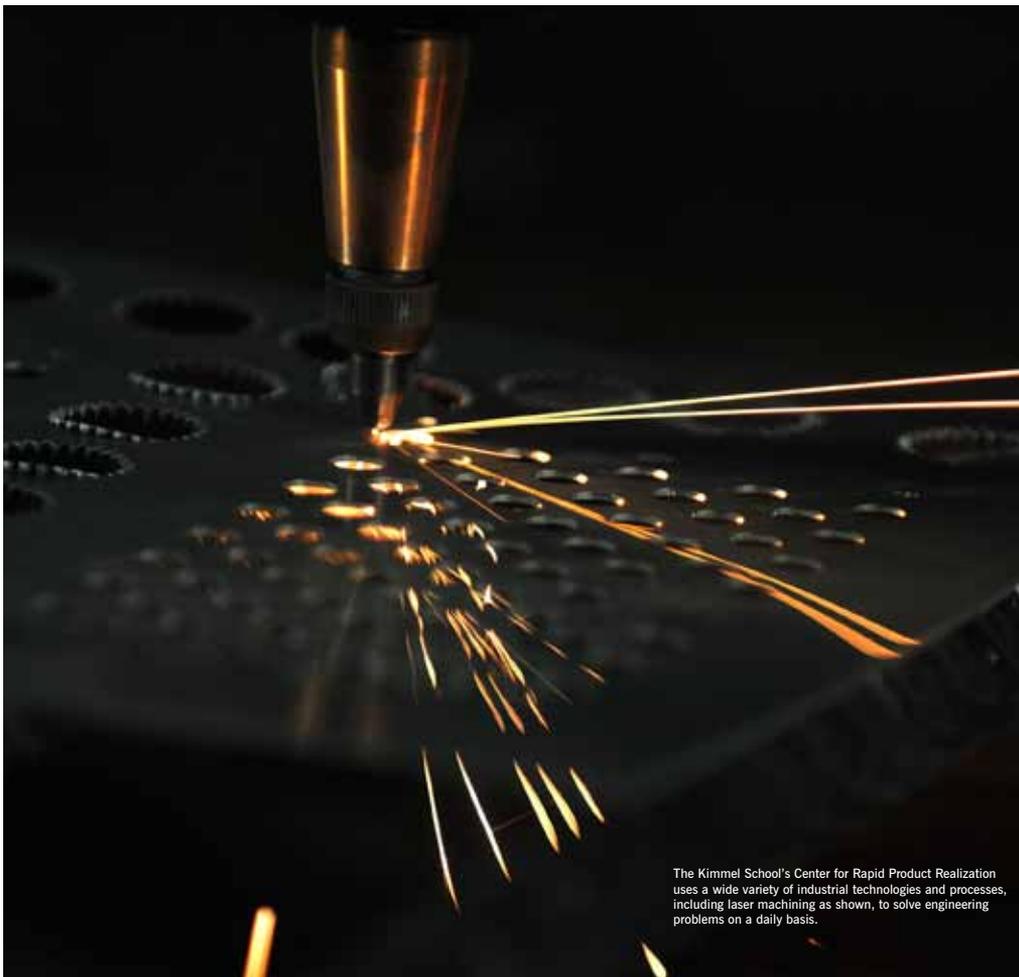


TWENTY-FIRST ANNUAL
**Graduate Research
Symposium**

Sponsored By: **GRADUATE SCHOOL & RESEARCH**



The Kimmel School's Center for Rapid Product Realization uses a wide variety of industrial technologies and processes, including laser machining as shown, to solve engineering problems on a daily basis.

MARCH 21, 2013 | 11 A.M. – 8:30 P.M. | UNIVERSITY CENTER

**Western
Carolina**
UNIVERSITY

Activities Overview

11:00 A.M.
HUMANITIES, ENGLISH Multipurpose A
SCIENCES, CHEMISTRY Cardinal

12:30 P.M.
COUNSELING / COMMUNICATION SCIENCE /
SOCIAL WORK Catamount
HUMANITIES, ENGLISH Multipurpose A
SCIENCES, BIOLOGY Cardinal

2:00 P.M.
ARTS, MUSIC / EDUCATION.. Multipurpose A
PSYCHOLOGY Dogwood
NURSING / HEALTH SCIENCES ... Catamount
ENGINEERING AND
TECHNOLOGY Cardinal

3:15 P.M.
PHYSICAL THERAPY Theater

3:30 P.M.
HUMANITIES, HISTORY Multipurpose A
PSYCHOLOGY Dogwood
PHYSICAL THERAPY Catamount
PUBLIC ADMINISTRATION Multipurpose B
MATH Cardinal

5:00 P.M.
RECEPTION AND AWARDS Grand Room

6:30 P.M.
EDUCATION Catamount
HUMANITIES Dogwood
SCIENCES, HEALTH Cardinal

 **North Carolina Research Recognition**
Special recognition and award for research related to the economic and community development of the State of North Carolina. The outcome of the research should result in processes or products that have significant promise for returning jobs to the economy of North Carolina.

Student News Releases

WCU's Office of Public Relations routinely sends news releases about student activities and honors to the hometown/local newspapers of the students involved. Students taking part in the 2013 Graduate Research Symposium who wish to take advantage of that service should visit the website wcu.edu/22961.asp to complete an online biographical form and submit it via email to the Public Relations Office.

The Public Relations Office also can send photographs of students to their hometown/local newspapers to accompany the news releases. Students who want to take advantage of that service are invited to come to **Room 420 in H.F. Robinson** to have their photographs taken between **3:00 p.m. and 5:00 p.m.** on one of these days: **Thursday, April 18; Thursday, April 25; or Tuesday, May 7.**

Students with scheduling conflicts that prevent them from appearing at one of those photo sessions may make a special appointment to have a photo taken by calling the Public Relations photography office at 828.227.3081.

Students' personal photos will be considered for use, depending on quality. Portrait-quality head-and-shoulders shots may be e-mailed to holcomb@wcu.edu.

Western Carolina University

Western Carolina is a campus of the University of North Carolina system and enrolls more than 9,000 students. WCU is located in a beautiful valley between the Blue Ridge and Great Smoky Mountains, an hour west of Asheville, N.C., and 2.5 hours northeast of Atlanta, Ga. Here you will find convenient access to a region that offers tremendous opportunities for outdoor research and recreation. Engagement of students and faculty in service learning and other community activities is a critical part of WCU's tradition of academic excellence.

TWENTY-FIRST ANNUAL

Graduate Research Symposium

MARCH 21, 2013 | 11 A.M. – 8:30 P.M. | UNIVERSITY CENTER

Dear Participants,

Welcome to the Twenty-First Annual Graduate Research Symposium! Since 1992, the Graduate Research Symposium, sponsored by Graduate School and Research, has provided graduate students the opportunity to showcase their scholarly research and projects, and I want to express my sincere appreciation to you for sharing your excellent work with your classmates, colleagues, and faculty. A warm thanks to all participating faculty and staff mentors: your active and continuing support and encouragement of your students and their research is the hallmark of Western's graduate education experience.

For many of you, this will be your first opportunity to share empirical findings and creative works with the academic community. Today, you take a step in becoming recognized as a scholar in your chosen discipline. The skills you learn as part of the research process and your ability to convey that research in writing and in person will enable you to share your knowledge, intellectual passion, and commitment to ideas and to your discipline and profession. Congratulations on this significant milestone in your academic development.

It is my hope that your experience today inspires you to continue to contribute to our understanding of all areas of knowledge in the arts, humanities, education, social sciences, business, and sciences. You are helping to shape the future and the important issues facing our region, state, and world, and what you are doing today as students is just the beginning of all you can do to make a true difference. Thank you. I look forward to meeting each of you personally and to talking with you about your important work and your plans for the future.

Please join your faculty mentors, colleagues, and members of the Graduate School at a celebration that has been planned in your honor in the University Center Grand Room starting at 5 p.m. We look forward to seeing you then and to celebrating your excellence.



Mimi Fenton, Ph.D.

Interim Dean, Graduate School and Research

11:00 A.M.–12:15 P.M.

SCIENCES, CHEMISTRY | UC 214 | Cardinal Room
CHANNA R. DE SILVA, Chemistry, Moderator

Development of Europium-Based Nanoparticles with Enhanced Luminescence Properties for Potential Imaging of Melanoma Cancer Cells

 **NC Research Paper**
Presenter: Gayanthi K. Attanayake
Sponsor: Channa R. De Silva

Constructing Boronate Macrocycles Using Boron-Lewis Base Dative Bonds and Boronic Acid-Diol Condensation Reactions

Presenter: Natalie R. Rizzo
Sponsor: William R. Kwochka

Development of a Raman Spectral Database of Modern and Traditional Paint Pigments

Presenter: Caitlyn Phipps
Sponsor: Scott Huffman

DNA Binding Protein Discovery by the Combinatorial Method REPSA

Presenter: Kirsten Collins
Sponsor: Michael Van Dyke

Biocompatible and Highly Luminescent Lanthanide-based Silica Nanomaterials for Potential Biomedical Imaging Applications

 **NC Research Paper**
Presenter: A.G.N.D. Darsanasiri
Sponsor: Channa R. De Silva

HUMANITIES, ENGLISH | UC 232A | Multipurpose Room A
BETH HUBER, English, Moderator

Riding the Rails to a New America in Henry David Thoreau's *Walden*

Presenter: Cynthia Jones Gallinger
Sponsor: Elizabeth Addison

The Finest Warriors for Free Government: Ronald Reagan's Exceptional Rhetoric and His Attention to Kairos

Presenter: Anne Baker
Sponsor: Beth Huber

The Just War Rhetoric of the Obama Administration and War with Iran

Presenter: Robert Donnellan
Sponsor: Beth Huber

Forces of Production and Obstruction in Suzan-Lori Parks *Tapdog/Underdog*

Presenter: Warren Micah Buckner
Sponsor: Annette Debo

From Carl or Moloch to Beyond: Communism and Capitalism in Allen Ginsberg's *Howl*

Presenter: Rachel Carolina Adams
Sponsor: Annette Debo

“Somewhere, something incredible is waiting to be known.”

—Carl Sagan (American Astronomer, 1978 Pulitzer Prize for General Non-Fiction, 1934-1996)

12:30–1:45 P.M.

CLINICAL MENTAL HEALTH COUNSELING / COMMUNICATION SCIENCE
AND DISORDERS / SOCIAL WORK | UC 215 | Catamount Room
VALERIE SCHWIEBERT, Human Services, Moderator

Prevalence, Frequency, Motivations, and Consequences of Voluntary Use of Rohypnol by Undergraduate Females at Western Carolina University

Presenter: Tiffany Franzo
Sponsor: Valerie Schwiebert

Plugged In: People and Gaming Addiction

Presenter: Andrea Moon
Sponsor: Valerie Schwiebert

Collaborating with Families: A Unique Perspective

Presenter: Jarney Freeman
Sponsor: Kimberly Lackey

Using Animal-Assisted Therapy to Increase the Benefits of Speech Therapy in Elementary School Students

 **NC Research Paper**
Presenter: Cortney K. Pauly
Sponsor: George Hambrecht

An Exploratory Study of the Therapist and Equine Relationship in Equine Psychotherapy Sessions

Presenter: Katie Hadden
Sponsor: Patricia Morse

HUMANITIES, ENGLISH | UC 232A | Multipurpose Room A
ANNETTE DEBO, English, Moderator

The Creation and Destruction of Identity in *The God of Small Things*

Presenter: Shawnde M. Jenkins
Sponsor: Annette Debo

Marginality in the Colonial Space

Presenter: Yolanda Newhouse
Sponsor: Annette Debo

Human as Animal: *As I Lay Dying* with the Neurotics

Presenter: Matt Wavrin
Sponsor: Annette Debo

What Goes Around Comes Around: The Theme of Balance in Ron Rash's *Serena*

Presenter: Kristina Hargett
Sponsor: Annette Debo

We're Just Passing Through: Power, Destruction, and Disregard in Ron Rash's *Serena*

Presenter: Anne Baker
Sponsor: Annette Debo

“Research is formalized curiosity. It is poking and prying with a purpose.”

—Zora Neale Hurston (American Novelist and Playwright, 1903-1960)

12:30–1:45 P.M.

SCIENCES, BIOLOGY | UC 214 | Cardinal Room
MARK WILSON, Forensic Science, Moderator

Evaluating Fire Severity Maps, Plant Community Responses, and Fuel Management Effectiveness for Small Fires in the Great Smoky Mountain National Park

Presenter: Scott Abla
Sponsor: Laura DeWald

Examining the Roles of Kinetochore Homologs in *Cryptococcus neoformans*

Presenter: James Ryan Simmons
Sponsor: Indrani Bose

Next-Generation Sequencing of DNA from *Salmonella*, a Foodborne Bacterial Pathogen

Presenter: David Russell
Sponsor: Mark Wilson

Low-Level Variant Detection in Human Mitochondrial DNA Using the Illumina® MiSEQ™

Presenter: Brandon Smith
Sponsor: Mark Wilson

Preparing Whole Genome Human Mitochondrial DNA Libraries for Next Generation Sequencing (NGS) Using Illumina® Nextera® XT

Presenter: Hilde Stawski
Sponsor: Mark Wilson

2:00–3:15 P.M.

SCIENCES, ENGINEERING AND TECHNOLOGY | UC 214 | Cardinal Room
WES STONE, Engineering, Moderator

A Novel Image Enhancement Method for Mammogram Images

Presenter: Hongda Shen
Sponsor: Peter Tay

Torso Basin of Stability Research

Presenter: Walter D. Fox
Sponsor: Martin Tanaka

Network Traffic Anomaly Detection using Hilbert-Huang Transform

Presenter: Jieying Han
Sponsor: James Zhang

Study of Timing Synchronization in OFDM using DVB-T



NC Research Paper

Presenter: Farhan Farhan
Sponsor: James Zhang

Ester Control in Beer Fermentation Through Wort Oxygenation

Presenter: Benjamin Ward
Sponsor: Wes Stone

“If we knew what it was we were doing, it would not be called research, would it?”

—Albert Einstein (Theoretical Physicist, 1879-1955)

2:00–3:15 P.M. (continued)

NURSING / HEALTH SCIENCES | UC 215 | Catamount Room
SHARON METCALFE, Nursing, Moderator

The Impact of Disaster Nursing in Haiti on Nursing Care Delivery in the United States

Presenter: Dana Troutman Deyton
Sponsor: Sharon Metcalfe

Patient Acceptance of Continuous Glucose Monitoring

Presenter: Melinda Morrow
Sponsor: Sharon Metcalfe

Interventions that Promote Stroke Awareness: A Review of the Literature

Presenter: J. Danielle Martin
Sponsor: Julia Wetmore and Linda Comer

Nursing Satisfaction with Clinical Laboratory Services at a Western North Carolina Critical Access Hospital

Presenter: Jennifer Extine
Sponsor: Elizabeth Tait

HUMANITIES / EDUCATION | MUSIC / EDUCATION

UC 232A | Multipurpose Room A
SHANNON THOMPSON, Music, Moderator

The Shakuhachi and the Komuso Fuke Sect

Presenter: Christine Hughes
Sponsor: Eldred Spell

Gustav Holst: Wind Band Aficionado *Second Suite in F*

Presenter: Emily Talley
Sponsor: Shannon Thompson

Teachers’ Perceptions of Latino Immigration

Presenter: Elizabeth A. Anderson
Sponsor: Carrie Rogers

PSYCHOLOGY | UC 212 | Dogwood Room

LEONARDO BOBADILLA, Psychology, Moderator

Psychopathic Traits and Identifying Emotions

Presenter: Lauren Miller
Sponsor: Leonardo Bobadilla

The Effect of Psychopathy, Empathy, and Gender on Gaze Patterns

Presenter: Chris Spencer
Sponsor: Leonardo Bobadilla

Empathy and Implicit Racism: A Qualitative Overview

Presenter: Sean Vick
Sponsor: John Habel

Risky Business: Assessing Risk in a College Student Sample

Presenters: Miranda Spain and John Baley
Sponsor: David McCord

Sufficiency of Negative Affect in Predicting Amusement with Disparagement Humor

Presenter: Whitney Petit
Sponsor: Thomas Ford

3:15–5:00 P.M.

PHYSICAL THERAPY | UC 315 | Theater
SUE MCPHERSON, Physical Therapy, Moderator

Does a 12-Week Balance Exercise Program Reduce Fall Risk in Community-Dwelling Older Adults?

Presenters: Andrea Cahoon, Sherrie Flory, Anna King, Caitlin Laemmler, Kenneth Richards, and Monica Vargas
Sponsor: Lori Schrodt

Exploring the Prevalence and Types of Musculoskeletal Pain Experienced by Migrant Farmworkers of Western North Carolina: A Survey Study

Presenters: Marissa Bryson, Doug Kurz, Roland Ors, and Laura Stewart
Sponsor: Karen Lunnen and John Carzoli

Plantar Pressure Distribution in People With and Without Activity Related Leg Pain

Presenters: Nathan Crosby, Ben Lusk, Blake Queen, Erik Watkins, and Susan Winston
Sponsor: David Hudson

Live Reliability of Ultrasound Imaging in Contraction of Transversus Abdominus During Functional Tasks

Presenters: Sandra Ferraro, Lindsey Pate, Rachel Ripley-Moffitt, Kaitlin Sloop, and Brian Ulrich
Sponsor: Sue McPherson and Todd Watson

Students Teaching Students: Expanding PTA Knowledge Through Use of the Anatomy Lab

Presenters: Jennie Burrows, Ryan Marquart, Anais Strickling, and Jake Watkins
Sponsor: Kathy Starr

Number of Steps During Body-Weight Supported Versus Non Body-Weight Supported Over-Ground Gait Training in Patients with Acute CVA

Presenters: Kaitlyn DeVoe, Dan Falls, Brittany McPherson, Dorothy Russell, Amanda Sorensen, and April Tatum
Sponsor: Jessica Graning

3:30–5:00 P.M.

MATH | UC 214 | Cardinal Room
JULIA BARNES, Math, Moderator

Ergodicity and Entropy in Sequence Spaces

Presenter: Christopher Miglino
Sponsor: Julia Barnes

Statistical Analysis of Student Performance in Redesigned Developmental Mathematics Courses

Presenter: Malgorzata Chockla
Sponsor: John Wagaman

“I mean, I enjoy my work as an actor. But to make a difference in people’s lives through advocacy and through supporting research – that’s the kind of privilege that few people will get, and it’s certainly bigger than being on TV every Thursday for half an hour.”

—Michael J. Fox (American Actor, 1961-present)

WESTERN CAROLINA UNIVERSITY

3:30–5:00 P.M. (continued)

HUMANITIES, HISTORY | UC 232A | Multipurpose Room A
CHARLOTTE COSNER, History, Moderator

The British Atlantic Influence: How the Port of Charleston Became London in the Colonial Era

Presenter: Frank D. McHone, Jr.
Sponsor: Charlotte Cosner

The Complexity of Atlantic World Piracy in Regards to External Factors: Late 17th Century to Early 18th Century

Presenter: Phoebe C. Raulston
Sponsor: Charlotte Cosner

The Jesuit Financial Agenda: The Hidden Truths of the Society’s Non-Spiritual Mission in Colonial Chile (1593-1767)

Presenter: Alejandra Lillo-Faúndez McCall
Sponsor: Charlotte Cosner

Gentlemen and Common Planters in the Battle of King’s Mountain

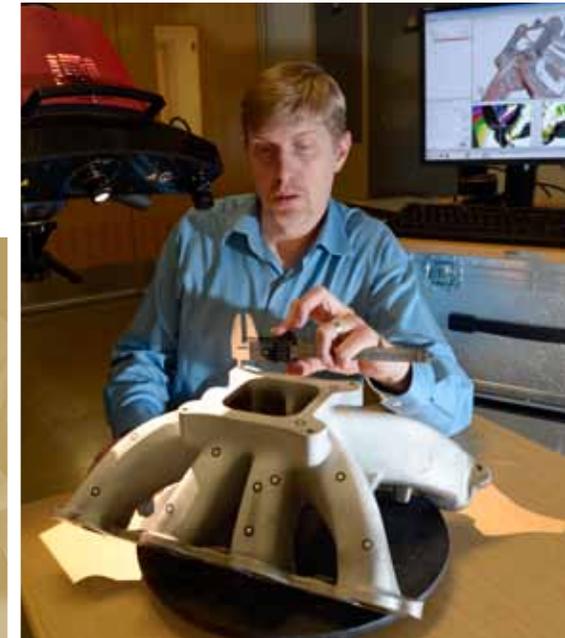
Presenter: Meghan Essington
Sponsor: Hunt Boulware

The Blue Ridge Parkway Victory: North Carolina’s Small Towns and the Fight for the Park-to-Park Highway

Presenter: Amanda Gail Smith
Sponsor: Elizabeth McRae

From Priest’s Wife to Witch: The Evolving Fears of Female Sexuality

Presenter: Nelson Edmondson
Sponsor: Alex Macaulay



“I never see what has been done; I only see what remains to be done.”

—Marie Curie (Polish Physicist and Chemist, 1903 Nobel Prize in Physics, 1911 Nobel Prize in Chemistry, 1867-1934)

3:30–5:00 P.M. (continued)**PUBLIC ADMINISTRATION | UC 232B | Multipurpose Room B**

ROGER HARTLEY, Political Science, Moderator

Intergovernmental Consolidation of Services for Buncombe County

Presenter: Andrew Tucker
Sponsor: Roger Hartley

The Economic Impacts of Walkability

Presenter: Samuel Gray Riddle
Sponsor: Roger Hartley

Decreased Funding for Guardian ad Litem: North Carolina's Broken Promise to its Abused and Neglected Children

Presenter: Jennifer E. Nehlsen
Sponsor: Roger Hartley

Policy Proposal: Identification of Program Options for the Creation of a Used Hearing Aid Program in Western North Carolina

Presenter: Kimberly W. Reed
Sponsor: Roger Hartley

Knox Box Study

Presenter: George Alley
Sponsor: Roger Hartley

Joyner v. Forsyth County Policy

Presenter: Margaret Erin Chandler
Sponsor: Roger Hartley

PSYCHOLOGY | UC 212 | Dogwood Room

KIA ASBERG, Psychology, Moderator

Sex Offender Registry Removal Hearings: Views from NC's Superior Court Bench

Presenter: Grace Love
Sponsor: Alvin Malesky

A Comparison of DSM-IV vs. Proposed DSM-5 Substance Use Disorder Diagnoses in Adolescent Populations

Presenter: Marissa Malone
Sponsor: Alvin Malesky

Drinking to Cope? Implications for Survivors of Child Sexual Abuse

Presenter: Kayla Brehn
Sponsor: Kia Asberg

Chaos or Cohesion? Child Sexual Abuse, Family Environment, and Adjustment

Presenter: Gwendolyn Prince
Sponsor: Kia Asberg

Visual Processing Associated with Making Judgements of Political Affiliation: An Eye-Tracking Study

Presenter: Kimberlee Cooper
Sponsor: Leonardo Bobadilla

The Effects of Text Messaging on Memory Recall in College Students

Presenter: Dakota Lawson
Sponsor: Bruce Henderson

6:30–8:00 P.M.**HUMANITIES, ENGLISH / MUSIC / PSYCHOLOGY**

UC 212 | Dogwood Room

BRUCE FRAZIER, School of Music, Moderator

The Interregnum and Silence: South African Historical Context up to the 1980s and Tsotsi

Presenter: Shawndee Marie Jenkins
Sponsor: Laura Wright

A Bioregion's Price: Economic (De)valuations of Nature in Ron Rash's *Serena*

Presenter: Jessica Burke
Sponsor: Annette Debo

MAX/MSP: Bridging the Intellectual Gap Between Music and Math

Presenter: Joseph Basile
Sponsor: Bruce Frazier

Personality and Rejection Sensitivity as Predictors of College Students' Depression

Presenter: Jessica Kelliher
Sponsor: Kia Asberg

Schizotypy, Neuroticism, and Cannabis-Related Problems in College Students

Presenter: Brittany Blanchard
Sponsor: Kia Asberg

SCIENCES, BIOLOGY/ENGINEERING | UC 214 | Cardinal Room

BEVERLY COLLINS, Biology, Moderator

Common Gardens, Chilly Rooms: Differences Between Populations in an Invasive Plant, *Alliaria petiolata*

Presenter: Carol Petricevic
Sponsor: Beverly Collins

A Novel Memory-Based Pattern Recognition Architecture

Presenter: Andy Kerfonta
Sponsor: Paul Yanik

*"Research is to see
what everybody else
has seen, and to
think what nobody
else has thought."*

—Albert Szent-Gyorgyi (Hungarian
Biochemist, 1937 Nobel Prize for
Medicine, 1893-1986)



6:30–8:30 P.M. (continued)

EDUCATION | UC 215 | Catamount Room

CARRIE ROGERS, School of Teaching and Learning, Moderator

The Incorporation of Informational Text Read-Alouds in Primary Grades

Presenters: Melissa Faetz and Delaney Holloway

Sponsor: Carrie Rogers

Teaching Grammar Through Reading and Writing to Seventh Grade Students in General Education Classrooms

Presenter: Melissa A. Strother-Stout

Sponsor: Carrie Rogers

The Effect of Reciprocal Peer Tutoring on Oral Reading Fluency of Higher and Lower Level Readers in Second Grade

Presenters: Crystal Petrella and April Whitehurst

Sponsor: Lisa Bloom

The Changes in the Purposes and Functions of Talk of Fourth Grade Students After Their Participation in Seminars

Presenter: Shelley Graham

Sponsor: Carrie Rogers

An Inclusion Class in Action

Presenter: Cynthia Margiotta

Sponsor: Carrie Rogers

A Classroom Action Study on the Impact of Text-Dependent Questions and Complex Text on 5th Grade Students' Reading Achievement and Reading Motivation

Presenter: Nancy McGowan

Sponsor: Carrie Rogers

Improving Classroom Behavior Through Setting Goals and Self-Motivation

Presenter: Melissa A. Strother-Stout

Sponsor: Lisa Bloom

“Contrary to what Asimov says, the most exciting phrase in science, the one that heralds new discoveries, is not ‘Eureka!’ or ‘That’s funny...,’ it’s ‘Your research grant has been approved.’

—John Alejandro King (American Comic)

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