



# **Research Alliance for Minorities 2003 Program Overview**

**Debbie McCoy  
Program Coordinator**

**Computer Science and Mathematics  
All Staff Meeting  
April 30, 2003**

<http://www.csm.ornl.gov/Internships/>

“The Research Alliance for Minorities (RAM) Program is based on the belief that national laboratories and universities, working hand in hand, offer the best opportunity to make a real impact on the quality of a diverse workforce.”

**Program sponsored by the Mathematical, Information and Computational Sciences (MICS) Division of the Office of Advanced Scientific Computing Research, U.S. Department of Energy**

# Goals

## Short Term

- Increase number of underrepresented minorities (African American, Hispanic American, Native American and women) who pursue degrees in science, mathematics, engineering, and technology

## Long Term

- Increase the number of underrepresented individuals with advanced degrees in science, mathematics, and engineering in the workforce

<http://www.csm.ornl.gov/Internships/RAM>

# Integrated in Lab Agenda

Strategic Objective: Excellence in Science and Technology

## Lab Initiative: **University Partnerships**

- Increase collaboration between university faculty and ORNL research staff
- Deliver outstanding science

Strategic Objective: Excellence in Community Service

## Lab Initiative: **Science and Mathematics Education**

- Increase educational experience and expertise
- Deliver outstanding community service

[http://home.ornl.gov/offices/strategic\\_planning/stratplan/labagenda/lab\\_agenda.htm](http://home.ornl.gov/offices/strategic_planning/stratplan/labagenda/lab_agenda.htm)

# Integrated in Lab Agenda

## Lab Initiative: Valuing Human Capital

" ORNL will be regarded as an employer of choice in the region and in the research community where people can make a difference.

We are committed to attracting, retaining, and motivating employees with the skills and talents necessary to enable the Laboratory to set the benchmark for "Excellence in Science and Technology."

# Lab Initiative: Valuing Human Capital

**We are committed to the following actions:**

Provide competitive salaries, benefits, and reward systems

Attract, retain, and motivate a diverse work force with strategic skills to enable mission execution

Provide enhanced opportunities for employee growth and development

Create and administer progressive work-life programs that meet work force needs

# RAM Summer Internship Requirements

- Research proposal / abstract
- Two faculty recommendations
- Minimum 2.7 GPA
- Mentor and faculty advisor collaboration
- Weekly seminars and special workshops
  - <http://www.csm.ornl.gov/Internships/calendar.pdf>
  - <http://www.csm.ornl.gov/Internships/workshops2002.html>
- Web page
- Project abstract
- Project poster
- Oral presentation (PowerPoint)
- Research paper
  - **Technical review**
  - **Document clearance**

# Internship completion requirements

- **Commitment**

- Daily journal
- 8:00 a.m. - 4:30 p.m.
- 30 minutes lunch
- Appropriate dress
- Seminar series
- Workshops
- Research highlight



- **Create web page**

- Seminar: 2nd week - post name, building, room, phone, mentor, research project
- Link to mentor/division research website
- Optional: Link to university website

# Internship completion requirements

- **Create PowerPoint presentation of research project**
  - Practice oral presentation using laptop/projector
  - Link to web page
- **Write summary of research results**
  - Document clearance
  - Document publication
  - Post / link to web page
- **Create poster of research project results**
  - Hard copy for display / oral presentation
  - Post / link to web page

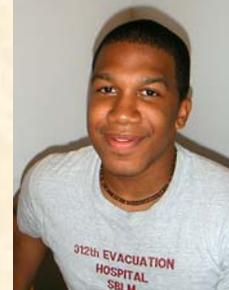
# Activities and events

- Student calendar events
  - 8:00 a.m. American Museum of Science and Energy
    - All student picnic: June 12
    - Four other all student events: Resume writing, money management, meet the managers, lunch with Lab Director, etc.
- CSM tours
  - Visualization research facility (CAVE)
  - Center for Computational Sciences
  - Cooperating robots
  - Other tours
    - American Museum of Science and Energy
    - Research Reactors
    - SNS construction site
- **August 15 - Recognition/Closing Banquet \*\*\*\***
  - Mentors
  - Parents
  - Faculty
  - DOE staff

# 2002 Interns

(<http://www.csm.ornl.gov/Internships/students2002.html>)

- Tosin Adeyeye: Fisk University
- William Burke: CUNY-York College
- Lori Collins: CUNY - York College
- Amara Diggs: CUNY - York College
- Dene Farrell: SUNY-Binghamton
- Talisha Haywood: Wofford College
- Ryan Hurd: University of Notre Dame
- Jason McKay: Morehouse College
- Ja'Nera Mitchom: Fisk University
- Timothy Salter: Alabama A&M University
- Valerie Spencer: Alabama A&M University



# Student research projects

<http://www.csm.ornl.gov/Internships/students2002.html>



Talisha Haywood  
Junior  
Wofford College  
Major:  
Physics - with an emphasis in  
Computational Science

Faculty Advisor:  
Dr. Angela Shiflet

Program:  
Research Alliance for Minorities

Email: haywoodtm@ornl.gov  
Home: haywoodtalisha@hotmail.com

Research Area:  
Computational Mathematics

This work will develop a parallel implementation of a three-dimensional Symmetric-Galerkin boundary integral method. The techniques developed should apply to any boundary integral formulation, and thus the Laplace equation will be examined first. Both direct and iterative solvers for the linear system will be considered. Two potentially significant applications of this work are (a) the modeling of electrodeposition processes of interest to Y-12; and (b) the modeling of the electrospray process, of interest to the Analytical Chemistry Division at ORNL.

Research Mentor:  
Len Gray, Ph.D.  
Computational Mathematics  
Computer Science and Mathematics Division  
Oak Ridge National Laboratory  
(865) 574-8189  
(865) 574-0680 fax  
graylj1@ornl.gov



William Burke  
Junior  
City University of New York -  
York College  
Major:  
Information Systems Management

Faculty Advisor:  
Dr. Miguelangelo Salcedo

Program:  
Research Alliance for Minorities

Email: burkewc@ornl.gov  
Home: wburke999@msn.com

Research Area:  
High Performance Cluster Computing

The research involves learning cluster-computing administration under the guidance of an experienced team of cluster researchers. A variety of programming environments and technology currently in use and under development in distributed high performance computing will be analyzed.

Research Mentor:  
Stephen Scott, Ph.D.  
Network and Cluster Computing  
Computer Science and Mathematics Division  
Oak Ridge National Laboratory  
(865) 574-3144  
(865) 574-0680 fax  
Email: scottsl@ornl.gov



Ja'Nera Mitchom  
Senior  
Fisk University  
Major:  
Mathematics and Computer Science

Faculty Advisor:  
Dr. Stephen Egarievwe

Program:  
Research Alliance for Minorities

Email: mitchomjn@ornl.gov  
Home: jmitchom@hotmail.com

Research Area:  
Computational Biology

The research involves developing computational techniques to discover how genes are regulated: e.g., what causes genes to make one of the many thousands of proteins required for life. The approach is to find DNA binding sites for proteins, known as transcription factors, that influence the expression of genes by comparing corresponding DNA sequences in multiple organisms.

Research Mentor:  
Mike Leuze, Ph.D.  
Computational Biology  
Computer Science and Mathematics  
Oak Ridge National Laboratory  
(865) 574-3127  
(865) 574-0680 fax  
leuzemr@ornl.gov

# Deliver excellent science and service

## Positive experience

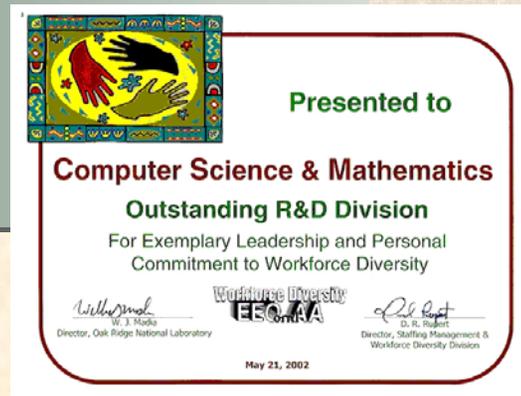
" I had only read about supercomputers before coming to ORNL. I never dreamed that I would get to stand beside, touch, and to actually use one!"

". . . here at the Oak Ridge National Laboratory, students get to collaborate with scientists who have made history."

## Positive feedback

". . . upon returning to . . . University, after a summer in your program, . . . was a different student, enthusiastic and energized . . .

## Positive recognition



Office of Science certificate signed by Ray Orbach

CSM recognized for largest number and diversity of students in 2002

# University partnerships critical to achieving our scientific goals

- Build Joint Institute for Computational Sciences
- Expand Research Alliance for Minorities
- Develop new initiatives/capabilities
- Hire scientists and engineers jointly
- Involve more students and postdocs in SciDAC



- Computational Sciences Initiative:**
- Collaborative program between UT and ORNL to expand computational sciences
  - UT invests \$1.3M annually

# Partnerships are key to our success

## World class

- Resources
- Facilities
- Leadership



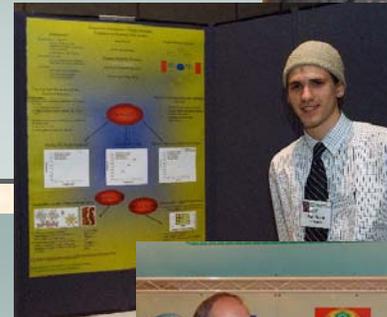
## University partnerships

- Joint Institute for Computational Sciences
- Computational Sciences Initiative
- HBCUs and MEIs
- Research Alliance for Minorities



## Opportunities

- DOE Nanoscale Science Research Centers Workshop ([http://www.ornl.gov/doe\\_nsrc\\_workshop/](http://www.ornl.gov/doe_nsrc_workshop/))
- SuperComputingXX



# Making it happen

**Support from Office of Science**

Increased funding

**Support from Leadership Team**



Day of Science  
2002



**Support from Division Directors**

**Support from Group Leaders**



**Support from each of us  
as individuals**

**Identify and mentor our future staff**



OAK RIDGE NATIONAL LABORATORY  
U. S. DEPARTMENT OF ENERGY



# Do a career in science

Presented by

**Lee L. Riedinger**

Deputy Director for Science and Technology  
Oak Ridge National Laboratory

for the RAM Banquet

August 16, 2001

OAK RIDGE NATIONAL LABORATORY  
U. S. DEPARTMENT OF ENERGY



# Highlight of the year



**Research Alliance for Minorities**

**RECOGNITION BANQUET**  
August 15, 2002  
*United Church Chapel on the Hill*

<p><b>2002 RAM Summer Interns</b></p> <p>Oluwatomisin (Tosin) Adeyeye – Fisk University William Burke – York College - CUNY Lori Collins – York College -CUNY Amara Diggs – York College - CUNY Dene Farrell – SUNY Binghamton Talisha Haywood – Wofford College Ryan Hurd – University of Notre Dame</p> <p>Jason McKay – Morehouse College Ja’Nera Mitchom – Fisk University Timothy Salter – Alabama A&amp;M University Valerie Spencer – Alabama A&amp;M University</p>	<p><b>Research Mentors</b></p> <p>Glenn Allgood – Computational Sciences &amp; Engineering Stephen Scott , Thomas Naughton, and John Mugler Computer Science and Mathematics CUNY Students Jack Wells – Computer Science &amp; Mathematics Len Gray – Computer Science &amp; Mathematics John Jordan – Creative Media Panos Datskos – Engineering Science &amp; Technology Andrey Gorin – Computer Sciences &amp; Mathematics Mike Leuze – Computer Science &amp; Mathematics Srdan Simunovic – Computer Science &amp; Mathematics Jim Kohl – Computer Science &amp; Mathematics</p>
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**Program**

<p>5:45 p.m. Poster Session Hostesses Master of Ceremony 6:00 p.m. Invocation Buffet Dinner 6:30 p.m. Welcome 6:40 p.m. Recognition of Sponsor Dr. Sam Barish 6:45 p.m. Dr. Sam Barish 6:55 p.m. Introduction of Speaker Keynote Address 7:15 p.m. Recognition of RAM Interns &amp; Mentors 7:30 p.m. Introduction of Dr. Orbach Challenge 7:45 p.m. Farewell</p>	<p>Talisha Haywood and Amara Diggs Ja’Nera Mitchom Timothy Salter Jason McKay Lori Collins William Burke Dr. Lee Riedinger Deputy for Science and Technology Debbie McCoy Valerie Spencer Dr. Raymond Orbach Director, Office of Science, DOE Tosin Adeyeye "His Eye is on the Sparrow"</p>
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[http://www.csm.ornl.gov/Internships/banquet\\_photos/index.html](http://www.csm.ornl.gov/Internships/banquet_photos/index.html)

**OAK RIDGE NATIONAL LABORATORY**  
**U. S. DEPARTMENT OF ENERGY**



# 2003 summer program under way

- Downselection from ~ 40 applicants
- Assignments in progress
- Arrival June 2
  - identify work space before and after move
  - have equipment set up
  - plan to have lunch with your student(s)
  - participate in p.m. RAM program orientation
  - make GET a priority
- **Faculty / mentor workshop: May 20, 2003**
  - better understanding of what we do
  - better understanding of what students need
  - establish continuing collaborative projects

(<http://www.csm.ornl.gov/workshops/RAMSpring03/index.html>)

# Questions?

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dco@ornl.gov**