward better implementation of prevention strategies. This will decrease the rates of VAP improving patient outcomes and preventing unnecessary spending for hospitals.

07 PHYSICS & ENGINEERING

05.07.01 X-RAY DIAGNOSTICS FOR THE BREAKUP OF ROUND LIQUID JET IN STILL AIR

Anu R. Osta - Oklahoma State University, Mechanical and Aerospace Engineering, Dr. Jaiho Lee - Oklahoma State University, Mechanical and Aerospace Engineering, Prof. Khaled A. Sallam - Oklahoma State University, Mechanical and Aerospace Engineering, Dr. Kamel Fezzaa - Argonne National Lab, Advanced Photon Source

Breakup of liquid jets is of considerable interest motivated by its applicability in air-breathing propulsion systems, spark ignition engines, agricultural sprays, among others.

An experimental study to investigate the effect of nozzle length to diameter ratio on the surface properties of turbulent liquid jets in still air was carried out by using x-ray diagnostics (phase contrast imaging) on injectors with a smooth entry (to eliminate cavitation) followed by straight passage with length-to-diameter ratio of 10 and 40. The present study was limited to small Ohnesorge number liquid jets ($Oh < 0.01$). The test matrix is designed to maintain the same aerodynamic forces in order to isolate the effects of jet turbulence on the breakup process. The tests were conducted at the Advanced Photon Source (APS) facility of Argonne National Laboratory. The results include the jet surface characteristics such as the ligament distribution. The present x-ray images revealed the presence of bubbles near the ligaments formation locations when the jet was injected in sub-atmospheric pressure. These bubbles were absent when the jet was injected at atmospheric pressure. The separation distance of the ligaments was influenced by the ligament sizes; the larger the ligament the further away its neighbors.

05.07.02 A NUMERICAL MODEL OF A PERSONAL MICRO WIND TURBINE

Parvez Deshmukh - Oklahoma State University, Mechanical and Aerospace Engineering, Prof. Khaled Sallam - Oklahoma State University, Mechanical and Aerospace Engineering

Vertical-axis wind turbines are of interest because they have lower start-up wind speeds than horizontal-axis turbines, and do not need orientation control to face the wind. They are particularly suitable for micro applications. Such a small turbine coupled with newly developed paper (cellulose) batteries could have the potential to serve as a personal generator that can power a small device such as a cell phone, iPod, or PDA, among others. The objective of the present study was to develop a numerical model of a Micro vertical-axis wind turbine consisting of multiple (symmetric) NACA0012 airfoils rotating around the turbine axis. The fluid flow over the airfoils at Reynolds number of 10,000 (based on wind speed encountered in Oklahoma) was investigated using FLUENT software. The mesh was created using GAMBIT software. The results of the present model include the lift and the drag forces acting on each turbine blade (airfoil) during its rotation, and the torque transmitted to the turbine shaft. The drag and lift coefficients of the present simulation agreed reasonably well with the experimental data in the literature. The present results show that the turbine blades generate the maximum torque when the wind is blowing from their sides and that they consume power when they are aligned with the wind direction. A solution to enhance the turbine performance involves the use of smart (morphing) turbine blades to reduce the drag when the blades are aligned with the wind direction.

05.07.03 DESIGN AND CONSTRUCTION OF A FIXED DEPTH REMOTELY OPERATED SUBMERSIBLE VEHICLE

Josh Brown - University of Central Oklahoma, Engineering & Physics, William Cameron - University of Central Oklahoma, Engineering & Physics, Jonathan Tucker - University of Central Oklahoma, Engineering & Physics

The primary goal of our team is to design, test and implement an underwater robotic vehicle. The vehicle design will consist of three primary components; hull, thrusters, and electronics. The vehicle will have the capability of diving to depths of up to thirty feet and performing maneuvers while taking pressure readings. The vehicle will perform semi-autonomous tasks given from a user at a remote location. The vehicle's design will have the fundamental structure to be upgraded to complete autonomy by future research interests.

The designing of such an underwater vehicle platform, capable of autonomous upgrades, will allow the potential for the UCO Engineering Physics Department to compete at a collegiate level in Autonomous Underwater Vehicle events giving our department recognition amongst other engineering universities in the nation.

05.07.04 RFID TRACKING SYSTEM ABSTRACT

Ana Tehrani - University of Central Oklahoma, Engineering and Physics

The motivation for this research was to create an implantable device capable of tracking domestic animals in case of them getting lost since this is a problem in the United States. Nowadays we have an RFID microchip system that can provide information like a tag implanted on the animals but it would be best if we could actually track them using GPS systems.

The main problem is creating a device small enough to carry a GPS system and to be implantable in animals that can still be able to carry a battery since systems that big need to be charged.

We approached the problem by comparing and studying the technologies already available in the current market. We studied detailed RFID micro implants that are used nowadays in animals and we also studied different types of tracking collars used to track wild animals in Africa and South America.

Our research still ongoing we are currently studying how the tracking collars work and trying to think of a way to make the technology smaller in size and implantable. We have come up with the conclusion that RFID microchips work greatly for now but still cause

problems because different places use different tags and different tag readers making a tagged animal seem untagged and maybe even tagging the same animal several times.

Since our research still ongoing we do not have a set conclusion yet. We researched valuable information that can be used as future reference but we defiantly need more time to research more about this project.

05.07.05 EXPLORING RELATIONSHIPS BETWEEN ACOUSTIC AND OPTICAL ATTENUATION COEFFICIENTS

Dr. Karen A. Williams - East Central University, Physics, Kristen R. Thompson - East Central University, Physics/LS AMP("Ecamp")

Finding a model connecting the propagation of sound and light through liquids is largely unexamined in the literature. In other words, if one knows sound properties of a medium, is it possible to infer the light properties about the medium? This research examined the relationship between the acoustic attenuation coefficient obtained from ultrasound waves in varying concentrations of saltwater and the optical attenuation coefficient obtained from laser light intensity in the same concentrations of saltwater. This research will show the relationships found between the two coefficients and suggest future study that might aid in answering questions to form such a model.

05.07.06 AUTO-CALIBRATED DOUBLE-VIEW HOLOGRAPHIC PARTICLE ANALYZER

Ramanjeet Singh - Oklahoma State University, Mechanical and Aerospace Engineering, Khushwant Saini - Oklahoma State University, Mechanical and Aerospace Engineering, Anu Osta - Oklahoma State University, Mechanical and Aerospace Engineering, Prof. Khaled Sallam - Oklahoma State University, Mechanical and Aerospace Engineering

Digital holography is useful for conducting size and velocity measurements for multiphase flows. Double-view digital holography, in particular, can produce three-dimensional velocity fields by viewing the particles from two orthogonal views and recording accurately the three-dimensional locations of the particles over two time instances. The objective of the present study was to construct a double-view holographic setup that utilizes only one double-exposure camera to reduce the complexity and the cost of the setup. The setup consists of a laser (Nd:YAG) beam that is split into two beams that are directed to the measuring volume at two orthogonal directions. After interacting with the particles in the measuring volume the two laser beams are then

MATH AND SCIENCE

collected and re-routed toward the camera sensor to form two orthogonal holograms on the same camera frame. Another laser is fired few microseconds later to record two more holograms. Each one of the four holograms is then reconstructed numerically to form many two-dimensional slices of its measuring volume. The particles two-dimensional locations are found from these slices. Of interest is the spatial auto-calibration of the setup so that particles pairs from the two views can be found and matched easily. The progress made and the outline of future work are discussed.

*Sponsored by NASA-EPSCoR.

05.07.07 HOLOGRAPHIC PARTICLE IMAGE VELOCIMETRY FOR TURBULENT DISPERSED FLOWS

Khushwant Saini - Oklahoma State University, Mechanical and Aerospace Engineering, Ramanjeet Singh - Oklahoma State University, Mechanical and Aerospace Engineering, Anu Osta - Oklahoma State University, Mechanical and Aerospace Engineering, Prof. Khaled Sallam - Oklahoma State University, Mechanical and Aerospace Engineering

Turbulent dispersed flows are of major importance in many industrial applications, such as diesel sprays, and particle-laden jets, among others. Of interest are the mean and fluctuating velocities for both dispersed and continuous phases, and the mass-, the momentum-, and the energy-coupling between the two phases. The objective of the present study is to conduct velocity measurements for a turbulent drop-laden jet using digital holographic particle image velocimetry. The present optical setup was based on inline digital holographic microscopy. Double-pulsed holograms were recorded and reconstructed to yield two-dimensional slices of the flow at two time instances. The present test conditions include a fully-developed turbulent jet with Reynolds number of 5000 issuing from a nozzle with length/diameter ratio of 40. The continuous phase (air) was seeded with oil droplet 1 μm in size, and the dispersed phase was water droplets with SMD of 100 μm . Two-dimensional particle image velocimetry was coupled with size-discrimination routine to yield two velocity fields representing the continuous and the dispersed phases.

*Sponsored by NASA-EPSCoR.

05.07.08 HARNESSING THE WAKE ENERGY OF MOVING VEHICLES BY MICRO WIND TURBINES

Etesh Vaishnav - Oklahoma State University, Mechanical and Aerospace Engineering, Parvez Deshmukh - Oklahoma State University, Mechanical and Aerospace Engineering, Prof. Khaled Sallam - Oklahoma State University, Mechanical and Aerospace Engineering

Energy plays a vital role towards the growth and advancement of any nation. Demand for energy is gradually increasing worldwide with the increase in the population. Non-traditional sources of energy are being sought worldwide to reduce green gases emissions. The wake flow behind moving vehicles (e.g. subway trains) represents an unutilized source of energy. The objective of the present study was to design a micro turbine that could be used to recover some of the energy in the wake behind a moving vehicle. The design was conducted with the help of Computational Fluid dynamics software FLUENT and GAMBIT was used to generate the mesh. The turbine was based on a vertical-axis design with three airfoil blades. The results include the energy generated and the flow pattern around the turbine.

05.07.09 SIMULATION OF THE NOZZLE FLOW DURING THE SYNTHESIS OF CORE-SHELL STRUCTURED NANOFIBERS

Samuel Ariekele - Oklahoma State University, Mechanical and Aerospace Engineering, Prof. Khaled Sallam - Oklahoma State University, Mechanical and Aerospace Engineering

Due to their large surface area to volume ratio Polymer nanofibers are used for number of applications in the field of Engineering, Medicine, and Optics. They are being widely used in drug delivery, cosmetics, material reinforcement, fabrics, wound dressing, optical applications etc. The interest in Core-shell structured nanofibers has been growing as they enhance the mechanical properties of the fiber. To produce a core-shell structured nanofibers electro spinning technique is widely used. Generally, core and concentric annular nozzles are used to inject the solutions into electric field to produce the core-shell structured nanofibers. The objective of this study is to simulate the flow of two polymers inside the nozzle. Simulation is carried out using computational fluid dynamics (CFD) software FLUENT.

05.07.10 PORTABLE ECG RECORDER

Julie Vo - University of Central Oklahoma, Engineering & Physics, Mike Steele - University of Central Oklahoma, Engineering & Physics, Shams Shahadat - University of Central Oklahoma, Engineering & Physics, Veselin Sariyski - University of Central Oklahoma, Engineering & Physics

Electrocardiography is an indispensable tool in diagnosing heart related issues. Continuous remote ECG recording has become increasingly realizable as a dependable method of detecting aperiodic heart related issues. This type of diagnostic monitoring is known as Holter monitoring and is normally administered for uncertain period of time continuously. The technology is discrete and targets a wider public. This initial proposal outlines the background and methodology to produce a deliverable ECG recording device within a \$1000 budget constraint. The device will be portable and battery powered. Interfacing will be possible via serial ports. A local removable SD card flash memory will be used for storage. The Holter monitor will adhere to AAMI and UL medical safety standards.

05.07.11 DESIGN AND FABRICATION OF A COMPUTER CONTROLLED BLOOD FLOW SIMULATOR

Benjamin Brett - University of Central Oklahoma, Engineering & Physics, Lindsay Ivie - University of Central Oklahoma, Engineering & Physics, Scott Murphy - University of Central Oklahoma, Engineering & Physics, Tim Handy - University of Central Oklahoma, Engineering & Physics

The purpose of this project was to design and fabricate a pumping system that was computer controlled and could produce pressure waveforms that was the same as the average pressure waveform produced by the human heart at rest and measured at the ascending aorta. Along with this specialized goal the pump design was also created to be more general and allow for a much greater range of parameters. Along with pulsatile flow the pump should be able to produce a relatively steady state flow.

Using a combination of positive displacement pumps joined in parallel and motor controlled valves, the pumping system draws in from a flow reservoir and pushes the flow through the attached downstream system. This allows the reservoir and the downstream system to be cut off from each other, and allows only flow that the pump generates.

05.07.12 DESIGN OF A PORTABLE LED LIGHTING SYSTEM

Surendra Moka - University of Central Oklahoma, Engineering & Physics, Sylvester Lewis - University of Central Oklahoma, Engineering & Physics, Ling-Hsiao Chang - University of Central Oklahoma, Engineering & Physics

The purpose of this design project is to create a LED lighting system that can fit inside a 1-ft. cube box. The motor consists of Neodymium (Nd) magnets with electromagnets hanging over it. Nd magnets are secured in the acrylic disc. Bicycle sprockets and chain are used as the gears to rotate the disc.

Different gear systems were tested and concluded to use bicycle sprockets due to its free wheel nature. Electromagnets of different resistance were made and conducted a series of tests. The tests concluded that more the number of electromagnets, more the power.

The linear tests showed that the best configuration for the design is to decrease the distance between the magnet and the electromagnet, and increase the distance between the magnet disc and the chain. The distances between the parts depends on the magnetic strength.

05.07.13 PERCEPTUAL OPTIMIZATION OF X-RAY FLUOROSCOPY

Dr. Yuhao Jiang - University of Central Oklahoma, Engineering and Physics, Mr. Christopher M. Morgan - University of Central Oklahoma, Engineering and Physics

X-ray fluoroscopy provides real time viewing of many diagnostic and interventional procedures. X-ray fluoroscopy is used in a multitude of important diagnostic and therapeutic procedures. As a result, X-ray fluoroscopy accounts for nearly half of the U.S. population X-ray dose from radiological procedures. To enable even more complex procedures, it is imperative to lower x-ray dose while maintaining or improving image quality. It is proposed to optimize the acquisition and processing of X-ray fluoroscopy images. It has been shown in previous study that human spatio-temporal visual processing strongly affects perceived image quality of noisy fluoroscopy image sequences. We will develop, validate and further refine a human observer model based on the acquired human data from previous studies. We then apply this model to simulated fluoroscopic image sequences for a comprehensive investigation of various parameters in X-ray fluoroscopy system. With regard to image processing, we will use a human observer to design and optimize image enhancement filters for

MATH AND SCIENCE

better detection performance. This research will provide guidance in flat panel fluoroscopic imaging. New imaging systems can consist of direct or indirect flat panel detectors, advanced real-time digital processing, very high pixel densities, very fast x-ray pulse generation, and variable-rate image acquisition systems. Our research will address some of the benefits and optimizations of such systems.

05.07.14 MAGNETIC RESONANCE THERMOMETRY CALIBRATION AND THERMAL MAPPING

Kelvin Le - University of Central Oklahoma, Engineering and Physics, Philippe Garteiser Ph.D. - University of Oklahoma Health Sciences Center, Oklahoma Medical Research Foundation, Akhee Sarker - University of Central Oklahoma, Engineering and Physics, Chris Bobo - University of Central Oklahoma, Engineering and Physics, Rheel Towner Ph.D. - University of Oklahoma Health Sciences Center, Oklahoma Medical Research Foundation, Wei Chen Ph.D. - University of Central Oklahoma, Engineering and Physics

One of the challenges in laser-photothermal therapy is to monitor the temperature distribution at targeted sites. Magnetic Resonance Thermometry (MRT) is one of the few non-invasive temperature mapping methods available for this purpose. The objectives of this project are to calibrate and optimize the parameter values for future laser photothermal cancer treatment.

Chicken breast tissue and water were used for calibration using optical sensors and a 7.05 Tesla MRI machine. All samples were cool to 0°C using an ice-water bath prior to scan. For the temperature distribution study, Indocyanine Green (ICG) was used during laser irradiation with various concentrations. The phase data were obtained and then reconstructed into temperature mapping using the initial reference phase subtraction method.

The temperature dependency coefficient was determined to be -0.00985 ppm/°C in samples unaffected by magnetic susceptibility artifact. The temperature was found to influence the susceptibility. For the laser treatment, the optimal ICG concentration for both temperature elevation and distribution was 0.08%.

The experimental results indicated the feasibility of an accurate, real-time 3-D temperature mapping inside breast tissue during laser treatment. When working with a high temperature elevation during laser irradiation, a lowest TE with an average of three excitations is optimal. This study could lead to a method that monitor and guide laser cancer treatment.

05.07.15 INVESTIGATION OF TESLA'S RADIANT ENERGY SYSTEM AS AN ENERGY SCAVENGING DEVICE*

Evan Kao - University of Central Oklahoma, Engineering and Physics, Julius Logan - University of Central Oklahoma, Engineering and Physics, Trevor Gregory - University of Central Oklahoma, Engineering and Physics, Devon Silkwood - University of Central Oklahoma, Engineering and Physics, Weldon J. Wilson - University of Central Oklahoma, Engineering and Physics

An energy scavenging device extracts ambient energy from the environment to provide electrical power. Tesla's radiant energy system is a non-photovoltaic system that scavenges ambient electric energy from the environment. We report the design and construction of a Tesla radiant energy scavenging system based on Tesla's patents, "Apparatus For The Utilization of Radiant Energy" (US Patent 685,957) and "Method Of Utilizing of Radiant Energy" (US Patent 685,958). Preliminary data collected using the system is reported. Initial investigations of the receiver height, placement, and material of the apparatus used are reported. The initial measurements indicate a strong dependence on atmospheric conditions and that the primary source is AC in nature.

*This work is supported in part by a grant from NSF via the STEP@UCO program.

*Faculty Advisor

05.07.16 ELASTOMERIC TRANSPARENT REPLICAS OF THE CAROTID ARTERY BIFURCATION

Dr. Jaehoon Seong - University of Central Oklahoma, Engineering and Physics, Fariha Sultana - University of Central Oklahoma, Engineering and Physics

Morphological long-term development in the human carotid artery bifurcation has been unveiled. The substantial growth of the internal carotid artery (ICA) and the development of a carotid sinus at the root of the ICA were found during late adolescence. Hemodynamics and developmental forces could play a role in remodeling of the carotid bifurcation. For the detail investigation of local hemodynamic effect on arterial remodeling of carotid artery bifurcation from newborn to young adult age, we fabricated the elastomeric transparent replicas of carotid artery bifurcations. The 3-D computational models of morphologically averaged human carotid bifurcations were created in 3-D design software (SolidWorks). Three-dimensional milling and engraving system (Roland MDX-650 Milling) was used for constructing negative molding plates of the 3-D models. Positive molds were constructed from the negative molding plates using low

melting temperature alloy. The core mold was then coated with silicone elastomer for two hour intervals and placed a spinning system for making uniform thickness. The thickness of silicone models was determined by numbers of coating process. For curing process, coated alloy was placed in oven for two days at temperature of 65° C. After silicone cured 100%, silicone coated core model was placed in hot water bath of temperature 80° C for dissolving the core. The final product has good optical clarity of the value of reflective index of 1.411.

05.07.17 TECHNIQUES OF MEASURING PROPERTIES OF VARYING CONCENTRATIONS OF SALT WATER USING ULTRASOUND

Kristen Thompson - East Central University, Physics, Dr. Karen Williams - East Central University, Physics

Various properties of fluids need to be known for medical, agricultural, and industry needs. Properties of varying concentrations of salt water were obtained using ultrasound. The Debye-Sears-Effect was used to calculate the velocity of sound. In the Debye-Sears-Effect, ultrasound waves create compressions and rarefactions that the laser encounters as a diffraction grating. The velocity of sound was calculated theoretically by an empirical equation developed by Mackenzie. The largest percent error between the calculated and the theoretical sound velocities was 1.03%. The velocity of sound generally increased linearly as the salt concentration increased ($R= 0.985$). The second technique used to calculate the velocity of sound used an ultrasonic echoscope and transducer to obtain the time it took the echo to return to the transducer and the distance that the sound wave traveled. The greatest percent error for the velocity of sound obtained using the ultrasonic echoscope was 0.84%. The sound velocity increased as the salt concentration increased as we expected.

The acoustic impedance was also calculated using Vollmer's equation, the density, and experimental sound velocities obtained from the Debye-Sears-Effect. The acoustic impedance percent difference ranged from 0.944% to 15.026%.

05.07.18 LIFETIME AND INTENSITY RESPONSES TO LASER PUMP POWER IN CDSE/ZNS QUANTUM DOTS

Alex Henderson - Langston University, Chemistry

Quantum dots are being researched for potential applications in transistors, LEDs, diode lasers and medical imaging. Quantum dots are known to "blink".

The blinking, better known as intermittency, stems from the excitation of quantum dot electrons. This creates an electron-hole pair within the quantum dot. The electron-hole pair travels around the quantum dot until it recombines and causes the quantum dot to emit a photon. When a quantum dot emits a photon (single photon event) it is said to be charged or "off" in terms of the blinking analogy. When the electron-hole pair is traveling around the quantum dot it is said that the quantum dot is in the excited state. We understand that the surrounding environment (in this case laser power) of a quantum dot effects it's behavior. We are interested in how long the quantum dot stays in the excited state (Lifetime), and how bright it is while in the excited state (intensity) as we increase laser pump power. We hypothesize that quantum dot lifetimes and intensity will both increase linearly as a function of laser pump power. We used a power-ramp technique to test lifetime and intensity responses to laser power.

05.07.19 ELECTRICAL POLARIZABILITY IN THE PRESENCE OF A PAIRING INTERACTION

Matthew McLaughlin - Cameron University, Physical Sciences, Dr. Ramiro Moro - Cameron University, Physical Sciences

We examine the electrical polarizability of a few electrons confined in a one dimensional parabolic potential in the presence of an effective pairing interaction. We use Richardson's model to first determine the energies and wavefunctions, and then use perturbation theory to treat the effect of the electric field. In the cases studied, it is found that the polarizability decreases with respect to the normal state.

05.07.20 MECHANICAL BEHAVIOR OF FLUIDS IN HYDRAULIC SYSTEM

Pankaj Karna - University of Central Oklahoma, Engineering and Physics

Hydraulic devices basically work on the principle of Pascal's law of fluid pressure. Due to the unique property of constant pressure throughout the system, force multiplies when transmitted from a container with lower cross sectional area to higher cross section.

Under this project, we designed an experiment to practically demonstrate the Pascal's law and further study the mechanical behavior of various compressible and non compressible fluids in the system. A set of syringes with varying diameters were used to construct a hydraulic system with multiple input and output units. Force was applied at one end of the system and the transmitted output force was measured at the other end with a different diameter. The generated data was graphed and

analyzed. The ratio of output and input forces i.e. the slope of the graph, gives the mechanical advantage for the system. This set-up can be used to find the mechanical advantage of any compressible or incompressible fluid and test their compatibility for an actual hydraulic system. The motive behind the project was to design a hydraulics experiment for undergraduate level engineering and physics courses. Traditionally these courses tend to cover only, the theoretical aspect of hydraulics excluding any kind of lab work.

* This project is funded by UCO Student Research, Creative and Scholarly Activities (RCSA) program, under academic supervision of Dr Weldon Wilson, UCO professor of Engineering and Physics.

05.07.21 THE INFLUENCE OF MAGNESIUM OXIDE NANOPARTICLES ON THE ADHESION STRENGTH OF ENGINEERED TISSUE CONSTRUCTS

Kelli Duggan - University of Central Oklahoma, Engineering & Physics, Morshed Khandaker - University of Central Oklahoma, Engineering & Physics, Binil Startley - University of Oklahoma, Industrial Engineering, Shih-Feng Lan - University of Oklahoma, Industrial Engineering

The objective of this research was to evaluate the influence of Magnesium oxide (MgO) on the adhesion strength between a hard tissue scaffold and a soft tissue scaffold. The scope of works for this research was: (1) to determine the viability of osteoblast cells in hydrogel, hydrogel with MgO macroparticles, and MgO nanoparticles; (2) to design and construct a test setup for the measurement of adhesion strength between Polycaprolactone scaffold and sodium alginate hydrogel and (3) to determine if MgO nanoparticles affect on the adhesion strength of the engineered tissue constructs. Mouse osteoblast cells (MT3T3E1) were cultured on polycaprolactone (PCL) scaffold, hydrogel scaffold, as well as hydrogel scaffold with 36 μm and 22 nm magnesium oxide particles. The viability of cells was determined in: hydrogel, hydrogel with 36 μm MgO particles, and 22 nm MgO particles. The cell seeded hydrogel samples were placed on the cell seeded PCL to prepare PCL-hydrogel constructs. Four different types of PCL-hydrogel tissue constructs were tested for the measurement of adhesion strength: PCL-hydrogel, PCL-hydrogel with cells, PCL-hydrogel with cells and MgO nanoparticles, and hydrogel with MgO nanoparticles. This research found the followings: increase of cell adhesion of osteoblast cells on hydrogel based soft tissue grafts with 22 nm MgO particles and decrease of adhesion strength between PCL and hydrogel seeded with the cells, when a 22 nm MgO nanoparticle were mixed with hydrogel.

05.07.22 THE INFLUENCE OF ORIENTATION AND PARTICLE SIZE ON THE ADHESION STRENGTH BETWEEN BONE-COMPOSITE CEMENT

Stefano Tarantini - University of Central Oklahoma, Engineering & Physics, Morshed Khandaker - University of Central Oklahoma, Engineering & Physics, Igor Ilik - University of Central Oklahoma, Engineering & Physics

Conventional poly Methyl MethAcrylate (PMMA) bone cement has a problem of stress-shielding due to big difference in strength between host bone and bone cement. Nanoparticles like MgO, Silver, BaSO₄ have been added to PMMA cement to improve bone healing and reduce infection. But the issue of stress-shielding due to the inclusion of the nanoparticle to PMMA is not understood yet. The objectives of this research were to determine whether orientation of the bone has any influence on the adhesion strength, and to determine whether inclusion of micro/nano sizes MgO particles on PMMA bone cement has any influence on the interface fracture strength. Cobalt(tm) HV bone cement (CBC), a commercial orthopedic bone cement, was used in this research as PMMA bone cement. Three-point bend test were conducted to find elastic and fracture properties of natural bones at two orientations (longitudinal and transverse), CBC and composite cements (CBC with 36 μm and 22 nm MgO). Fracture tests were also conducted on four groups of bone-cement specimen to find interface fracture toughness: (1) longitudinal bone-cement without MgO particles, (2) transverse bone-cement without MgO particles, (3) longitudinal bone-cement with MgO particles, and (4) transverse bone-cement with MgO particles. Experimental results show that orientation of bone has significant influence on the interface fracture strength. Microsize MgO particles has detrimental effect on the interface fracture strength

05.07.23 TENSILE AND SHEAR STRENGTH OF BOVINE BONE - CARTILAGE CONSTRUCTS

Robert Fleenor - University of Central Oklahoma, Engineering & Physics, Morshed Khandaker - University of Central Oklahoma, Engineering & Physics

Manufacturing engineered cartilage that will be able to withstand the forces of everyday life can make a dramatic difference in the way the medical community will treat orthopedic and arthritic symptoms in patients. Many people suffer arthritis and decay of cartilage in joints as they age. This is a major problem, but also presents an opportunity to use science to remedy the problem. The long time goal of the research is to develop engineered cartilage that will naturally and/or artificially adhere to

the bone surface. To achieve this goal, the objective of this research is to measure the interface tensile and shear strength of bovine bone - cartilage constructs. The information of the interfacial strength of natural bone - cartilage will be translated into a guideline to develop an engineered cartilage. Knee joints from a cow were used to prepare the bone-cartilage specimen. These joints were cut down into 4 mm x 4 mm specimens consisting of half bone and half cartilage. The specimens have the natural interface between them. A custom made tensile/shear test was designed and fabricated to measure the interface tension/shear strength. The setup consists of a specimen holding jig, load cells, displacement variable reluctant transducer and 100x stereo microscope. The interface strength data of the constructs from the experiment will be characterized by Weibull statistics.

05.07.24 NUMERICAL AND EXPERIMENTAL MODELING OF C5-C6 VERTEBRA AT WHIPLASH CONDITION

Sanjay Sah - University of Central Oklahoma, Engineering & Physics, Morshed Khandaker - University of Central Oklahoma,

Whiplash injuries are the cause of significant morbidity in patients who sustain them. A significant amount of research has been done to determine the etiology of these injuries. Several concepts exist on the causes of whiplash injury. Thus far, no definitive etiology has been shown to be the cause of the symptoms on the cervical vertebra from a whiplash injury. The hypothesis of this study is that interface between bone and ligamentous structure will undergo the greatest load transmission and displacement during static and dynamic whiplash condition. There are four specific aims in this study: (a) investigate the amount of displacement that occurs across C5-C6 cervical spine segment in a static model, (b) investigate the damage present in the whiplash model in regards to ligamentous structures, bone and intervertebral disc, (c) investigate the interfacial stress between bone and intervertebral disc and (d) investigate the interfacial stress between bone and ligamentous structures. Cervical vertebrae (C5-C6) solid model will be imported into a finite element analysis (FEA) software program ANSYS. Interconnecting joints and soft tissue elements will be defined in the FEA model. Static and dynamic load transfer and kinetics of cervical vertebrae columns (C5-C6) at flexion and extension will be extracted from the FEA simulation.

05.07.25 SIMPLE ROBOTICS

Jovan Trajcev - Cameron University, Science and Technology, William Shifflett - Cameron University, Science and Technology, Miwa Fukuda - Cameron University, Science and Technology, Mauro Bazan - Cameron University, Science and Technology, Akinwale Miracle - Cameron University, Science and Technology

This project involved creating a working rover that would overcome obstacles. A robotic arm was also implemented that will help remove obstacles from the course in order to maneuver through a field. The rover can also bring help in places where the atmosphere is dangerous. The main purpose of this project is to create a search and rescue robot that will be able to reach places where the atmosphere is dangerous. Several problems that were researched during the project were the battery life, maximum speed, and attachment of the robotic arm to the rover. The first phase of the research included programming the rover with prerecorded coordinates in order for the rover to move through a known environment. The next step was to implement sensors that would sense the distance to an obstacle. The obstacle could then be avoided or removed by the arm. Results from the ongoing research are that adjusting the sensing distance will be influenced by the type of sensor and the output voltage of the battery at a particular time and part of the area covered. The results from the research are giving many positive results for a full scale working robot that will give great maneuverability using an obstacle resolving algorithm that will help the robot and the robotic arm go through an area. Final steps for this ongoing research project are to create a remote control as a backup option if the rover gets stuck, and also implementing a camera with IR vision for night vision and also for viewing.

05.07.26 DETECTION AND MEASUREMENT OF ELECTRIC AND MAGNET FIELDS EMITTED FROM LIGHTNING

Justin Silkwood - Southwestern Oklahoma State University, Chemistry and Physics, Wessley Lamoreaux - Southwestern Oklahoma State University, Chemistry and Physics, Dr. Tony Stein - Southwestern Oklahoma State University, Chemistry and Physics

Lightning produces pulses of electric and magnetic fields that can be detected hundreds of kilometers away. We designed, built, calibrated and deployed a magnetic field loop antenna and a capacitive electric field antenna with accompanying signal amplifying circuits to measure these fields. Here we will discuss lessons learned from building and testing these devices as well as the data gathered from lightning strikes.

MATH AND SCIENCE

05.07.27 EFFECTS OF CIPROFLOXACIN LEVELS IN WASTEWATER TREATMENT PLANTS:

Erica Smith - Langston University,

Continuous release of antibiotics into our environment poses several serious risks. One of the most commonly traced antibiotics is Ciprofloxacin. Acinetobacter is a genus of bacteria regularly found in soil and water that cause infections and are commonly resistant to prescribed antibiotics. This project focused on *A. calcoaceticus*, *A. lwoffii* and *A. baumannii*. It was the goal of my research to compare the impact of different levels of Ciprofloxacin on the three species of Acinetobacter and observe how the growth was being affected. This was performed by collecting samples of pure cultures of Acinetobacter species, measuring optical density of the different dilute concentrations of Ciprofloxacin, performing fluorescence in situ hybridization (FISH) and evaluating FISH. In *A. calcoaceticus* and *A. lwoffii*, dilute levels of Ciprofloxacin are impacting the growth of cells as shown by OD data as well as the average cellular concentration of precursor 16S rRNA as demonstrated by mean fluorescence (F) data. A wider F-Distribution has been observed for cells treated both at and below the minimum inhibitory concentration (MIC) when compared to the control. Another result of antibiotic impact on evaluated cells can be seen by a higher mean F, which relates to elevated precursor 16S rRNA levels, within the impacted cells. Dilute levels of the antibiotic Ciprofloxacin impact cell growth and can be observed by using FISH.

05.07.28 DESIGN AND TESTING OF RAILROAD SIGNALING COMPONENTS

Sam Kucera - The University of Tulsa, Electrical Engineering

The main goal of the past year was to complete the translation the entire line of the railroad (over 100 kilometers of signal locations and repeaters) from physical relays to computerized control, and troubleshoot the final installation as it was implemented in the field. There are numerous advantages to the new system, but one of the most prominent is the ability to easily change the way signals behave without needing to hard-wire in the changes. This has allowed the company to completely re-think the way in which the signals operate, streamlining the train operations and allowing for more safety measures and redundancy.

With the original system, trains and signals communicate by sending AC signals of different frequencies through the rails. Since these signals are analog, they can only be sent in one direction at a time. This results in having no

information about the condition of the railroad from the opposite direction than you are receiving code in. The Microlok allows you to send track codes digitally, and so you end up getting bi-directional track information. While this does not change the operation of the trains (from the bystander's viewpoint), it greatly simplifies the programming.

05.07.29 RESEARCH IN FREQUENCY CRYSTAL PERFORMANCE

Jake Allyn Kirkendoll - The University of Tulsa, Electrical Engineering

As an intern at Qual-Tron, Inc. I have been conducting research on the performance of frequency crystals used in our single channel transmitters. We have concerns about the reliability of the frequency over the desired range of temperatures, so I have been researching the performance of alternative crystals and ways to improve their reliability.

I have looked at the performance of both 5th and 7th overtone crystals, and how their cut affects the performance from -20 degrees celsius to 160 degrees celsius.

05.07.30 DESIGN OF ADVANCE BURNER SYSTEM

Ryan Merritt - The University of Tulsa, Mechanical Engineering, Philip Noell - The University of Tulsa, Mechanical Engineering

As new burner technologies continue to be applied, we need to keep performance predictive tools for them up to date with information gathered from customer testing and field data. To this end, a new burner performance information database is being developed. This database will start with information from the COOLstar® burner, one of our most popular ultra low-NOx technologies, and will continue to expand to additional burner families.

BMS controls the safety and operation of the burners, fuel system and the furnace safety. Duct burner is direct fired gas burner in the turbine exhaust system. Typical components are burner runners for gas firing, fuel trains and headers, pilots, igniters, scanners, burner management systems. BMS are implemented in two types of platforms, Distributive Control System and PLC. The interns are participating in designing and engineering the BMS logic for implementation into the PLC hardware. The hardware is designed to meet various standards such as IRI, FM, CSA or any special requirement. The flame safeguard system will continuously monitor the flame and report any changes to the BMS for appropriate action.

05.07.31 MICROTUBE PRODUCTION FOR MICROFLUIDIC STUDIES

Andrew Baker - University of Central Oklahoma, Engineering and Physics, Evan Lemley - University of Central Oklahoma, Engineering and Physics

There are a number of new devices, such as micropumps, that contain microtubes and microchannels (tubes roughly less than 1mm in diameter). We want to be able to create microtubes, such as those used in commercial products, to measure the frictional effects based on fluid flow. The data collected can be useful to scientists such as a biologists, to better understand how a cell works.

There are several techniques to create these microtubes. One major issue in manufacturing is creating a channel that has a smooth interior wall and is round. A rough interior wall can create additional friction on the fluid, making calculations of the frictional energy loss difficult. We plan on taking an approach using prototypes made from ABS plastic, then manufacturing molds for a Polydimethylsiloxane (PDMS) resin, which will be poured around small wires. These wires will be pulled out after the resin has cured; leaving a microchannel for fluid flow. We will pump fluid through the microchannels and collect pressure and flow data for varying sizes of microchannels. By modifying the curing temperature and times, we might be able to gain a smoother interior wall. We will confirm our speculation by examining the created channels using a high power microscope. The features of the resulting microtube will be linked to the frictional energy loss.

05.07.32 FABRICATION OF ARTIFICIAL COMPOSITE FLOWERS FOR BEHAVIORAL STUDIES ON BEES

Willy Duffle - University of Central Oklahoma, Engineering and Physics, Meredith Clement - University of Central Oklahoma, Biology, Dr. Evan Lemley - University of Central Oklahoma, Engineering and Physics, Dr. John Barthell - University of Central Oklahoma, College of Mathematics and Science

Field studies of biological organisms are often augmented with artificial components that serve to reduce experimental variables. Artificial flowers were used to measure the behavioral responses of the honey bee, *Apis mellifera* L. Studies regarding yellow star-thistle, *Centaurea solstitialis* L. (YST), a plant species we have studied on the island of Lesbos in Greece and Santa Cruz Island in the western USA (California) and *Vitex agnus-castus* L., (native to Greece and Turkey) led to questions regarding the foraging dynamics of honey bees. We noticed differences in nectar quality and quantity and visitation of the honey bee to these plant species at the

different locals. In order to study the foraging behavior of the honey bees we used artificial composite flowers to represent the plant species. After attempting to modify existing flowers from a previous study, we enlisted the help of the UCO's Engineering and Physics Department. The flowers had many design considerations including materials, manufacturing process and size. Materials were researched to find the acrylic type that fit the needs of both the biologist and engineer. A process to automate the manufacturing was developed using the engineering departments Roland MX-650 computer controlled mill. The data collected from these flowers are valuable but the interdisciplinary collaboration resulting from this study has been beneficial to both departments.

05.07.33 PRESSURE LOSS MEASUREMENTS OF LAMINAR FLOW IN PLANAR JUNCTIONS

Willy Duffle - University of Central Oklahoma, Engineering and Physics, Jesse Haubrich - University of Central Oklahoma, Engineering and Physics, Daniel Atkinson - University of Central Oklahoma, Engineering and Physics, Andrew Henderson - University of Central Oklahoma, Engineering and Physics, Evan Lemley - University of Central Oklahoma, Engineering and Physics

Engineers and scientists predict pressure drops and flow rates through porous media such as oil and gas reservoirs, aquifers, packed beds, and gas filters using either Darcy's Law or Forchheimer's Law, each of which require empirical coefficients that are difficult and expensive to measure. Simulation of porous networks is a viable low-cost alternative.

Laminar flow dominates flow in porous media where pores are typically between 1 and 1000 microns in diameter. Fluids flowing through these micro-pores experience significant pressure losses at pore junctions. Knowledge of these pressure losses would allow simulations of entire pore networks, but there has been very little research into these losses for generalized geometries with laminar flow. This on-going project is focused on experimental study of laminar pressure losses in these arbitrary junctions. A companion project is focused on simulation of flow through the same micro-junctions.

Currently, the focus has shifted from perfecting the experimental set-up and data collection instrumentation to running the system and collecting data for combinations of Reynolds numbers, flow fractions and inflow pressures. Two junction blocks have been fabricated to date and data is being recorded for analysis on both a 30-30 degree bifurcation with dissimilar exit diameters and a 90-90 tee-junction with equal inlet/exit diameters.

MATH AND SCIENCE

05.07.34 SIMULATION OF FLOW THROUGH POROUS MEDIA

Chris Kiser - University of Central Oklahoma, Engineering and Physics, Evan Lemley - University of Central Oklahoma, Engineering and Physics

Flow through porous media (FTPM) is a dynamic area of study. Understanding fluid flow on the micro scale is of interest to many fields of study including those in which subterranean reservoirs under large pressure gradients force fluids through porous media toward the surface. Flow on this scale is most commonly studied using Darcy's law which is a linear relationship of the pressure gradient to the flow velocity. While Darcy's law is an acceptable approach to understanding FTPM, a more general approach to FTPM is to include nonlinear velocity effects resulting in Non-Darcy flow. Forchheimer's equation accounts for these effects by adding a parabolic flow velocity term. Given a porous media with a known pressure gradient, the coefficients of Forchheimer's equation, α and β , and their correlation, β vs α , may be determined.

FTPM, a code written at the University of Oklahoma, models porous media as a planar network of pipes (pores) of varying length and diameter which are allowed to terminate, bend, or split within the media. The goal of the current project is to use the FTPM code from OU to generate a matrix model for a given media and then recreate the model using design software. The new design is then meshed for use with CFD software to obtain α and β . These values are compared to the FTPM results as well as empirical results.

05.07.35 INTEGRATED SURFACE PLASMON OPTICAL SENSORS USING LIQUID CRYSTAL

Dr. Alaeddin Abu-Abed - University of Central Oklahoma, Engineering and Physics, Mr. Pankaj Karna - University of Central Oklahoma, Engineering and Physics

Recently, liquid crystal (LC) systems have proven to be excellent candidates in biological and chemical sensing applications. Various mechanisms were developed to detect the distortion within the LC film resulted from the interaction between the LC molecules and the targeted biological and chemical agents. Due to the unique optical properties of the LC materials, optical transduction is the most popular mechanism used in LC based sensors. However, most of these optical LC sensors require visual inspection to monitor the alteration in the LC molecular behavior.

In this meeting, we present an integrated surface plasmon

resonance (SPR) optical sensor using LC. Switching to optical transduction using SPR-LC sensors from the present visually inspected LC-based optical sensors offers some noteworthy advantages. First, it provides greater insight into the fundamental deformation occurring in the LC film due to the presence of chemical and biological agents. Second, the proposed SPR-LC sensor does not require visual inspection; therefore, a simpler system with autonomous operation and reduced possible false alarms is achievable. Third, this sensor offers the ability to identify and track the average LC deformation, and capable to provide information on the order parameter. As a result, improvement in selectivity, sensitivity, and reliability are anticipated. These advantages and others provide a compelling argument to investigate the SPR-LC sensing approach.

05.07.36 BIOFLUIDS RESEARCH AT UCO

Grant Armstrong - University of Central Oklahoma, Engineering and Physics, Lamar Williams - University of Central Oklahoma, Engineering and Physics, Evan Lemley - University of Central Oklahoma, Engineering and Physics

We have two projects involving flow in biological or bio-related systems. These are projects which are just beginning, but we will be using a flow system that has been developed for precise flow and pressure measurements at UCO for other research projects being carried out by our team.

One project involves measuring pressure losses and flow rates in replicas of the human renal artery with an aneurysm in place. The presence of an aneurysm leads most of the time to an increase in systemic blood pressure. The physical blood flow mechanism that could cause a large pressure loss and hence an increase in systemic blood pressure is unknown. This project is being carried out in collaboration with faculty in the University of Oklahoma (OU) Bioengineering Center.

Another Project involves measuring pressure losses and flow rates through a porous scaffold material manufactured by students and faculty in the OU School of Chemical, Biological, and Materials Engineering. These scaffolds are used at OU as a platform for tissue engineering growth in a bioreactor. Researchers at OU need to quantify flow characteristics of these scaffold materials.

08 AGRICULTURE

05.08.01 METHANE EMISSION BY GOATS CONSUMING CONDENSED TANNIN-CONTAINING FORAGE AT DIFFERENT FREQUENCIES

Dr. Ryszard Puchala - Langston University, American Institute for Goat Research, Dr. Getachew Animut - Langston University, American Institute for Goat Research, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research, Dr. Tilahun Sahlu - Langston University, American Institute for Goat Research, Dr. Vince Varel - USDA-ARS, Meat Animal Research Center, Dr. James Wells - USDA-ARS, Meat Animal Research Center

Boer x Spanish wethers (24; 33.5 kg) were used to assess effects of frequency of feeding fresh condensed tannin (CT)-containing sericea lespedeza (SL) on ruminal CH₄ emission. SL (15.3% CT) was fed every day (1SL), other day (2SL), 4th day (4SL), and 8th day (8SL), with consumption of alfalfa on other days. Ruminal fluid for microbial assays was collected 1 d after SL feeding and at the end of the longest interval (short and long interval samples, respectively). Average daily CH₄ emission differed among all treatments ($P < 0.05$; 9.7, 11.6, 15.5, and 18.3 g/d, respectively), but emission on days when SL was fed did not differ (9.7, 10.2, 10.7, and 10.7 g/d for 1SL, 2SL, 4SL, and 8SL, respectively). The number of protozoa in the short interval sample was similar among treatments (5.2, 5.3, 5.7, and 6.5 x 10⁵/mL), whereas the number in the long interval sample was 6.5, 10.4, 18.4, and 20.5 x 10⁵/mL for 1SL, 2SL, 4SL, and 8SL, respectively). In vitro CH₄ emission (3-wk incubation for methanogens) was similar among treatments for the short interval sample (18.2, 18.2, 19.7, and 20.0 mL) but less ($P < 0.05$) for 1SL and 2SL vs. 4SL and 8SL in the long interval sample (20.5, 20.3, 26.3, and 29.5 mL, respectively). In conclusion, greatest effects of CT of SL occurred with daily feeding, although there were carryover effects with 2SL. The influence of SL CT on CH₄ emission was immediate and the effect appeared attributable to activity of methanogenic bacteria and protozoa.

05.08.02 EFFECTS OF SMALL RUMINANT SPECIES AND ORIGIN IN ETHIOPIA (HIGHLAND VS. LOWLAND AREAS) AND LENGTHS OF REST AND FEEDING ON HARVEST MEASURES

Dr. Girma Abebe - Langston University, American Institute for Goat Research, Dr. Govind Kannan - Fort Valley State University, Agricultural Experiment Station, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research

Goats (G) and sheep (S) from Highland (H) and Lowland (L) areas of Ethiopia were used to determine effects of lengths of rest and feeding on harvest measures, particularly carcass surface lightness. The H goat used was Arsi-Bale, and the L goat was Somali. The fat-tail indigenous H sheep was an Arsi-Bale genotype, and the fat-rump indigenous L sheep genotype was the Black Head Ogaden. One experiment entailed rest for 0, 1, and 2 d before slaughter (R0, R2, and R3, respectively) and the second involved feeding 0, 2, and 4 wk (0 wk = 2 d rest; 0F, 2F, and 4F, respectively). The color measure L* (indicating lightness) for the hind leg surface 3 d PS was lower ($P < 0.05$) for H than for L (34.8, 36.3, 37.4, and 38.9 for G-H, G-L, S-H, and S-L, respectively). Surface L* on d 3 was increased ($P < 0.05$) by 1 and 2 d of rest compared with 0 d for goats regardless of origin, but was not affected for sheep (33.2, 36.3, 37.2, 38.5, 37.8, and 38.2 for G-R0, G-R1, G-R2, S-R0, S-R1, and S-R2, respectively). Surface L* on d 3 was lower ($P < 0.05$) for H vs. L (36.5, 39.0, 36.2, and 39.8 for G-H, G-L, S-H, and S-L, respectively). Feeding 4 wk increased ($P < 0.05$) surface L* on d 3 regardless of species and origin (37.7, 36.8, and 39.2 for F0, F2, and F4, respectively). In summary, goat and sheep carcasses from Highland areas of Ethiopia may darken more quickly compared with Lowland areas, and 1 or 2 d of rest before slaughter can increase lightness of the surface of goat carcasses.

05.08.03 EFFICIENCY OF ENERGY UTILIZATION BY LACTATING ALPINE GOATS

Dr. Ignacio Tovar-Luna - Langston University, American Institute for Goat Research, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research, Dr. Ryszard Puchala - Langston University, American Institute for Goat Research, Dr. Tilahun Sahlu - Langston University, American Institute for Goat Research, Dr. Harvey Freetly - USDA-ARS, Meat Animal Research Center

Lactating Alpine does (36; 50.5 kg) were used to determine the effect of stage of lactation on energy utilization. 12 does were assigned for measurement periods in early, mid-, and late lactation (28-35, 91-98, and 189 to 196 d). For 6 does of each group, after measures with ad libitum consumption of a 60% concentrate diet, feed intake was restricted to the ME requirement for maintenance (ME_m) for 8 d followed by a 4-d fasting period. For the other 6 does, fasting immediately followed ad libitum consumption. Energy expenditure (EE) was measured using a head-box calorimetry system. Recovered energy in milk did not differ in early and mid-lactation and was lower ($P < 0.05$) in late lactation (8.77, 7.84, and 5.40 MJ/d respectively). Efficiency of ME utilization for maintenance (km) based on ME intake

MATH AND SCIENCE

and EE by does fed near maintenance and when fasting was similar among stages of lactation (0.780, 0.813, and 0.803 in early, mid-, and late, respectively). However, MEm (based on fasting after ad libitum intake divided by km) was similar in early and mid-lactation and lowest in late lactation (494, 472, and 412 kJ/kg BW^{0.75}). Efficiency of use of dietary ME for lactation (kl-d) was not influenced by stage of lactation (0.615, 0.574, and 0.569 in early, mid-, and late lactation, respectively). Although km and kl-d by lactating goats were similar among stages of lactation, the MEm requirement appears lower in late lactation than at early times.

05.08.04 BODY COMPOSITION OF GROWING MEAT AND LACTATING DAIRY GOATS

Dr. Thomas Ngwa - Langston University, American Institute for Goat Research, Dr. Lionel Dawson - Oklahoma State University, College of Veterinary Medicine, Mr. Glenn Detweiler - Langston University, American Institute for Goat Research, Dr. Roger Merkel - Langston University, American Institute for Goat Research, Dr. Zaisen Wang - Langston University, American Institute for Goat Research, Mr. Kesete Tesfai - Langston University, American Institute for Goat Research, Dr. Tilahun Sahlu - Langston University, American Institute for Goat Research, Dr. Calvin Ferrell - USDA-ARS, Meat Animal Research Center, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research

Growing Boer x Spanish (B) and Spanish (S) wethers were fed 50% concentrate pelleted diet (C) or one based on grass hay (H) free-choice. 6 wethers of each breed were harvested at 0 wk and six of each diet-breed combination were harvested at 14 and 28 wk. Empty body concentration of protein was 18.3, 17.5, 18.3, and 19.7% and of fat was 24.0, 23.4, 10.8, and 10.3% for B:C, S:C, B:H, and S:H, respectively. Energy in accreted tissue was 17.0, 18.7, 16.3, and 6.4 MJ/kg for C:wk 1-14, C:wk 15-28, H:wk 1-14, and H:wk 15-28, respectively. Initial measures with lactating goats were on six does a few days after kidding (0 mo). Multiparous Alpine does (18) were fed a 40% forage diet (40F) and 18 received a diet with 60% forage (60F) for 2, 4, or 6 mo of lactation. Empty body fat (16.5, 18.7, 25.2, 12.9, 14.1, and 19.5% for 40F-2 mo, 40F-4 mo, 40F-6 mo, 60F-2 mo, 60F-4 mo, and 60F-6 mo, respectively) was affected by stage of lactation and diet ($P < 0.06$). Based on daily change in tissue mass (-141, 56, and 90 g/d) and energy (-2.31, 1.11, and 2.90 MJ/d for 1-2, 3-4, and 5-6 mo, respectively), energy concentration in tissue mobilized or accreted was 16, 20, and 32 MJ/kg at 1-2, 3-4, and 5-6 mo, respectively. In conclusion, other than with a prolonged limited nutritional plane, an average energy concentration in accreted tissue of growing meat

goats is 17.3 MJ/kg. The concentration of energy in tissue mobilized or accreted by dairy goats may vary with stage of lactation.

05.08.05 GARLIC AS AN ANTHELMINTIC FOR GOATS

Dr. Zaisen Wang - Langston University, American Institute for Goat Research, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research, Dr. Steve Hart - Langston University, American Institute for Goat Research, Dr. Tilahun Sahlu - Langston University, American Institute for Goat REsearch

The anthelmintic effect of garlic in mature does was evaluated. Twelve Spanish does (39 kg) naturally infected with *Haemonchus contortus* were allocated to 2 treatments and housed individually for 28 d. Does were fed grass hay (73%) and concentrate for BW maintenance without or with 2% garlic powder hand-mixed with concentrate. Fecal samples were collected on d 0, 2, 4, 8, 11, 15, 18, 21, and 24 and blood was collected on d 0, 14, and 28. Initial fecal egg count (FEC) averaged 6,167/g (SEM = 2,319) for Control and 13,800/g (SEM = 5,301) for Garlic. ADG was greater ($P < 0.02$) for Garlic vs Control (-42 vs. 74 g). Average FEC was decreased ($P < 0.02$) by garlic (6,395 vs. 1,290/g), although there was a trend for an interaction between treatment and day ($P < 0.06$). Effects of garlic on FEC on d 2 and 4 were nonsignificant ($P > 0.43$), whereas differences occurred on d 8 (5,819 vs 912/g; $P < 0.03$), 11 (7,368 vs 605/g; $P < 0.01$), 15 (6,114 vs 658/g; $P < 0.01$), 18 (5,783 vs 745/g; $P < 0.02$), 21 (8,571 vs 1,777/g; $P < 0.07$), and 24 (9,362 vs 1,720/g; $P < 0.05$). Serum concentrations of IgA, IgM, and IgG and the number of blood eosinophils were not influenced by feeding garlic ($P > 0.10$). However, the number of white blood cells tended ($P < 0.08$) to be greater for Garlic than for Control (11,153 vs 8,783/ μ L). In conclusion, garlic appears to possess anthelmintic activity against *H. contortus* via cell mediated immunity, which requires a feeding period of at least 4 d for expression.

05.08.06 COMPARISON OF RAW VERSUS POST-DIFFERENTIALLY CORRECTED GPS COLLAR FIXES IN FREE-RANGING GOATS

Dr. Terry Gipson - Langston University, American Institute for Goat Research, Dr. Steve Hart - Langston University, American Institute for Goat Research, Dr. R. Heinemann - Oklahoma State University, Kiamichi Forestry Research Station, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research

The objective of this study was to determine the effect of post-differential correction on fixes of GPS collars

worn by free-ranging goats. Wether goats (21; 46 kg) were fitted with GPS collars that recorded a fix every 5 min and released into a novel 4.6-ha pasture. Collars were downloaded after 1 wk and 41,744 raw (R) GPS fixes were post-differentially corrected (C). For fix status, C decreased 3-D fixes and increased 2-D fixes and No-fix compared with raw fixes (R: 95.8, 4.0, and 0.2%; C: 69.1, 28.4, and 2.5% for 3-D, 2-D, and No-fix status, respectively; $\chi^2 = 10,270$, $P < 0.01$). A higher percentage of C fixes were located within the boundary of the study area compared with R (89.7 vs 86.3%, $P < 0.01$). The correcting distance between R and C fixes was greater in daylight hours than at night (23.4 vs 16.9 m; $P < 0.01$). The daily total minimum distance traveled per goat was greater for R than for C (4.16 vs 3.82 km, $P < 0.01$). Inter-goat distance was greater for R than for C (19.9 vs 15.4 m, $P < 0.01$). Analysis using R vs C fixes may affect conclusions because more C than R fixes were within study area boundary, corrections were greater during daylight hours when animals were most active, and intra/inter-animal distance calculations were greater for R than for C. These differences may be especially important for researchers studying spatial distribution of grazing animals or calculating distance traveled such as in energy expenditure experiments.

05.08.07 COMPARISON OF COPPER SULFATE AND COPPER OXIDE WIRE PARTICLES AS AN ANTHELMINTIC FOR GOATS

Dr. Steve Hart - Langston University, American Institute for Goat Research, Dr. Zaisen Wang - Langston University, American Institute for Goat Research, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research

The overuse of anthelmintics has resulted in anthelmintic resistance of gastrointestinal nematodes to most of the available anthelmintics. The objective was to compare copper sulfate at two dose levels as an anthelmintic to copper oxide wire particles. This study was conducted with Angora does that were 2 yr of age or older. Fecal samples were taken for three consecutive days before treatments were administered and goats stratified by fecal egg count (FEC) and randomly assigned to treatments, 10 goats per treatment. Goats were fasted overnight prior to treatment administration. Four treatments were administered: N, negative control administered a water drench; C, 4 g of copper oxide wire particles administered in a gelatin capsule; L, low dose of copper sulfate (16.5 mg/kg BW); H, high dose of copper sulfate (33 mg/kg BW). Copper sulfate treatments were administered as a 1.5% drench. Fecal samples were taken at 7, 8, and 9 d post-treatment and fecal egg count reduction (FECR)

was calculated. FEC were conducted by the McMaster procedure. Data were analyzed by the SAS NPAR1WAY procedure for non-parametric tests. Mean FEC for the group before treatment was 5,350 eggs/g (range 200 - 29,900). FEC was not significantly reduced by N (FECR = 44%; $P > 0.10$). FEC was significantly reduced ($P < 0.05$) by L (FECR = 83%), C (FECR = 77%), and H (FECR = 67%). Copper sulfate drench at both dose levels was equally effective to copper oxide wire capsules in reducing FEC of Angora goats.

05.08.08 SOMATIC CELL COUNT IN MILK OF GOATS ENROLLED IN DAIRY HERD IMPROVEMENT PROGRAM IN 2007

Dr. L. Zhang - Langston University, American Institute for Goat Research, Dr. G. Wiggans - USDA-ARS, Animal Improvement Programs Laboratory, Dr. J. Clay - North Carolina State University, Dairy Records Management Systems, Dr. R. LaCroix - AgSource, Cooperative Services, Dr. J. Wang - Langston University, American Institute for Goat REsearch, Dr. Terry Gipson - Langston University, American Institute for Goat Research, Dr. Steve Zeng - Langston University, American Institute for Goat Research, Dr. Arthur Goetsch - Langston University, American Institute for Goat Research

The effects of breed, parity, stage of lactation (month), herd size, and regions/states on somatic cell count (SCC) and production of milk from dairy goats enrolled in the Dairy Herd Improvement (DHI) program in the US in 2007 were investigated. Statistical analysis of composite DHI data ($n = 29,000$) indicated that SCC and production of goat milk were affected by many non-infectious factors. Significant variation ($P < 0.05$) in SCC was found among breeds, with Toggenburg and Nubian being the highest, and Pygmy and Nigerian Dwarf being the lowest. The mean SCC of milk from Toggenburg and Nubian goats were near the current regulatory limit of 1.0×10^6 /ml for Grade "A" goat milk. As parities increased, SCC in milk increased steadily ($P < 0.05$). Differences ($P < 0.05$) in both SCC and milk production were discovered among regions. Large herds of goats tended to have higher milk production and SCC than the small herds ($P < 0.05$). The above findings suggest that consideration be given to culling goats with high somatic cell score (SCS) in their 5th lactation as SCS is expected to increase as they age that year-round breeding and lactation programs be practiced, if dairy goat producers in the US are to meet the Grade "A" goat milk requirements. All factors that contributed to variations in SCC and production of goat milk should be taken into consideration when establishing price incentive systems for goat milk.

MATH AND SCIENCE

05.08.09 FATE OF ARSENIC IN NORMAN AND ADA DRINKING WATER DURING PREPARATION OF COFFEE OR TEA

Brandi Brasiel - East Central University, McNair Scholar,
Ralph Ludwig - East Central University, USEPA Robert S. Kerr Research Center

The USEPA has set a maximum contaminant level (MCL) for arsenic in drinking water at 10 parts per billion (ppb). The 10ppb is to help prevent health risks that have been linked to several cancers such as bladder, kidney, prostate, and skin cancer. Samples of Norman and Ada tap water were analyzed and found to have arsenic concentrations of 3.41 ppb and 0.77ppb, respectively. Since coffee grounds and tea leaves are organic matter and thus have the potential to absorb arsenic, a study was conducted to determine whether the dissolved arsenic in Norman and Ada tap water might be significantly decreased or completely removed during preparation of coffee or tea (thereby lowering or elimination any potential health risks associated with the ingestion of the arsenic). A light roast and dark roast coffee from Starbucks and a popular green tea and herbal tea were investigated for their impact on arsenic removal. It was found that instead of decreasing dissolved arsenic concentrations, each of the coffee and tea samples actually increased dissolved arsenic concentrations. In the case of coffee, arsenic concentrations increased by up to 24.7% in the Norman water and by up to 86.5% in the Ada water. In the case of tea, concentrations increased by up to 17.0% in the Norman water and by up to 113.5% in the Ada water. The results indicate that both coffee and tea are sources of arsenic with green tea being the greatest source.

05.08.10 THE EFFECTS OF AGE, NUMBER OF KID, AND BODY FAT, ON MILK PRODUCTION IN GOATS

Ellen Underwood - Redlands Community College, Agriculture and Equine Science, Ryan Throckmorton - Redlands Community College, Agriculture and Equine Science, Riley Delesandri - Redlands Community College, Agriculture and Equine Science, Justin Wallace - Redlands Community College, Agriculture and Equine Science, Trevor Brassfield - Redlands Community College, Agriculture and Equine Science, Prof. Cynthia Hengge - Redlands Community College, Agriculture and Equine Science

Our research examines the correlations between milk production and doe age, number of kids born, and body fat content in dairy goats. Separately these characteristics have been studied; however, there is a dearth of research to suggest a correlation between these variables. Through the use of sophisticated milking equipment, data will be

assessed over these variables for one milking season. Our findings will report the impact age, number of kids born, and body fat have on the amount of milk that is produced. We will discuss aspect individually, and any interactions between variables, to better understand determinants of the ideal dairy goat.

05.08.11 DOES EMBRYO TRANSFER HAVE A NEGATIVE EFFECT ON BOVINE REPRODUCTIVE FUTURES?

Olivia Diehm - Redlands Community College, Agriculture and Equine Science, Sara Saltzman - Redlands Community College, Agriculture and Equine Science, Justin Strate - Redlands Community College, Agriculture and Equine Science, Thad Gorczyca - Redlands Community College, Agriculture and Equine Science, Cameron Bengel - Redlands Community College, Agriculture and Equine Science, Prof. Ed Zweiacher - Redlands Community College, Agriculture and Equine Science

Embryo transfer has become an extremely reliable and lucrative business in beef cattle in the last ten years. However, there are a few cows who fail to flush any "good" eggs, no matter what treatment she has gone through. Does the fact that the generations before them were subjected to embryo transfer methodologies of reproduction have possible implications on their fertility? Interestingly, in spite of not being reproductively successful in an artificial setting, these cows can still reproduce in natural settings. The objective of this investigation is to analyze data on selected breeds of beef cows that fail to reproduce in an artificial settings. To do this we will evaluate data from some of the most successful companies who perform embryo transfer in the Central Oklahoma area. Additionally, we will interview a select group of individuals, strictly specializing in embryo transfer in cattle, to consider potential explanations why this phenomenon is interpreted from the beef industry's point of view. Therefore through the use of quantitative and qualitative methods, we will report the findings of our study of beef cattle fertility and embryo transfer.

05.08.12 UTILIZING OPTICAL SENSORS TO DETERMINE COTTON MATURITY

Prof. Elizabeth Wallace - Western Oklahoma State College, Agriculture, Dr. Randy Taylor - Oklahoma State University, Agriculture, Dr. J.C. Banks - Oklahoma State University, Agriculture, Travis Leamon - Western Oklahoma State College, Agriculture

Abstract

Variable rate technology has been available for several years now, however the majority of these systems are based on a "prescription theory" developed prior to application. These prescriptions are typically developed from one the following three observations: soil sampling maps, aerial or satellite imagery, and/or previous year's yield monitor data. Although these methods have proven effective in many instances, all of these variables are typically measured well before application time and may not adequately reflect current crop conditions. The ability to utilize real-time, up-to-date information for these prescriptions could offer an advantage over traditional methods used for developing variable rate prescriptions. Optical sensors may be effective at characterizing current, real-time maturity differences within a cotton field. Utilizing these sensors in order to gather cotton maturity data could help establish a foundation for the development of a cotton defoliation prescription based on real-time information. However, in order to do so, there must be a significant correlation between the NDVI (normalized difference vegetative index) produced from the optical sensors and overall crop maturity. This project was established in order to explore the potential correlation that may exist between optical sensor readings and a maturing cotton crop.

05.08.13 THE EFFECT OF HORMONE ORDER ON EMBRYO QUANTITY AND QUALITY FOR TRANSFER IN GOATS

Cassadie Copeland - Redlands Community College, Agriculture and Equine Science, Alex Miller - Redlands Community College, Agriculture and Equine Science, Natalee Smith - Redlands Community College, Agriculture and Equine Science, Prof. Cynthia Hengge - Redlands Community College, Agriculture and Equine Science

In this research project we are putting emphasizes on goat embryo transfer programs. We seek to establish if the order in which the hormones commonly used in embryo transfer have an effect on the number and quality of embryos harvested. Currently there are three main hormones used when super-ovulation the donor goats - follicle stimulating hormone (FSH), a vaginal devices that

contain progesterone (CIDR), and gonadotrophin releasing hormone (GnRH). We will use 3-9 donor does per group from locations in Oklahoma and Texas during the Fall of 2009. Each doe will receive daily hormone shots for four days in accordance to assigned treatment group schedule. This study is important as the increasing use of embryo transfer in goat breeding programs continues to grow.

05.08.14 THE CORRELATION BETWEEN FAT COVER AND SEMEN QUALITY IN BOER GOATS

Joel Riedel - Redlands Community College, Agriculture and Equine Science, Casey Hilmes - Redlands Community College, Agriculture and Equine Science, Jordan Clem - Redlands Community College, Agriculture and Equine Science, Brnadi Capps - Redlands Community College, Agriculture and Equine Science, Cynthia Hengge - Redlands Community College, Agriculture and Equine Science

This study will investigate the relationship between back fat thickness and semen quality in Boer goats. Five fully mature male Boer goats from central Oklahoma will be used. Each goat will be measured for back fat thickness using an ultra-sound device, before semen is collected and analyzed. The semen samples will be evaluated with the use of a Computer Animated Semen Analysis machine, and tested for motility, progressive motility and concentration. Comparisons will be made between and within specimens and results will be reported as correlation between back fat thickness and semen quality. The implication for this research would conceivably increase conception rates and overall efficiency in breeding programs considering back fat as a variable for semen quality.

05.08.15 CULTURE AND ANTIBIOTIC SENSITIVITY OF MICROBES ISOLATED FROM BEEF COW QUARTERS

Dr. Lisa A. Appeddu - Southwestern Oklahoma State University, School of Allied Health Sciences, MilliAnn Allen - Redlands Community College, Pre-Professional Sciences, Dr. Michael A. Brown - USDA-ARS, Grazinglands Research Laboratory, Dr. David L. von Tungetn - USDA-ARS, Grazinglands Research Laboratory

Our objectives were to isolate and identify microbes present in individual quarters of beef cows and to evaluate microbial susceptibility to antibiotics used in maintenance of health. Duplicate milk samples were aseptically collected from beef cows (n=38) on May 5-6 and June 30-July 1, 2009, in early and mid-lactation, respectively. If present, microbes were isolated and then identified via staining and selective/differential tests.

MATH AND SCIENCE

Microbes isolated in 2009, plus those from 2007 and 2008, were tested for susceptibility to twelve antibiotics using a disk diffusion assay and methods of the Clinical and Laboratory Standards Institute. Sixteen and fifteen microbial types were isolated from samples taken in early and mid-lactation, respectively. Twelve quarters infected in early lactation also had microbes present in mid-lactation. Microbes from May and July 2009 included *Staphylococcus aureus* (31 and 46%), coagulase negative Staph (CNS) (31 and 27%), *Corynebacterium bovis* (25 and 27%) and *Streptococcus* species (13 and 0%). Results from 2007-2009 indicate a 97.3% antibiotic susceptibility rate. Resistance was found only in CNS and primarily to penicillin and ampicillin. Results suggest microbial infections were subclinical and carried over across sampling dates. Infections were predominantly caused by *Staphylococcus* species, and low levels of antibiotic resistance were found. Funding provided by OK INBRE Summer Undergraduate Research Program and SWOSU Organized Research Grant.

05.08.16 AN ECONOMIC COMPARISON BETWEEN COOL SEASON GRASSES AND WINTER WHEAT

Cameron Tuthill - Redlands Community College, Agriculture and Equine Science, Jarod Gentry - Redlands Community College, Agriculture and Equine Science, Colby Reuter - Redlands Community College, Agriculture and Equine Science, Alex Thompson - Redlands Community College, Agriculture and Equine Science, Jarrod Bomhak - Redlands Community College, Agriculture and Equine Science, Prof. Cynthia Hengge - Redlands Community College, Agriculture and Equine Science

Agriculture is the backbone of the economy which seems to be constantly going through highs and lows. Rising feed costs, changing weather patterns, as well as excessive high prices for nitrogen fertilizers, have forced cattle producers to try alternate means of feeding. Most turn to winter wheat for cool season grazing rather than feeding supplemental hay, minerals, and proteins to conserve costs. Our study investigates the efficiency of feeding winter wheat compared to cool season grasses. A two by two experimental plot will be used to determine which species will grow the best during an Oklahoma winter. We will also compare a natural fertilizer with traditional co-op recommended fertilizer on our sample crop to assess possible differences. Our study has the potential to change the way local growers manage cattle feeding over the winter months by demonstrating a more economical way to produce winter feed.

01 BIOLOGY

THE GENETIC DIVERSITY OF STRIPED SKUNK (*MEPHITIS MEPHITIS*) POPULATIONS THROUGHOUT OKLAHOMA AND TEXAS

Kelly Smith - University of Central Oklahoma, Biology, Michelle L. Haynie - University of Central Oklahoma, Biology

Kelly A. Smith* and Michelle L. Haynie, University of Central Oklahoma (Ksmith96@uco.edu)

The striped skunk (*Mephitis mephitis*) is distributed throughout southern Canada, the United States and northern Mexico, and is one of the main vectors of the rabies virus. Skunks carry 3 known rabies variants: one in the south central United States, one in the north central United States, and one in California. Striped skunks have been the focus of several rabies investigations, but few genetic studies have been performed on this species and none have looked at the potential for genetic subspecies. The immediate goal of this project is to determine levels of genetic variation within striped skunk populations found in the geographic distribution of the south central strain of rabies in the United States. Currently, skunks are being sampled from OK, KS, NE, MO, TX, NM, and AZ. To determine levels of genetic variation, the D-loop portion of the control region of the maternally-inherited mitochondrial genome is being amplified. Preliminary data indicates two distinct haplotype groups among samples from Oklahoma, Kansas, New Mexico, and Texas. This research is only the third study of genetic variation within striped skunk populations and the first to be conducted over a wide geographic range (central United States).

REGULATION OF ENDOPLASMIC RETICULUM STRESS BY THE ANTI-CANCER DRUG, SHETA2

Sheree McDaniel - Langston University, Biology
Sheree McDaniel, D. Benbrook
Department of Obstetrics and Gynecology, University of Oklahoma Health Sciences Center

Ovarian cancer is the most lethal of gynecologic malignancies. Despite aggressive surgery and chemotherapy, 5 year survival after diagnosis is only about 30%. Hence new drugs are needed to treat ovarian cancer.

Objective: A novel drug SHetA2 inhibits cancer growth by inducing apoptosis and inhibiting cell proliferation. Our goal was to further understand the molecular mechanism of SHetA2 by investigating its effects on the Endoplasmic Reticulum (ER). The hypothesis is that SHetA2 induces

endoplasmic reticulum (ER) stress by the binding of glutathione.

Methods: Cancer cells were treated with SHetA2 and its analog, SHetC2 which is unable to bind glutathione. After treatment, the protein was extracted and western blots were performed using a variety of ER specific antibodies.

Results: Cancer cells that were treated with SHetA2 and SHetC2 exhibited endoplasmic reticulum stress at different time intervals. ER stress biomarker proteins, Protein disulfide (PDI), BiP, and Ero1-La were all induced at 16 hours of treatment. Inositol-requiring enzyme 1 alpha (IRE1a) was induced at 4 hours of treatment.

Conclusion: Since SHetC2 exhibited endoplasmic reticulum stress as well as SHetA2, we propose that SHetA2 induces endoplasmic reticulum stress independent of glutathione.

Funding was provided by The Jeffrey Benbrook Memorial Fund and LINC.

LOTEPREDNOL ETABONATE 0.2% IN THE POSSIBLE TREATMENT OF DRY EYE SYNDROME

Candace Acord - Northeastern State University, Optometry, Amanda Gonzales - Northeastern State University, Optometry, Dr. Alan McKee - Northeastern State University, Optometry

Background:

Dry Eye Syndrome (DES) is a multifactorial disease whose etiology, diagnosis and management are controversial. Tear film instability is the most widely accepted cause of DES. However, ocular inflammation is now considered an underlying cause, making steroid treatment an alternative option for dry eye. This study explores the use of the low-dose soft steroids in the treatment of DES.

Methods:

In a randomized masked clinical trial, eight subjects were divided into three treatment groups and given different drops for each eye to take over two weeks. After a one week rest period, the treatments were rotated, giving three treatment periods and two rest periods with exams and surveys at the end of each period.

Results:

Using t-test analysis, data from exams were analyzed regarding visual acuity, tear volume, corneal staining, grade, and intraocular pressure. Additionally, questionnaires were used to evaluate comfort, dryness, itchiness, grittiness, wateriness, and blurry vision. Minimal statistical significance was found among these categories.

Conclusion:

Although this study cannot claim better relief of dry eye

in comparison to loteprednol etabonate 0.5% and an artificial tear, its performance was comparable to the previously mentioned treatment modalities, suggesting loteprednol etabonate 0.2% is a plausible alternative treatment for DES.

WOLF HIRSCHHORN

Deambra Bauer - Northeastern State University, Natural Science, Cody Hickman - Northeastern State University, Natural Sciences, Kathi McDowell Ph.D. - Northeastern State University, Natural Sciences

Wolf Hirschhorn Syndrome

Wolf Hirschhorn syndrome is an extremely rare chromosomal disorder caused by a deletion of the short arm on chromosome 4. Wolf Hirschhorn syndrome causes severe deformity and mental deficiency. OMIM is a database that contains information on human genetic disorders. OMIM was used to collect the information on the disease Wolf Hirschhorn syndrome. The diseased gene to be analyzed is 602952. The name of the gene is Wolf Hirschhorn syndrome candidate 1: WHSC1. The chromosomal location is 4p16.3. BLAST is a program that takes the sequence that is studied and compares a portion of the sequence to every available sequence. A BLAST search was ran on the gene 602952. A gene identifier found in the BLAST search that was chosen is NG009269.1. A genbank report was brought up for NG009269. Spidey is a database that allows you to determine the exons present, overall percent identity, and determine the size of the exons. Spidey found our sequence with 100% identity and contained 5 exons. The mortality rate for Wolf Hirschhorn Syndrome is estimated at 34% in the first 2 years of life. The usual cause of death is heart defect, infection, or seizure

MUTATIONS OF THE LDL RECEPTOR ARE IMPLICATED IN FAMILIAR HYPERCHOLESTEROLEMIA

Nathan Shane Greenburg - Northeastern State University, Natural Sciences, Tony Khalaf - Northeastern State University, Natural Sciences, Jennifer Ratliff - Northeastern State University, Natural Sciences, Jeri Goodnight - Northeastern State University, Natural Sciences, Jeff Bohn - Northeastern State University, Natural Sciences, Dr. Kathi McDowell - Northeastern State University, Natural Sciences

Mutations of the LDL Receptor are Implicated in Familial Hypercholesterolemia

Familial hypercholesterolemia (FH) is an autosomal-dominant disorder characterized by significantly-elevated serum cholesterol levels. The

MATH AND SCIENCE

etiology of FH is mostly due to mutations in the low-density lipoprotein receptor (LDLR) gene, which results in impaired cellular uptake of circulating low-density lipoproteins (LDL's), leading to elevated blood-cholesterol levels. GenBank Results for the LDL receptor revealed a 44,450 BP gene located on chromosome-19 of human DNA. A BLAST search, using an mRNA sequence for the LDLR gene, revealed 737 possible related genes of various species. Protein analysis revealed several homologues of the LDLa superfamily of receptors. Spidey analysis revealed 18 exons that overall, 100% matched the human genome database. Although autosomal-dominant, the severity of FH is contingent upon zygosity, as FH exhibits a gene-dosage curve. Heterozygotes, approximately 1:500 humans, typically exhibit a serum-LDL level of 300mg/dL, while homozygotes, representing 1:1,000,000, exhibit serum-LDL levels over 500. Lipid-profiles seen with FH place the affected population at high risk for atherosclerosis, cerebrovascular incident, and/or myocardial infarction. Heterozygotes may present with atherosclerosis in the fourth decade, while homozygous individuals typically die in the third decade due to myocardial infarction.

OVEREXPRESSION OF THE V-SNARE MASTER PROTEIN 1 (VSM-1) IN C. ELEGANS PREVENTS NORMAL SYNAPTIC TRANSMISSION IN VIVO

Ariana Eakle - Southwestern Oklahoma State University, Biological Sciences, Andrea Holgado - Southwestern Oklahoma State University, Biological Sciences

Membrane fusion is a mechanism utilized by all cells containing membrane-delineated compartments whereby two separate lipid bilayers merge to become one. The best-studied process involving membrane fusion entails calcium-regulated exocytosis of synaptic vesicles at presynaptic terminals. In the last decade, a number of key proteins involved in exocytosis have been identified. VSM-1, the subject of our research, is a highly conserved protein that was identified as a synaptobrevin binding partner capable of inhibiting vesicle fusion. Analyses of the phenotypes in yeast lacking VSM-1 and overexpressing VSM-1 suggest that this protein negatively regulates exocytosis by limiting priming of vesicles. To better understand VSM-1 function in vivo and test its role in synaptic vesicle exocytosis, we began characterizing the *C. elegans* VSM-1 homolog. First, the hypothesis that VSM-1 is a negative regulator of neurotransmitter release was tested. Integrated transgenic lines overexpressing neuronal VSM-1 fused to GFP are resistant to the toxic effects of Aldicarb, suggesting that *C. elegans* VSM-1 inhibits ACh release. Second, we found that neuronal VSM-1 colocalizes with synaptobrevin, a v-SNARE protein. Finally, an experiment to investigate the consequences of

expressing both VSM-1::GFP and mutant VSM-1 (OK1468) is under way. Animals homozygous for the mutation and transgene will be analyzed to determine if expression of the transgene rescues the loss of function phenotype.

INCREASED CELLULAR INFILTRATES IN THE LUNGS AND KIDNEYS OF LUPUS-PRONE MICE FOLLOWING INFLUENZA INFECTION **Sweta Shrestha - Cameron University, Department of Physical Science**

Influenza virus infections result in significant morbidity and mortality each year, especially in individuals with autoimmune diseases, such as Systemic Lupus Erythematosus (SLE). Studies using lupus-prone mice (MRL-lpr) have shown that following influenza infection there is lung and kidney pathology due to increased cellular infiltrates.

MRL-lpr mice were inoculated with either saline or a mouse adapted influenza virus (x31). Bronchiole Alveolar Lavage (BAL), lung, kidney, and spleen tissues were collected on day 29. These cells were used for flow cytometry staining to determine the infiltrating cells profile. Immunohistochemistry was performed on kidney tissues.

Influenza infection resulted in increased cellular infiltration in kidneys and lungs. Flow cytometry staining demonstrated that these cells were primarily lymphocytes in the BAL, lungs, and kidneys. The number of CD4+, CD8+, and CD19+ cells were greater in lungs and BAL of infected mice compared to saline controls. In kidneys, the CD4+ cell was prominent. There were no distinct differences in the number of cells in the spleen.

Influenza infection results in increased cellular infiltration at the site of infection (lungs) and also in kidneys. Interestingly, the lung infiltrates were composed of B cells and T- cells (helper and cytotoxic), whereas the kidney cells were predominantly helper T-cells. Experiments are underway to determine the antigen- specificity of these cells and their impact on organ function.

POPULATION GENETIC STRUCTURE OF HIBERNATING CAVE MYOTIS, MYOTIS VELIFER, FROM CAVE LOCALITIES IN NORTHWESTERN OKLAHOMA

Kimberly L. Koppari - University of Central Oklahoma, Department of Biology, Tiffany L. Cloud - University of Central Oklahoma, Department of Biology, Dr. Ronald A. Van Den Bussche - Oklahoma State University, Department of Zoology, Dr. Gregory M. Wilson - University of Central Oklahoma, Department of Biology, Dr. William Caire - University of Central Oklahoma, Department of Biology

The cave myotis, *Myotis velifer*, is an insectivorous bat which occurs in caves and man-made structures. Their range extends from Kansas to southern Nevada, and from southeastern California southward through Mexico to Honduras. Both sexes of the cave myotis hibernate in the same localities in the winter, but disperse to separate maternity and bachelor roosting sites during the spring and summer. Previous studies conducted at caves in northwestern Oklahoma reported that cave myotis begin arriving in their hibernaculum in October and in number until December when population densities reached a high. These studies also indicate that after December, densities of bats begin to decrease due to relocation of individuals to other cave localities for the remainder of the winter. The goal of my study is to examine if the movement patterns of *M. velifer* among cave localities in the late fall through early spring impacts the population genetic structure of bats within several caves in northwestern Oklahoma. Wing punches have been collected from 330 *M. velifer* from cave localities from November 2007 to January 2009. To investigate population genetic structure among cave localities, I am amplifying the left domain of the control region of the mitochondrial genome (mtDNA). Preliminary results reveal high genetic diversity within each cave locality and there does not appear to be significant population genetic structure of *M. velifer* among the study caves from late fall to early spring.

03 COMPUTER SCIENCE

USING SERVICE PATTERNS TO ACHIEVE WEB SERVICE COMPOSITION

Jicheng Fu - University of Central Oklahoma, Computer Science

In this paper, we present a pattern-based approach to support web service compositions. The concept of service patterns is designed to overcome the challenges posed by the lack of systematic ways of reusing previous experience in service interactions. A service pattern represents a class of concrete services or a generalized workflow. Hence, service patterns form an abstraction layer over concrete services and workflows. Although the concept of service patterns is independent of implementations, we formulate a way of using OWL-S mechanisms to implement service patterns. In addition, three functional operators are defined over service patterns to provide functional capabilities to operate on service patterns and facilitate automated service compositions.

05 MATHEMATICS & STATISTICS

ENCLOSING ROOTS OF POLYNOMIAL EQUATIONS AND THEIR APPLICATIONS TO ITERATIVE PROCESSES

Jingshu Zhao - Cameron University, Mathematics Department, Ioannis K. Argyros - Cameron University, Mathematics Department

We introduce a special class of real recurrent polynomials f_m ($m \geq 1$) of degree m , with unique positive roots S_m , which are decreasing as m increases. The first root S_1 , as well as the last one denoted by S_8 are expressed in closed form, and enclose all S_m ($m > 1$).

This technique is also used to find weaker than before [5] sufficient convergence conditions for some popular iterative processes converging to solutions of equations.

SUDOKUS

Patricia Bailey - Northeastern State University, Mathematics, Katherine Thompson - Northeastern State University, Mathematics

This project focuses on "A Pencil-and-Paper Algorithm for Solving Sudoku Puzzles", an article by J.F. Crook. We will take an in-depth look into the algorithm and its underlying theorems. We will provide examples and show how someone can solve many different types of Sudokus. The algorithm is a tree-based algorithm, which involves backtracking until a solution is found. We will also discuss what pre-emptive sets and the occupancy theorem are, and how they can be used in solving Sudokus. There are various types of Sudokus, including ones that require using random choice (such as Michael Mepham's diabolical Sudoku puzzles), and how someone could use the algorithm to solve them. We will also demonstrate other common Sudoku puzzles.

FIBONACCI'S FORGOTTEN NUMBER EXPLAINED

Lori Bottger - Northeastern State University, College of Mathematics, Parker Richey - Northeastern State University, College of Mathematics, Jory Wade - Northeastern State University, College of Mathematics

An important historical figure, Leonardo of Pisa, also known as Fibonacci (ca. 1175-ca. 1250) is most famously known for the sequence of numbers: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ..., however there is another number for which Fibonacci is also well known, 1. 22 07 43 33 04 40 (base 60).

In 1225 at the court of the Holy Roman Emperor Frederick

II, three questions were asked of Fibonacci by the court's mathematician, John of Palerno. The third and final question is the one we will be investigating. The question posed to Fibonacci was to find the real root of the cubic equation $x^3+2x^2+10x=20$.

Richard Maruszewski presents two methods, one of which had previously been presented by Brown/Brunson, as plausible methods that could have been utilized by Fibonacci. The first method (the method of Elchataym - literally "the two error" in Arabic) is presented as the method used by Fibonacci by Brown/Brunson. The second method that will be examined (introduced by Maruszewski) was used by both the Babylonians and Heron of Alexandria. We will show how Fibonacci might have heard about each method, describe the methods, and look at their implementation to approximate the real root of the originally posed problem.

AN INTEGRATION TRICK

Kaiti Smith - Northeastern State University, Mathematics, Walter Colston - Northeastern State University, Mathematics, Brandon Brophy - Northeastern State University, Mathematics

A witty mathematical article written by Michael Sheard called Trick or Technique, may help alleviate some of the anxieties while learning techniques for various types of integration, but would definitely remind us all to think outside of the mathematical paradigm one learns in a typical calculus class. The article shows several examples where other techniques could be utilized to solve an integral; but instead, a clever algebra technique is used to give a correct solution without using a perennially confusing method of repeated integration by parts. Michael Sheard later concludes that his technique is no more than a trick, which should not necessarily be published in textbooks. The reason for this, as he explains, is that certain integral problems may actually become more complicated and would require students to learn how to determine which times to use the trick, and which times not to use it. However, very often students find integrals that use a repeated integration by parts (which requires adding a copy of the original integral to the other/original side) to be quite confusing and an alternative approach like this might prove quite fruitful in such cases. Though the trick may never be taught as the standard method in school classes, everyone would at least benefit from "thinking outside of the box" and trying to recognize simple solutions for tough integral problems.

06 NURSING

RELATIONSHIP BETWEEN EXERCISE AND REDUCED STRESS LEVELS IN NURSING STUDENTS

Patrick Harger - University of Central Oklahoma, Nursing, Barbara Arnold RN, MSN - University of Central Oklahoma, Nursing, Darren Dupus - University of Central Oklahoma, Nursing, Melanie Chambless - University of Central Oklahoma, Nursing, Christin Latham - University of Central Oklahoma, Nursing

The purpose of this study is to train undergraduate student researchers in the context of a Success in Nursing course under direct supervision of the faculty P.I. to evaluate the effectiveness of exercise on stress levels of undergraduate nursing students within the schema of transformative learning.

Research literature indicates a high correlation between exercise and reduced stress levels in undergraduate students. This study will investigate whether this observed mitigating effect on stress by exercise will emerge specifically in undergraduate nursing students. Evaluation will be done through comparison of pretest and posttest scores of the nursing students to determine any relationship between variables.