

Mississippi College 16th Annual Graduate Research Forum
Sponsored by the Academic Research Committee & Office of Graduate Studies
Thursday, April 24, 2014, 6:30 p.m.
Germany Lecture Hall, MCC

Welcome & Opening Remarks

Dr. David H. Magers, Chair, Academic Research Committee

Presentations
[Time Limit, 12 Minutes]

Lingshan Song, English

James Everett, Ph.D., Introduction

**Shuhua Ling Met Virginia Woolf on Writing:
A Tale of Transnational Friendship in Composing Ancient Melodies**

Research Director: Kerri Jordan, Ph.D.

In 1953, a Chinese female writer, Shuhua Ling, struck the British literary circle with the publication of her autobiographical novel titled *Ancient Melodies* written in English. While critics and common readers were surprised by Ling's writing that successfully led them into "the sheltered courtyards of that old civilization," they found it more thrilling that *Ancient Melodies* is an immediate product of the transnational friendship between Shuhua Ling and Virginia Woolf developed through correspondence across the Pacific Ocean. Even though Ling and Woolf never saw each other in person, they met on paper during their lifetimes, and the influence of their communication on comparative literature study, women's discourse, and the reception of their works on the other sides of the world continues.

Katherine Saucier, Communication

Mignon Kucia, Ph.D., Introduction

Visual Rhetoric & Compassion Fatigue

Research Director: Mignon Kucia, Ph.D.

In recent years communicators, government leaders and charities have all grown concerned with the "negative societal phenomenon" called compassion fatigue. Compassion fatigue occurs when an audience is left feeling apathetic or helpless when faced with human suffering. The main reason for studying compassion fatigue is the affect it has on people in need across the world. One dangerous implication is that those experiencing compassion fatigue may no longer feel compelled to give to charities. Researchers note that one of the largest contributors to compassion fatigue is the type of messages created by the news media. The reoccurrence of graphic images and sensationalized stories have desensitized many to a point where they are no longer concerned with global social issues. This paper examines the visual rhetoric of photography and its effect on compassion fatigue in an audience.

Bilal Qizilbash, Biological Sciences

Elizabeth Brandon, Ph.D., Introduction

Killing Cancer Naturally

Research Director: Elizabeth Brandon, Ph.D.

The challenge with many cancers is not just killing the malignant cancer cells, but doing so in a non-toxic manner. Our current concept is that it is not one specific compound but rather a complete concert of compounds in curly kale that contain both agonist and antagonistic factors. To test this concept we constructed several experiments testing what effect the direct application of curly kale juice had on the melanoma cells in culture. Juiced curly kale repeatedly induced apoptotic cell death.

Charleigh Alford, Health Services Admin.

Melanie Fortenberry, RN, BSN, MHS, Introduction

**Liability of Hospital Acquired Methicillin Resistant *Staphylococcus aureus*
Infection in the Bloodstream and Following Surgical Procedures**

Research Director: Melanie Fortenberry, RN, BSN, MHS.

Hospital acquired Methicillin Resistant *Staphylococcus aureus* (MRSA) infections are very serious and can often be prevented if proper treatment is received. However, there are situations where infections are not detected in time and patients often feel they are being neglected, doctors are not using properly sterilized instruments, or there are not proper hygiene practices used by patients and staff. In each of the cases discussed there are various causes of MRSA but all are important to understand why MRSA infections should be detected early and treated as soon as possible. Infections can become very serious and if not treated can lead to amputation, septic shock, or even death. These infections should be addressed and treated as soon as possible to prevent suits from being filed.

Benjamin Lewing, Chemistry & Biochemistry

Dale A. Rosado, Jr., Ph.D., Introduction

**Chemoenzymatic Synthesis of Both Enantiomers of
1,3 – Aminoalcohols from a Common Intermediate**

Research Director: Dale A. Rosado, Jr., Ph.D.

Tuberculosis is a debilitating, contagious infectious disease that has been declared by the world health organization to be a global health emergency. Studies have shown that modifying the structure of ethambutol, one of the first-line anti-tuberculosis drugs, can result in increased anti-tuberculosis activity. Ethambutol is a simple diamine compound composed of two 1,2-amino alcohols. With the aim of creating ethambutol analogues, we have developed an efficient route of synthesis of 1,3-Amino alcohols. This research is part of a joint project with the biology department with the goal of testing the anti-tuberculosis activity of ethambutol analogues

Intermission – 15 minutes

Timothy Fortune, Mathematics

**Tommy Leavelle, Ph.D., Introduction
DeMoivre's Theorem and the Roots of Unity**

Research Director: Tommy Leavelle, Ph.D.

While a brief introduction to the life of Abraham de Moivre is included, the main purpose of this paper is to introduce the theorem for which he is known and to investigate the roots of unity. The roots of unity U are proved to be a group under complex multiplication that is dense in the imaginary unit circle. Similarly, for any fixed natural number n , the n^{th} roots of unity U_n are proved to be a group under multiplication. Finally, the cyclic nature of U_n is established, thereby providing a quick way to identify a generator and an easy technique for listing its n distinct elements.

Joshua Hixson, Law

**Mark C. Modak-Truran, Ph.D., J.D., Introduction
The Influence of Catholic Social Teaching and Natural Law on Catholic Justices:
Justices Brennan, Kennedy and Scalia**

Research Director: Mark C. Modak-Truran, Ph.D., J.D.

This research paper discusses the manner in which the Catholic traditions and teachings have influenced the jurisprudence of three influential Supreme Court Justices: Justice Brennan, Justice Kennedy, and Justice Scalia. The paper's goal is to illustrate that while the three Justices are considered to have either a liberal, moderate, or conservative approach to their jurisprudence, the influence of Catholic teachings is still apparent within their opinions. The paper then discusses how each of these Justices jurisprudence is compatible with Catholic teaching while taking opposing views on various issues before the Court.

Jamilliah Longino, Educational Leadership

**Ruthie S. Stevenson, Ph.D., Introduction
The Implementation of Professional Learning Communities in Third through Fifth Grades and Mathematics
Achievement in High and Low Performing Elementary Schools**

Research Directors: Jennifer Grove, Ed.D.

The purpose of this study was to compare the level of implementation of PLCs within schools designated as high performing to those schools considered to be low performing, as identified by the state's accountability model. The various schools were examined to determine if there was a difference between the level of implementation of the dimensions outlined in the Professional Learning Community Assessment-Revised Survey and students' mathematics achievement in third through fifth grades. Findings from the data revealed that teachers' perceptions of the PLC dimensions, as outlined in the Professional Learning Communities Assessment-Revised Survey were not statistically significantly different between teachers in high performing schools and teachers in low performing schools.

James Derek Walker, Art

**Karlos Taylor, M.F.A., Introduction
Analyzing Robert Besley's Clarendon through the Production of Wood and Digital Type**

Research Director: Karlos Taylor, MFA.

The understanding of typography is crucial to the development of a graphic designer and the foundation to professional, effective design. This research addresses historical and contemporary typeface production, specifically through examining the design, production, and formatting techniques of Robert Besley's Clarendon typeface. This in-depth knowledge allowed the researcher to design, create and produce a new revival Clarendon typeface, *Walker Clarendon*

Travis J. Twilbeck, Kinesiology

**Suzanne L. McDonough, Ph.D., Introduction
Determining Best Practices to Reduce Occupational Health Risks in Firefighters**

Research Director, Suzanne L. McDonough, Ph.D.

The physical demands of firefighting are extensive, and firefighters face increased risk of cardiovascular and metabolic disease, musculoskeletal injury, and cancer. To reduce these risks, a tailored wellness initiative program (FIT Firefighter) was developed and executed. Implementation of FIT Firefighter, consisting of assessment, educational, instructional, and personal coaching and training elements regarding nutrition, fitness, wellness, and strength and conditioning, revealed enhanced healthy behavior change including increased motivation and marked improvements in blood pressure, resting heart rate, aerobic fitness, body mass index, waist circumference, percent body fat, back flexibility and bicep strength among participating firefighters.