SCHOOL OF MATHEMATICS, SCIENCE AND TECHNOLOGY

# Research Week 2012 VIKING Science Technology Engineering Mathematics



Mathematics and Computer Science Pharmacy and Health Professions Chemistry, Geology, and Physics Technology Biology

For more information contact: Lila R. Gonzales, Executive Assistant, School of Mathematics, Science and Technology 401 Jimmy R. Jenkins Science Center Campus Box 970 Phone: (252) 335-3913 Fax: (252) 335-3664 Irgonzales@mail.ecsu.edu

http://nia.ecsu.edu/ur/1112/rw12/

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February 6 - 10, 2012

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UNIVERSIT

# School of Mathematics, Science and Technology

Dr. Ali Khan Vice Chancellor for Academic Affairs (252) 335-3291 aakhan@mail.ecsu.edu Dr. Harry Bass Dean, School of Mathematics, Science and Technology (252) 335-3189 hsbass@mail.ecsu.edu Dr. Linda Bailey Hayden Director, Center of Excellence in Remote Sensing Education and Research (252) 335-3696 haydenl@mindspring.com



The School of Mathematics, Science and Technology (MST) welcomes all of the honored guests and participants to the 8th Annual Research Week 2012. This week will enable the Elizabeth City State University family, the citizens of Elizabeth City, and surrounding counties to participate in informative presentations by student researchers and their mentors, workshops and seminars featuring government officials, and private industry representatives. There also will be outstanding demonstrations from departments within the School of Mathematics, Science and Technology and from scientific organizations.

This year's theme is Viking STEM (Science Technology, Engineering and Mathematics). As the School of MST keeps in line with one of President Obama's initiatives, "Educate to Innovate" where one of the objectives is to inspire student's appreciation and excitement for STEM education. The participants in Research Week 2012 have demonstrated the reality of this initiative and we invite you to visit as many presentations, lectures and demonstrations as possible during this week.

I would like to acknowledge all those individuals involved, for the coordination of Research Week 2012 as it is not an easy task. I extend special thanks to all guest for taking time out of their busy schedules to participate in this event as well as the Research Week Committee, faculty, staff, and the office of Academic Affairs. I would also like to thank all of our presenters for sacrificing time out of their busy schedules to participate in this event.

Dr. Harry S. Bass, Dean, School of Mathematics, Science and Technology



On behalf of the Students, Faculty & Staff at Elizabeth City State University, I would like to welcome all participants to Research Week 2012 at Elizabeth City State University. This year's theme, "Viking STEM," recognizes the emphasis placed on undergraduate research coupled with faculty development. These partnerships provide a thrust of new talent into the Science, Technology, Engineering, and Mathematics fields providing an avenue of advancement for those often left behind. ECSU's various world renowned research

| Research Week Committee           |  |  |
|-----------------------------------|--|--|
| Dr. Linda HaydenChairman          |  |  |
| Dr. Darnell JohnsonMath & CS      |  |  |
| Dr. Gary Harmon Biology           |  |  |
| Dr. H. Leon Pringle Biology       |  |  |
| Dr. Margaret Young Biology        |  |  |
| Dr. Kassim Traore Chem, Geo & Phy |  |  |
| Dr. Gloria Payne Biology          |  |  |
| Dr. Innocent Ononiwu Pharmacy     |  |  |
| Ms. Lila GonzalesMST              |  |  |
| Ms. Kenya HintonMath & CS         |  |  |

efforts have allowed students and faculty to travel to all parts of the globe to expand and share their knowledge. This year's event brings representatives from graduate programs, professional schools, state and federal agencies, and various departments from within our own university to offer information about internships, research collaborations, and various



graduate programs from throughout the country. It is our hope that the panel discussions, seminars, poster presentations, and displays will engage your interest to seek out further information regarding the Viking STEM research fields existing at ECSU. Serving students well is the core of our mission and the goal of all our efforts. We take pride in the accomplishments of our faculty, students and staff in scholarly activities and competition for external resources. We must advance the university's research agenda, invest in promising new initiatives, and optimize research support services as we look forward to the continued successes and recognition that our university so richly deserves.

Dr. Ali Khan, Provost and Vice Chancellor for Academic Affairs

### AFFILIATED PROGRAMS

**Center of Excellence in Remote Sensing Education and Research (CERSER)** Dr. Linda Hayden....... (252) 335-3696.... haydenl@mindspring.com

**NOYCE Scholars** 

Dr. Farrah Chandler...... (252) 335-3544... fjchandler@mail.ecsu.edu

Planetarium Dr. Sultana Khan ....... (252) 335-3759.....sakkhan2@mail.ecsu.edu



# **Research Week - Schedule of Events**

# Monday, February 6

#### Opportunities for Undergraduates Jenkins Science Center, Room 138, 11 am Presiding: Dr. Maurice Crawford Welcome: Dr. Harry Bass

Comments: Chancellor Willie Gilchrist

- Ms. Darryl Monteau CReSIS KU Education Coordinator "Preparing for Graduate School"
- Mr. Mike Jefferson, ECSU Graduate Student "ECSU Ice Shelf Project"
- + Department and Research Project Displays
  - Jenkins Science Center, Lobby, Noon

#### + 2012 Opportunities

Jenkins Science Center, Room 138, 2 pm Presiding: Dr. Ephraim Gwebu

- Dr. Thomas Windham Education and Diversity Consultant 2000 PAESMEM Awardee
- Mr. Kelvin Turner, Jr. EMHIRT Representative
- Ms. Sandra Saldaña Incorporated Research Institutions for Seismology

# Tuesday, February 7

#### + Research Partnerships I

Jenkins Science Center, Room 138, 11 am Presiding: Dr. Victor Adedeji Dr. Claudia Rankins - National Science Foundation *"Role of HBCU's"* Dr. Steve Hale, University of New Hampshire

#### + Signing of MOU with SeaSpace - Noon

Presiding: Linda Hayden, CERSER Director Remarks by Chancellor Willie Gilchrist Remarks by Hyong Ossi, SeaSpace President & CEO Remarks by Charles Luther, Past President IEEE-GRSS

#### + Research Partnerships II

Jenkins Science Center, Room 138, 2 pm Presiding: Dr. Kassim Traore & Ms. Patricia Gibbs Dr. Barry Zirkin, Johns Hopkins University Mr. Brad Haas, Department of Education

#### + Remote Sensing Seminar

Dixon-Patterson Hall, Room 229, 5 pm Presiding: Dr. Linda Hayden Mr. Eric Baptiste SeaSpace Director of Civil Space & Special Project *"Remote Sensing Satellites & Future Imaging Platforms"* 

## Wednesday, February 8

| Major African-American Scientists and Inventors |                         |  |  |
|---|-------------------------|--|--|
| Lane Hall, Room 105, 10 ar                      | n                       |  |  |
| Presiding: Dr. Kenneth Jones                    |                         |  |  |
| Dr. Yolanda Anderson                            | Math & Computer Science |  |  |
| Mr. Orestes Gooden                              | Aviation/Technology     |  |  |
| Dr. Gloria Payne                                | Endowed Chair-Biology   |  |  |
| -   |                         |  |  |

# Thursday, February 9

 MST Research Lecture I Lane Hall, Room 105, 10 am Presiding: Dr. Farrah Chandler Mr. Carl Seward
"Becoming a STEM Educator in the 21st Century"

#### + MST Research Lecture II

Jenkins Science Center, Room 138, 2 pm Presiding: Dr. Victor Adedeji Dr. Suely Black, NSU Center for Materials Research "Becoming a Professional during Your Undergraduate Years"

#### MST Science Bowl Competition Jenkins Science Center, Room 138, 3 pm Presiding: Drs. Leon Pringle, Gary Harmon, Gloria Payne

# Friday, February 10

+ Student Poster Session Ridley Student Complex Presiding: Dr. Margaret Young Poster Judging 8:30 - 10 am Poster Public Display 10-11:45 am

#### Secondary School Outreach Ridley Student Complex, 9 am Presiding: Dr. Darnell Johnson

# Department Displays

Demonstrations by:

- Virginia Air and Space Center
- Center for the Remote Sensing of Ice Sheets
- Upward Bound Program
- Aviation Science
- Port Discover

#### + Distinguished Lecture

Burnim Fine Arts Center, 12 Noon CMSGT Grant Williams, Original Tuskegee Airman Presiding: Dr. Ali Khan

## DEPARTMENTS/CHAIRPERSONS

| Biology                          | Dr. Jeffrey Rousch  |  |
|----------------------------------|---------------------|--|
| Chemistry, Geology and Physics   | Dr. Ephraim Gwebu   |  |
| Technology                       | Dr. Kuldeep Rawat   | (252) 335-3846, ksrawat@mail.ecsu.edu    |
| Mathematics and Computer Science | Dr. Farrah Chandler | (252) 335-3544, fjchandler@mail.ecsu.edu |
| Pharmacy and Health Professions  | Dr. Kassim Traore   |  |

Briana Ferebee, SR, BIO Two New Species of Nematodes from Lake Phelps, North Carolina

**Christopher Fightmaster, JR, BIO** *Microbial Diversity in the Water an Sediment Environment of Lake Phelps* 

#### Benjamin Graham, JR, BIO

Genetic Diversity of Northeastern North Carolina Submerged Aquatic Vegetation

#### Vongvilay McLees, GRAD, BIO

A Survey of Entomopathogenic Nematodes (EPN) in Southeastern Virginian and Northeastern North Carolina

**Budour Mohammad, JR, BIO** Bacteria: A Key Resource to Free-Living Nematode Success

Juan Wilkins, JR, BIO Human Papilloma Viral Gene Expression Is Regulated by Modification of Splicing During Cell Differentiation

**Danny Alston, SR, CHEM** Improving Crystal Quality for a Protein from "Staphylococcus aureus"

**Daphnie Brown, SR, CHEM** Effect of Negative Coping Skills on the Impairment of Cortisol Regulation in KwaZulu-Natal, South Africa

Jasmine Dover, JR, CHEM Cortisol Dysregulation Effects Fasting Insulin

**Ryan Lawrence, JR, CHEM** Validation of the 2003 Antartic Grounding Line through the Use of ENVI

**Brittany Rice, SR, CHEM** Detrimental Effects of Up-Conversion in Reasonantly Pumped Er3+ Doped in KPb2Cl5

Laijia Robinson, JR, CHEM Design, Synthesis and Biological Evaluation of Chalcone Derivates as Potential Agents to Treat Breast Cancer

#### Arkeen Simmons, JR, CHEM

Selective Modulation of Striatopallidal Gs Signaling Induces Histone H3 Phosphorylation

Autumn Luke, Soph, CS Analyzing the Efficiency and Scalability of MapReduce WordCount using Hadoop and Twister

Joyce Bevins, SR, CS Analyzing Map Reduce Frameworks Hadoop and Twister

**Glenn Koch, JR, CS** Hybrid Cloud Security: Replication and Direction of Sensitive Data Blocks

**Crystal Yelverton, JR, GEO** *Is Climate Change Affecting Tropical Cyclone Activity?* 

Taneshia Moore, SR, IND TECH Virtualization Technologies and Its Applications in Green Data Centers Karen Byrd, JR, MATH

Using the SMARTboard to Engage Students

Justin Deloatch, GRAD, MATH Using Open Source Software to Process LandSat Imagery

**Robyn Evans, SR, MATH** A Comparison of Job Duration Utilizing High Performance Computing on a Distinguished Grid

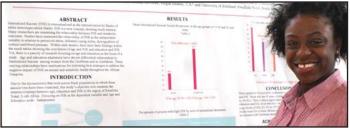
Michael Jefferson, GRAD, MATH Development of a 3D Model for the Assessment of Vulnerability Due to Sea Level Rise on the Historic Strawberry Bank

**Terrence Trapp, License, MATH** Strategies for Teaching Word Problems in Mathematics

Leah Twine, SR, MATH Effectiveness of Manipulatives vs. Lecture when Teaching

**Dwayne Brooks, SR, MATH** *The SVD Method and Its Application to Accelerator Physics* 

Husni Agri, SR, TECH Mobile Robots Applications



#### Special Guest from West Virginia State University Dr. R. Charles Byers

Provost and Vice President of Academic Affairs/PI-NSF HBCU-UP Planning Grant

Dr. Kathy Harper

Dean of the College of Natural Sciences and Math; Professor of Biology

#### Mr. Gary W. Adams, Director of Sponsored Programs Dr. Micheal Fultz

Assistant Professor of Chemistry/Project Director-NSF HBCU-UP Planning Grant

**Dr. Gerald Hankins** Associate Professor of Biology

**Dr. Xiaohong Zhang** Associate Professor of Math and Computer Science

**Dr. Sean Collins** Assistant Professor of Biology

**Classroom Visitors** 

**Ms. Darryl Monteau** Center for Remote Sensing of Ice Sheets (CReSIS)

**Dr. Thomas Windham** 2000 Presidential Awardee for Math, Engineering, and Science Mentoring

#### Ms. Sandra Saldaña

Incorporated Research Institute for Seismology (IRIS)

CReSIS - NSF FY 2005-108CM1, Dr. Linda Hayden, Associate Director LSAMPS - #GA10652-128694, Dr. Ali Kahn, Program Coordinator ECSU Noyce Scholars Program - NSF #1035454, Dr. Farrah Chandler, Principal Investigator Upward Bound Program CFDA NUMBER: 84.047A U.S. Department of Education Watershed Watch - NSF STEM Project Grant # H98230-06-1-0173, Dr. Barry Rock, Principal Investigator HBCU UPs - NSF Award # 1137571, Dr. Ali Khan, Principal Investigator