

Morehouse College and Oak Ridge National Laboratory Partner for High-Performance Computing Course



Mentor-Protégé partners **Morehouse College** and **Oak Ridge National Laboratory (ORNL)** in Oak Ridge, Tennessee, are embarking on an exciting new science education venture - a first for an HBCU institution. Dr. Amos Johnson from Morehouse and Dr. Brian Worley and Robert Whitten from ORNL will teach a course in **High Performance Scientific Computing** for the Spring 2009 semester. Students from Knoxville College in Knoxville, Tennessee will also participate.

As the Department of Energy's largest science and energy laboratory, ORNL operates the world's most powerful open scientific computing facility. The facility features Jaguar XT5, the fastest open science computer in the world, capable of 1.64 "petaflops," or quadrillion mathematical calculations per second.

This will be a remote video-based course taught from ORNL that allows senior-level students the opportunity to experience computational science and explore the intricacies of high-performance computing. Students will also be invited to make two field trips to ORNL during the semester, and will be encouraged to apply for internships with DOE and DOE laboratories, including ORNL.

The partnership will benefit both organizations by:

- Fostering ORNL's relationship with a prestigious university.
- Enabling Morehouse to offer curricula to students in high performance computing.
- Developing internship opportunities.
- Serving as a model for future educational programs.
- Developing collaborative research projects as a consequence of institutional exchanges.
- Increasing underrepresented groups' access to supercomputing skill sets.

For more information, contact:

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CSC 450: High-Performance Scientific Computing

Spring 2009



Display at Exploratory Visualization Environment for Research in Science and Technology at ORNL



Jaguar XT5, the world's fastest computer for science



Bobby Whitten gives a presentation on high-performance computing

Sign up Today!
ajohnson@morehouse.edu

The Computer Science Department, in conjunction with **Oak Ridge National Laboratory (ORNL)**, in Oak Ridge, Tennessee, will teach CSC 450 next semester. ORNL is the Department of Energy's largest science and energy laboratory, operating the world's most powerful open scientific computing facility. The facility features Jaguar XT5, the fastest open science computer in the world, capable of 1.64 "petaflops," or quadrillion mathematical calculations per second.

This collaborative course adds another element to the ongoing mentor-protégé relationship between Morehouse and ORNL.

Course Description:

Students will study high performance machines used in implementing scientific and engineering problem solutions. Students will be introduced to:

- High-Performance Computing
- Unix
- Programming Basics
- Parallel Programming
- MPI (Message Passing Interface)/ Open MP
- Model Design
- Parallel I/O
- Data Visualization
- Supercomputing Pragmatics
 - Job Scheduling
 - Job Execution
- Internship Opportunities at ORNL

Course Highlights:

- Class will be taught onsite at Morehouse from ORNL.
- On three occasions, students will visit the ORNL High Performance Computing Center and perform applications research in computational and applied physical sciences.

Course Time: Tuesday/Thursday 3:50 – 5:05pm

Instructors:

- Robert Whitten, MS, Center for Computational Sciences, ORNL
- Brian Worley, Ph.D., Computational Sciences and Engineering Division Director, ORNL
- Amos Johnson, Ph.D., Morehouse College

Students interested in this course should enroll online and consult with **Dr. Johnson** and your faculty advisor.

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