From The Dean

The School of Natural Sciences and Mathematics is pleased to provide you with its inaugural newsletter. We hope that you find this issue of NS&M to be informative as we highlight a few of the many accomplishments and successes that the School, its faculty, and students have achieved during the past year.

Even during my short tenure at UAB, I have come to know and appreciate the wealth of talent and excellence that exists here. Scholarship abounds in all forms! Whether it is in the form of a top scholarly publication in *Phycologia*, a multi-million dollar award to enhance our math program, or research grants to fund interdisciplinary biomaterials research. Discoveries to the transfer of that knowledge to applications that are constantly being developed through numerous partnerships both at UAB and throughout the country. The development of student and academic enrichment programs, such as the 5th Year Masters of Science biology program and the Math Talent Search highlighted in this issue, also remains at the forefront of our educational mission. And, numerous individual awards, including Alabama Professor of the Year, recognize the quality of our faculty and staff.

As you read about the achievements and other noteworthy news, recognize that as our alumni, you are an integral part of our success. We hope that you will continue to proudly proclaim your association with NS&M, and we encourage you to tell prospective students of the value of earning a degree at UAB. Also please keep us informed on your successes as well as other features that you would enjoy reading about in this newsletter.

5th Year Biology Degree Offers Unique Opportunity

In a time when research opportunities for undergraduate students are becoming ever more popular and even more important, the UAB Department of Biology has begun offering a unique opportunity for undergraduate students through the 5th Year Master of Science Program. Sponsored by the UAB Department of Biology and the UAB Graduate School, through this program students can choose to spend one extra year to obtain a MS in Biology, allowing them to receive advanced academic and research training in the life, health or bioengineering sciences.

“This program is truly a unique program in the United States,” says Dr. Stephen Watts, Graduate Program Director in the Department of Biology. This experience is, essentially, an apprenticeship in science.”  

(see page 2)
The 5th Year Program offers a number of advantages to students pursuing careers in the sciences. Faculty in the School of Medicine are encouraging MD students to also complete MS degrees. At UAB or elsewhere, the MS provides an advantage when applying to enter Ph.D. programs. The teaching experience allows students to develop new skills that may aid in career development and there is a genuine need for scholars at UAB and other institutions.

Students also receive mentorship by research faculty during their undergraduate career. Students identify a mentor from faculty in the Schools of Natural Sciences and Mathematics, Medicine, Dentistry, Optometry, Public Health, Health Related Professions, Social and Behavioral Sciences or Engineering. Students produce thesis papers that are then published and presented at a regional, national, or international scientific conference or at UAB Graduate Student Research Day.

“The 5th year Master’s program at UAB is an excellent opportunity for students to gain valuable research experience and a second degree. I have learned so much that I otherwise would never had had the chance to” says Rebecca Wylie, who graduated in May 2004 with a degree in Biology. Other students share Rebecca’s feelings. Tarik Bouakkar, currently doing research on prostate cancer in the pharmacology/toxicology department states “the program will give me the opportunity to look at medicine from the research side and also help me to understand how I can apply what I learn as a biology major.”

The program began in 2002 with three students. There are currently sixteen students, with the first student graduating from the program this year. Retention rates have been impressively high, as the program has not lost one student. The program also has the highest percentage of minority graduate students of any program at UAB. The Department of Biology only sees the program growing, as the unique opportunities provided by the program are sure to attract talent from throughout the country.

For more information on the 5th Year Master of Science Program in Biology visit the program’s web site at www.uab.edu/uabbio/fifthyear.

### Remembering Bob Kauffman

Dr. Robert M. Kauffman, UAB Professor of Mathematics, passed away on Sunday, February 8, 2004. Dr. Kauffman received his BA in Mathematics and Physics at the University of the South in 1963. He then went on to receive his MS and Ph.D. in Mathematics at Louisiana State University in 1965 and 1968, respectively. Dr. Kauffman came to UAB as a Professor in the Department of Mathematics in 1983. He was the Math Graduate Program Director from 1984 to 1991.

Dr. Kauffman’s sister, Swami Sushilananda, has created the Dr. Robert M. Kauffman Memorial Fund in recognition of Dr. Kauffman’s passion for the education of graduate students.

For more information on the Robert M. Kauffman Memorial Fund please contact the UAB Department of Mathematics.

### CALL FOR NOMINATIONS

for the School of Natural Sciences and Mathematics’ first Outstanding Alumni Awards. Three alumni will be honored for their accomplishments in their chosen fields and their continued commitment to NS&M and UAB. The Outstanding Alumni Awards will be presented at the School’s Scholarship and Awards Luncheon on January 25, 2005.

For more information on the luncheon or to nominate outstanding alumni please contact the NS&M Development Office at (205) 934-5148 or visit www.uab.edu/nsm. Nomination deadline is December 1, 2004.
2004 Math Talent Search A Great Success

The Department of Mathematics held its second annual Math Talent Search on Saturday, February 7, 2004. 258 sophomore and junior students from more than 31 high schools from throughout the area came to the UAB campus. While on campus students took a special test of their mathematical skills. The test consisted of questions like “A sheet of paper is 1/32 inches thick. If it is folded in half ten times, what is the resulting thickness?” (Answer at the end of this article)

Before prizes were awarded to individual as well as school winners, students gathered in Volker Hall for a presentation by Professor Robert L. Devaney from Boston University. In his lecture, Dr. Devaney, a recipient of the NSF Directors Award for Distinguished Teaching Scholar, described some of the beautiful images that arise from the “Chaos Game” and showed how the simple steps of this game produce the intricate images known as fractals.

The UAB Math Talent Search is a wonderful partnership between the UAB Department of Mathematics and high school mathematics classes and is helping to advance the study of mathematics among high-school students.

For more information on the UAB Math Talent Search please contact Carolyn A. Wailes at the UAB Department of Mathematics via email at: cwailes@math.uab.edu.

Answer to sample question: 32

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New Arts and Sciences Alumni Chapter

The School of Natural Sciences and Mathematics, together with the School of Arts and Humanities and the School of Social and Behavioral Sciences, has formed a new Arts and Sciences Chapter of the UAB National Alumni Society.

By joining today, you’ll become a part of an organization that is committed to maintaining a mutually beneficial relationship between UAB and its alumni. The program contains one of the most comprehensive benefits packages in the country. Members can receive as much as $400 in discounts and savings each year.

The benefits range from a free alumni visitors parking pass to discounts on tickets for athletic events and life insurance. The revenue gained from this program will allow the organization to continue to provide quality alumni programming. It will also create and fund scholarship programs for outstanding students as well as provide funds and resources to benefit your school.

For more information on this exciting new Arts and Sciences Alumni Chapter, or for details on how to become a member, please contact Mary Balfour Van Zandt at (205) 975-9644. Or, if you prefer, visit us on the web at www.alumni.uab.edu.
[Biology]

• Dr. James McClintock, Dr. Charles Amsler, Dr. Stephen Greer, and Dr. Katrin Iken were selected for the Tyge Christiansen Prize. This award is presented annually by the International Phycological Society for the best paper in the respected journal *Phycologia*.

• The Alabama Academy of Science recognized the academic accomplishments and the leadership skills of Drs. Steve Watts and Anne Cusic by electing them President of the Alabama Academy of Science for the years 2002-2003 and 2003-2004, respectively.

• Ms. Amanda Horton, Advisor in Biology, won the Outstanding Advisor Award-Primary Role Category from the National Academic Advisory Association. She also received the Outstanding Advisor Award presented by the UAB National Alumni Society.

• The Department of Biology hosted their Welcome Back Picnic for Biology majors. Students were provided lunch, as well as information on biological careers and volunteer opportunities.

• Dr. Steve Watts received a 2-year, $230,000 grant from the Mississippi-Alabama Sea Grant Consortium to develop capabilities to farm sea urchins on land for distribution and to develop a research-grade culture system of sea urchins for medical research.

[Chemistry]

• The Department of Chemistry welcomed Dr. David Graves as the new Department Chair on May 1, 2003. Dr. Graves is a native of Birmingham and earned his bachelor’s degree and Ph.D. in Biochemistry from UAB in 1974 and 1979, respectively. Dr. Graves was a professor of chemistry and biochemistry, director of the forensic chemistry program and Distinguished Faculty Fellow of Liberal Arts at the University of Mississippi. Graves' research interests include biophysical studies of nucleic acids and design and development of compounds that target DNA and act as anti-cancer agents.

• The Department of Chemistry continued its support of undergraduate research through participation in the National Science Foundation’s Research Experience for Undergraduates (REU) program. Tracy Hamilton, Ph.D. secured funding from the NSF for this program and continues to bring in top students from around the country to participate in research during the 10-week summer term.

• The Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education (CASE) named Joe March, Ph.D. the 2003 State of Alabama Professor of the Year. March was honored along with 42 other state and national winners at a luncheon at the National press Club in Washington, D.C.

• Christina Bogford-Summerlin, Ph.D., was named the UAB Outstanding Advisor for 2003 and the recipient of the 2003 National Academic Advising Award.

• Dr. Jacqueline Nikles received the 2004 Presidential Award for Excellence in Teaching for NS&M.
[Computer and Information Sciences]

- The School of Natural Sciences and Mathematics welcomed Dr. Anthony Skjellum as Professor and Department Chair of Computer and Information Sciences. Before coming to UAB, Dr. Skjellum was Associate Professor in the Department of Computer Science at Mississippi State University. Dr. Skjellum holds BS, MS and Ph.D. degrees from the California Institute of Technology in Physics, Chemical Engineering, and Chemical Engineering/Computer Science, respectively.

- The Department of Computer and Information Sciences celebrates the launch of their new website, www.cis.uab.edu. The website includes interactive data for students as well as information about the department and its research and teaching activities.

- CIS graduate student Yin Liu won the award for best paper in the Engineering and Computer Science section of the Alabama Academy of Sciences for her paper titled “Scalable linear algebra library and benchmark.”

- The department welcomed Dr. Chenqui Zhang as a new Assistant Professor. Dr. Zhang received her Ph.D. from Florida International University. Her research interests include distributed multimedia database systems and data mining.

[Mathematics]

- The UAB Department of Mathematics received a 5-year grant for $2.3 million from the National Science Foundation program “Enhancing the Mathematical Sciences Workforce in the 21st Century.” This prestigious award will support a three-pronged program at the undergraduate and graduate level. At the undergraduate level the grant will support the Math Fast Track program, which positions talented young students to move directly from high school to obtaining a B.S. and M.S. in mathematics in four to five years. The award will provide support for graduate fellowships at $22,500 per year and undergraduate scholarships up to $9,000 per year. The department is actively recruiting talented students and, in cooperation with the successful UAB project Alabama Alliance for Minority Participation, special efforts will be made to recruit members of underrepresented groups in the sciences. Interested students are encouraged to visit the department web site at www.math.uab.edu for more information.

- In March 2004 the Department of Mathematics hosted the Spring Topology and Dynamics Conference, an annual event hosted by various institutions. The conference attracted over 200 participants. The department is also planning to host the next installment of the “UAB International Conference on Differential Equations and Mathematical Physics” in March of 2005.

- Dr. Jeanne Hutchison received the UAB Outstanding Faculty Advisor Award for 2004.

- The Department of Mathematics continues its tradition of competing for NSF research grants. The department currently ranks 2nd in the Southeast and 27th nationally in the number of NSF research grants per number of faculty.
[Physics]

- Physics Professor and University Scholar Yogesh K. Vohra, Ph.D. has received a four-year, $1.35 million grant from the National Science Foundation (NSF) to fund the UAB Nanoscale Interdisciplinary Research Team which will develop the next generation of nanostructured biomaterials for hip and knee replacement joints.

- Thomas J. Wdowiak, Ph.D. continues as a member of the science mission operations team for the highly successful “Spirit” and “Opportunity” NASA Mars Exploration Rover missions.

- The National Institutes of Health (NIH) has awarded a four year $1,302,300 grant to an interdisciplinary team from UAB to develop new, more functional TMJ implants that will promote integration with surrounding bone and tissue. UAB Physics Professor Yogesh Vohra, Ph.D. will serve as the grant’s principal investigator.

- The Department of Physics has partnered with the University of Alabama (UA) Department of Physics to begin sharing both instruction and delivery to students on both campuses of advanced physics classes using digital video via the Internet.

- Tom Nordlund, Ph.D., organized the first “Career and Research Workshop for High School Students in Physics and Multidisciplinary Sciences” which was held June 7-18, 2004. The workshop gave students an experience in the life and work of researchers and university students, to learn what it takes to achieve success in science and technology, to experience the design and performance of problem-solving research, to see the operation of sophisticated instrumentation, and to discuss science and careers with scientists of all levels, undergraduate to distinguished professors.

Contributors List

The faculty, staff and students of the UAB School of Natural Sciences and Mathematics gratefully acknowledges the following individuals for their gracious financial support during the 2003-2004 year. For information on how to contribute please contact the Development Director for the School of Natural Sciences and Mathematics at (205) 934-5148.

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The donations listed were received during the period of October 1, 2003 to August 1, 2004. Please forgive any errors or omissions, but please let us know so that we may correct or records. For corrections, please contact the Dean’s Office at (205) 934-5102. For information on supporting the School of Natural Sciences and Mathematics please contact the Development Director at (205) 934-5148.
Alumni Notes

Tell us what’s going on with you. Visit the UAB Online Alumni Community at www.uab.edu

- Dr. Robert C. Hayes (BS, Biology, 1984) is an Optometrist practicing in Chelsea, Alabama.

- Sonja Pettus (BS, Computer Science, 1986) graduated from the University of Alabama School of Medicine in May 2004. Dr. Pettus began an Internal Medicine Residency at Carraway Methodist Medical Center in Birmingham and plans a career as a primary care physician. She resides in Birmingham with her husband, Vince, and their three children—Shannon, Jonathan and Traci.

- Following a transfer to the Seattle, Washington office, Terry Crotwell (BS, Environmental Science, 1996) was recently promoted to Senior Staff Geologist with ENSR International.

- Dr. Stephen Brossette (Ph.D., Computer Science 1998) recently received the Outstanding Young Alumni Award from the UAB National Alumni Society.

- Dr. James M. Malaugh (Ph.D., Mathematics, 2003) lives in New Jersey where he is a modeler for Inductis, Inc.

- Dr. Thomas Stasicha (BS, Biology, 1997) graduated from University of Alabama School of Medicine in May 2003. Dr. Stasicha is currently in his second year of Internal Medicine Residency at Baylor College of Medicine-Houston, Texas and was married to Devin Crago on November 9, 2003.

- Ray Haberle (BS, Computer Science, 1986) currently resides in Atlanta, Georgia where he is a Programmer Analyst/Consultant for IBM.

- Dr. Jianbo Li (Ph.D., Chemistry, 1994) is a Technical Specialist for Dynegy in Houston, Texas, where he lives with his wife, Linda.

- Wendy Walls Cornelius (BS, Biology, 1999) is a Surgical Physician’s Assistant with Cardio-Thoracic Surgeons, P.C. in Birmingham.