

SUU Department of Physical Science Reporter

President Benson Secures Major Gift For New Science Center

Donor to Contribute \$3 million to Project.

Dr. Michael T. Benson, incoming President of Southern Utah University, has secured a major gift from a former SUU student.

The \$3-million gift from an alumnus of the institution will go toward the construction of a new science building and the establishment of a new, state-of-the-art Science Center complex. A native of Cedar City, the donor, who wishes to remain anonymous for the time being, practically grew up on the campus. "This man's story is one of the most remarkable stories of success to ever come out of southern Utah," states President Benson. "Their family home was literally in the shadow of the campus. The children were a product of the Cedar school system and the BAC, and this distinguished individual, who is a leader in his chosen field, is truly one of SUU's most eminent alumni. This is one of Cedar's very own and it is only fitting that he be tied to our campus forever in such a generous way," Benson declares.



The donor submits: "My family and I are very pleased to make this commitment to my alma mater, given our long and deep ties to Cedar and to the campus. We're also very excited about the future of SUU and its outstanding science programs."

The proposed 50,000-square foot new building will adjoin the existing Science building and additional funding to complete the project will be requested in the next legislative session. "This is a great day for Southern Utah University and a truly significant day for the donor family," Benson states.

Note from: Department Head

Greetings Physical Science Students and Alumni

These are exciting times, and the Department is hopping with activity. We have hired three additional chemistry faculty members in the last two years. Our Masters of Science in Forensic Science program started this fall. Our long desired goal of American Chemical Society undergraduate degree sanction is in sight. We are in the process of acquiring five major pieces of analytical equipment. One of these, a scanning electron microscope with energy dispersive X-ray analytical capability, will provide an important solid-state analytical tool for our geology faculty and students. All of these accomplishments have come through years of hard work and the success of our faculty and alumni. Thank you for your initial faith in, and continued support of, the Department.

STUDENT SUCCESS-EXAMPLES

Joseph Carrol IV(→) has four Doctor of Osteopathic Medicine School offers. He was one of 15 nationwide to be accepted as a out-of-state student to the prestigious Oklahoma State Program. (Picture to right)



Ryan DeLuca, Chemistry major, has been accepted to several graduate programs in chemistry, including an offer to attend a top 10 program at the University of Illinois at Urbana-Champaign. (continued page 4)

MASTER OF SCIENCE/FORENSIC SCIENCE PROGRAM OFFERED

A Master's program in Forensic Science was started fall semester of 2006. Students can select from six different specialty areas: Accounting, Psychology, Computer Science, Criminal Justice, Chemistry and Biology. Overview courses are taught in each of the specialty areas. A student is required to take each of the overview classes to provide an understanding of the total program.

Students specialize in any of the six areas. In a specialty they take additional classes focused on specific areas of forensic science. Internships are being coordinated with the Utah State Criminalistics Laboratory. Similar coordination will be made with the Las Vegas Police Department Laboratory and possibly Myriad Genetics Laboratory in Salt Lake

City.

A goal of the program is to give students skills needed for full time employment in either a laboratory or investigation position in the field of forensic science.

Students currently in the program have been working hard. They have suffered from the typical hurdles that can be expected in any new program. The department is looking for suggestions, new equipment and sources of funding. Ideas from our alumni would be particularly welcome.



WILLIAM K. JOHNSTON AND MACKAY STEFFENSEN JOIN DEPARTMENT



Two new faculty members joined the department in the Fall of 2006. Dr. William K. Johnston will head the Master programs in Forensic Science.

Dr. Johnston received a B.A. in chemistry from Ripon College in Ripon Wisconsin, followed by a M.P.A. in public administration from California State University, Chico. He received a Ph.D. in chemistry from Montana State. His experience

ranges from military service to laboratory management. He has worked at Dugway Proving Ground as a laboratory manager and environmental scientist. He has 15 years of experience working for the California Department of Justice as a Criminalist. He also has 15 years invested in a private business as a forensic consultant.

Dr. Mackay B. Steffensen was born, raised and began his education in the Southern Utah town of Cedar City. He obtained dual B.S. degrees in Chemistry and Biology/Zoology from Southern Utah University in 1999. He began his graduate career at Texas A&M

University on a NIH Chemical-Biology interface training grant. His graduate research focused on dendrimer synthesis. Upon graduating he assumed a NIH post-doctoral fellowship at Oxford University working on single molecule chemistry. He is currently involved in teaching the Elementary Chemistry course primarily for nursing students and Organic Chemistry. He is currently conducting research on novel macromolecular structures.



WATCH FOR CHANGES OF THE WEBSITE AND FUTURE EDITIONS

Changes are being planned for the Physical Science Departmental website found at www.suu.edu/sci/phycsi so check back often for updates and the latest information. Also check online for the full color version of this newsletter. The second edition of the Department of Physical Science Reporter will be out this summer, and we need your input. So stay tuned and keep us updated on your status or offer suggestions by email to: pscialumni@suu.edu.

DEPARTMENT ACQUIRES EQUIPMENT



High-field NMR will enrich courses and undergraduate research

Through the hard work of the Department of Physical Science faculty and with support from the Provost's Office the Department now has access to state-of-the art instrumentation for incorporation into the curriculum and undergraduate research. Instrumentation includes:

A Varian Gemini 200 MHz **NMR**: This instrument greatly expands nuclear magnetic resonance (NMR) capabilities at SUU. The advantages over the previous instrument, a 60MHz Hitachi NMR, include: The ability to do FTNMR, enhanced sensitivity, the ability to separate multiplets with chemical shifts next to each other and the ability to do 2-D NMR experiments.

A Waters 1525 binary pump **HPLC** system: This instrument has the ability to do both gradient and isocratic separations. It also has dual wavelength detection which is helpful in identifying co-eluting peaks.

A Perkin Elmer Spectrum 100 **FTIR** (Fourier Transform Infrared Spectrophotometer) with an ATR (attenuated total reflectance) cell will be used to identify organic compounds and in developing the Forensic Science

component of the chemistry bachelors of science degree. The ATR cell greatly simplifies sample preparation.

An **MSB** (magnetic susceptibility balance) Mk1 from Johnson Matthey for work in our advanced inorganic chemistry course. The magnetic properties of transition metals are of great interest in determining the oxidation state, electronic properties, geometry and many other items of interest. Many transition metal compounds have one or more unpaired electrons and are classified as paramagnetic. Several methods can test this such as the Gouy method and the Faraday method as well as a nuclear magnetic resonance method. The new Gouy type balance was developed by F. Evans and Johnson Matthey.

A new pulsed **fluorimeter** from Photon Technology International will be of use not only to the instrumental laboratory course, but also in undergraduate research. It allows for the sensitive detection and investigation into fluorescent molecules.

In December, the college of science purchased a refurbished analytical scanning electron microscope (**SEM**) (Pictured to the right). With this instrument, a JEOL JSM-6400 equipped with a KEVEX Superdry EDS x-ray detector, students and faculty will be able to obtain high resolution images at magnifications up to 300,000X; obtain quantitative chemical analyses of points as small as 1 micron; and map the distribution of elements within

Calendar

March 22nd, 2007

Utah State Science & Engineering Fair
Held at SUU

April 13, 2007

Annual Conference of the Utah Academy of Sciences, Arts & Letters
Held at SUU

April 19th, 2007

8th Annual Student-Faculty Scholarship Day

May 5th, 2007

Commencement

a variety of materials. The SEM will greatly enhance our research capabilities in many fields, including geology, biology, chemistry, engineering, and environmental sciences. The instrument will be used as a teaching tool in geology and forensics courses.

Although refurbished, the instrument came to us in like-new condition and has some history attached to it. It was acquired from NASA (through a third party) where it was recently used to analyze debris from the Challenger Space Shuttle, which was destroyed upon reentry a few years ago.



STUDENT SUCCESS

(CONTINUED FROM PAGE 1)



Ryan Cardon, Chemistry major, has been accepted into the pharmacy program at Loma Linda University.

Topher Barnett, a chemistry major with a healthcare emphasis, will be starting dental school this summer/fall. He has received offers from Case Western Reserve, University of Oklahoma and is on the waiting list for the University of Louisville.

ALUMNI UPDATE

Jake Griffiths, '00 graduate in Geology. Since leaving SUU he completed an MS Degree at Portland State University, and a Ph. D. (2006) at Purdue University. He is currently employed by NOAA in Washington, DC. His graduate work has taken him all over the world including field work in France and Mongolia.

YOUR NAME IN LIGHTS

Would you like your name in lights? Let us know what you are doing and where you have been. Drop us an email at pscialumni@suu.edu. Include your degree and year of graduation. Pictures are welcome and updates will be included in upcoming issues of the Department of Physical Science Reporter.

FREE T-SHIRTS

The Department has acquired T-shirts from the Presidential announcement of the capital campaign and the donation to the Science Building Fund (See Below). If you want to be a part of SUU History and OWN one of these shirts drop us an e-mail at pscialumni@suu.edu. They are first e-mail first served. You may also mail in your request to the Department. They are sure to be a collectors item so request now. Shirts are available in M, L, XL, XXL. Please state your size and include a mailing address.

While you are at it let us know what you are doing and where you are at. With your permission you will see your name in lights in the next edition of the Physical Science Reporter.

