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.
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

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 828.227.3081.

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 rholcomb@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.
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-Diolk 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

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

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

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)

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

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**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

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

—Albert Einstein (Theoretical Physicist, 1879-1955)

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**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

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**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

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**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 Pettit
- Sponsor: Thomas Ford
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 Laemmle, 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 Burrowes, 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. (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

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 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)
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 Intergregnum and Silence: South African Historical Context up to the 1980s and Tsotsi**
**Presenter:** Shawndee Marie Jenkins  
**Sponsor:** Laura Wright

**A Bioregion’s Price: Economistic (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

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“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
Presenters: 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
Presenters: Shelley Graham
Sponsor: Carrie Rogers

An Inclusion Class in Action
Presenters: 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
Presenters: Nancy McGowan
Sponsor: Carrie Rogers

Improving Classroom Behavior Through Setting Goals and Self-Motivation
Presenters: 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)