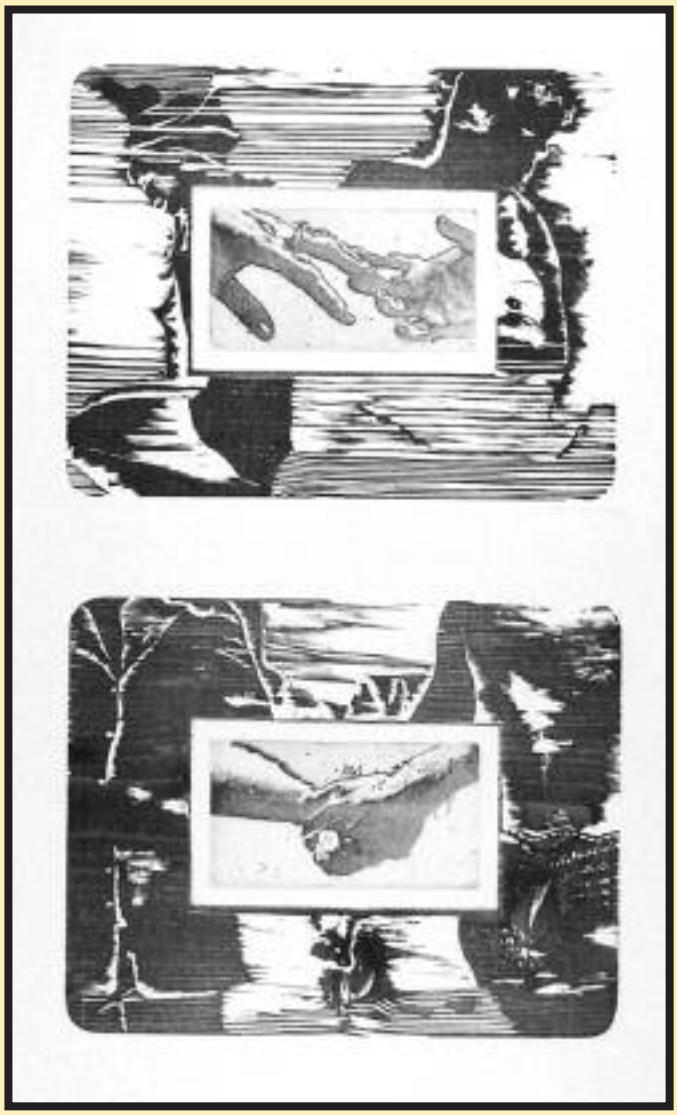
Undergraduate Scholars Day 2006

An event where students come to present and share their research



ARKANSAS STATE UNIVERSITY

April 11, 2006

HONORS

The ASU Honors College is an exciting and special place for students. We strive to develop students' excellence not only in academics but in other areas as well. We offer smaller classes where one can explore and express their individuality. A variety of course structures allow each student to uniquely tailor their program for their career choice. To the right are some of the opportunities you will have while a part of ASU Honors. All of them add up to a "YOU-nique" learning experience.

ASU
ARKANSAS STATE UNIVERSITY

How Can One Qualify?

You're eligible to be a part of the honors program if

(1) you have a 3.5 or higher GPA;
(2) you have an ACT of 24 or higher; or
(3) you can be nominated by ASU faculty

HCA (Honors College Association)

HCA is an undergraduate organization which helps plan social events, academic and career support events, and other activities to make your time in Honors more enjoyable. You not only learn about the Honors experience, but plan and prepare for your future after college... uniquely tailored for you.

National Student Exchange (NSE)

The Honors College is home to the National Student Exchange (NSE). NSE is a program where students can spend up to a year at another university in the U.S. ASU us the only university in Arkansas to be a part of this national program. You can spend a semester or year at another institution and pay ASU tuition and fees (where applicable).

POWERING MINDS™

http://honors.astate.edu

Welcome to UNDERGRAD SCHOLARS DAY

Welcome to the 7th annual Undergraduate Scholars Day (USD) at Arkansas State University. USD has been a part of the Convocation of Scholars Week since it first began in 1999. USD is a yearly event where students from across disciplines and departments gather to present and discuss their research. The collegial and professional environment of USD provides a venue for all manner of academic research and activity. This year's program is once again a strong and highly representative of the work taking place at ASU. USD offers space for Art and Design students to showcase their work alongside students from the health sciences. USD has had engineering students present research on their findings and Humanities students present research on topics ranging from aesthetics to language. We even have a small concert from students in Music. USD is a thriving and diverse program and with this year's program, the largest to date, the tradition continues.

USD also provides opportunities for students to interact more closely with professors who mentor the student through the process of readying their work for presentation in a professional environment. The benefits for students who participate in USD are varied. Some gain valuable research experience, some gain practice at public speaking and others simply enjoy the setting of USD which allows them to better know the various types of research that occur across the campus.

If you are interested in mentoring students for next year's USD or are interested, as a student, in presenting at USD or simply want to know more about USD, please contact Dr. Michael K. Cundall Jr., Assistant Dean of The Honors College. Email: mcundall@astate.edu Phone: 972.2308

Best,

Dr. Michael K. Cundall Jr.
Assistant Dean of The Honors College

Special Notes

There will be a special lunchtime (11-12:30) Guitar & Music Performance in the Auditorium of the Student Union. Please stop by and have a listen. If this year's performance is as good as last year's you will be in for a real show!

UNDERGRADUATE SCHOLARS DAY April 11, 2005

9:30-10:30

Panel 1: McNair Scholar
Chair: Gail McDonald
Room: Mockingbird #3015
Presenters:
LaTrisha Rice
Nathan Ganstineau

Panel 2: Research of Freshwater Mussels
Chair: Alan Christian
Room: Mockinbird #3014
Presenters:
Ryan M. Allen
Tracy A. Bianco
Kentaro Inoue

Panel 3: Engineering
Chair: Robert Engelken
Room: Pine Tree #3013
Presenters:
Raphael Kuff, David Harlan, W. Clark Marler, and Michael Sattler
Matthew Lemay, David Harlan, W. Clark Marler, and Michael Sattler
W. Clark Marler, Michael Sattler, David Harlan, Matthew Lemay, and Raphael Kuff

10:30-11:30

Panel 4: Philosophy
Chair: M. Cundall
Room: Mockingbird #3015
Presenters:
Shana Lowrey
Philosophy Club Essay Contest Winner (TBA)
Philosophy Club Essay Contest Winner (TBA)

Panel 5: Fresh Water Research
Chair: Alan Christian
Room: Mockingbird #3014
Presenters:
Raven L. Lawson
Shane Lyerly
Allison M. Smith

Panel 6: General Section
Chair: (TBA)
Room: Pine Tree #3013
Presenters:
Paige Mayhair
Laura Perkins
Laura Pierce

11:00-1:00

Musical Performance
Chair: Tim Crist
Performers:
Carly Gorman
Thomas Head
Timothy Miller
Jay Shepherd
Grant Harbison

11:30-1:00 LUNCH

1:00-2:00

Panel 7: Psychology
Chair: David Saarnio
Room: Mockingbird #3015
Presenters:
Shiretta Brooks
Rebecca Breckenridge
Coral Machado

Panel 8: Psychology
Chair: Amy Pearce
Room: Mockingbird #3014
Presenters:
Meagan C. Louder and Devin Shelton
Lisa Smith, Bill Midkiff, and Meagan Louder

Panel 9: General Section
Chair: TBA
Room: Pine Tree Room #3013
Presenters:
C. Nathan Gastineau
Jeremiah Dillehay
Thomas Head

2:00-3:00

Panel 10: Psychology
Chair: Kris Biondilillo
Room: Mockingbird #3015
Presenters:
Jennifer Maulden and Faith McMath
Faith McMath
Amanda Polston

Panel 11: Psychology
Chair: Irina Khramstova
Room: Mockingbird #3014
Presenters:
Melissa Shortnacy and Staci Coleman
Danny Wysocki
James Cox

Panel 12: General Section
Chair: TBA
Room: Pine Tree Room #3013
Presenters:
Brynn Scarborough
Laura Perkins

Ryan M. Allen
Title: The use of relative glycogen concentrations to assess fitness in freshwater mussels (Mollusca: Bivalvia).
Advisor/Mentor: Andrew J. Peck, Jeannette M. Loutsch, Jerry L. Farris, and Alan D. Christian

The fat pocketbook, Potamilus capax, was added to the Endangered Species List in June, 1976 by the USFWS. Concern has increased for the species as human influence has spread through its native habitat. To combat these effects, relocation efforts have been used to mitigate potential negative effects to habitat and individuals. However, the effectiveness of relocation has not been quantified, particularly with respect to the molecular fitness of individuals. Glycogen, which effectively measures the short term energy stores of the organism, is used as a fitness measure in this study. To obtain quantifications, non-lethal tissue samples (8 mg ± 2 mg) were taken from relocated (n = 26) and resident (n = 163) P. capax and Quadula quadrula. Samples were frozen at -70 C^{o} then subjected to a modified phenol-sulfuric acid method. Meaningful results were obtained by measuring glycogen concentrations using a spectrophotometer and comparing relative amounts of glycogen.

Tracy A. Bianco
Title: The use of protein concentration as a potential indicator of freshwater mussel (Mollusca: Bivalvia) fitness.
Advisor/Mentor: Andrew J. Peck, Jeannette M. Loutsch, and Alan D. Christian

As part of larger study using glycogen content, lipid content, and RNA:DNA ratios found in mantle tissue of freshwater mussel as overall fitness indicators, we are proposing to investigate if protein concentration can be a useful fitness indicator. These tests are indicators of how well relocated mussels adjust to their new habitat. Due to the transcription and translation relationships between DNA, RNA, and, protein, we anticipate identifying similar patterns of protein concentration between resident and relocated individuals as found in these other fitness indicators such as RNA:DNA, lipid concentrations and glycogen concentrations. The results of this study may help to streamline future study designs and identify other potentially viable indicators by determining the effectiveness of relocating individuals from harms way during mitigation efforts related to such activities such as bridge construction and channel maintenance dredging.

Shiretta Brooks
Title: Attitudes About Adolescents
Advisor/Mentor: Dr. David Saarnio and Dr. Robert Johnson

Adolescents of today are often considered troubled, in trouble, or engaging in behaviors that are considered appropriate for adults, not teens. In the present study, we examined beliefs about adolescents based on sex and race (African American and European American). We experimentally manipulated sex (within subjects) and race (between subjects) to determine whether beliefs about adolescents are targeted toward certain groups or generalize across groups. The results show that even college students believe adolescents are likely to experience problems or engage in negative behaviors, and that beliefs do vary by both sex and race.

Rebecca Breckenridge
Title: The Relations Between Components of Jobs and Life Satisfaction
Advisor/Mentor: Dr. David Saarnio

Work is important in our lives. Because of this, it is imperative to understand what components of jobs are most important for people's well-being. Toward that end, our study looked at components of jobs that were related to life satisfaction (for the purposes of this study, life satisfaction will be a proxy for well being). An analysis of the job items yielded three components (factors), each of which was significantly related to life satisfaction. Overall, job security was found to be the most important component, followed by job involvement and then job pay. However, it seems that the components affect life satisfaction differently for men and women. This study shows that no one job component is critical for well-being, and that there are systematic differences across people in what is important.

James Cox
Title: Overlearning
Advisor/Mentor: Dr. Karen Yanowitz

Overlearning is any degree of learning past correctly learning a set of facts 100% accurately. Overlearning is continued immediate practice and testing following the first perfect mastery of the material. One effect of overlearning material is that subjects who overlearn show higher knowledge of the material than subjects who simply learned to mastery and then ceased learning trials. This is more evident directly following the study period, thus over a longer retention interval this difference converges. This is more true for cognitive based tasks than physical based tasks. This may be due to the tendency of subjects to practice the physical tasks over time. This project is to test the effects overlearning has on recall and recognition based items.

Jeremiah Dillehay
Title: Appreciation of beauty: Stop and smell the candle aisle
Advisor/Mentor: Dr. Irina Khramtsova

Can we simply stop and smell the roses, or is there more to appreciating our environment? According to positive psychology, appreciation is much more than smelling the roses or viewing a Monet. According to Peterson and Seligman (2005), it relates to a sense of awe, admiration, or wonderment in the physical and social worlds. Although new to psychology, many of its precepts date back to ancient Greece. For example "On the Sublime," written in the first century by Longinus is one of the earliest in depth works on appreciation of beauty and excellence. More recently House and Rule's work (2005) with children rating the beauty of picture books has shown that visual perception is less important to their definition of beauty than the depiction of basic positive social tenets. This research will look at the historic and recent work in appreciating and defining beauty.

C. Nathan Gastineau
Title: Assessing the Content Knowledge of In-Service Secondary Mathematics Teachers
Advisor/Mentor: Dr. Mike Hall

Geometry teachers struggle on a daily basis to teach material that is not only pertinent to student learning, but they must also prepare students to take high-stakes standardized tests. Despite recent trends in changing curriculums, there has been little implementation to adjust for the boom of geometrical knowledge. The goal of the Northeast Arkansas Geometry Project is to increase the knowledge of high school geometry teachers so that they could share their new-found knowledge with their students. A pre-test designed to assess the knowledge of geometry was given at the beginning of the course. The results of this assessment indicate that high school geometry teachers are ill-prepared to fully engage students in the study of geometry. There will be a post-test that will be mailed out in April 2006 to assess the knowledge after the class.

Carly Gorman
Title: Debussy's La cathedral engloutie: Harmonic Structure, Form, and Performance
Advisor/Mentor: Dr. Lauren Schack Clark/Dr. Timothy Crist

Claude Debussy's La cathedral engloutie from his Preludes Book 1, is a work for piano that explores many of the piano's expressive capabilities. The musical material in the piece includes new compositional ideas that were unique for their time. During this presentation, the harmonic structure, form, and performance concerns, including voice projection and piano pedaling, will be discussed. The work's program, or underlying storyline, will also be described and a recorded performance will be played.

Grant Harbison
Title: Richard Wagner's "Entry of the Gods into Valhalla" from Das Rheingold
Advisor/Mentor: Dr. Richard Jorgensen

Richard Wagner is one of the most significant composers of the late nineteenth-century. His compositional style evolved throughout his career, introducing many new, innovative compositional techniques. In his opera, Das Rheingold, one finds aspects of Wagner's late compositional style including endless melody, chromaticism, leitmotifs, and inventive orchestrations. This presentation will include a discussion of these compositional techniques and will involve audio and musical score examples.

Thomas Head
Title: Jorge Luis Borges
Advisor/Mentor: Dr. Ernesto Lombeida

El presentador discute la ficcion corta de Jorge Luis Borges, incluyendo ejemplos de "El Aleph" "El Zahir" y "El Sur." Se discute estas temas y otras: la funciona del infinito, el proceso de hacer laberinto, el uso unico de forma de Borges, y la mezcla de realidad y sueno.

Thomas Head
Title: Improvisation: Types and Techniques
Advisor/Mentor: Dr. Timothy Crist

The art of musical imrovisation may be traced back to the beginnings of musical practice and has been approached in many interesting and diverse ways. This presentation will discuss the art of musical improvisation. Techniques that assist in producing coherence and structure in an improvisation will be discussed as well as a brief examination of musical compositions involving improvisation. The presentation will include numerous audio examples and involve a short live improvisation performed on two guitars.

Raphael Küff, David Harlan, W. Clark Marler, and Michael Sattler
Title: Deposition of Novel Semiconductor/Polymer NanoComposite Photoconductor Configurations*
Advisor/Mentor: Dr. Robert Engelken

We report on continuing 1, 2 research in the deposition methodologies, characterization, and electrical properties, notably photoconductance, of films consisting of nano-to-micro-scale photoconductor powders imbedded in a polymer matrix. The films are deposited by either spray or direct application of suspensions of the powder, the polymer precursor, and a volatile, low viscosity solvent such as acetone, onto substrates with previously delineated interdigitated metallic contacts. Particular focus has been on relatively low cost, low toxicity, and environmentally low impact material systems. Recent emphasis has also been on investigating the stability of the photoconductance as a function of contact material, aging, and post deposition annealing. The presentation will present up-to-date details on the above and related facets of the research. 1. David Harlan, Dr. Robert Engelken, and Matthew Lemay, “Photovoltaic and Photoconductive Properties of Double Layer Semiconductor/ Polymer Composite Films” 89th Annual Meeting of the Arkansas Academy of Science, Conway, AR, April 8, 2005. 2. Matthew Lemay, Dr. Robert Engelken, and David Harlan, “Deposition and Characterization of Multifunctional Ferromagnetic/ Optoelectronic Composite Films”, 89th Annual Meeting of the Arkansas Academy of Science, Conway, AR, April 8, 2005. * This research was supported, in part, by a NASA/Arkansas EPSCoR grant in cooperation with Dr. Tito Viswanathan of the University of Arkansas-Little Rock, Principle Investigator, and administered through the Arkansas Space Grant Consortium- Dr. Keith Hudson, Director. It was also supported, in part, by Arkansas State University.

Kentaro Inoue
Title: Spatial patterns of a deltaic stream freshwater mussel (Mollusca: Bivalvia) bed: a geostatistical approach
Advisor/Mentor: John L. Harris, and Alan D. Christian

The spatial distribution of species can be important in understanding their habitat use, reproductive success, competition, and ecosystem functioning. The objective of this study was to describe the spatial distribution of a completely removed mussel bed in St. Francis River. We analyze the spatial distribution by using the abundance of mussels per meter square quadrates. The sampling resulted in 25 species and 7,825 individuals from 37 transects and 512 m2 quadrats. We used GS+ software to analyze the data using semi-variogram statistics and displayed the data in a Cartesian coordinate system in GIS using ArcGIS9.X, which provides a visualized spatial distribution. From this analysis, we were able to visualize the spatial distribution of mussels and also the associated habitat characteristics. In the future, we hope to run a simulated population estimate of the mussel bed to see how accurate and precise our estimates are to true population numbers.

Raven L. Lawson
Title: Species and size selective predation of freshwater mussels on the Buffalo National River, AR
Advisor/Mentor: M.W. Matthews; F. D. Usrey; S. Hodges, and A.D. Christian

Predation on freshwater mussels has been hypothesized to be selective for both species and size. The objective of this study was to determine the relationship between species and sizes of the individuals represented in middens to those found in the mussel aggregate. Mussel aggregates were quantitatively sampled June 2005, and middens were collected at the time of quantitative sampling and periodically afterwards. Both live and midden mussels were identified, sorted by species, and measured. Results indicate a species-specific selection for the first two of three sampling periods. Further analysis of data also showed that in the case of certain species, size selection is occurring. By conducting this correlation, we hope to be able to determine if certain species and cohorts are more susceptible to predation in the Buffalo River.

Matthew Lemay, David Harlan, Clark Marler, and Michael Sattler
Title: Investigation of Electromagnetic Shielding in Ferromagnetic Nano/Micro Powder/Polymer Composite Films
Advisor/Mentor: Dr. Robert Engelken

We report progress in developing electromagnetic shielding using ferromagnetic/polymer composite films. Ferromagnetic powders such as iron (Fe), nickel (Ni), and cobalt (Co) were used in conjunction with a polymer produced by Enthone®. These films are being developed as easily applicable electromagnetic shielding material. We hope to develop an application process that is both inexpensive and effective in producing quality electromagnetic shielding. The presentation will discuss the manner of film preparation, the application of the composite films, and the characterization of each ferromagnetic/polymer composite film. This work was supported through a NASA/Arkansas EPSCoR grant in conjunction with Dr. Tito Viswanatham, Principle Investigator, and administered through the Arkansas Space Grant Consortium, Dr. Keith Hudson – Director, both of the University of Arkansas at Little Rock.

Meagan C. Louder & Devin Shelton
Title: The Influence of Availability on Nicotine Consumption in Rats
Advisor/Mentor: Kris Biondolillo & Amy Pearce

Two challenges for non-human models of oral nicotine self-administration are to get rats to voluntary consume enough nicotine to reach biologically significant levels and to demonstrate they prefer nicotine over water. Female rats received 4 bottles of nicotine and 1 bottle of water or 5 bottles of water in the home cage. For rats in the nicotine group, 2 bottles contained a solution of 5ug/ml (nicotine/water) and 2 bottles contained a solution of 8 ug/ml(nicotine/water). The amount consumed from all bottles was recorded at the same time daily. Overall, rats drank more from the bottle containing the 5ug/ml nicotine solution than from the bottle containing water or the 8 ug/ml nicotine solution. This is the first empirical demonstration, to our knowledge, of rats showing a stable preference for a nicotine solution over water at this concentration. Further, this approach provides a convenient way to increase rats'' voluntary consumption of nicotine.

Shana Lowery
Title: Ethnic Humor
Advisor/Mentor: Dr. Michael Cundall

This paper will discuss ethnic humor and my opposition to it. Ethnic humor is humor that makes fun of the perceived behavior, custom, personality, or any other traits of a group or its members. It has been shown that humor and laughter are social acts in which intimacy is established. There are different beliefs about the use of ethnic humor. Some people contend that ethnic humor can be used as a teaching tool to overcome stereotypes and assert an individual's ethnic identity. However, there are individuals who assert that ethnic humor promotes bigotry, racism, and other negative attitudes toward the subject of the joke. I will argue that ethnic humor perpetuates the negative stereotypes that many people base their judgements of others on. This paper will help you decide if and how you will use ethnic humor.

Shane Lyerly
Title: Otolith microchemistry discriminates between hatchery and wild salmonines in the Little Red River, AR, tailwater system
Advisor/Mentor: Stephen M. Coghlan Jr., Ph.D.

The Little Red River tailwater (LRRT) contains naturally-reproducing brown trout, but apparently stocked brook or rainbow trout do not reproduce. In 2002, a tributary to LRRT (Collins Creek: CC) was constructed to provide additional angling opportunities and a spawning refuge for stocked salmonines. In 2003, fry of both species were observed in CC, leading biologists to investigate the potential of this tributary to contribute wild salmonines to the LRRT. We attempted to distinguish hatchery-produced salmonines from those spawned in CC by quantifying concentrations of various cations in otoliths using laser-ablation inductively coupled plasma-mass spectrometry. We calculated element Ca43 ratios for 35 analytes. Significant differences between hatchery and wild salmonines were found for eleven analytes, but a 2-variable model was sufficient to distinguish between the stocks with >94% success. Otolith analysis of salmonines captured in the mainstream LRRT suggests that some brook trout produced in CC emigrate to the mainstream fishery.

Coral Machado
Title: Understanding men's and women's perceptions of the menstruating woman.
Advisor/Mentor: David Saarnio

Understanding men's and women's perceptions of the menstruating woman. Women are physiologically different from men. Because of these differences, especially those related to menstruation, women have faced discrimination, professionally, academically, and socially. Not only do men perceive menstruating women negatively, but adolescents and college women also have negative attitudes about the menstruating woman. In the present pilot study, we looked at men's and women's perceptions of menstrual issues (e.g., PMS). The findings suggest that (a) men's perceptions of menstrual issues differ significantly from women's, (b) some areas are more stereotyped than others (e.g., there are greater sex differences in perceptions about physical domains related to menstruation than about social domains), and (c) women's perceptions vary greatly from each other and vary across different domains of life.

W. Clark Marler, Michael Sattler, David Harlan, Matthew Lemay, and Raphael Küff
Title: Photoconductance Properties of Chemically Deposited Films of Low Hazard, Environmentally Benign Bismuth Sulfide Films
Advisor/Mentor: Dr. Robert Engelken

We report follow-up research on the bismuth (III) sulfide films previously reported1 and chemically deposited from a novel, minimally toxic/environmentally impactive acetic acid-based bath of bismuth (III) citrate and sodium thiosulfate. This presentation will detail further improvements in the deposition process, for example, accurate control of pH and elevated bath temperature (to increase deposition rate). It will also present data for the photoconductance, in response to chopped (~1 kHz) low power (~1-3 mW) red laser light at 633 nm, for films deposited onto nonconductive glass substrates with silver ink stripe contacts applied after deposition. The films are photoconductive as-deposited before any follow-up annealing, and have potential for use in large area photodetectors. 1. Demetrick Warren, Dr. Robert Engelken, David Harlan, and Matthew Lemay, "A New Citrate-Based Solution for Chemical Bath Deposition of Nonhazardous Bismuth (III) Sulfide Films", 89th Annual Meeting of the Arkansas Academy of Science, Conway, AR, April 8, 2005. This work was supported by Arkansas State University.

Jennifer Maulden and Faith McMath
Title: The Name Game: Can you identify the ethnicity of names?
Advisor/Mentor: Dr. Latoya Pierce, Dr. David Saarnio, and Dr. Kris Biondolillo

This study focused on name perception. We wanted to know if students could classify familiar, everyday names into correct categories of origin. We asked students to classify 66 names as European American, African American, Asian American, or Latino/Latina. We found a general understanding of name classification for certain names, but notable differences for names that could be classified as European in origin but African American in usage. Understanding these results help us in our overall research, in which we are studying students' perception of certain ethnicities of names.

Paige Mayhair
Title: The differences in cultural advertising campaigns: Do the basics of advertising change from culture to culture?
Advisor/Mentor: Dr. Myleea Hill

The present study is a content analysis of newspaper advertising from two different newspapers. One newspaper is the Jonesboro Sun, which is the local area paper. The other is the Hispano which targets Hispanic people in Northeast Arkansas and Southeast Missouri. Advertisements were examined from these newspapers to determine if advertising changes from culture to culture. Advertising does change from culture to culture. However, the present study indicated that cultural cues were not always followed in advertising and many times a message was standardized from one culture to another rather than specializing the message to best reach the target audience.

Grace Miller
Title: Spatial and Temporal Distribution of Organic and Inorganic Material within Bedload Samples: Lower White River, AR
Advisor/Mentor: Andrew J. Peck, and Alan D. Christian

The distribution of organic and inorganic material within a river reach is not understood, though both play a significant ecological role. The foundation of food webs is organic material, in all of its various forms. Organic matter is a food source for primary consumers; therefore, are significant to the survival of individuals in the river system. In aquatic systems organic material may be unevenly distributed throughout the water column. In conjunction with a larger study examining multiple habitat parameters of mussel beds, we sought to examine the spatial and temporal distribution of organic material within the river. We expect to find an uneven distribution of organic material both spatially and temporally. Organic content of TSS and Bedload were examined using standard lab methods and analyzed using ANOVA. Understanding the distribution of organic material within a reach can be important to understanding the formation and distribution of habitats.

Faith McMath
Title: ''What''s in a name?'' A study of ethnic name biases
Advisor/Mentor: Dr. Latoya Pierce

How important are names? Do they really matter? In this study of name perception we attempted to determine if there are biases against ethnic-sounding names. When shown 31 pairs of non-ethnic vs. ethnic "student" names along with credentials (i.e., ACT scores and GPA's), subjects were asked to choose the "student" they would prefer to admit to college from each pair. We found that there were many unknown, unexpected, and interesting factors that influenced subjects'' preferences and learned two valuable lessons: (1) the importance of conducting a pilot study and (2) things aren't always as simple as they seem.

Timothy Miller
Title: Image versus Reflection: Setting Sylvia Plath''s Mirror
Advisor/Mentor: Dr. Timothy Crist

Sylvia Plath's text speaks of the idea of searching for reason, meaning, or a desirable truth. In my percussion quartet, Mirror, this idea of Image versus Reflection is used in the music to portray the feeling and emotion of searching for oneself. The manner in which Plath's texts are set to music in order to reflect these ideas will be demonstrated through score examples and an audio recording.

Laura Perkins
Title: The Importance of Being Earnest
Advisor/Mentor: Kelly Schaefer

This is a research project for my senior thesis. This project includes designing and producing costumes for the Department of Theatre's production of "The Importance of Being Earnest". The focus for this piece is the research on the playwright, the time period in which the production takes place and the fashion of the Victorian era. Evidence is shown through the use of pictures of the clothing, pictures of the costumes that were produced, and historical documents. They show the restrictions in life and love not only in the clothing that they wore but in their way of life as well.

Amanda Polston
Title: Girls of Promise
Advisor/Mentor: Dr. Karen Yanowitz

A math and science conference called Girls of Promise was held for 8th grade females at four universities in Arkansas in 2005. Girls attended several different math or science based sessions. Data collected from the girls via questionnaires included background information, feedback on sessions attended, career interests, and opinions on women's roles in scientific fields. Results will be discussed in terms of the girls" reactions to the workshops and their ideas about women in science.

Laura Pierce
Title: Benchmarking Quality Perceptions of College Students
Advisor/Mentor: Dr. Sarath Nonis

My name is Laura Pierce and I am a Senior Marketing major from Jonesboro, AR. This semester I will be participating in an independent study with my advisor Dr. Nonis. The purpose for my research is to learn about Arkansas State students' perception concerning the quality of education provided by the university. This research will result in identifying how students determine quality and how the university measures up with their perceptions of quality. My responsibilities include: (1) updating a survey that measures students' perceptions, (2) conducting this survey to the College of Business and College of Education, (3) analyzing the data and drawing conclusions and (5) presenting this information during the Convocation of Scholars week in April. The results of the College of Business surveys and the College of Education surveys will be compared in order to establish a benchmarking system.

LaTrisha Rice
Title: Determination of the Levels of INF-in the Acute, Latent, and, and INF-·Determination of the Levels of INF-Reactivation Phases of the Herpes Simplex Virus I.
Advisor/Mentor: Dr. Loutsch

Herpes Simplex Virus 1 is a virus that is widely spread. It affects epithelial sites such as the eyes, skin, oral cavity, lips, and orafacial complex. Primary infections of HSV 1 cause lesions in the mouth accompanied by a fever. Recurrent infections cause lip lesions that usually lasts for 8-10 days. Physical or emotional stress, fever, UV light, and tissue damage usually cause these. Although it is known that these things and a weak immune system can lead to the reactivation of the virus, the effects of it on the immune system is not known. The purpose of this experiment was to determine whether the Herpes Simplex Virus 1 had any effect on the levels of INF-· and INF-, during the acute, latent, and reactivation phases. We did this by first infecting the mice's eyes with 1 of three strains (17syn+, 17¢Pst, and mock) of the HSV1. The mice were then allowed 21-28 days to enter the latency period. Reactivation of the virus was established by inducing hyperthermia. The tear swabs from the mice's eyes were used in cell culturing to verify that the mice were infected with the virus. The eyes, trigeminal ganglia, and blood from the ocular plexus of the mice were used in an ELISA to determine the levels of cytokines. We believed that the interferon levels would increase during the acute phase, increase or stay the same during the latent phase, and decrease, increase, or stay the same during the reactivation phase. This experiment is not yet finished. We are currently collecting our results.

Brynn Scarborough
Title: Conservative Perspectives on Bioethics
Advisor/Mentor: Dr. Jeanine Weekes-Schoer

With the defined goal of the preservation of human dignity and the value of human life, this project will explore and attempt to create a conservative bioethical perspective. This inquiry will challenge the past tendencies of conservatism to rely on biblical principles alone in bioethical debates and offer conservatism a foundation upon which to make decisions and policies on various issues. Focusing on a philosophical approach, the need for sound principles is clear, biotechnology and the ethical issues that surround them have achieved political importance unprecedented in times past. In light of this it is highly detrimental to conservatism as a whole for such issues to be too narrowly considered or to overlook important philosophical arguments in the interest of biblical or religious justification alone. This project will attempt to establish an alternative bioethical decision making and policy framework for conservatism from a philosophical standpoint.

Jay Shepherd
Title: Tremelo Technique on the Guitar
Advisor/Mentor: Dr. Timothy Crist

Tremelo is a technique involved in guitar playing where a melody, played as fast repeated notes (the tremelo), is performed against an arpeggiating accompaniment and bass line. The effect of tremelo produces a sustaining melody that would otherwise be impossible on the guitar due to the guitar's physical properties. Used in a great deal of Spanish guitar music in the 18th and 19th centuries, tremelo technique involves careful control of the right hand fingers as the repeated notes should sound even and balanced. The presentation will include discussion of various approaches to learning proper tremelo technique, reference to major works from the literature for guitar that involve tremelo, and conclude with a partial performance of Agustin Mangore Barrios' "Un Sueño en la Floresta."

Melissa Shortnacy and Staci Coleman
Title: Positive psychology interventions as a classroom assignment: Positive and negative outcomes.
Advisor/Mentor: Dr. Irina Khramtsova

Positive psychology interventions as a classroom assignment: positive and negative outcomes. Positive psychology, which emerged five years ago, studies subjective well-being, character strengths, and positive experiences. Proponents in this field advocate exposing college students to this discipline through infusing it into the existing curriculum, but the research on the methods and outcomes of teaching positive psychology is very limited. The present study investigates the effectiveness of positive psychology interventions by surveying the participants who worked on specific character strengths (i.g., gratitude) as a part of their regular homework in psychology classes. Study 1 was conducted in the fall of 2005 and revealed that overall the students were satisfied with the results because the assignment helped to improve their personal lives and to increase their happiness level. Study 2 was started in the spring semester of 2006. It replicates the first study but with minor modifications which incorporated students' comments from the earlier study. The results from Study 2 will be available in March 2006.

Allison M. Smith
Title: Who's your daddy?: The Use of Micro-satellite Analysis to Determine Paternity in Freshwater Mussels.
Advisor/Mentor: Jeannette Loutsch, Emy Monroe, and Alan D. Christian

Numbers of individuals and species of freshwater mussels are declining. Mechanisms for release and intake of sperm in mussels are known, but the paternal contribution a male has on offspring of a single female is unknown. The study objective is to determine whether a female mussel is fertilized by one or many males and uses a three step process which involves: 1) establishing the spatial patterns of male and female population distribution in a stream reach, 2) non-destructively sampling male and female mantle tissue and harvesting glochidia, and 3) using micro-satellite loci to determine paternal contribution to broods based on potential males in the population. DNA extractions and PCR amplifications have been successful and the micro-satellite loci have been visualized using fragment analysis. The results of micro-satellite paternity analysis will provide a better understanding of reproductive events and will be useful for management and conservation planning.

Lisa Smith; Bill Midkiff; Meagan Louder
Title: Voluntary Consumption of Nicotine in the Sprague Dawley rat
Advisor/Mentor: Amy Pearce; Kris Biondollilo

Rats are commonly used as a model for nicotine self administration, and the one used for this experiment is the Sprague Dawley female. Our focus is in the influence of the environmental factors of availability on a rat's tendency to voluntarily drink a nicotine solution. Our experimental group of female rats (n=11) was exposed to nicotine in adolescence and given a choice between a nicotine/water solution (2 bottles 5µg/ml solution and 2 bottles 8µg/ml solution) and 1 bottle of water (5 bottles total). The control group (n=11) was given 5 bottles of water. The bottles were weighed daily and refilled as needed. All subjects were run daily in an operant chamber to observe differences in ongoing operant behavior (number of lever presses) between the experimental and control groups. A nicotine challenge will also be administered to all subjects (control and experimental) to assess the effects of a large dose of nicotine on the behavior of the 2 different groups. After data collection is complete, 10 rats will be sacrificed for study of the brain and physiological side effects nicotine might produce. We hypothesize that a relationship exists between the availability and consumption of nicotine in female Sprague Dawley rats.

Danny Wysocki
Title: Depression and Anxiety Screening with College Students: A Comparison of Negatively Versus Positively Phrased Item Formats
Advisor/Mentor: Dr. John Hall

Forty-nine college students voluntary participated in a depression screening day offered through a university counseling center. Specifically, the students completed The Hands Depression Screening Tool and the Carroll-Davidson Generalized Anxiety Disorder Screen. These instruments were part of the National Depression Screening Day-College Screening Form. Both were based on a negatively phrased item format. Students also completed modified versions of two instruments developed by the researchers based on a positively phrased item format. The instruments were distributed and completed in a counterbalanced order. Data were analyzed to examine the possible presence of response bias. Additionally, the decision reliability or classification agreement between the two formats was determined to examine the likelihood of confirmation bias in the assessment process. The results obtained from the study and the implications for practice and future research will be discussed.

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As we prepare for our second century of powering minds, we are proud to reintroduce The Scholar. Once marking the entrance to the library in Wilson Hall, The Scholar now welcomes students to the Dean B. Ellis Library.

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The Organizers of the 2006 Undergraduate Scholars Day would like to thank the following persons

Mentors, Chairs and Faculty Advisors

Dr. Irina Khramstova	Psychology
Dr. David Saarnio	Psychology
Dr. Karen Yanowitz	Psychology
Dr. Tim Crist	Music
Dr. Cyndy Hendershot	English
Dr. Amy Pearce	Psychology
Dr. Gil Fowler	The Honors College

The USD would not be nearly as strong and effective a program without the work of these faculty and their aid in students' projects.

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About the artist: Megan Levacy is a senior in the Department of Art. She will graduate in May with a Bachelor of Arts degree. She plans to pursue her MFA at ASU after graduation.

Front cover: *Holding on and Letting Go*
Woodcut and Intaglio.

Back cover: *Pier*
Oil on canvas.

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