UAB Schools of Education, Medicine, Natural Science and Mathematics, and Public Health begin partnership with CORD and name J. Michael Wyss, Ph.D as Director.

In an effort to enhance UAB’s threefold mission of teaching, research and service to the community, the Schools of Education, Medicine, Natural Science and Mathematics, and Public Health have joined forces with the Center for Community OutReach Development (CORD) in a partnership that will benefit all.

One of the partnership’s first assignments was to find a new Director for CORD. The selection of Dr. Michael Wyss, a respected UAB researcher and administrator, will enhance CORD’s outreach efforts tremendously. Wyss received his bachelor’s degree in psychology from Concordia College, Fort Wayne, Indiana and his doctoral degree in psychobiology from Washington University in St. Louis, Missouri. He joined UAB as an assistant professor in 1979 rising through the ranks to become professor of cell biology in 1988, chairman of the Graduate Neuroscience Training Program and Associate Director of the Alzheimer’s Disease Research Center. Dr. Wyss’s appointment became effective, November 1, 2004.

Teens & Teachers Spend the Summer in CORD Labs

Long before the public school year is over, textbooks are turned in, students dismissed and the last classroom door is closed for the summer, CORD personnel are hard at work designing and coordinating professional development courses and summer programs for local Birmingham school children and their teachers.

This past summer, CORD hosted more than 150 students and teachers who participated in programs that ranged in duration from one to eight weeks.

CORD’s summer program goals are simple: to interest and better prepare children to pursue careers in science and healthcare; give students an idea of what it is like to do “real” science; teach students important science-related life skills, such as critical thinking; and provide teacher training in laboratory skills as well as technology and content areas.
“CORD’s busiest time is summer,” says Dr. Marilyn Niemann, Program Coordinator for the Summer Science Institute (SSI). “Every year, 60 exuberant Birmingham City Schools (BCS) high school students leave their classrooms behind and boldly enter the mysterious world of UAB teaching and research labs to discover what it’s like to be a ‘real’ scientist. The goal is to give the students the highest caliber research experience that a world-class research facility like UAB can offer, so that they will be able to compete successfully with students from any educational system in the country.”

SSI is a multi-level program that begins at the end of a student’s ninth grade year with BioTeach, a six-week, three-day a week introductory lecture and laboratory course in Molecular Biology. Students who successfully complete this course return the next summer for ChemTeach, a lecture and laboratory class in Biochemistry. The third summer, Student Research Internship, is a nine-week, five-day a week advanced lecture and laboratory experience in scientific research for returning ChemTeach students.

According to Dr. Niemann, “Experimentation is the most effective method of teaching science. Doing laboratory work is fun and the main reason most scientists choose science as a career.” CORD’s Summer Science Institute teaches students how scientific enterprise operates as well as how to apply the scientific method to everyday decision-making so they can develop the life skills required for survival in an ever increasingly complex world.
High School Scholars Program

The High School Scholars Program (HSSP), is a summer program component of the Alabama Health Professions Partnership Initiative (HPPI), funded by the Robert Wood Johnson Foundation with an overall objective to increase the number of minorities in health care.

"High School Scholars Program is our one-week summer initiative that introduces middle and high school students (grades 8-12) to UAB undergraduate programs and the opportunities that the university offers in the field of health related careers," says Mrs. Shirley Ginwright, Program Coordinator. Students tour the campus, spend four hours or more in the Schools of Dentistry, Health Related Professions, Medicine, Nursing, Optometry, and Public Health where they gain experience and become acclimated to "what it takes" to successfully enter and graduate from a health professions program. The students have the opportunity to personally interact with leading health care professionals and get a first-hand introduction to specialized areas of health care. In addition, students become certified in adult cardiac-pulmonary resuscitation (CPR).

Alabama's partnership HPPI consists of The University of Alabama School of Medicine as the lead in the project, the Birmingham City Schools (BCS), the Birmingham Urban League, and UAB Undergraduate. In addition, Alabama HPPI's Task Force consists of representatives from each of the health professions schools at UAB with CORD serving as the managing office. HPPI's national program office is managed through the Association of American Medical Colleges (AAMC).

Dr. Eric Blackwell (in the plaid shirt) and NSF Fellow Anita Saxena (in pink) working with students from the Putnam Middle School after-School Science Club conduct water chemical tests of Lake Alice on the grounds of Camp Kanawahala. The tests were performed for the water quality study conducted by the Aquatic Biology Club.
Research Experience for Teachers and Students

The RET and RES Program

During June and July, eleven Alabama science teachers and five rising senior high school students received support through the NSF GK-12 program grant for a mentored summer research experience on the UAB campus. The teachers (RET) and students (RES) performed research under the direction of eleven research mentors in the departments of Biology, Chemistry, Biochemistry and Molecular Genetics, Pediatrics, Hematology/Oncology, and Cardiovascular Disease. The teachers were selected from a pool of eighty who had received prior research technique training at UAB in the BioTeach program (see pages 6 & 7 for more on BioTeach). The five students, two from the Alabama School of Fine Arts, and one each from Hoover High School, the International Baccalaureate School, and Pleasant Grove High School, were paired with a teacher in a research laboratory and received stipend support from a local private benefactor. They were highly recommended for participation in the program by their high school science teachers based upon their interest in science careers and high level of achievement in their own school science programs.

The RET and RES participants were integrated into the research infrastructure of their assigned laboratories and participated in weekly scientific seminars held for all participants in the BioTeach, Summer Science Institute and Student Research Institute programs. Thus, NSF funds and private benefactor funds were coupled to engage high school students and teachers in research experiences they could take back to their schools. At the conclusion of the summer RET and RES programs, all teachers and students were involved in a poster session that was open to the UAB community to display and discuss their research findings and summer research experiences.
Microbiology Institute

In the summer of 2004, CORD provided teacher training to twelve high school teachers from Birmingham City Schools (BCS) in preparation for teaching the Microbiology Curriculum developed in collaboration between CORD and BCS. Led by CORD member, Mary Williams, Ph.D., and Sandra McKell, a Ramsay High School biology teacher, the eight day Microbiology Institute consisted primarily of hands-on training in the laboratory using the recently expanded Microbiology Lab Manual for the curriculum.

Teachers from Jackson Olin, Ramsay, Parker, Wenonah, Woodlawn, Ensley, Hayes and Huffman high schools gained laboratory experience about microbial culture techniques, microbe isolation and identification, chemical means to control bacterial growth, action of antibiotics, principles of epidemiology, as well as virus replication and transmission. The Microbiology curriculum is a laboratory-based semester-long course supported in BCS schools by CORD with supplies, equipment, scientific expertise and assistance in the classroom.

Participants in the 2004 Microbiology Institute left to right include Andrea Walls, Josephine Washington, Dasi Price, Michael Robinson, Natarcia Wilson, Shani Forbes, Jesse Sims, Sandra McKell, Tamisha Jackson, Mary Williams, Melody Harrington, Clifford Johnson. (Not shown: Jennifer Dickens.)

Project Life

For two weeks in June, eighteen BCS middle school teachers immersed themselves in an intensive field and laboratory course in experimental design, data collection, data analysis, physical science, biology and mathematics activities in order to bring their own classrooms alive with excitement.

The teachers met daily at Parker High School to review science concepts in biology, ecology and chemistry through a series of hands-on activities. They spent one day in the field studying water quality and aquatic organisms at sites in the Cahaba River and at Lake Purdy.

Project Life was developed and is directed by Dr. David Radford, Associate Professor in the School of Education and Science Education Coordinator for CORD.
BioTeach Completes 12th Year

As in the past eleven years, several Alabama high school science teachers chose to spend their summer vacation in a cold laboratory hunched over a microscope rather than lying on the beach or in the warm waters off Alabama’s Gulf Coast. These dedicated professionals, most of them from local high schools, decided to dazzle their students with improved instruction this fall gained from CORD’s BioTeach course in molecular genetics instead of boring them with tales of shark sightings and jelly fish stings.

Twelve years ago, in an effort to help traditionally underserved schools, an intensive, hands-on four-week course in molecular biology for high school science teachers was developed.

“BioTeach is a great opportunity for teachers to experience the excitement of scientific research and to help them translate that experience into meaningful activities for their students,” notes Jeff Engler, Ph.D., BioTeach lecturer and Professor of Biochemistry and Molecular Genetics. “As high school science curricula move toward inquiry-based science education, preparing teachers to convey the excitement of discovery remains an important goal of BioTeach.”

CORD’s BioTeach program also gives its graduates access to cutting-edge equipment in the form of “modules” that they can check out for use with their students. The modules contain state-of-the-art equipment that is generally not available in high school laboratories and each one is fully outfitted with all the instruments, supplies and reagents necessary to perform an experiment in the classroom.

Continued on next page
BioTeach (Continued from page 5)

This past summer, the participants were delighted to attend a variety of wide-ranging lectures on subjects from Bioterrorism, Hypertension, the Genetics of Sickle Cell Disease to Cystic Fibrosis. They were treated to personal recollections about working on the Space Shuttle during a lecture on crystals in space by Dr. Larry Delucas as well as insights into cutting-edge research done by some of UAB’s top scientists.

They all thought the lab experience was “invaluable” and were highly motivated to take their new skills back to their students. “The modules will allow my students to experience hands-on science,” one of the teachers remarked. Another said that the course gave her experience and confidence with new technology that she could translate to her students. They all were inspired by the course and left wishing CORD would institute a BioTeach II, so they could return next year!

(For a complete list of BioTeach lecturers turn to page 8)
CORD Thanks the following UAB faculty researchers and guest for volunteering to lecture during BioTeach 2004.

Ronald Acton, PhD “Medico-Forensic and Parentage Identity Testing”
Department of Microbiology

Alan Antenucci, BA “Bioterrorism”
Center for Community OutReach Development

Dale Benos, PhD “Hypertension”
Department of Physiology and Biophysics

Larry De Lucas, PhD “Crystals in Space”
Center for Biophysical Sciences and Engineering

Jeffrey Engler, PhD “Intro to Cloning & Recombinant Technology” “Gene Therapy”
Department of Biochemistry and Molecular Genetics

Vincent Escuyer, PhD “Tuberculosis”
Southern Research Institute

Lauretta Gerrity, DVM “Research With Animal Models”
Animal Resources Program

Steve Hajduk, PhD “Sleeping Sickness”
Marine Biological Laboratory

Kenda Rigdon, PhD “HIV”
Department of Microbiology

Peter Prevelige, PhD “Molecular Structure and Function”
Department of Microbiology

Julian Rayner, PhD “Malaria: Past Progress, Present Challenges and Hopes for the Future”
Department of Geographic Medicine

Kelly Ross-Davis, MS “AIDS”
Department of Medicine—Infectious Diseases

Harald Sontheimer, PhD “Brain Environment in Health and Disease”
Department of Neurobiology

Eric Sorscher, MD “Cystic Fibrosis”
Department of Medicine

Tim Townes, PhD “Genetics of Sickle Cell Disease”
Department of Biochemistry and Molecular Genetics

Janet Yother, PhD “Overview of Molecular Biology”
Department of Microbiology
CORD Thanks the following for making the 2004 Summer Science Institute so successful!

SEMINAR SPEAKERS

Alan Antenucci  
CORD

Dale Benos, PhD  
Physiology and Biophysics

David Calhoun, MD  
Cardiovascular Disease

Delores Carlito  
Mervyn H. Sterne Library

Sam Carter, DVM  
Animal Resources Program

Winn Chatham, MD  
Immunology/Rheumatology

Champion Deivanayagam, PhD  
Physiological Optics

Larry Delucas, PhD  
Center for Biophysical Sciences & Engineering

Alan Eberhardt, PhD  
Biomedical Engineering

Dale Feldman, PhD  
Biomedical Engineering

Amy Gruszecki, MD  
Graduate Medical Education

Steve Hajduk, PhD  
Marine Biological Laboratory

Bruce Korf, MD  
Genetics

Kelly Ross-Davis, MS  
Infectious Diseases

Anita Saxena  
Chemistry

Victor Skrinska, PhD  
Diagnostic & Therapeutic Science

Gerald Simon, OD  
Optometry

Tim Townes, PhD  
Biochemistry & Molecular Genetics

Lee Vucovich  
Lister Hill Library of the Health Sciences

RESEARCH INTERN MENTOR/SUPERVISORS

Anesthesiology  
Dale Parks, PhD / Nick Khoo

Biochemistry & Molecular Genetics  
Jeff Engler, PhD / Greg Harber

Biology  
Trygve Tollefsbol, PhD / Liang Lu

Cell Biology  
Michael Miller, PhD / Chad Corrigan

Electrical & Computer Engineering  
Gary Grimes, PhD / John Tanik

Geographic Medicine  
Julian Raynor, PhD / Erika Kitson

Materials Science & Engineering  
Mark Koopman / Kipp Carlisle

Medicine  
Charles Elson, MD / Wayne Duck  
Theresa Strong, PhD / Jasmine Gaines

Medicine/Nephrology  
Tino Unlap, PhD / Corey Williams

Pathology  
Candece Gladson, MD / Meera Natarajan

Pediatrics  
Joe Phillips, MD / Arlene Bulger

Pharmacology/Toxicology  
Stephen Barnes, PhD / Kenneth Jones

Psychiatry  
Mathieu Lesort, PhD / Jesse Hunter

Pulmonary Medicine  
Mitchell Olman, MD / Kimberly White

COURSEMASTERS

Alan Antenucci  
BioTeach

Marilyn Niemann, PhD  
ChemTeach

Kathy Rostand, PhD  
ChemTeach

Eric Blackwell, PhD  
Research Intern

Special appreciation to CORD office associate  
Roxanne Adams
Eric Blackwell, PhD, Post Doctoral Fellow (pictured right) will conduct two workshops for the Camp Winnataska Consortium for Teacher Education in Environmental Science during the spring semester 2005. The first is scheduled for March 18 – 20 and is entitled, “How Many Bugs Are There?” The second workshop, “King of the Forest?” will take place from April 29 through May 1.

Shirley Ginwright, (left), attended the annual Health Professions Partnership Initiative national meeting in Scottsdale, Arizona from December 10-12, 2004. The annual meeting is a joint meeting of the HPPI and Summer Medical Education Program (SMEP). The UAB School of Medicine (under the leadership of Dr. William Deal) was awarded both grants that are funded through The Robert Wood Johnson Foundation. Accompanying Mrs. Ginwright were: Dr. Claudia Williams, BCS Curriculum Officer; Mrs. Beverly Kimes, BCS Director of Mathematics; Ms. Cynthia Scott, UAB Director of Retention Programs; CORD HPPI Student Interns, Erica Jones and Jarrod Lockhart. Mrs. Ginwright is CORD’s Program Director and Coordinator of UAB’s Health Professions Partnership Initiative (HPPI).

Marilyn Niemann, PhD, Program Coordinator (right), co-authored an article with former CORD staff member, Michael Miller, PhD and retired Parker High School teacher, Thelma Davis, that was featured in the fall issue of Cell Biology. The article describes the CORD Summer Science Institute Program (see page 2 of this newsletter for more on this program), which Dr. Niemann helped to establish at UAB. The entire article can be accessed on the internet at www.cellbioed.org.
David Radford, PhD, Associate Professor in the School of Education and Science Education Coordinator for CORD, successfully secured a $4.4 million grant from the National Science Foundation (NSF) to implement a 5-year multi-center study to examine mentoring and support for beginning science and mathematics teachers in urban schools. The study will determine the best ways to retain new teachers as well as improve math and science instruction.

"Beginning teachers have a difficult job," Radford recently remarked in a UAB Reporter interview. "What we’re trying to do," he said, "is provide support for these teachers so they’ll stay in the classroom and will be effective in teaching right away."

The NSF study will be conducted at three sites—UAB, the University of Houston and the University of Memphis. It will involve 180 novice teachers and 67,000 students in urban middle and high schools. Radford will be the principal investigator for the UAB study.

Ryan Reardon, Program Coordinator (left), paid good money for the "privilege" of running in the 108th Boston Marathon on April 17th, 2004. Temperatures in the mid 80s made for brutal marathon conditions, but Reardon, along with his training partners Gerry McGwin and Ellis Porch, made the trek from Hopkinton, MA, to Copley Square in fine form.

When the dust settled -- and the last of the runners were released from local hospitals -- Reardon placed 555 out of 16,000 with a finishing time of 3 hours and 7 minutes. McGwin finished in 3 hours flat and Porch finished in 3:16.

The trio continues to train together and all three ran sub-3:00 hour marathons in fall 2004. Look for Reardon and company at The Mercedes Marathon in Birmingham on February 13, 2005.

Reardon is combining his passion for exercise with his programs at CORD. He is currently developing an exercise physiology camp for middle school students called "The Human Machine."

Mary Williams, PhD, (right) Genetics and Microbiology Curriculum Coordinator, made a presentation, "Graduate Fellows and the Community: Mutually Benefiting Partners in Science Education Outreach," at the Annual Meeting of the American Society for Biochemistry and Molecular Biology in Boston, on June 13, 2004. The presentation was part of a symposium, "Outreach Activities in the Education of Undergraduate, Graduate and Post-docs."

One of the key strengths of CORD's science education outreach programs that impact thousands of local public school students each year, is that they are facilitated by UAB graduate students. CORD outreach facilitators discover that when sharing their scientific expertise and enthusiasm with high school students and teachers, they benefit by gaining teaching experience and improving interpersonal and communication skills. The facilitators help make a valuable connection between University research and local K-12 education.
Special Points of Interest in This Issue:

**CORD Student Programs**
Learn all about CORD’s programs for Local area High School and Middle School students.
Pages 1 - 4

**Teacher Professional Development Programs**
Find out what CORD is doing to prepare local teachers to meet the challenges of today’s sophisticated science courses.
Pages 4 - 7

**UAB Faculty Volunteers**
See who is helping CORD achieve its goals.
Pages 8 & 9

**Staff News**
Keep up with the latest staff projects and interests.
Pages 10 & 11

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**CORD Calendar and Events**

**CORD Labs at the McWane Center**

**January**
GENius: “DNA: A Person’s Ultimate Fingerprint”
Explore! Lab: “X-Philes: Life in Extreme Environments”
Public Labs Jan. 8 & 22

**February**
GENius: “Sickle Cell: Tracking an Inherited Trait”
Explore! Lab: “The Big Picture: Viewing Earth from Space”

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**Contact Information**
www.uab.edu/cord
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Eric Blackwell, PhD (Post Doctoral Fellow)
Marilyn Niemitz, PhD (Program Coordinator)
David Radford, PhD (Science Education)
Ryan Reardon (GENius & BioTeach Program Coordinator)
Mary Williams, PhD (Genetics & Microbiology Curriculum Coordinator)
Roxanne Adams (Office Associate)
Kit Hodge (Office Associate & Editor, CORD News)

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**CORD Programs**

**January**
Birmingham Air Quality Study
Jazzercise® at Washington Elementary School and Center Street Middle School
Science Clubs: “Practical Ph Lab” at Ramsay High School and Parker High School
“Salt Science” at Parker High School
“Mock Science Bowl” at Parker High School and Ramsay High School

**February**
Birmingham Air Quality Study
Jazzercise® at Washington Elementary School and Center Street Middle School
Science Clubs: “Candy Chromatography” at Ramsay High School and Hayes High School