

# PROGRAM SCHEDULE

**FRIDAY, MAY 9, 2008**

## **RECEPTION FOR PARTICIPANTS, FACULTY & OUTSIDE GUESTS**

**Coburn Dining Room**

**12:00-12:30 p.m.**

### **AFTERNOON CONCURRENT SESSIONS**

<b>Department (s)</b>	<b>Bldg/Room</b>	<b>Presenter</b>	<b>Presentation Time</b>
Poster Displays	Coburn Dining Room	Kent Avery Willis (CHE) Wesley Hunter Stepp (CHE) Joshua Brooks, Christian Christensen, Bradley Ferrell, Stephen Fly, Benjamin Fondren, Idrees Hamzeh, Zackary Jackson, Bradley Kiddie, David Moore, Matthew Sengstock, William Stewart, Kyle Swafford, Aaron Taylor & Timothy VanCleave (EGR) Blake Waggoner, Debi Eley, Jasmine Huang, Justin Montgomery & Ethan Wilding (EGR) Kellie Roe, Ashley Barnett, Jacqueline Bullman, Katelyn Burton, Shemeka Cole, Jessica Haney, Kristin Jennings, Carolyn Jennings, Andrea Johnston, Naomi Ketchum, Angela Kinsman, Cassie Lutrell, Grace Moroney, Deanna Nick, Darraugh Nolen, Rachel Phillips, Jessica Ramsay, Ana Rivera, Matthew Taylor, Erin Veneman, Rachel Vo, Julie Waldrop & Stephanie Wood (SW)	12:30-1:00 p.m.
ART/COM	D-3	Merideth Walter (ART) Brynn Miller (ART) Holly Beecher (ART) Lindsay Shepherd (ART) Ellen Ordonez (ART) Laurie Henry (ART) Justin Deasy (ART) Ruthann Pike (ART) Kat Douglas (ART) Stephanie Schroeder (ART) Matthew Diggs (COM)	1:00 p.m. 1:20 p.m. 1:40 p.m. 2:00 p.m. 2:20 p.m. 2:40 p.m. 3:00 p.m. 3:20 p.m. 3:40 p.m. 4:00 p.m. 4:20 p.m.
BIO/CHE	PAC A-7	Kent Avery Willis (CHE) Wesley Hunter Stepp (CHE) Laura Byrd (BIO) Amelia Lewis (BIO) Edric Gaylor (BIO) Phillip Mitchell (BIO) Morgan Neese (BIO) Callie Bodnarchuk (BIO) Dustin Scott (BIO) Wesley Hunter Stepp (BIO)	1:40 p.m. 2:00 p.m. 2:20 p.m. 2:40 p.m. 3:00 p.m. 3:20 p.m. 3:40 p.m. 4:00 p.m. 4:20 p.m. 4:40 p.m.
CSC/EGR/MAT	PAC D-52	Toyin Adedokun (CSC) Will Trautman, Zackary Johnson & Joshua Brooks (EGR) Benjamin Fondren, David Moore, Idrees Hamzeh & William Stewart (EGR) William White (MAT) Robert Michael (MAT) Matthew Dawson (MAT)	1:40 p.m. 2:00 p.m. 2:20 p.m. 2:40 p.m. 3:00 p.m. 3:20 p.m.

<b>Department (s)</b>	<b>Bldg/Room</b>	<b>Presenter</b>	<b>Presentation Time</b>
DMS/COM	PAC H-56	Luke Pinion (DMS-CSC) Blake Williams (DMS-CSC) Tim Messer (DMS-CA) Jonathan Davenport (DMS-CA) Jeremy Camp (DMS-CA) Brian Burns (DMS-CA) Alan Knox (DMS-CA) Benjamin Bailey (DMS-ART)	1:00 p.m. 1:30 p.m. 2:00 p.m. 2:30 p.m. 3:00 p.m. 3:30 p.m. 4:00 p.m. 4:30 p.m.
CHR/ENG/ HIS/PSC	PAC C-6	Blake McKinney (CHR) Robert Sparks (ENG) Cameron Armstrong (HIS) Alex Scarbrough (PSC)	1:40 p.m. 2:00 p.m. 2:20 p.m. 2:40 p.m.
SW	BAC-44	Emily Alm Erin Morris Lindsey Wallach & Julie Raynes Kellie Roe, Ashley Barnett, Jacqueline Bullman, Katelyn Burton, Shemeka Cole, Jessica Haney, Kristin Jennings, Carolyn Jennings, Andrea Johnston, Naomi Ketchum, Angela Kinsman, Cassie Lutrell, Grace Moroney, Deanna Nick, Darraugh Nolen, Rachel Phillips, Jessica Ramsay, Ana Rivera, Matthew Taylor, Erin Veneman, Rachel Vo, Julie Waldrop & Stephanie Wood	1:40 p.m. 2:00 p.m. 2:20 p.m. 2:40 p.m.
MUS	West Jackson Baptist Church Choir Room	Cody Curtis	1:00 p.m.

# ABSTRACTS

## ART

### *Exploration of Object, Relationship, and Everyday*

Presenter: Merideth Walter

Faculty Advisor: Lee Benson

Through my studio art process and research on Relational Aesthetics I will present my exploration on the ideas of the meaningfulness of the object, the relationship, and the process of the everyday. I am trying to explore what it means to live meaningfully as a good steward and to understand how my interactions with the everyday objects and people around me affect who I am and how I choose to live my life. I am also trying to understand what it means to be an artist as a lifestyle instead of an artist as a vocation or career in order to approach life with thoughtful creativity in each action, every day.

### *Restless*

Presenters: Brynn Miller

Faculty Advisor: Christopher Nadaskay

I will be showing a PowerPoint presentation on the recent work in my graduating exhibit, entitled "Restless." I will be discussing the physical nature of this collection of paintings as well as the philosophy behind them, and talking about the research I have done which has led me to make paintings that attempt to show the place where our world ends and another breaks through. I will be showing work by some of the artists who have influenced me, like Cecelia Phillips, James McNeill Whistler, and Edward Hopper. Literary influences such as C.S. Lewis, Henry David Thoreau, St. Augustine of Hippo, and Ravi Zacharias will be spotlighted as well, because their thoughts have helped me to develop and articulate my own about why I make what I make.

### *Lineage*

Presenter: Holly Beecher

Faculty Advisor: Lee Benson

I recently came to the realization that who I am, what I do, and where I am, is directly impacted by my ancestors. Although I have the free will to do what I want and be my own person, the people in my family lines who have walked before me are inherent influences on me. Thinking about this very issue spurs me to consider the grand nature of this idea. Family members that I was not privileged to meet, that maybe have not even been living for a hundred years, help shape my person. This idea has spurred me on to do some serious thinking about my own personal lineage and the potential powerful legacy that I may leave behind for future descendants someday.

### *Somewhere In Dreamland*

Presenter: Lindsay Shepherd

Faculty Advisor: Christopher Nadaskay

The bulk of my presentation will be focused on the influences that have impacted my artwork. I will be showing artist video clips as well as a short film entitled "Somewhere in Dreamland" to better explain the reasons why I create my work. There will also be a slide show, where I will present the audience with various artists alongside their work. I will then describe to them why these specific artists have had such a great influence on what I do they relate to my own work.

### *Insomnia*

Presenter: Ellen Ordonez

Faculty Advisor: Jonathan Gillette

My presentation will include six graphic design pieces, all varying in styles that include anime, art nouveau, and some fantasy. The content in the pieces varies as well; from environmental issues, to humorous allegories, to basic advertising. I will be speaking and showing slides of my work along side of the influences that have impacted the pieces that are displayed in the show. I will also share my experiences of the art making process, and hope to educate the audience about the effort that it takes to just make it through.

### *Laurie Henry*

Presenter: The Common Beautification of the World

Faculty Advisor: Jonathan Gillette

The culmination of my studies in graphic design have embraced a combination of the simple things I think are beautiful and I am amazed by, whether created by God or man. I have developed my family's love for design and decoration into making patterns and applying them to composites of interior spaces. I enjoy creating a space that has character and flare for something exotic but an element of coziness and uniqueness through fabrics, patterns, and lights. I love fusing colors, and my inspiration for color combinations usually comes from my own fashion and what I see around me. My patterns stem from a deep love of foreign places-some of which I have been to, others I have only dreamt of. A common thread among the places I have visited is the pride of decorating one's home to make it beautiful and filled with comfort.

The composite of my past, my constant love for decoration, the foreign places I have seen, and the people I encountered there shaped me as a person. It is because of all this that my work cannot escape showing all these elements unified.

### *Product Packaging Design Strategies and a Look at their Successes and Failures*

Presenters: Justin Deasy

Faculty Advisor: Jonathan Gillette

For as long as capitalism has been practiced in our society, product packaging has played a major part in marketing

competition. In an effort to boost product sales, companies have coordinated the appearance of entire lines of products using designs planned out by teams of people and run through series of focus groups to determine their efficiency. Everything involved in product packaging, ranging from color scheme to box layout to the material used in the packaging, is analyzed and used in accordance to the specific target audience. This presentation will discuss some of the tools that are used by advertisers today and companies of the past in an attempt to make their product stand out among the multitude of adversaries in modern day business, and how they use those tools to sell their products to specific consumer groups.

### ***The Rape of Christmas***

Presenters: Kat Douglas

Faculty Advisor: Jim Veneman

A video piece shot last November about Black Friday, the shopping nightmare occurring the day after Thanksgiving will be presented. The video documents a crowd's experience as they camp outside Best Buy in freezing temperatures for fourteen hours. The still images and audio recordings capture the delight as well as severe disappointment of hundreds of buyers, who are looking to get the best deal for their family. Even as Christians it is easy to be pulled into the season of spending in the name of giving. However, I hope to address the motivating factors and painful consequences of people who abandon their family on Thanksgiving in order to buy more meaningless junk for their family.

### ***The Life of Jonathan Schroeder***

Presenters: Stephanie Schroeder

Faculty Advisor: Jim Veneman

Many people have differing perspectives and preconceived ideas of the physically and mentally disabled. Some simply dismiss them as having no intellect and always needing assistance. Others understand that we can learn from them, even in a spiritual sense. I have had this experience in my personal life. My brother, Jonathan, is six years older than I, and he has been physically and mentally handicapped since he was almost two months old. As part of my senior exhibition, the photos I will display portray the life Jonathan leads daily. And despite his inability to comprehend at an intellectual, mature level, there is one concept he has not misunderstood. This concept is the simplicity of the gospel. My exhibition cannot reveal this comprehension, but it can show that Jonathan leads a life like any other person, yet has the ability to reach others in a way we cannot.

### ***The Role of God, Beauty, and Personal History in Recent Paintings***

Presenter: Ruthann Pike

Faculty Advisor: Christopher Nadaskay

What is the motivation for making paintings? This and other questions will be addressed in a discussion of the research that has gone into the making of recent paintings. The role of God, beauty, and personal history will be covered as a journey through the process of making art is taken. An attempt to validate beauty as a subject in art as well as the importance of craftsmanship, intelligence and passion as essential art will be made. Personal influences, including what is visually stimulating, and why the choice was made to present multiple pieces as part of a whole will also be part of the discussion. Through this presentation, groundwork will be established in order to better comprehend and appreciate the work shown in the art gallery.

## **BIOLOGY**

### ***Inhibition of Bacillus Cereus, Bacillus Megaterium, Micrococcus Roseus, and Serratia Marcescens By Essential Oils of Peppermint and Oregano***

Presenter: Laura Byrd

Faculty Advisor: Elsie Smith

Many oils and spices have been used as anti-microbial agents and may inhibit bacterial growth when used in cooking. Our research examined if peppermint and oregano oil affected the growth rate of *Bacillus cereus*, *B. megaterium*, *Micrococcus roseus*, and *Serratia marcescens*. Each oil was diluted at 1:5 and 1:25 with mineral oil and distributed on Petri dishes using paper disc diffusion to test their effects on bacterial strains. Our results found oregano oil successfully inhibited growth of all bacterial species tested, while peppermint oil only inhibited *S. marcescens* at the 1:5 concentration. Our research suggests that peppermint and oregano oil may have antibacterial benefits when used in food preparation.

### ***The Toxic Effects of Epigallocatechin-3-Galleate (EGCG) Found in Green Tea on Laboratory Mice***

Presenter: Amelia Lewis

Faculty Advisor: Andy Madison

Use of herbal remedies has increased worldwide. One is the antioxidant epigallocatechin-3-galleate (EGCG), found in black and green teas. Studies have indicated that EGCG aids in the prevention and treatments of certain cancers and chronic illnesses. EGCG is now included in several food and beverage products and is sold as a dietary supplement for regular use. While extensive research has been performed to highlight the healing effects of EGCG, little research notes any potential downfalls of increased exposure. My research examined EGCG's toxic effects on laboratory mice. Mice were subjected to high doses of EGCG in their drinking water for several weeks and their livers histologically examined. Research is currently ongoing and results are pending.

### ***Comparison of Various Fertilizer Methods on Tomato Growth***

Presenter: Edric Gaylor

Faculty Advisor: Andy Madison

Commercial fertilizers, such as Miracle-Gro®, are widely used, but Master Gardener Jerry Baker proposes creating liquid fertilizers from common household items. My research compared growth rates between tomato plants provided a commercial fertilizer, Miracle-Gro®, and those provided one of Baker's tonics. Tomatoes were grown from seed and divided into 3 groups: a control group provided water and 2 experimental groups provided with either Miracle-Gro® or one of Baker's tonics. I monitored plant height, number of fruit produced, and fruit size for one month. I concluded that plants provided Baker's tonic and Miracle-Gro® were significantly taller, produced more fruit, and produced larger fruit than the control plants. No statistically significant difference existed between plants provided Baker's tonic and Miracle-Gro®.

### ***Comparison of Small Mammal Populations in Urban Woodlots Versus Rural Woodlots***

Presenter: Phillip Mitchell

Faculty Advisor: James Huggins

Woodlots and other seemingly natural areas in urban settings may appear ecologically sound, but may exhibit repressed biological diversity due to human disturbance. We sampled 3 areas to compare small mammal populations between rural and urban habitats. Our rural study sites are located on farms in Carroll and Chester County, Tennessee, and a woodlot owned by Union University in Madison County, Tennessee, provided the urban study site. At each location, trap lines of 30 snap traps were placed in fields and woodlands. Research is ongoing, but we expect large deer mice (*Peromyscus maniculatus*) populations, in the field habitat, and cotton mice (*P. gossypinus*) and white-footed mice (*P. leucopus*) in woodland areas. Local weather conditions will be monitored to see if they are correlated with small mammal behavior.

### ***An Examination of Quality and Quantity of Produced Eggs of Zebra Finches (*Taenipygia guttata*) on Petamine Breeding Formula***

Presenter: Morgan Neese

Faculty Advisor: Andy Madison

Providing captive birds with a nutritious diet to help with captive breeding can be challenging. Zebra finches (*Taenipygia guttata*) are a common captive bird originally from tropical Africa, Asia, and Australia. Sixteen zebra finches placed in pairs were used for breeding purposes. Four pairs of birds were given Petamine® Breeding Formula. Four pairs were used as a control and given a standard diet of Deluxe Finch Mix. The finches were allowed to mate and lay eggs. Eggs produced were counted,

allowed to hatch, and the number of viable, healthy offspring was determined. We observed that the birds produced essentially the same number of eggs and had the same number of viable offspring regardless of their food source. Our research indicates that using Petamine supplement provided no additional benefit. Lack of sufficient lighting may have also been a contributing factor to the low number of offspring produced.

### ***Production of Secretin-Gly in *Escherichia coli****

Presenter: Callie Bodnarchuk

Faculty Advisor: Mark Bolyard

Secretin, a peptide hormone comprised of 27 amino acids, is secreted in response to increased acidity levels in the small intestine. Secretin neutralizes acidity by stimulating bicarbonate secretion from the pancreas and duodenal glands. Production of human peptide hormones, such as secretin, lends greater availability for research regarding its consideration as a therapeutic agent. Using molecular techniques, a DNA insert designed to produce secretin and contain the components necessary to obtain a purified product, was ligated into the pGlo plasmid. Transformation of these plasmids into *E. coli* was followed by purification of the plasmid DNA. This plasmid DNA was used in verifying presence of the insert. A purified secretin product will allow for further analysis of physical properties and function.

### ***Nongame Inventory Assessment on Chickasaw State Park***

Presenter: Dustin Scott

Faculty Advisor: Andy Madison

Chickasaw State Park comprises 5821 hectares in Chester and Hardeman counties in south central West Tennessee. General nongame field collecting techniques were used to survey species abundance and diversity of reptiles, amphibians, and small mammals in the area's available habitats. Habitats included reforested pine stands, upland and bottomland hardwoods, upland and bottomland pine stands, clear-cuts, and early and late successions. Water sources were also surveyed in these habitats, including ponds (ephemeral and permanent) and streams (intermittent and permanent). Thirty-two species of reptile, amphibians, and small mammals were represented on the park. Among those observed, some species are listed on the Tennessee Wildlife Resources Agency's Greatest Conservation Need (GCN) list, including southeastern shrew (*Sorex longirostris*), golden mouse (*Ochrotomys nuttalli*), yellow bellied water snake (*Nerodia erythrogaster*), and southern cricket frog (*Acris gryllus*).

### ***Toxicity Examinations of Codeine Versus Theobromine in Yeast***

Presenter: Wesley Hunter Stepp

Faculty Advisor: Andy Madison

Theobromine, a primary ingredient in chocolate, has recently been identified as possible substitute for codeine in cough suppressants in clinical trials. Long-term toxicity of theobromine at the cellular level has yet to be adequately analyzed. Yeast has long been identified as a eukaryotic system that resembles mammalian cell function, and therefore is a suitable candidate for toxicity testing between theobromine and codeine phosphate. Using serial dilutions of both theobromine and codeine compounds, toxicity studies have been completed and show no significant inhibition to growth within *S. cerevisiae* colonies. Numerical data is currently being compiled to determine the significance of the observations that were recorded.

## CHEMISTRY

### ***Taguchi Method Optimization Study of a Branched Chiral Selector Adsorbent***

Presenter: Kent Avery Willis  
Faculty Advisor: Sally Henrie

Branching and terminating stationary phases with chiral selectors can improve separations of enantiomers. In previous research, two branched chiral selector adsorbents terminating in (S)-Naproxen and Vancomycin were investigated. In an effort to increase yield, the reaction prior to the chiral selector attachment was optimized using Taguchi's method. In this step, triester termini are converted to carboxylic acids using dilute hydrochloric acid and heat. The effects of temperature, concentration of acid, and reaction time were studied at four levels. An L'16 array was used and the optimum conditions were approximated by the combination of factors with the largest signal to noise ratio. It was determined that greater precision could be attained through tightening a second array about the point at 50°C, 2M HCl, and 3 hours.

### ***Enhancement and Optimization of the Total Synthesis of a Branched Chiral Selector Stationary Phase with Vancomycin Termini***

Presenter: Wesley Hunter Stepp  
Faculty Advisor: Sally Henrie

It is thought that using a tri-branched molecule for the site of macrocyclic antibiotic attachment would yield better separation of enantiomeric compounds. Previous studies on the development of a macrocyclic antibiotic bound chiral adsorbent with three branch sites have been completed. In order to optimize this synthesis, a Karl-Fischer reaction titration was performed to analyze the water content of the synthesized molecule. Additionally, the conversion process of the silica gel termini into a carboxylic acid was also deemed a relevant step in loading efficiency and overall success of product synthesis. Data from a previous Taguchi's method study of this intermediate step involving conversion from an ester to a carboxylic acid was

completed in order to further narrow the reaction conditions of time, temperature, and acid concentration to yield an elite silica gel with which to bond vancomycin.

## CHRISTIAN STUDIES

### ***The Stained Portrait: Corruption and Restoration of the Image of God in Man***

Presenter: Blake McKinney  
Faculty Advisor: Hal Poe

The Bible teaches that God created men and women in His image. When sin entered the world, death entered with it. Those made in the image of the Living God became subject to death. Athanasius of Alexandria likened this to a portrait "obliterated through external stains." The Image of God in Man was corrupted and in need of restoration, and this restoration could only be accomplished by Jesus Christ.

In this paper, the doctrine of the imago dei is explored as it relates to the meta-narrative of redemption. This paper explores the biblical teaching concerning the corruption and restoration of the imago dei. This paper deals also with the work of representative theologians from Athanasius to Colin Gunton. The place of the doctrine of the image of God in Man within the meta-narrative of redemption may be better defined and understood through careful biblical and theological study.

## COMMUNICATION ARTS

### ***The War Continues***

Presenter: Matthew Diggs  
Faculty Advisor: Jim Veneman

World War II was a cataclysmic event that occurred over sixty-years ago. According to the U.S. Department of Veterans Affairs 1,100 WWII veterans die every day. As they die so do their stories. In an attempt to preserve their stories I am creating multimedia pieces that record their experiences with photographs, interviews and text. I am editing it together for a video presentation. For the symposium I am focusing on two veterans Howard and Lanois Williams. These brothers served in different branches of military during the war and have unique stories to share with the world. As long as veterans of the war live on, so do the horrors of the war they survived.

## COMPUTER SCIENCE

### ***UULinux: Creation of a Custom Linux for the Purpose of Student Learning***

Presenter: Toyin Adedokun  
Faculty Advisor: Haifei Li

This project incorporates a development program known as Linux from Scratch. Linux from Scratch, or lfs, is an independent project to create a step-by-step plan for developing a custom Linux distribution. For our research, we used the lfs program with ubuntu 7.10 as the host distribution. Led by Gerard Beekmans, the team publishes books that contain their Linux from scratch solutions. For our purposes, we used version 6.3, which is the newest version. Although the ultimate goal is simplicity, we found that there are several complexities for our learning purposes.

Due to this, we took on another procedure, this time using fedora distribution as the host. This procedure involves building a basic fedora live CD.

## **DIGITAL MEDIA STUDIES**

### ***A Clearinghouse of Digital Media Programs***

Presenter: Luke Pinion  
Faculty Advisor: Cam Tracy

The International Digital Media Arts Association (iDMAA) developed a database of higher education programs in digital media, however they were looking for a more functional and efficient way to keep up with the directory. With this web interface, members will be able to log in and search the database of schools with digital media programs, and administrators will be able to log in and update the database. Therefore, this application supplies a means for iDMAA to be able to easily and efficiently manipulate and search for data from anywhere in the world.

### ***Dynamic Websites for Kids' Party Business***

Presenter: Blake Williams  
Faculty Advisor: Cam Tracy

The dynamic websites involved in this project were created for a client who is starting a Dandy Jumper and Mini-Golf Business. A ColdFusion framework will be used to maintain a database of clients and orders, and it will provide an easy way for the owners to keep up with their business and update their websites.

### ***Portfolio DVD of Short Films***

Presenter: Jeremy Camp  
Faculty Advisor: Cam Tracy

The goal of this project is to create a portfolio DVD that contains short films that I have made. This portfolio will demonstrate my ability to shoot and edit video, along with creating a DVD menu for accessing these short films. One section will contain a highlight reel of some of my works edited together and the other will include my short films. This DVD will be used for submission to a film school graduate program.

### ***Ridgeway Baptist Church Missions Digital Promotion***

Presenter: Tim Messer  
Faculty Advisor: Cam Tracy

The project involves the creation of a DVD and a companion website that will emphasize mission trips for Ridgeway Baptist Church in Memphis, TN. It will include newly-produced video from past mission trips to different countries and some places in America that will be put to music along with an interview. The goal is for the church to be able to distribute the DVD to people that are interested in missions opportunities. It will be a resource used in getting people excited about going on mission trips and hopefully attract people that might not have considered it before.

### ***The Rebirth of CradockPC.Org***

Presenter: Jonathan Davenport  
Faculty Advisor: Cam Tracy

The website for Cradock Presbyterian Church in Portsmouth, VA was in need of a major facelift. The website was rarely updated and looked dated, and the information needed to be organized and displayed in a more current fashion. The church decided that they wanted the website to be reinvented and many features added to it. These features include a calendar of events, a password-protected section for members that features a directory of members with their contact information and a content management system so that the site will be able to be maintained with greater ease and updated more frequently. It will also have an area that will allow users to submit prayer requests. This project allowed me to further explore both the use of CSS and ColdFusion.

### ***Visually Engaging Interactivity***

Presenter: Benjamin Bailey  
Faculty Advisor: Jonathan Gillette

As the web becomes more "content driven" with the advent of Web 2.0, good design is still lacking in most websites. The purpose of this project is to apply the principles of good design to multiple forms of web presence. Ten websites will be designed and implemented for actual clients. This will display the use of different technologies including CSS, Adobe Coldfusion, PHP, Javascript and Flash. There is no need to have either good visual design with bad functionality nor good functionality with poor visuals. The goal is to attempt to even out the tension between the technically functional and the visually pleasing.

### ***Two, Five, Eight: An Exploration of the Benchmark Distinctions Between DVD and Blu-ray***

Presenter: Alan Knox  
Faculty Advisor: Cam Tracy

Blu-ray is the new king on the digital media throne. Winning the war against HD-DVD for the right to succeed DVDs, Blu-ray offers a new palette for creative possibility. "02.05.08" serves both a probing and practical purpose in that it explores the main improvements in the transition from DVD to Blu-ray, but also offers a product harnessing the key events of February 5th, 2008, that can be sold for relief efforts. In this creative process my intention is to highlight the major expansions Blu-ray offers in menu compositing and authoring while at the same time designing a logically functional, user-friendly, and aesthetically pleasing product.

### ***MissionLink: An Online Publishing System for Missionaries***

Presenter: Brian Burns  
Faculty Advisor: Cam Tracy

Stories need to be told. In today's society communication can reach almost anyone around the globe in the blink of an eye. News and missions organizations continue to share stories of missionaries working around the world, but what happens after their stories are published? Days, months and even years can pass before another media team writes a story about the work of Christ in a particular area or region. MissionLink is a web site designed to be a centralized clearinghouse of information for and about missionaries worldwide. This online project is a small beginning of a larger design to allow individual missionaries working around the world to collectively share stories, prayer request, project needs, photos and video to any user wanting a global view on missions.

## **ENGINEERING**

### ***Design of Toyota Sleeve Changing Device***

Presenters: Blake Waggoner, Debi Eley, Jasmine Huang, Justin Montgomery & Ethan Wilding  
Faculty Advisor: Don Van

Bodine Aluminum, Inc., a Toyota company, replaces a 750 lb. central part of their high-pressure die casting machines, called a shot sleeve, over 100 times annually during the manufacturing of V6/V8 engine blocks. The current device in use does not meet safety and ergonomic standards, requires intensive manual labor, and drastically slows down production. As a capstone project, the Senior class of engineering students redesigned the device and process to safely and ergonomically replace the shot sleeve while reducing the cycle-time by 50%. A vital element of the project will be the design of a cantilever beam supporting the shot sleeve internally to ensure smooth accurate replacement. Upon completion, the project is expected to produce financial savings of \$264,000 annually for Toyota due to reduced downtime. The most significant result, however, will be eliminating all safety concerns

and ergonomically unsound processes from the shot sleeve replacement procedure.

### ***Comparison of Home Construction Materials***

Presenters: Joshua Brooks, Christian Christensen, Bradley Ferrell, Stephen Fly, Benjamin Fondren, Idrees Hamzeh, Zackary Jackson, Bradley Kiddie, David Moore, Matthew Sengstock, William Stewart, Kyle Swafford, Aaron Taylor & Timothy VanCleave  
Faculty Advisor: Jay Bernheisel

This project will compare construction techniques for walls in single-family homes. Wall types include standard 2x6 studs plus insulation, concrete masonry units, rammed earth and others. These construction methods will be compared on the basis of cost, insulation value, resistance to blown debris and other factors.

### ***Directional Space Rocket***

Presenters: Benjamin Fondren, David Moore, Idrees Hamzeh & William Stewart  
Faculty Advisor: Don Van

Sending a shuttle to orbit requires maximized thrust with minimized mass and volume. Compressed gas is often used for short, navigational thrusts; our project is to design such a rocket to meet the following requirements:

- Providing as many as 100 bursts, 5 seconds each with a mass flow rate of 0.5 lbm per second with an exhaust velocity of 400 feet per second. The mass should be provided from a storage tank that can contain up to 3000 psia, and located in an environment of 40 °F.
- The components used are simple, such as tubing, valves, nozzles, gages (pressure and temperature).

This project will cover:

- The analysis of safety and possible cost saving.
- A brief overview of the design's obedience to physical and mathematical laws.
- An investigation of minimizing the storage tank's volume within the specified criteria.
- The choice of materials.

### ***Autonomous Robot Design***

Presenters: Will Trautman, Zackary Jackson & Joshua Brooks  
Faculty Advisor: Jeannette Russ

The objective of this project is to develop an autonomous robot to compete in the 2008 IEEE Southeastern Conference Student Hardware competition. This year's competition involves building a robot that will pick up colored blocks (color indicating point value) and return them to a home base. The competition goal is to accumulate the greatest possible point total within the shortest amount of time. The blocks are also labeled with radio-frequency identification (RFID) tags for an alternate method of detecting point value. The robot's design

involves multiple sensors, DC and servo motors, a claw to lift blocks, a chassis, power sources, and a microcontroller to store and execute commands. Our presentation will focus on the development of the robot, our research into some new areas (object-oriented programming for robotics, filter design, RFID, SONAR, camera vision sensing), and a demonstration of the robot.

## ENGLISH

### *The Heroic Christ: The Crucifixion and Resurrection in the Literature of Anglo-Saxon England*

Presenter: Robert Sparks

Faculty Advisor: Gavin Richardson

During the early Middle Ages, as the Germanic peoples of Northern Europe and, more specifically, the Anglo-Saxons of the British Isles converted to Christianity, they conceptualized Christ's crucifixion and resurrection in a very Germanic way as they blended elements of their pagan worldview and heroic warrior culture with those of Christianity. One can observe features of this unique expression of Christianity through examining the portrayal of Christ, his crucifixion, and resurrection in several of the important literary texts from the period. Essentially, certain aspects of the orthodox Christian doctrines concerning Christ's death and resurrection resonated with Germanic culture and were wholeheartedly accepted with no modification, or they were adapted to fit preexisting cultural values better. The Anglo-Saxons and their continental, Germanic predecessors embraced the biblical images of the exalted, resurrected warrior Christ while they modified the images of the suffering servant and Christ's death on the cross to be more culturally palatable.

## HISTORY

### *Prayer, Partnership, and Persecution: Southern Baptist Missions Behind the Iron Curtain, 1950-60*

Presenter: Cameron Armstrong

Faculty Advisor: Stephen Carls

In the wake of the communist takeovers in Eastern Europe following the Nazi surrender, missionary efforts by Protestant organizations from the West were significantly impeded. Southern Baptist missionaries, who had held a definite presence in Eastern Europe even before World War II, were forced to adopt new ministerial strategies towards reaching those with their evangelical faith. Little scholarship exists concerning how Southern Baptist missionaries "fought" the Cold War. A clearer picture may be offered through the study of the missionary policies of the Southern Baptist Convention (SBC) towards Eastern Europe, specifically Hungary, Yugoslavia, and Romania.

## MATHEMATICS

### *Estimating Parameters for Incomplete Data*

Presenter: William White

Faculty Advisor: Troy Riggs

This presentation will include the uses of the maximum likelihood estimator (MLE), specifically its benefit in estimating parameters for censored and truncated data. The idea is that censored and truncated data present incomplete data such that observations are unknown or excluded. One of the beneficial features of the MLE is that it can reasonably approximate the true parameters of a data set, whether the set contains all the data or an incomplete record of it. The purpose is to find the most accurate estimations possible in order to better predict outcomes from future observations. Excel will be a helpful tool in finding these desired outcomes through its solver functions.

### *A Divine Ontology*

Presenter: Robert Michael

Faculty Advisor: Matt Lunsford

An abstract object, as apposed to a concrete object, can be said to be anything which does not occupy space or time and does not have the ability to cause anything to happen. Concrete objects are things like rocks, trees, and Coburn Cafeteria while abstract objects are things like redness, 4, and the proposition that "Coburn is bad." While many theories and philosophies about the ontology (the study of the nature of being and essence) of abstract objects exist, few exist which include God as a fundamental structure in their framework. In first asserting God's existence along with any propositions which the Bible claims to be true about Him, many problems and even solutions in these theories and philosophies are given new light. Considering God's role in the ontology leaves some things unchanged, like Russell's paradox arising from allowing sets to be considered as abstract objects, while it completely revolutionizes others.

### *Bridging the Group Definition Gap*

Presenter: Matthew Dawson

Faculty Advisor: Matt Lunsford

In the early 1830s, a young French mathematician by the name of Evariste Galois laid the foundations of group theory, even though he never precisely defined groups. Galois studied groups in the context of sets of arrangements, and his ideas were reformulated into a more abstract setting in the twentieth century. This presentation provides precise definitions for constructs closely related to Galois' original notion of group theory and explores important group properties in that context, demonstrating that the modern concepts of group, subgroup, normal subgroup, and solvable group can be expressed in terms of

arrangement sets. At the end of the presentation, a concrete example of the application of Galois' main theorem will be presented using the original concepts from Galois' work.

## MUSIC

### ***Cosmusicos: A Musical Representation of the Big Bang and Evolutionary Theories***

Presenter: Cody Curtis

Faculty Advisor: Ron Boud

The two dominating scientific theories concerning the origins and developmental processes of both the universe and life are, respectively, the Big Bang Theory and the Theory of Evolution. Composed in light of their ascendancy, this work endeavors to accurately represent through music the basic elements and implications of both scientific theories in a uniform, chronological fashion, tracing particularly the ancestry of human beings. Music is a fitting medium for this portrayal because just as matter and life are composed of particles that bond to one another to form atoms, molecules, and more elegant structures, music is composed of pitches and rhythms which combine to create ordered harmonic and rhythmic structures.

## POLITICAL SCIENCE

### ***Japan and South Korea: Can These Two Nations Work Together?***

Presenter: Alex Scarbrough

Faculty Advisor: Kevin Cooney

South Korea is Japan's most natural ally in East Asia. Both nations share the same primary military benefactor, the United States. Their geographic proximity makes them natural allies in offsetting China's growing power and unknown intentions. In spite of this natural need to ally, relations remain strained primarily over Japan's historical occupation of Korea. This paper examines the political issues that need to be resolved in order for Japan and South Korea to work together and the potential for such reconciliation in light of South Korea's drift away from its American ally and Japan open embrace of the United States.

## SOCIAL WORK

### ***Love 146***

Presenter: Emily Alm

Faculty Advisor: Theresa Blakley

Slavery is not obsolete. Millions of people around the world are enslaved today. Love146 is an organization dedicated to ending child sex trafficking and exploitation. Come and learn about the overwhelming problem of slavery, what's being done to stop it, and what you can do in the fight against human trafficking.

### ***The Impact of Mike Yankoski: Changing the World from the Inside Out***

Presenter: Erin Morris

Faculty Advisor: Theresa Blakley

One college student's quest to follow God leads him to experience deep learning about the plight of homeless persons, the church's response to them, and the implications for his own faith. This presentation chronicles the faith adventures of Mike Yankosi who lived as a homeless person for five months on the streets of six cities around America. His story challenges Christians to make application of their faith to a world of poor, disenfranchised persons.

### ***Social Work in South Africa: A Semester in the Communities of Cape Town***

Presenter: Lindsey Wallach & Julie Raynes

Faculty Advisor: Todd Stanfield

Two seniors majoring in Social Work completed their field practicum experience in Cape town, South Africa this semester. They worked as a part of a faith-based social service agency and worked with families to improve relationships and address the spread of HIV. The students experienced the lingering effects of apartheid, and learned the subtleties of practicing social work in the small communities surrounding Cape town. They had to work around language barriers and familiarize themselves with diverse religious and spiritual practices. In the presentation, the students will present a comparison between social work practice in the United States and in South Africa. They will also offer suggestions for ways to better prepare students for practicing social work internationally.

### ***Ready to React: Union University's Safety Initiative***

Presenters: Ashley Barnett, Jacqueline Bullman, Katelyn Burton, Shemeka Cole, Jessica Haney, Kristin Jennings, Carolyn Jennings, Andrea Johnston, Naomi Ketchum, Angela Kinsman, Cassie Lutrell, Grace Maroney, Deanna Nick, Darraugh Nolen, Rachel Phillips, Jessica Ramsay, Ana Rivera, Kellie Roe, Matthew Taylor, Erin Veneman, Rachel Vo, Julie Waldrop & Stephanie Wood  
Faculty Advisor: Theresa Blakley

Natural disasters, violent crime, and accidents that threaten or take life are all the more shocking to the young who are yet to be initiated by such realities. University students, in fresh pursuit of their dreams, most often do not dwell on the possibility that their campus could be rocked by such dangers. The recent school shootings at Virginia Tech and Northwestern Illinois University; the 2008 co-ed homicides at Chapel Hill, Alabama, and Reno; the tragic drowning of a Freed-Hardeman student on his 2008 spring break mission trip to the Dominican Republic; the tornado disaster at Union: such recent events converge to make a hard case that universities must be prepared to protect when they can, and be ready to react when they must.



# NOTES