



Insights

Utah State University

College of Science

Alumni Newsletter

Spring 2001 / Vol. 9 Issue 2

From the Dean's Office

It is my pleasure to introduce another issue of *Insights*. It was a busy year for all of us, with the arrival of a new University President, Kermit Hall, on January 1, and a new provost, Stan Albrecht (former dean of HASS), on

February 1. I had

hoped to be able to report on our new dean, but the search was unsuccessful, and we will reactivate it this fall.

Toward the end of spring semester, I interviewed a random cross section of the more than 200 students who graduated from our college this year. They were asked to comment on their general level of satisfaction with their USU experience and were given the opportunity to express any concerns about courses, faculty, programs, advising, and so forth. Out of curiosity, I concluded interviews by asking them what they were going to do following graduation. Students perked up, gave me broad smiles, and spoke of starting new careers or being accepted into various graduate or professional schools, and for some, moving to other parts of the country. All in all, it was a very informative experience, as I was reminded once again of the quality of our students and programs within the College of Science. We are very concerned about whether we are meeting the needs of our students and society as a whole, and I would have to say that the answer is an emphatic "yes!"

DEAN'S OFFICE...

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Interim Dean
Don Fiesinger

History of the Department of Physics at USU: The People Who Made it Happen

The Department of Physics is one of six academic departments in Utah State University's College of Science. Physics has 15 full-time tenured faculty and is currently headed by Dr. W. John Raitt. This year, the Department had 72 students studying toward an undergraduate major, 13 MS students, and 23 PhD students. During the 2000 - 2001 academic year, five students graduated with BS degrees in physics, three graduated with MS degrees, and five graduated with PhD degrees. The Department of Physics remains an essential program not only for its undergraduate and graduate students, but also as support for other colleges and majors at Utah State. Dr. Raitt explains: "Although there are only 72 undergraduate majors, 95 percent of the student credit hours we generate in the department are not [due] to our majors—we teach a large number of service courses."

Franklin West, Leon Linford, Willard Gardner, Roland Perry, John Wood, Farrell Edwards, Eastman Hatch, Peter Banks, Gordon Lind, and John Raitt: these are the individuals who helped build the Department of Physics over its long history. They were instrumental in beginning, building, stabilizing, and revising the study of physics at Utah State University, a process that was both tumultuous and time consuming. Today, this research-oriented department continues to be a source of help and guidance to all students who participate in the program, and both students and faculty continue to appreciate the dedication of these men.

The beginnings of the Department of Physics can be found in the very beginnings of Utah State University. In 1888, The Utah Agricultural College (now Utah State University) was established by the legislature.

Two years later, in 1890, the first formal curriculum announced by The Utah Agricultural College included physics as part of a two-year course. This beginning is what led Dr. John Wood, former department head of Physics, to truthfully proclaim: "Physics has always been a part of USU."

In the years to come, physics would remain part of the College's curriculum, if not a large part. The College bulletin for the years 1894 - 1896 listed physics as a department with Professor Joseph Jenson, BS, teaching physics and mechanical engineering. In 1898, the physics staff increased to include one more individual, Clarence E. Snow, who was appointed as a professor of mathematics and physics. In



Former Department Heads: Gordon Lind, Eastman Hatch, Farrell Edwards and John Wood.

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Current Physics Faculty and Staff

1907, however, when John A. Widtsoe was appointed as the campus president, the only professor teaching any kind of physics course, when taught at all, was a Professor Peterson, "most likely William Peterson from the Department of Geology," says Dr. Wood. This same year, though, the irregularity in the teaching of physics came to a swift end with the coming of Franklin L. West.

In 1907, Franklin West was hired by President Widtsoe as the College's first PhD physicist. Dr. West obtained his doctoral degree from the University of Chicago and was hired not only as the head of the Department of Physics, but also to serve as the administrator for the Department of Mathematics.

Dr. West brought a never-before-seen stability to the gradually growing Department of Physics. He also brought the first standard physics text to Utah State and was there to see the purchase and installation of the brass-mounted Alvan Clark telescope, which was bought for the benefit of the Departments of Physics and Mathematics. At this time, Dr. West's small department was housed in the south tower of Old Main. Under his direction, the department then moved to join the Department of Chemistry in the newly constructed Widtsoe Hall [1916]. Dr. West would remain department head for 18 years until he left in 1935 to assume a position as head of the Church of Jesus Christ Latter-day Saint's church education system.

After Dr. West left the department, Leon B. Linford was appointed department head. The staff for that year [1935] included Leon Linford, Willard Gardner, Don Kirkham, and Leo Linford, a cousin to Leon Linford.

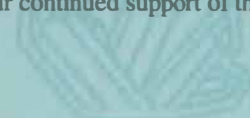
DEAN'S OFFICE ...

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I had the opportunity this spring to present various college awards to students and faculty and I was also able to attend two of our departmental awards programs. Every year we make slightly larger scholarship awards or new awards. Much of the credit goes to you, our alumni and friends, who have contributed to our many endowments and scholarship funds in the past.

We appreciate your responses to this newsletter informing us of your activities and we encourage you to maintain contact with the College of Science and especially with your respective major department. We would like to receive any suggestions for improvements to this newsletter. As I mentioned last fall, our mission in the College of Science is to provide the best possible education for our students and to provide the best possible environment for training and research. You, our alumni, are a vital link in making this happen—your continued support of the College of Science and your major department is greatly appreciated.

Sincerely,



In Dr. John Wood's *USU Physics History*, he writes: "The period of World War II had a great impact on the stability of the department. Although Leon Linford was listed as department head until 1945, he was on the staff of the MIT Radiation Lab starting in 1940. When he returned to Utah in 1946, he accepted the position of department head at the University of Utah. Don Kirkham also left in 1940 and Leo Linford died suddenly in the fall of 1941. This left Willard Gardner as the only member of the department. He was named acting head of the department and was made official head later."

Professor Willard Gardner had been added to the physics staff in 1918. Dr. Gardner completed his graduate work at the University of California at Berkeley. A number of students went to Berkeley over the next 15 years as a result of this association, and several came back to teach. Dr. Wood writes: "Professor Gardner was a pioneer in soil mechanics, applying physical principles to water flow and was supported by agricultural extension funds until he retired in 1948. He was the first retiree in the history of the department. He aided many physics majors during the Great Depression who worked for him as laboratory assistants and technicians." Dr. Gardner remained department head until 1947; he then asked to be replaced, and Roland Perry assumed the position. Dr. Gardner became professor emeritus a year later.

Under the direction of Dr. Perry, the department continued to make advancements. In 1950, Walter Gardner became the first student to receive his PhD degree in the area of physics; however, the ending of World War II brought complications to the College as a whole. Returning servicemen raised enrollment, straining classrooms and staff. The legislature was also pressuring the Utah State Agricultural College to teach only upper-division classes that were directly related to agricultural studies. This focus caused problems in the planning of science and mathematics classes, as well as art and humanities classes. The turmoil resulted in the resignation of two of the three physics staff members by the spring of 1956. Dr. Wood writes: "An additional staff member recruited by fall and three graduate students had to cope with about four hundred students for the next year until two more staff members were added."

In 1957, things started to change for the better. The name of the institution was changed from Utah State Agricultural College to Utah State University of Technology and Science on 8 March 1957 (eventually the long ending was dropped). On the same day, the Department of Mathematics was officially separated from the Department of Physics, even though they had technically been separate for the past 17 years.

A new period of growth began with the administration of University President Daryl Chase and has continued since. Money was appropriated for an engineering and physical science building and the planning started in 1956. The first phase of construction involved completing necessary laboratory space that became occupied by the Department of Physics and the Department of Electrical Engineering in the spring of 1960. Part of the new laboratory space was devoted to nuclear physics and soon the department received enough federal money to start a laboratory. The effort saw the beginning of the radiation safety program on campus.

But the move to a new building did not change the attitude of some administrative officers toward physics. Dr. John Wood, department head from 1956 to 1966, relates the following sentiments: The purpose of the department as defined by one administrator was to teach only undergraduates. A staff member was told that a certain piece of equipment could not be purchased, even though money was available, because physicists "only need paper and pencils." And the budget for physics equipment remained woefully inadequate, "measured in hundreds of dollars." At this time, the Department of Engineering was also trying to "absorb" physics into its engineering school "since most of physics services went toward teaching engineering students." Despite these difficult beginnings, the Department of Physics has

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continued to grow. In 1962, a PhD program was approved for the department; in 1969, the Aeronomy Center was formed and the name was later changed to the Center for Atmospheric and Space Sciences (CASS); in 1987, the department moved to the Science and Engineering Research (SER) building; and in 1988, the Department of Physics moved into its second century, and it continues to grow.

Dr. W. John Raitt, the current department head, has watched and supervised this growth for the past 13 years. Among recent accomplishments, Dr. Raitt notes the effective revision of the curriculum from quarters to semesters. "It has enabled us to have a wider range of options for the undergraduate degree." Dr. Raitt says they now have a whole range of undergraduate courses; they serve a wide range of students—from physics majors to non-science students who need only a general background in physics, such as technical writers or management majors.

Dr. Raitt is excited about the department's other accomplishments: "Since I've been department head, we have greatly improved our teaching laboratories. They have been brought up to date using computer-interfaced experiments, and we've added courses at the junior and senior level—giving [students] more experience working in a lab." The department has also seen recent growth in the research areas of surface physics and theoretical physics while maintaining high research productivity in space science research.

Along with this growth, the department continues to broaden its goals. Dr. Raitt states: "One of the bigger initiatives we're looking at, at the moment, is the development of nano-science and technology"—the making and using of things that are extremely small. Although he notes that this area is more widely known as nano-technology, he says the Department of Physics is more interested in this area of study as "science that feeds technology."

As such, he is hoping to create an interdisciplinary program involving not just the Department of Physics, but other units on campus as well—including the College of Engineering and the Space Dynamics Lab. With the work this program will require in the areas of quantum physics and engineering, cooperation among these groups will be essential. Dr. Raitt says: "We would like to have some part in the development of this work"—especially in the area of creating electronic devices. "One of our faculty members

has expertise in essentially manipulating atoms on surfaces—moving atoms around on surfaces. The goal of this work is the single atom transistor, which will be the next big step in electronics."

The first steps involved in this program are to establish a nano-technology teaching laboratory. "We have the space allocated," says Dr. Raitt. "It will be jointly run initially between us and the Department of Electrical and Computer Engineering, and it will provide students with the opportunity to get some hands-on experience in making, using, and characterizing some of these nano-electric devices." Dr. Raitt also says they already have companies that are ready to provide the department with their surplus equipment. In the long run, the department hopes to create a center for ongoing research in this field.

The current direction and planning of Dr. W. John Raitt and his faculty will continue to lead and strengthen the Department of Physics throughout the coming years. Interest in this research-oriented department and the general field of physics will also continue to grow under the supervision of these men and women, as it has in the past.



The Alvin Clarke Telescope, used for many years in the Mathematics and Physics departments.

(Special thanks to Dr. John Wood for the use of his written USU Physics History and Dr. W. John Raitt for information on the current workings of the department.)

Utah State University

COLLEGE OF SCIENCE

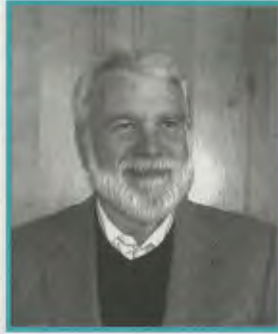
- Departments
- Alumni & Friends
- Student Information
- Faculty
- Science Learning Center
- Mission and Goals
- Employment Opportunities

Please visit our Web site, established especially for alumni and friends of the College of Science. Information of interest to alumni and friends (including past issues of *Insights*) can be found there. If you have visited before, please check again because our information is updated periodically. Watch for exciting real-time photos of the Willard L. Eccles Science Learning Center, which is currently nearing completion.

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D. Wynne Thorne Research Award

Dr. Edmund D. (Butch) Brodie, Jr., head of the Department of Biology, received the 2001 D. Wynne Thorne Research Award. This award is presented annually by the Office of the USU Vice President for Research to a faculty member who has built a reputation for significant research or creative achievement and is recognized nationally and internationally by his professional peers. The award is named in honor of Dr. D. Wynne Thorne, Utah State University's first vice president for research.



Butch Brodie

Dr. Brodie earned a BS degree in secondary education from Oregon College of Education and MS and PhD degrees in zoology from Oregon State University. Before coming to Utah State in 1994, he taught and conducted research at Clemson University in South Carolina, Adelphi University in New York, and The University of Texas at Arlington (UTA). At UTA, he served as chair of the Department of Biology between 1984 - 1993 and received the University Distinguished Research Award in 1988.

Much of Dr. Brodie's research has been and continues to be on the evolution of antipredator mechanisms in amphibians and reptiles. According to distinguished herpetologist Dr. Jonathan A. Campbell, UTA, "[Brodie] is an internationally recognized authority on the ecology and evolution of antipredator mechanisms...and he is the leading world authority on the behavior of [salamanders]." Currently, Dr. Brodie's principal research project involves coevolution in amphibians and reptiles. His primary and favorite collaborator on the coevolution research is his son, Edmund Brodie III, an associate professor of biology at Indiana University.

"What I enjoy most is working with the students," says Dr. Brodie. He sees this research as a tremendous opportunity and advantage to the students.

"Coevolution refers to two species locked together where the evolution of one species causes evolution in the other species," says Dr. Brodie. His research involves newts (a type of salamander) as the prey, and garter snakes as the predator. He explains: "The newt prey is highly poisonous and dangerous to predators because of a potent toxin in its skin glands; the snake predator, however, has evolved a resistance to the toxin. The newt is evolving stronger and

stronger toxin to avoid predation, and the snake is evolving greater and greater resistance to the toxin to be able to feed on the newt. This situation is referred to as an 'arms race.'" Some newts carry enough toxin to kill "maybe 50 people." This research system is unique because it is the only known example of coevolution involving a dangerous prey.

Dr. Brodie's coevolution research includes in-depth research at numerous levels, from natural history to neurobiology. He collaborates extensively with other scientists, both at Utah State and other universities, and this collaboration extends to both graduate and undergraduate students, who are engaged in the research. "What I enjoy most is working with the students," says Dr. Brodie. He sees this research as a tremendous opportunity and advantage to the students. "The way biology students become successful is to learn how to do research—they learn what science is all about." He currently supervises the research of 11 graduate students and 3 undergraduate students.

He has published over 150 scientific articles and four books, and his research is cited frequently in textbooks and other articles. His antipredator research has been highlighted in several television documentaries (including BBC, NOVA, and NATURE shows), and this fall (2001) his coevolution research will be featured in a new NOVA/PBS series on evolution. His many professional activities include reviewing manuscripts for numerous scientific journals; evaluating grant requests for the National Science Foundation and other organizations; presenting 70+ papers and organizing symposia at national scientific meetings; giving invited lectures throughout the world; serving in various official capacities (including president) in the Herpetologists' League and as vice president of the Inter-American Foundation for Tropical Studies; and serving as an associate editor of the journal *Herpetologica*. Since his arrival at Utah State, Dr. Brodie and his collaborators have received over \$1.1 million in grant support from the National Science Foundation; the US Department of Defense Legacy Program; the US Department of Defense Southwest Division Naval Facilities Engineering Command; the US Bureau of Reclamation; the State of Nevada Division of Wildlife; and the California Department of Parks and Recreation.

Dr. Stevan J. Arnold, professor and chair of the Department of Zoology at Oregon State University and a past president of the Society for the Study of Evolution, states: "Butch changed our entire perspective on [salamander] antipredator devices by careful observation of their operation and by experiments that revealed their survival value. We now know, thanks to Brodie's efforts, that salamanders are walking chemical laboratories, poised to disable their predators with paralysis, emesis, and adhesive incapacitation. Who would have thought that salamanders could do such nasty things to the shrews, snakes, and birds that hassle them on a daily

THORNE RESEARCH AWARD...

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basis. Furthermore, one of Butch's study systems has become a paradigm for understanding both the evolution of prey and the evolutionary responses that they evoke in predators. [This research] system is an emerging classic that will see increasing play in textbooks on evolutionary biology and behavioral ecology. Brodie enjoys a substantial and growing national and international reputation for his path-breaking research on antipredator adaptations and coevolutionary arms races in predators and their prey. He has changed our perspectives on the behavioral ecology of salamanders, and—more generally—our view of evolutionary processes."

Dr. Robert Jaeger, John Chance Professor of Biology at the University of Southwestern Louisiana and editor of *Herpetologica*, says, "Butch Brodie is one of the best known and most respected herpetologists in the world! Indeed, he is quite famous both for his research productivity and originality and for his strong participation in herpetological societies. I know of few department heads who maintain research programs, and Butch's ability to do so reflects his enthusiasm for and love of research in amphibian biology."

"I'm a biologist because of the mentoring I received as an undergraduate student from Dr. Kenneth M. Walker . . . He led me to discover the excitement of research and is ultimately responsible for my being where I am today."

As part of his various research projects, Dr. Brodie has traveled extensively throughout Asia, Europe, Central America, Africa, and Australia. His favorite location remains Guatemala. "It is a great place for two reasons: there are lots of salamanders and there are lots of masks," he declares. One of Dr. Brodie's passions is collecting masks, an impressive display of which hangs in his office.

As biology department head, Dr. Brodie notes the key goals he and the department work toward: "Foremost is serving the students and giving top quality course work. We also make a real effort to include undergraduate students in research. That is one of the most important things we do. A student who graduates in biology from USU needs to be competitive nationally. I think we achieve that aim very well."

Dedication to undergraduate research is of distinct importance to Dr. Brodie. He explains his reasons simply: "I'm a biologist because of the mentoring I received as an undergraduate student from Dr. Kenneth M. Walker at Oregon College of Education (now Western Oregon University). He led me to discover the excitement of research and is ultimately responsible for my being

where I am today." To honor Dr. Walker and support undergraduate research, Dr. Brodie doubled the monetary gift he received for the D. Wynne Thorne Research Award and established an endowment in Dr. Walker's name at Western Oregon University.

The now retired Dr. Walker wrote: "It was my privilege to witness some of the transformation and development of a bright mind as it developed the thinking, questioning, and exploring that has led to such an active lifetime in biology...What an honor to be associated with a scheme to honor Butch's undergraduate alma mater and to assist undergraduate majors yet to come!" This is indeed a tribute to the accomplishments and vision of Dr. Brodie.

Science Alumni Respond to Annual Campaign



Every year, the College of Science undertakes an annual campaign to support the various programs and activities within the College and its six academic departments. Last year, we concentrated our efforts on requesting support for the Willard L. Eccles Science Learning Center and we appreciate the generous support that we received at that time. The Learning Center will clearly provide the most

technology-enhanced learning environment on campus. It is scheduled for completion late this summer and classes will begin there this fall. This year, we focused on the many scholarship endowments and other special needs of our six academic departments.

The annual campaign has two components, a bulk mailing in the fall and a phonathon in the spring. In the fall mail campaign, we sent letters to some 5,500 alumni and friends of the College, and in late February, we contacted nearly 2,000 alumni by telephone. Of those individuals contacted, nearly 650 pledged more than \$35,000 to support students and programs in the various departments within the College of Science. We thank you for your continued generosity and support.

If you have any questions or concerns about our annual campaign, please contact Don Fiesinger at (435) 797-2480 or email him at scido@cc.usu.edu.

Willard L. Eccles Charitable Foundation Faculty Research Grant

Each year, the Willard L. Eccles Charitable Foundation funds one major faculty research project. For the 2000 - 2001 academic year, this grant was presented to Dr. Jon Y. Takemoto and co-principal investigators, Dr. Michelle Grilley and Dr. Hiroko Hama of the Department of Biology. Below, Dr. Takemoto talks about the research currently being conducted by this group.

"Research on New Cancer Genes," the title of Jon Takemoto's most current research project, will receive more than \$90,000 dollars in funding from the Willard L. Eccles Charitable Foundation.

"The project is basic research—exploratory and high risk—related to cancer research," Dr. Takemoto explains. "We are hoping to uncover two potentially new target sites for new anticancer drugs. There are two enzymes [sphingolipid biosynthetic hydroxylases] that appear to be preferentially

endeavor—one that would not ordinarily qualify for standard funding from a federal agency such as the National Institutes of Health." Dr. Hama also notes: "For this type of high-risk project, obtaining funds is often very difficult. We hope to obtain promising results that will lead to larger-scale research proposals to extend this project." Dr. Takemoto further explains: "We have no data, only a good (we think) idea. Once we do generate some data and results (and we have begun to recently) we can then expect to obtain funding from a more traditional source. For this, we are very grateful to the Eccles Foundation—willing to invest in high-risk research."

As for their research group, Dr. Hama says, "We have a great working relationship. Both Michelle and I are research faculty working in Jon's lab. We work closely every day. It is this daily interaction that makes our collaborative project so productive and enjoyable."

Dr. Takemoto has been with the University for 26 years. His first 12 years of research at Utah State centered around "mechanisms of photosynthesis in bacteria: more specifically, the molecular structure and assembly of the photosynthetic reaction center and light harvesting machinery." Since then, his primary research interests have been plant-microbe interactions and antifungal agents.

Aside from researching new cancer genes, Dr. Takemoto also teaches and conducts research on "the chemistry and biology of antifungal lipopeptides." When not working on campus, he enjoys gardening and landscaping and a recently emerging interest in fly-fishing.

Dr. Hama has been with the University for almost four years and is also working on other cell biology and biochemistry projects. She enjoys most outdoor activities and is currently building a fly rod and a computer.

Dr. Grilley joined the Department of Biology as a research assistant professor in 1997 after her postdoctoral research in biochemistry and biology at the University of Utah. She now spends much of her outside time with her two very young children.



Left to Right: Jon Takemoto, Hiroko Hama and Michelle Grilley.

expressed in tumor cells, especially adenocarcinomas. We hope to test the notion that these two enzymes are important in cancer and, if so, we'd like to learn if they have roles in the initiation, progression, or metastases of cancer."

If Dr. Takemoto and colleagues Drs. Michelle Grilley and Hiroko Hama can confirm their findings concerning these two enzymes as new target sites for anticancer drugs, they then plan to "launch an effort to characterize these enzymes as best as possible at the biochemical level." Dr. Takemoto concludes: "The additional potential payoff in this work will be added information about the biosynthetic mechanisms for the human sphingolipids—a large class of lipids that are important for many human physiological functions. The sphingolipids have long been known, but only recently has the scope of their importance been realized."

Dr. Takemoto thanks the Willard L. Eccles Charitable Foundation for its generous funding, especially in light of this research project's high risk. Dr. Takemoto notes: "This is a high-risk



Biochemist Ann Aust Honored as Trustee Professor



Ann Aust

Ann Aust, professor in the Department of Chemistry and Biochemistry for 14 years, has long been dedicated to her research and teaching. She now has one more recognition to add to her already lengthy list of awards and honors.

Each year, Utah State University's Board of Trustees awards the Trustee Professor of the Year to three full professors who have been at Utah State at least ten years. These individuals are selected

for their outstanding abilities in teaching and research or for their service to the University, community, and administration. "This prestigious honor is reserved for the University's most outstanding senior faculty members," said Lowell Peterson, chair of the USU Board of Trustees. Dr. Aust was recognized for her notable research on "the role of iron mobilization in asbestos-related cancers."

Dr. Aust received her BS degree from the University of Houston in Texas and completed her doctoral degree in biochemistry from Michigan State University, East Lansing, Michigan. In 1987, she came to Utah State to join the faculty of the Department of Chemistry and Biochemistry as a research assistant professor. Dr. Aust says she enjoys conducting mechanistic research on topics that address health concerns. She notes this is of particular benefit to her graduate students: "This makes the research of immediate relevance and aids my students in getting good jobs when they graduate."

"This prestigious honor is reserved for the University's most outstanding senior faculty members." Dr. Aust was recognized for her notable research on "the role of iron mobilization in asbestos-related cancers."

*— Lowell Peterson,
Chair of the USU Board of Trustees*

In coming to Utah State, Dr. Aust says her research here began with "the role of iron in asbestos-induced lung cancer." That research has now grown to include the role of iron in the effects of inhaled urban particulates, or airborne particles in urban areas. Dr. Aust explains the focus: "In particular,

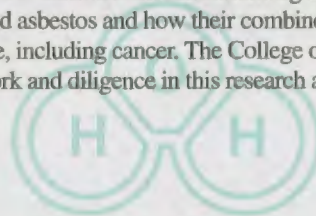
we are interested in why particulates generated by combustion sources, both mobile and stationary, have more bioavailable, and therefore potentially dangerous, iron than do particles from dust."

Dr. Aust's research has found that some types of asbestos and combustion particles in certain environments contain iron that is highly bioavailable and dangerous. Her research has led her to remark: "Individuals exposed to this type of environment and who inhale this form of iron may be at an increased risk of lung disease."

Dr. Aust continues: "Research that we have done with coal fly ash is of particular interest with respect to the new air-quality standards. We have examined three particular types of coal fly ash from Utah, Illinois, and North Dakota. It turns out that the fly ash from burning these different coals contains differing amounts of bioavailable iron and that the smaller the particles, the more bioavailable the iron is and potentially more damaging in cultured human lung cells." This most recent research may help contribute to understanding how different particulate sources contribute to lung damage, and how the size of those particles impacts the effects of lung damage—both of which are of great importance to organizations such as the Environmental Protection Agency (EPA) in helping them determine clean-air standards and air-quality standards.

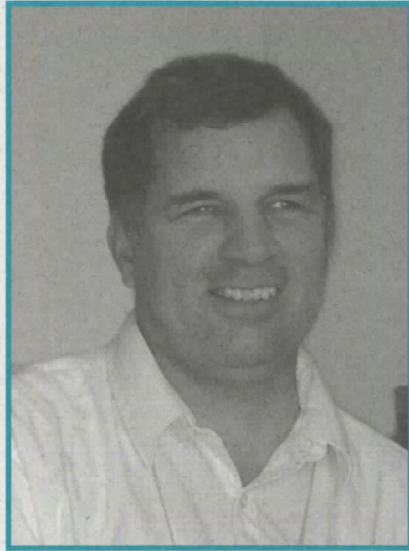
Aside from her research, Dr. Aust also enjoys teaching undergraduate chemistry and biochemistry and graduate biochemistry. "My teaching and research are equally divided," she says. "I teach both in the classroom and in the research laboratory." Her graduate students are involved in conducting research alongside Dr. Aust. "These research projects focus on my research interests and have been funded by NIH, the Eccles Foundation, and the Health Effects Institute."

Dr. Aust continues her work toward understanding the association between iron particulates and asbestos and how their combined effects cause acute and chronic disease, including cancer. The College of Science commends her for her hard work and diligence in this research and for her Trustee Professorship.



Alumnus Profile—Dan Beaver: Computer Science Graduate

In 1979, the College of Science presented Dan Beaver (a blind student) a BS degree in computer science. Remembered as a “real inspiration” to the current Computer Science Department Head Don Cooley, Beaver’s accomplishments can easily be considered amazing and incredible, even though Beaver has never thought of himself as anything other than average. Though 21 years have passed, Dr. Cooley can still remember Beaver: “He never seemed to be down because he was blind. He NEVER allowed being blind to stop him or even slow him down.” His story confirms this fact.



Dan Beaver

Beaver grew up in Levelland, Texas, and remained in Texas with his family until he was 19 years old when they moved to Utah. While in Texas, Beaver attended a school for blind children in Austin for eight years.

Beaver says he first became interested in his field of study, computer science and programming, while he was attending this school for the blind. “We had a career day with speakers from several different careers,” Beaver relates. “One of those speakers was a computer programmer who worked for NASA. I found it very interesting that a blind man could program computers for the organization that put people into space. He told me computer programming, for a blind person, posed some significant challenges, but it was definitely doable.”

Soon after this, Beaver had his first experience with programming: “I met a student from San Marcos College who worked part time at the school [for the blind] who was taking a programming class.” Beaver says this student would read some of his course material to Beaver. “I didn’t learn much programming, but I did gain a sense of what it was to program. I was pretty hooked at that point.”

When Beaver first began attending Utah State in 1975, he remembers that many of his friends and professors attempted to dissuade him from becoming a computer science major; rather, they suggested he work towards a degree in business education. “There were lots of folks that tried to talk me out of it and so I tried for a semester, but I felt [computer science] was where I

should go. I was interested in computers and learning to program them. I knew things would be tough at times, but that hadn’t stopped me before.”

Beaver was right. His course work and studies were not easily accomplished. Obtaining the necessary equipment was, in itself, very difficult. Beaver tells how he obtained his first equipment with the help of an employee in the business and operations end of the Computer Science building. This employee had heard of a blind programmer who worked for a bank in Chicago. Beaver said the employee “contacted that individual and obtained instructions on how to make a normal printer print Braille. The guy at the bank even sent us the program to do the translation from characters to dots.” The Braille they produced, however, was very poor quality. The printed paper was not of the proper weight or stiffness, and the printer had to be manipulated many times to meet his needs.

Though he continued to experience difficulties, Beaver continued to work hard throughout all his classes, no matter how difficult it seemed to others. “I performed my programming assignments by keypunching the code onto punch cards using one of those old IBM keypunch machines. I couldn’t read the printing at the top of the card, so my wife would sit with me and proofread the cards. I would then run the cards through the cardreader, and we would get a printout of the cards as a list. I would read through the list and move any that were not correct.” Once correct, Beaver would then place his cards back in the cardreader and run the completed program while the output printed on the Braille system.

Due to a lack of technology, however, Beaver had to perform his course work in most classes simply by performing the work and then having another student, a reader, or his wife read the results back to him. “You see,” explained Beaver, “I have always been stubborn enough that I wouldn’t let anyone do for me what I possibly could do for myself. I also found that doing the keypunching myself helped me learn and remember the programs better.”

As for his professors, Beaver remembers them distinctly: “I will always remember the professors who worked in computer science.” Beaver’s appreciation for his professors stems not only from their classes, “but because they helped my family in perhaps a more important way.” Beaver tells of a winter while he was still attending Utah State: “I remember money was short and things were kind of tough.” Beaver and his wife had reached the point where they were having to choose between buying food for their family or food for his new guide dog. “I was seriously considering sending my dog back where I had gotten him and starting to use the cane again.”

PROFILE—BEAVER...
Continued on page 10

PROFILE-BEAVER...*Continued from page 9*

Beaver related his surprise when, on a Saturday morning, one of his professors, Dr. Don Cooley, stood in his doorway. "He held in one arm a 50-lb bag of dog food. In the other arm he held two Christmas gifts; they were for our children." These gifts were from several of the professors in the Department of Computer Science.

Beaver lauds the professors. "Don Cooley and the other professors in the Computer Science Department were more than computer science professors, they were also teachers of life and how to lift others."

Despite his many trials and complications, Beaver graduated with a BS degree in Computer Science in 1979. A year before his graduation, Beaver worked as an intern for IBM in Boulder, Colorado. After his graduation, Beaver returned to IBM to take a permanent position as a software developer at the Tucson, Arizona, site.

Beaver continues to work in the same field that he began working in at IBM. "I started out as a software developer and I am still doing so. I enjoy developing software very much. I also get a great deal of enjoyment from debugging applications and improving their performance." He has also taken on some new projects at IBM. "I evaluate new applications or applications that are being enhanced to make sure they meet the federal ADA and IBM standards for accessibility." Beaver also likes staying busy with his work; he notes: "I find that work stays interesting if I keep learning new things." For Beaver, this includes attempting to master three new programming languages and working from his home computer developing software for himself and his family.

Working at IBM has been of a particular benefit for Beaver, especially in the area of technology. "While I have worked for IBM, I have used steadily improving technology." He now works with a Braille embossing printer generating very good Braille, and a computer that generates speech output.

As for further schooling, Beaver says that with his large family, current location, and ongoing projects, additional schooling "just hasn't worked out yet."

Beaver and his wife have six children and two grandchildren. When not busy with work, he enjoys spending time with them and working in his church. "I am involved in church, our kids and grandkids, scouts, and lots of other activities. I have my amateur radio license but don't have time to do much with it these days."

Dan Beaver considers his life busy, but also fulfilling. He has worked hard to achieve his current position and is grateful to all those who have helped him. When asked how he thinks he has made an impression on others, Beaver responded: "I suppose I may have made an impression simply by going and doing what many thought would be nearly, if not impossible." With his determination "and the blessings of God," Beaver has definitely accomplished many great things.

Transitions

USU Years of Service Awards

25 Years of Service

Department of Biology
Jay B. Karren

Department of Computer Science
Robert J. Wood

Department of Mathematics and Statistics
Chris S. Coray

35 Years of Service

Department of Biology
William Arthur Brindley

Department of Mathematics and Statistics
Duane Loveland

Retiring Faculty and Staff

Department of Biology
David B. Drown (Oct. 2000)

Department of Computer Science
Larre N. Egbert (June 2001)

Department of Mathematics and Statistics
Jan Egbert (June 2001)
Wanda Sayer (June 2001)

Tenure and Promotion

Department of Biology
Daryll B. DeWald, tenure and promoted to associate professor
Edward (Ted) W. Evans, promoted to professor
Peter C. Ruben, promoted to professor

Department of Mathematics and Statistics
Mark Fels, tenure and promoted to associate professor

Department of Physics
John R. Dennison, promoted to professor
Tsung-Chen Shen, tenure and promoted to professor

Alumnus Profile—"Doc" Hasler's Lifetime Hobby



Dr. and Rosemary Hasler

On most days, it is a pretty safe bet that you will find Dr. James R. Hasler at work in one location: his garage in Frankfort, Kentucky. There, Hasler dedicates his time and resources to a hobby he has been interested in from boyhood: woodcarving.

James Hasler, known as "Doc Hasler" to his

friends and familiar acquaintances, has long enjoyed woodcarving, a hobby typically undertaken in his crowded garage, where he often works from atop his deep freeze using a band saw and drill press for his larger projects and a sharp knife for his smaller carvings.

Hasler first became interested in carving after moving to Kentucky in 1973 and helping in the Boy Scouts of America program. "I was sitting around the campfire, carving neckerchief slides with the other adult scouting leaders." From that moment on, Hasler was hooked.

Hasler graduated from Utah State University in 1957. Prior to Utah State, Hasler was a member of the US Marine Corps. After leaving the corps in 1954, he came to Utah State to study as an undergraduate in the Department of Chemistry and major in bacteriology. Hasler then moved to Kansas State University, where he graduated from their school of veterinary medicine in 1961. He practiced as a veterinarian in Iowa before coming to Kentucky, where he worked for the US Department of Agriculture for 30 years in the meat and poultry inspection program.

Even through these years, Hasler notes that he still loved spending time woodcarving. He remembers spending many nights in motels away from his family, delicately carving pieces of wood with his ever-present knife. After his retirement from the federal meat inspection program in 1991, Hasler, now 70 years old, dedicates even more time to this hobby.

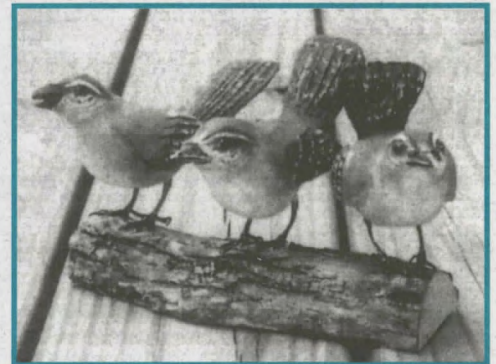
When asked why he spends so much time woodcarving, Hasler laughed. For him, the answer is simple: "Fun. That's what it is. You do it because it is fun." And for Hasler, the fun begins with his sharp knife and several books containing the patterns for a variety of birds and other animals. He says the key to carving is in buying "a really good, sharp knife or set of chisels."

"Carving can go from very simple to very complicated," Hasler explains. "You can do nice carving with a knife or you can use the most expensive and sophisticated tools."

Expert at his craft, Dr. Hasler explained more about the intricacies of his hobby: "There are different types of wood carving. There's chip carving, which was made popular in Scandinavia, where you carve one chip from the wood at a time. There's also 'in-the-round' carving, which can be done with your pocket knife." Hasler then explains that "relief carving" can be a bit more difficult: "The right cuts must be made in the right places and you will need more tools."

Hasler's love for woodcarving also extends to teaching this talent—and at any level. For the past 50 years, he has worked with the Boy Scouts of America program teaching young boy scouts his craft at scouting camps and other events. But now, he is "backing off" from this activity. Instead, Hasler now spends every Thursday afternoon teaching his woodcarving skills at the local senior citizen's center in Franklin County, Kentucky. There, he demonstrates effective woodcarving techniques and visits with his seven or so dedicated students:

"mostly little old ladies who just want to learn something new." When teaching his classes, Hasler says he begins with chip carving and moves onward from there.



With his own carvings, Hasler prefers to work most with birds—"I get the most requests for birds,"—but he also enjoys working on character carvings. His wife, Rosemary, then hand paints many of them. And, although his carvings are very popular, Hasler doesn't worry about selling his precious carvings. "I'm much too busy with

Christmas and birthday presents," he laughingly explained, which is understandable considering Dr. Hasler and his wife have eight children and 19 grandchildren. Hasler notes that many of his children and grandchildren have also been involved in scouting, and for each who has made Eagle Scout (the highest rank), Hasler carves an eagle to present along with their award.

Year 2001 College of Science Awards

Valedictorian



Uyen Tu Chau

Uyen Tu Chau was chosen as this year's Valedictorian for the College of Science. Uyen maintained not only an exceptional grade point average, but also immersed herself in various jobs and internships and helped guide and coordinate Utah State University's International Student Council.

Uyen was born in Vietnam; her family immigrated to Logan, Utah, in 1986. After graduating from high school as one of several valedictorians, Uyen remained in Logan to attend Utah State University.

"I started USU in the fall of 1997 with a Presidential Scholarship," says Uyen. "I didn't have a clue as to what I wanted to do, so my major was undeclared." Uyen relates that she "pretty much stumbled" into the major from which she would graduate: computer science. She agreed to take a computer science class with her sister; "At the end of that year, I declared my major as computer science."

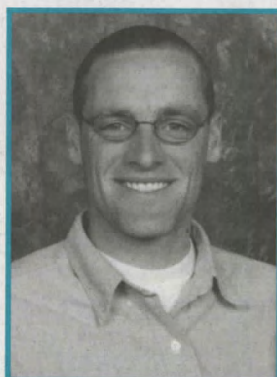
As a student at Utah State, Uyen was also a coordinator for the International Student Council (ISC), organizing fashion shows and cultural shows and later working as one of ISC's vice presidents. She also worked as a computer lab consultant and a computer science tutor and participated in two internships: Lockheed Martin/INEEL in Idaho Falls, Idaho, and Hewlett Packard in Boise, Idaho.

Uyen is currently working for Hewlett Packard in Roseville, California, as a software engineer. "Life here is totally fun and it's great to be out of school, but I am thinking of heading back to school in a couple of years for a technical MBA."

Scholar of the Year

Rodrick Taylor was chosen as the College of Science 2001 Scholar of the Year. Dedicated and determined, this senior from West Jordan, Utah, graduated this May with a BS degree in biology. Rod states: "During my time at USU, I have not only devoted my time to performing well in my classes, I have also been active in teaching and researching outside the classroom."

Rod's favorite classes throughout his undergraduate courses included biology, physiology, and anatomy. He also



Rodrick Taylor

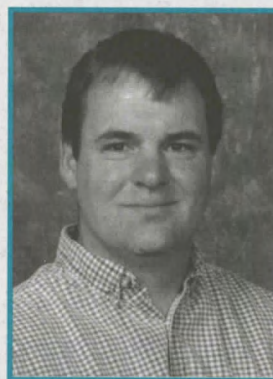
enjoyed opportunities to experience and participate in research. Rod relates: "Dr. Messina [professor of biology] aided me in planning and pursuing a research question; the research experience was very satisfying. It allowed me to independently integrate and directly apply many of the principles I'd learned in my various courses."

Rod's philosophy about his education developed at a young age. "In seventh grade, I decided there is no point in not getting good grades. If I'm going to go to school, I might as well learn as much as I can." With that sentiment in mind, Rod has progressed throughout his education maintaining an excellent grade point average. Aside from his regular course work at Utah State University, he also taught as a supplemental instructor for several biology courses and worked with the University's disabilities center as a note taker.

In his free time, Rod enjoys almost any outdoor activity. "If I'm not studying, I'm outside." Rod also spends many weekends with his family in Salt Lake City, Utah.

Rod will attend the Oregon Health Sciences University for the next four years studying dentistry.

Graduate Student Teacher of the Year



Matthew J. Biesecker

Matthew J. Biesecker is the College of Science 2001 Graduate Student Teacher of the Year. In 1996, Matt obtained an MS degree in mathematics from Utah State University and has returned to Utah State to pursue a PhD degree and study differential geometry, while working as a graduate student teacher.

Matt grew up in Ventura, California, and relates that he has always been interested in mathematics, even in

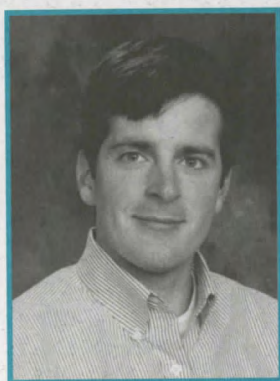
grade school and high school. As he entered Chico State University, California, to earn a BS degree, he remembers: "I originally went into engineering, but I always gravitated towards math." After Chico State, Matt moved to Utah to attend Utah State University's graduate program. After receiving an MS degree, he moved back to his hometown of Ventura and taught high school mathematics for two years.

Matt has since returned to Utah State University and is teaching calculus while he works toward a PhD degree. About his teaching, Matt says, "I like interacting with students one-on-one. I like lecturing, but I like helping them more in the office." Matt says that it is in his office, working one-on-one with his students,

where he makes a real difference; there he can see them begin to understand mathematical concepts. Although his teaching does keep him busy, Matt notes: "Teaching is fun, but it doesn't take that much time." It is the research and doctoral courses that keep him especially busy.

After his doctoral degree, Matt hopes to continue teaching at the college level, preferably in the western United States. He is also considering pursuing a postdoctoral position overseas for a couple of years.

MS Graduate Student Researcher of the Year



Matthew Pachell

Mathew Pachell is this year's College of Science 2001 Graduate Student Researcher in a master's program. Matt graduated this May from the Department of Geology, obtaining an MS degree. His research focused on how the geometry and internal properties of strike-slip faults vary with increasing fault length; to this end, he has structured his master's thesis around the structural analysis of the Gemini Fault Zone in the central Sierra Nevada Mountains of California.

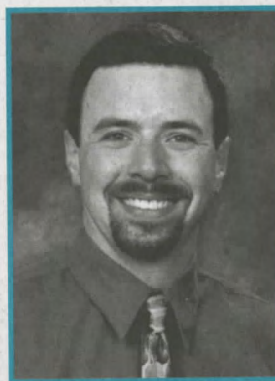
Matt grew up in a rural community east of Cleveland, Ohio, and first became interested in geology after a high school senior geophysical science course. Before coming to Utah State, Matt completed a BS degree at Denison University, Granville, Ohio, in 1997, graduating cum laude.

Aside from his various geology projects and research work on the Gemini Fault Zone, Matt interned with Anadarko Petroleum Corporation in Houston, Texas. Dr. Lansing Taylor of Anadarko Petroleum commented: "Matt developed a predictive model of subsurface oil and gas accumulations that continues to serve as the preeminent scientific basis for a \$41 million exploration and development effort in central Oklahoma. He quickly mastered the often-confusing software systems our industry uses and, more importantly, was exemplary in his ability to communicate his results, their limitations, and their impact on our business."

Dr. Jim Evans, Matt's advisor in the Department of Geology, speaks further regarding Matt's abilities: "Matt is a very professional geologist, who thinks hard about the problems he works on. [He] has been a real asset to the Department, College, and University, and I feel very privileged to have been his advisor."

After graduating this May, Matt returned to Anadarko Petroleum Corporation to work as a petroleum geologist. "I will be finding oil and natural gas reserves in a very complex field in Oklahoma. I hope to apply the knowledge of structural geology that I have learned from my advisor, Dr. Jim Evans, to finding and developing reserves."

PhD Graduate Student Researcher of the Year



David Bienvenue

David Bienvenue is the College of Science 2001 Graduate Student Researcher of the Year in a doctoral program. David's doctoral studies are centered in biochemistry; his doctoral dissertation is entitled "Characterization of the Desuccinylase from *H. influenza* as a Target for Antibiotics," and he plans to defend his dissertation some time this summer.

David was born and raised in Auburn, New Hampshire. He graduated summa cum laude from Rivier College in Nashua, New Hampshire, in 1995 with a BS degree in chemistry and a minor in mathematics. While at Rivier College, David was interested in both biology and chemistry but chose chemistry as his focal point. "Getting my PhD degree in biochemistry has permitted me to explore my interests in both areas," says David.

Before coming to Utah State, David worked for six months as a research technician at the Cabot Corporation located in Billerica, Massachusetts. As part of his work, he developed methods to chemically modify carbon black to create water-soluble pigments and assisted in the scale-up of synthetic protocols for pilot-plant scale production. David has also worked as the assistant branch chemist for the Coca-Cola Corporation in Nashua, New Hampshire.

David's current research as a graduate research assistant at Utah State includes developing inhibitors of dinuclear amino-peptidases as potential therapeutics, characterizing inhibitor-protein interactions using spectroscopic techniques, and using a variety of tools to elucidate the mechanism of binuclear hydrolases. David notes that his advisor, Dr. Richard Holz, "has been a great source of guidance during my time here [at USU] and has given me the freedom to do very interesting research in the area of targeting a particular class of enzymes as potential therapeutic targets."

After obtaining his doctorate, David plans to obtain a post-doctoral position to broaden his background and learn some new skills. "My eventual goal," he says, "is to work in the pharmaceutical industry developing new drugs."

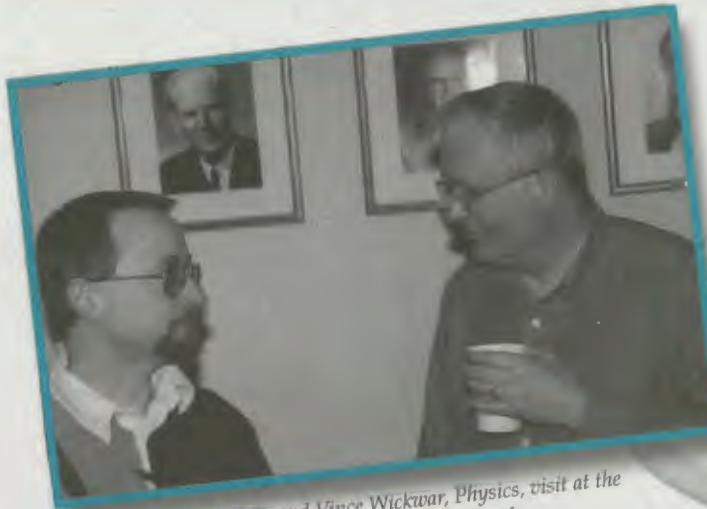


AWARDS...

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College of Science

Spring Coffee Break



Mark Kiffe and Vince Wickwar, Physics, visit at the College Spring Coffee Break.



Mathematics & Statistics Professors Chris Coray and Duane Loveland after the College Awards Program. Dr. Coray was recognized for having served 25 years while Dr. Loveland was recognized for having served 35 years.

Awards Program

Jim Evans, Matt Pachell, John Shervais, and Interim Dean Don Fiesinger after the Awards Program. Matt graduated with an MS degree in geology and received the College MS Graduate Researcher of the Year award.



Stephanie Wankier, College of Science Dean's Scholarship (2001-2002), Emily Thompsen, Oscar Woodruff Scholarship (2001-2002), and her mother, Janice Thompsen, at the College of Science Awards Ceremony.



Professor Emeritus Wendell Pope, Computer Science, with his daughter, Linda Pope DuHadway, a computer science graduate, at the College Graduation Open House.



Vince Wickwar, Physics, stands with Physics graduate, Larry Gardner, his wife, Marcella, and a few of Larry's relatives at the College of Science Graduation Open House.

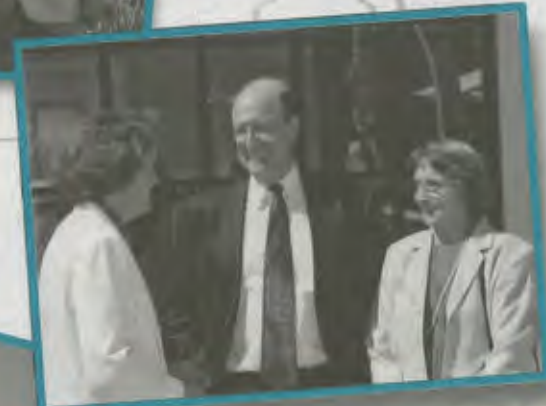


Steve Allan, Stacie Gomm, Bob Wood, and Dan Watson, Computer Science, enjoy refreshments at the College Spring Coffee Break.

Graduation Open House



Wanda Sayer, Mathematics and Statistics, and her husband, Larry, at the College Awards Program. Wanda retired in June.



Professor Emeritus John Simmons, Biology, and his wife, Helen, visit with Associate Dean Kandy Baumgardner at the College Graduation Open House.

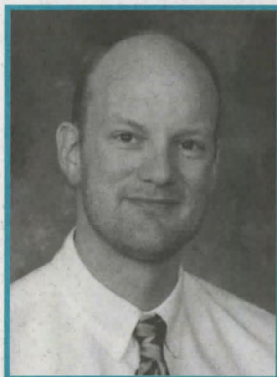


Larre Egbert, Computer Science, and his wife, Jan Egbert, Mathematics and Statistics, at the College of Science Awards Program. Both Larre and Jan retired in June.

AWARDS...

Continued from page 13

Teacher of the Year



James Powell

James A. Powell was named the College of Science 2001 Teacher of the Year. Born in Wyoming, Dr. Powell spent time growing up in Wyoming, Montana, and Colorado. His undergraduate work in mathematics was conducted at Colorado State University, and his graduate work was completed at the University of Arizona at Tucson, where he studied applied math. After school, Dr. Powell turned to teaching—"I always wanted to teach."

In 1991, Dr. Powell came to Utah State and has taught a large selection of classes over the past 10 years, including calculus, differential equations, linear algebra, applied math, computational math, and a graduate differential equations course. Says Dr. Powell, "They all have different challenges [but] there is something fun in each one. There's not a level yet that I haven't enjoyed teaching."

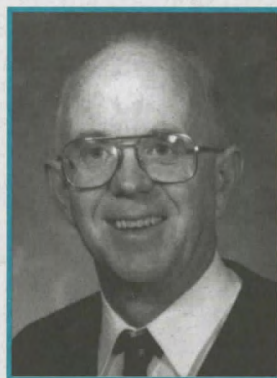
In his teaching, Dr. Powell notes: "It is more fun to teach the beginning classes because the students are more lively; it's more of a pedagogical challenge to try to figure out different things to do to engage the students." On the other end of the teaching level, Powell says it is more of an "intellectual challenge" to teach graduate courses.

Though he enjoys all his classes, he notes the different types of challenges he often encounters. "It's a challenge to get [mathematical] concepts to work for the students. It's a challenge to make mathematics more of a living topic." Dr. Powell especially tries to help his students think of mathematics as a language, hoping that each student can build the sense that mathematics has meaning. He does this by having the students work together in groups, in the hopes that they can learn from each other. He also shares his personal experiences using math to solve real problems. "One of my favorite things that happens in a class is when a student asks me 'well, what's this good for?'—I love that!" Using this question, Dr. Powell then sets out to explain how math "really is critical in people's lives somewhere."

Another goal Dr. Powell is pursuing while at Utah State is to improve and develop the Honors Program in the Department of Mathematics and Statistics. While still pursuing his undergraduate degree at Colorado State University, a younger James Powell took part in an honors program. "It was a great experience," he notes, and it is part of the reason he is now committed to the Honors Program at Utah State. "I think one of the places students are least well represented in the Honors Program [at Utah State] is in the sciences and in engineering." He is currently working toward placing students into a mathematics honors track and building an in-depth science and engineering core in the program. Dr. Powell's theory: "If they have to take math, they may as well be taking honors math."

When not teaching, Dr. Powell conducts research in mathematical ecology. He works with the US Forest Service, the Department of Biology, and the Fisheries and Wildlife Department to help solve current ecological problems using his mathematical knowledge. The remainder of his time is spent with his wife and two daughters, his love for fitness, and his outdoor recreations.

Advisor of the Year



Chris Coray

Chris S. Coray, a professor in the Department of Mathematics and Statistics, was chosen as this year's College of Science 2001 Advisor of the Year. Dr. Coray grew up in Salt Lake City, Utah, and remained there to obtain his undergraduate degree in mathematics at the University of Utah. He graduated during the Vietnam War and, after receiving a BS degree, joined the US Army. Four years later, Dr. Coray returned to the University of Utah to begin and complete a PhD degree, also in mathematics.

Having taught at Utah State for the past 25 years, Dr. Coray began advising "five or six years" ago. He notes that his advising responsibilities "got more intense when I became the undergraduate chair three years ago." The undergraduate chair assumes the responsibility of becoming the first contact point for all undergraduate majors; this year, the number of these students reached approximately 170. Dr. Coray explains: "When students declare themselves to be a major in our Department, I am the first contact point they make." At these advising sessions, Dr. Coray and the student visit, examine transcripts, and talk about the courses available before he assigns that student to an advisor in the Department. Of those 170 students, Dr. Coray will keep approximately 75 mathematics majors as advisees for the rest of their undergraduate careers.

Although this may sound like a big job, Dr. Coray and the other advisors in the Department of Mathematics and Statistics are kept even busier with the advising of other, nonmathematics majors. Dr. Coray explained that advisors in other colleges or departments call him when they are advising a student in their major (who has a math pre-requisite). "At least as much time is spent advising people who are not our majors but for whom mathematics is a prerequisite, which makes us the biggest department of that kind at the University."

As for advising, Dr. Coray's methods are simple and direct: "Provide the right answer for the person who seeks it." When asked if those answers were ever difficult to come by, Dr. Coray just shrugged and said: "You can find out the answers—always. If you care enough about the students' needs and you are confident in your job, all

you've got to do is match your understanding with their questions—that's not hard. You just have to be willing to spend the time."

"For me, it's important to give them [the students] the right advice and not make them run around." Dr. Coray calls his advising a "one-stop deal." He is the individual who can authorize a student to be in a class. "They don't have to go see anyone else." For Dr. Coray, the idea is to provide good advice and make sure the student is placed in the right class; if they are not, the result is often a waste in time and expense.

Aside from advising, Dr. Coray also helps modify the undergraduate programs and curriculum, as necessary, as well as assumes a full load of teaching "and such time as I can to work on research as well." Dr. Coray's research focuses on numerical analysis.

When asked about other interests apart from teaching, researching, and advising, he gave one answer: "My granddaughter; the center of the universe." Other interests, perhaps less important than his 16-month old granddaughter, include spending time with his wife, Bobbie, his family, fishing, an occasional round of golf, and gardening.

Researcher of the Year

Richard Holz, an associate professor in the Department of Chemistry and Biochemistry, was selected as the College of Science 2001 Researcher of the Year. Although surrounded by



Richard Holz (top left) and his Research Students.

large piles of paper work in a seemingly cluttered office, Dr. Holz is very productive in his work. "My old boss at graduate school always used to say that people with the messiest desks get the most done." He and his research group are currently located in the new Widtsoe Chemistry Building, working with enzymes that are anti-cancer targets or "novel antibiotic targets."

Dr. Holz grew up in Roseville, a suburb of St. Paul, Minnesota. He received a BS degree at Bemidji State University, Minnesota, and an MS degree at the University of Minnesota at Duluth. He then moved to The Pennsylvania State University where he obtained a PhD degree from researching the same topic that he studied for his MS degree: lanthanide chemistry, researching Magnetic Resonance Imaging (MRI). "I was working on molecules that would function as MRI agents."

After obtaining his PhD degree, Dr. Holz completed a National Institutes of Health (NIH) postdoctoral fellowship at the University of Minnesota. There, he began working more on the enzymology of metalloproteins.

In 1992, Dr. Holz came to Utah State. He has since been focusing his research efforts on mechanistic enzymology. As part of a brief description summarizing his group's research, Dr. Holz wrote: "My research group is working on the mechanistic enzymology of metalloproteases, namely, the leucine aminopeptidase from *Aeromonas proteolytica* (AAP) and the methionyl aminopeptidases from *Escherichia coli* and *Pyrococcus uriosus*. Over the past several years, my group has determined the molecular mechanism of the hydrolytic reaction catalyzed by AAP in detail. At this time, the mechanism of action of AAP is characterized in the greatest detail of any dinuclear hydrolytic enzyme."

Dr. Holz and his research group currently have collaborations with Pfizer and Gilford Pharmaceuticals. With this collaboration, he says, "We're trying to integrate our research at a more basic level with the pharmaceutical companies who have the power to actually produce drugs."

While helping his students progress through the discouragements and failures of research, Dr. Holz tries to help them maintain a positive attitude and understand that "you might have short-term problems or experiments that don't work, but you can always see the light at the end of the tunnel by continuing on." Dr. Holz says that because it is a group effort and new ideas are constantly presented, he and his student researchers can "work through those [problems] in a very short time and continue forward."

Holz is also very excited about having one of his research students, David Bienvenue, recognized as the 2001 Graduate Student Researcher of the Year in a PhD program. "It's really the students that should be recognized in this award," says Dr. Holz. "It's their work that allows me to be recognized."

When asked what other areas of research he would consider taking part in, Dr. Holz stated: "My interests are focused on mechanistic enzymology," and that is where he believes his interests will remain. "There are just so many enzymes out there that people know very little about which catalyze some extremely interesting reactions that involve both industrial and biological processes." Dr. Holz continues: "With the focus from the federal government on adding more money to NIH—doubling NIH's budget—it is clear that politicians and policy makers also see the importance of [this] research."

Dr. Holz plans to continue in this direction for at least the next 10 years. After that, he mentioned that, if anything, he would consider conducting research into "bio-catalysts for industrial processes."

Outstanding Students Recognized by College

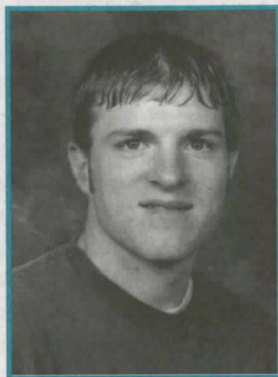
Department of Geology

Jamie Farrell is the outstanding student from the Department of Geology this year. Having grown up in Canal Fulton, Ohio, Jamie has now graduated cum laude from Utah State with a BS degree in geology.

Before coming to Utah State in the summer of 1999, Jamie attended two years at Bowling Green State University, Ohio, where he was an environmental science major. This was where Jamie says he first became interested in geology: "My last semester at Bowling Green State University, I took a geology class. I had just come back from a summer in Yellowstone, and geology was on my mind. From then on, I knew I wanted to be a geology major." Jamie then transferred to Montana State University in Bozeman, Montana, attending two years there as well.

While at Utah State University, he has received several other awards—including the Utah Geological Association Field Camp Scholarship and a grant from the Department of Geology to continue his senior thesis research, "Finding the Pre-Grand Canyon Colorado River: Petrology of the Muddy Creek Formation North of Lake Mead." His advisor for this project was Dr. Joel Pederson. "Joel Pederson has really helped me to learn how to conduct research," says Jamie.

Though currently living in Providence, Utah, Jamie and his wife, Nicole, will soon be moving to Salt Lake City, Utah, so they can begin graduate school at the University of Utah this fall. There, Jamie hopes to obtain an MS degree and conduct research on Yellowstone National Park. "I will be focusing on tectonics and seismology."



Jamie Farrell

reports: "I really liked interacting with other students and teaching. I learned a lot more about the basics of statistics and better techniques for teaching. It is not as easy as it seems."

Throughout her undergraduate studies, especially her public health classes, Laura became especially interested in the genetic approach to the study of diseases. "Diseases are continuously emerging, and we have a great challenge in figuring out how to effectively combat them as they arise. I would like to be part of the research that is going on in fighting infectious diseases." As part of her doctoral research, Harvard is specifically funding Laura to study AIDS and infectious diseases. She then plans to work with medical researchers either consulting as a university professor or working in industry.

Before she begins her research at Harvard, Laura will be interning at the Los Alamos National Laboratories in New Mexico throughout the summer where she will be working on the statistical analysis of micro-arrays, a new technology used in genetics.

Sarah Schwartz is another outstanding student, specifically in the area of math education, from the Department of Mathematics and Statistics.

Sarah was raised in Rexburg, Idaho, and after high school attended Ricks College in Idaho, graduating in pre-dental hygiene. She then moved to Utah State University, changed her educational focus, and graduated in December 2000 with a BS degree in math, majoring in math education and minoring in chemistry.



Sarah Schwartz

While working toward her undergraduate degree, Sarah most enjoyed her upper-level math classes. Dr. Robert Heal was one of her favorite professors from whom she enjoyed studying probability and analysis. Dr. James Cangelosi was another favorite professor; from him she studied her favorite course: History of Math. Sarah says this course "gave a lot of personal insights to what we think of as textbook math. We got to hear, see, and study the stories behind how things came about, why people discovered this [math], and why they made up certain rules."

Sarah hopes to obtain a high school teaching position in Cache Valley over the summer. "Right now, I'd like to get out and teach for a few years." If possible, Sarah says she would later like to work on a PhD degree and then teach at the college level.

Aside from her math and chemistry studies at Utah State, she worked in the math tutor lab and was a member of the USU competition ballroom dance team. In her spare time, Sarah also enjoys water skiing.



Laura Forsberg

Laura Forsberg is one of three outstanding students for the Department of Mathematics and Statistics, obtaining a dual major in both mathematics and statistics. Having received a BS degree this past May, Laura will be attending Harvard University this fall to pursue a PhD degree in biostatistics.

In addition to her studies, this Centerville, Utah, native taught recitations for business statistics. She

Department of Mathematics and Statistics



Benjamin Woodruff

Benjamin Michael Woodruff was also chosen as one of the three outstanding students in the Department of Mathematics and Statistics. The Outstanding Graduating Senior award was presented to Ben for his significant contributions to the courses, programs, and activities in the Department of Mathematics and Statistics.

Ben grew up in Idaho Falls, Idaho, and, having “always been good at math,” knew he wanted to major in math during the beginning of his senior year in high school. His decision to come to Utah State was based primarily on the fact that he could receive a “full-ride scholarship” from the University.

While studying for his undergraduate degree, he enjoyed working in topology, linear algebra, and analysis. Among his professors, Ben most appreciated his teacher and advisor, Dr. Chris Coray. “I enjoyed Dr. Coray, his classes, his jokes, and also his honest advice.”

Among his other awards and honors received at Utah State, Ben was the recipient of the Hunsaker Scholarship; he is also a Phi Kappa Phi honor student and was a constant member of the Dean’s List.

This fall, Ben plans to pursue a PhD degree in mathematics at Brigham Young University in Provo, Utah, after which he hopes to secure employment in academia as a college professor teaching mathematics.

Department of Physics

John James is this year’s outstanding graduating senior from the Department of Physics. John grew up in Kearns, Utah, and after high school joined the US Army in 1994. John says that this was where he first became interested in the study of physics. Having graduated from USU this May, John is now continuing his education at Utah State University, pursuing a PhD degree and studying “plasma confinement for thermonuclear fusion devices.” He has no specific plans for any postdoctoral work, but he plans to complete his PhD degree by 2005.



John James

With a doctoral degree in hand, John hopes to teach in either Alaska or some other place in the northern United States. “At this point,” he says, “I hope to teach graduate-level physics—probably computational/numerical methods and plasma physics among others.”

While still pursuing his undergraduate work, John enjoyed studying astrophysics with Dr. Farrell Edwards and introductory physics with Dr. David Peak. In his free time, he enjoys being with his family. The rest of his time is spent with computers and writing. “My family is a great support to me—especially my wife, Heidi. I thank her every day. My three girls are wonderful, but they are too young to know I do anything different than ‘normal’ dads do.”

His advice to others entering the field of physics is “learn how to work hard.” John believes that working toward only easy goals and choosing only easy paths wastes a student’s talents. Though John does not consider himself to be an exceptionally hard worker, he has continued to excel throughout all his classes and received this award for his “significant contributions to [physics] department programs and activities.”



Professor Emeritus Melvin Cannon: Chemist Turned Geologist

Forty-five years ago, nestled deep in old Widtsoe Hall, resided the entire, if somewhat small, Department of Chemistry; a department under the direction of Dr. Melvin Cannon. Dr. Cannon, 88 years old this year, still remembers those years. Indeed, he still remembers all his years and his many accomplishments with a feeling of satisfaction. His hard work and dedication are qualities that are distinctive in his career and current life.

Dr. Cannon grew up in Utah and attended school at the University of Utah. After his many years of schooling, Dr. Cannon chose to work in industry. One of his jobs during the next several years included working at the Mellon Institute of Industrial Research in Pittsburgh, Pennsylvania, where he labored on a process to commercially produce synthetic rubies and sapphires, which were processed into jewel bearings. Eight years later, after several positions at different locations, Dr. Cannon moved his family to Colorado to begin work at the University of Denver, where he taught chemistry. Although he would remain at that institution for only one year, academia was a career he would pursue until retirement.

Dr. Cannon began his career at Utah State in 1948, 53 years ago. "My main interest at USU was teaching." And teach he did in his primary field of study: analytic and inorganic chemistry. His research included "high temperature, inorganic processes" and "inorganic phases of solids." Although he conducted most of this research at Utah State, Dr. Cannon also took several leaves of absence to conduct further research at other institutions—including Los Alamos National Laboratories, Argon National Laboratories, and Cornell University.

Seven years after coming to Utah State, he became the head of the Department of Chemistry. He recalls: "We had five staff members at that time [1955] and we were located in the old Widtsoe Hall." At this time, Widtsoe Hall also housed the Department of Physics and the USU Experiment Station. A few years later, Dr. Cannon worked to upgrade his department, moving from a knowledgeable, but meager staff of five to fifteen.

In 1978, Dr. Cannon retired from the University and was appointed emeritus professor in honor of his many years of service. He had taught Chemistry at Utah State for 30 years, 13 of which were spent as department head.

Retirement, however, was not to be uneventful; rather, it allowed time for other interests and hobbies.

Called a "rock hound" by his wife, Anne, Dr. Cannon has long pursued an interest in geology. He enjoyed conducting x-ray diffraction identification, a process that allows an individual to identify mineral types. Having identified thousands of minerals through this technique, Dr. Cannon has donated "nearly 900 mineral specimens to the Geology Department."



Dr. Melvin Cannon and his wife, Anne.

Dr. Don Fiesinger, interim dean of the College of Science and former geology department head, remembers his acquaintance and work with Dr. Cannon. "I've known Mel for many years. I came here in 1976, prior to Mel's retirement, and I remember that he took a couple of my courses—mineralogy and optical mineralogy. He has spent many hours doing X-ray diffraction work to identify numerous specimens in the Geology Department, including the better part of the Wilford Gray Collection (donated to Geology in 1988) and also the zeolite specimens that I brought back from my sabbatical in India around 1984." Dr. Fiesinger also notes that Dr. Cannon assembled an extensive "micro-mount" collection of near microscopic-sized crystals from material that was part of Dr. Cannon's and the Wilford Gray collection. "This collection must run into the hundreds of specimens, all very meticulously identified and labeled by Mel. I would consider him to be the best amateur mineralogist in northern Utah."

Dedicating much of his retirement to "collecting minerals," Dr. Cannon is a member of the Cache Geologic Society, attending field trips with the other society members in search of the rocks and minerals he finds so fascinating. Along with finding and categorizing, Dr. Cannon also enjoys mounting the minerals into jewelry. "I design necklaces and pendants," he states, while his wife holds several specimens in her hand, each displaying a unique design and polished mineral. Included among this jewelry is a large ruby ring, one of the

synthetic rubies Dr. Cannon helped create while at the Mellon Institute of Industrial Research in the first years after his schooling.

Retirement has also allowed Dr. Cannon and his wife the time to indulge in another of their favorite, shared hobbies: traveling. "We've been to Russia and Siberia, England and the British Isles, Alaska, Jerusalem, Turkey, Greece, and Egypt." At each destination they enjoyed the sites and uniqueness. From 1980 - 1982, they also served as missionaries for their church in the state of Pennsylvania.

Dr. Cannon and his wife have also dedicated much of their time to their family. Married in 1937, he and his wife have enjoyed 63 years of marriage—"64 years in August. And to the same wife!" he proudly notes. Their four children, Bonnie, Melvin Jr., Marcia, and Kenneth have each been a source of pride to their parents. They have 10 grandchildren and 4 great-grandchildren.

Both the College of Science and the Department of Chemistry and Biochemistry thank Dr. Cannon for his many years of service and dedication.

National Phi Kappa Phi Fellowship Award

Michael S. Wilkinson, son of Dr. Stuart and Janet Wilkinson, received a National Phi Kappa Phi Fellowship Award on 17 April 2001. Michael, a native of Logan, Utah, graduated this May from the Department of Chemistry and Biochemistry with a BS degree in chemistry. This prestigious award is presented to only 50 students throughout the United States each year; Michael joins an impressive 14 students from the various colleges at Utah State who have won these national fellowships in the last 20 years. As part of this honor, Michael received \$7,000, which will help him continue in his education. He was also inducted into the Phi Kappa Phi Honor Society, along with 146 other Utah State students.

While attending Utah State, Mike has received many other honors and awards, including the Van Orden Endowment Scholarship, the Freshman Handbook of Chemistry Award, the Superior Student Scholarship, and the chemistry department A. Garth Hansen Endowment Scholarship.

Concerning his many courses and studies while pursuing his undergraduate degree, Mike says he was most benefitted from his acquaintance with Dr. Scott Ensign. Mike tells of his freshman chemistry class, a course taught by Dr. Ensign: "I met Dr. Ensign and he was the one who talked me into going into chemistry." Mike says that Dr. Ensign played the most prominent role in helping and advising him throughout his undergraduate career, especially, Mike says, "in providing me with opportunities to do research."

Aside from his studies at Utah State, Mike was a cellist with the USU Symphony Orchestra. Having played since the fourth grade, Mike has enjoyed his time spent with the orchestra. His other activities include remaining heavily



*Michael Wilkinson and wife, Amanda,
at the College Graduation Open House*

involved in his church and with the Church of Jesus Christ of Latter-day Saint's Institute program on campus.

Mike also enjoys mountain biking, ultimate frisbee, and walking or running with his wife, Amanda, who works as an elementary teacher in Cache Valley.

In the fall, Mike and his wife will move to Massachusetts where he will attend the Harvard School of Dental Medicine for four years and then remain at Harvard for another five years to specialize in oral and maxillofacial surgery. Although this schooling seems long, Mike looks forward to opening his own practice.



Awards, Honors, and Publications

Insights welcomes news of alumni awards, honors, and publications. Please mail announcements to Insights, Office of the Dean, College of Science, Utah State University, 4400 Old Main Hill, Logan UT 84322-4400, or use the ALUMNET form on the back cover. Please include book covers if available. Announcements may also be emailed to colettley@cc.usu.edu or faxed to (435) 797-3378.

Alumni Awards, Honors, and Publications

Arthur Wallace (BS 1943, Chemistry) was recently honored by the International Symposium on Iron Nutrition and Interactions in Plants for his role in developing and supporting the iron program for the past 20 years. Dr. Wallace had been serving as the general secretary for this program's steering committee.

Faculty Awards, Honors, and Publications

Abdallah R. Barakat and Robert W. Schunk, Department of Physics and Center for Atmospheric and Space Sciences, wrote and published "Effects of Wave-Particle Interactions on the Dynamic Behavior of the Generalized Polar Wind" in the *Journal of Atmospheric & Solar-Terrestrial Physics*.

Alexander I. Boldyrev, Department of Chemistry and Biochemistry, was recently published in *Science* and *Angewandte Chemie International Edition*. His articles were, respectively, "Observation of All-Metal Aromatic Molecules" written with Xi Li, Aleksey E. Kuznetsov, Hai-Feng Zhang, and Lai-Sheng Wang and "Pentaatomic Tetracoordinate Planar Carbon, [CA14]2-: A New Structural Unit and Its Salt Complexes" written with Xi Li, Hai-Feng Zhang, Lai-Shen Wang, and Grant D. Geske.

James H. Cane, Department of Biology, published "Pollen Nutritional Content and Digestibility for Animals" with T'ai Roulston in *Plant System and Evolution*. Dr. Cane also published "Origins and Ecological Consequences of Pollen Specialization Among Desert Bees," co-authored with Robert L. Minckley and Linda Kervin, and presented at the Proceedings of Royal Society (London).

Scott R. Cannon, Department of Computer Science, in cooperation with Larry Denys, published "A Self-Configuring Kernel for Satellite Networks" in *Communicating Process Architectures*.

Heng-Da Cheng, Department of Computer Science, recently published four new articles: "Thresholding Using Two-Dimensional Histogram and Fuzzy Entropy Principle" with Yanhong Chen and Xihua Jiang (MS 2000, Computer Science) in *IEEE Transactions on Image Processing*; "A Hierarchical Approach to Color Image Segmentation Using Homogeneity"

with Ying Sun in *IEEE Transactions on Image Processing*; "A Novel Fuzzy Logic Approach to Contrast Enhancement" with Huijuan Xu (MS 2000, Computer Science) in *Pattern Recognition*; and "Design of a Configurable Accelerator for Moment Computation" with Donald L. Hung and Savang Sengkhamyong in *IEEE Transactions on VLSI Systems*.

Bradley S. Davidson, Department of Chemistry and Biochemistry, along with B. Travis Messenger, recently published "Synthetic Studies Toward the Microtubule Stabilizing Agent Laulimalide: Synthesis of the C15-C28 Fragment" in *Tetrahedron Letters*. Dr. Davidson also published "Synthetic Studies Toward the Microtubule Stabilizing Agent Laulimalide: Synthesis of the C1-C14 Fragment" with Geoffry T. Nadolski in the same journal.

Nicholas S. Flann, Department of Computer Science, published "The Collective: GIS and the Computer-Controlled Farm" with R.W. Gunderson and Mel W. Torrie in *Geospatial Solutions*. He also published "A Six-Wheeled Omnidirectional Autonomous Mobile Robot" with Kevin L. Moore in *IEEE Control Systems Magazine*.

Timothy A. Gilbertson, Department of Biology, received a patent titled "Taste Enhancing Food Additives" on 26 December 2000.

Piotr Kokoszka, Department of Mathematics and Statistics, has published several articles in a variety of publications over this past year. These include: "Approximations for Bootstrapped Empirical Processes" with Miklos Csorgo and Lajos Horvath in *Proceedings of the American Mathematical Society*; "Stationary ARCH Models: Dependence Structure and Central Limit Theorem" with Liudus Giraitis and Remigijus Leipus in *Econometric Theory*; "Approximations for Weighted Bootstrap Processes with an Application" with Lajos Horvath and Josef Steinebach in *Statistics and Probability Letters*; "Large Sample Distribution of ARCH(p) Squared Residual Correlations" with Lajos Horvath in *Econometric Theory*; "Change-point Estimation in ARCH Models" with Remigijus Leipus in *Bernoulli*; and "The Periodogram at the Fourier Frequencies" with Thomas Mikosch in *Stochastic Processes and their Applications*.

Peter T. Kolesar, Department of Geology, was elected to the Phi Kappa Phi National Honor Society this past April.

Joseph R. Mendelson III, Department of Biology, in cooperation with Daniel G. Mulcahy, published "Phylogeography and Speciation of the Morphologically Variable, Widespread Species *Bufo valliceps*, Based on Molecular Evidence from mtDNA Molecular" in *Phlogenetics and Evolution*.

Joel L. Pederson, Department of Geology, published "Neogene Through Quaternary Hillslope Records, Basin Sedimentation, and Landscape Evolution of Southeast Nevada" with Frank J. Pazzaglia, Gary A. Smith, and Yun Mou in *Geological Society of America Field Guide*. Dr. Pederson, along with Gary A. Smith, and Frank J. Pazzaglia, also published "Comparing the Neogene, Quaternary, and Modern Records of Climate-Controlled Hillslope Sedimentation in Southeast Nevada" in *Geological Society of America Bulletin*.

John Peters, Department of Chemistry and Biochemistry, won a Camille Dreyfus Teacher-Scholar Award this past April, one of only 16 chemists in the country to be honored. Dr. Peters was also elected to the Stanford Synchrotron Radiation Laboratory Users' Organization Executive Committee and appointed to the Board of Expert Analysts for the inorganic chemistry edition of the journal *Chemtracts*.

Jerry Ridenhour, Department of Mathematics and Statistics, recently published in the *Journal of Mathematical Analysis and Applications* with his article "Hamiltonian Systems on Time Scales," co-authored with Calvin D. Ahlbrandt and Martin Bohner.

Lance C. Seefeldt and John W. Peters, Department of Chemistry and Biochemistry, along with Se Bok Jang, published "Insights into Nucleotide Signal Transduction in Nitrogenase: Structure of an Iron Protein with MgADP Bound" in *Biochemistry*.

Dr. Paul G. Wolf, Department of Biology, along with **Sedonia Sipes** (MS 1996, Biology), published several articles this past year. These include "Phylogenetic Relationships within Diadasiina, a Group of Specialist Bees" published in *Molecular Phylogenetics and Evolution*; "Tests of Pre- and Post-Pollination Barriers to Hybridization between Sympatric Species of *Ipomopsis* (Polemoniaceae)," coauthored with D.R. Campbell, N.M. Waser, T.R. Toler, and J.K. Archibald and published in the *American Journal of Botany*; and "Horsetails and Ferns are a Monophyletic Group and the Closest Relatives to Seed Plants," coauthored with K.M. Pryer, H. Schneider, A.R. Smith, R. Cranfill, and J.S. Hunt and published in *Nature*.

The 2000 - 2001 College of Science Awards

Valedictorian Uyen Tu Chau
Department of Computer Science

Scholar of the Year Roderick Taylor
Department of Biology

**Graduate Student
Teacher of the Year Matthew J. Biesecker**
Department of Mathematics and Statistics

**MS Graduate Student
Researcher of the Year Matthew Pachell**
Department of Geology

**PhD Graduate Student
Researcher of the Year David Bienvenue**
Department of Chemistry and Biochemistry

Teacher of the Year James A. Powell
Department of Mathematics and Statistics

Advisor of the Year Chris S. Coray
Department of Mathematics and Statistics

Researcher of the Year Richard Holz
Department of Chemistry and Biochemistry



USU Alumni Reunion

Class of 1951

July 26, 2001

Utah State University will host a reunion this summer for graduates of the class of 1951. Class members are invited to attend the following activities: a luncheon, a campus tour, the musical production "South Pacific," brunch with a guest speaker, and the Golden Aggie Reunion Banquet.

Living USU science graduates from 1951 are listed below. If you, or someone you know is not listed, please contact Alumni Relations at alumni@cc.usu.edu or 1-800-291-ALUM.



Lamont D. Allan
Roland Bruce Ashman
Robert Lamar Baxter
John Robert Baylis
George Merrill Brown
John V. Bruce
Archie M. Brugger
Wayne Wilmer Bryant
Robert Call
Curtis B. Campbell
Woodrow W. Copeland
Elwood M. Cottle
Thomas D. Cottle
Elwin Carter Dickson
David N. Erdenberger
Joseph K. Everton
Marlin A. Fife
Wynn B. Fife
Robert C. Forbes
Homer S. Ford
John M. Foster
Carol Funk
Ray Merritt Glahn
Russell O. Glauser
Wallace L. Hebertson
Reed M. Izatt
Garth A. James
Richard John Knight

Louis Lamoyne Marsden
Richard Denton Mathews
Kenneth B. Maughan
Walter Dan McComb
Gene L. Moosman
Wallace P. Murdoch
Frank Quentin Nuttall
Ehard Forrest Nutting
Charles G. Peterson
Hal D. Peterson
Robert Loran Powelson
Cleve Al Raymond
Lynn Richards
Gordon Kenneth Ricks
Malcolm Ross
Thomas A. Ross
Dick Curtiss Seamons
Donald E. Skabelund
John L. Sorensen
Orval C. Sorensen
John W. Thieret
Mildred Ann Thieret
Louis Uresk
Lewis Glenn Weathers
Don Alvan Wilkinson
Kenneth E. Wolf
Grant F. Yost



ALUMNET Responses

1930s

Theodore O. (Ted) Thatcher (BS 1933, MS 1935, Entomology) is a retired professor at Colorado State University; he served CSU from 1948 to 1973 after completing a PhD degree in 1948 at the University of California at Berkeley. Thatcher still remains active in his profession; he is currently conducting research on the spotted tentiform apple leaf-miner.

1940s

Edward E. Burgoyne (BS 1941, Chemistry) received a PhD degree in 1949 from the University of Wisconsin at Madison. Between the years of 1949 to 1951, Burgoyne worked as a research chemist for Phillips Petroleum Company and from 1951 to 1983, as a professor at Arizona State University. Burgoyne also published the textbook *A Short course in Organic Chemistry* and, among other honors, was listed in *American Men of Science*, and is a member of Sigma Xi, Phi Kappa Phi, and the American Chemistry Society. He is also a retired lieutenant colonel in the US Air Force and had three patents granted while at Phillips Petroleum Company.

Clark J. Gubler (MS 1941, Biochemistry and Bacteriology) received a PhD degree as a biochemist from the University of California at Berkeley in 1945. He taught Biochemistry at the University of Utah and then Brigham Young University in Utah until 1978. Gubler has 167 scientific publications from his research while working as a professor. After his retirement, he taught four years at the University of Kuwait and in 1989 was awarded a Fulbright Scholarship at Quaboos University in Oman.

Lyle A. Hale (BA 1948, Geology, MS 1950, Petroleum Geology), after obtaining an MS degree from Utah State, he went to work for Mountain Fuel (Questar) as a consulting geologist. In 1974, he received the "Explorer of the Year" award and also, among other publications, published "Anatomy of W. Phosphate Field" in 1968. Hale, though now retired from Questar, teaches writing and personal history but says he is still very interested in oil and gas discoveries in the Rocky Mountain Region. Hale spends his winters in Bountiful, Utah, and his summers in Star Valley, Wyoming, where he owns a trout ranch.

1950s

Charles A. Robinson (MS 1950, Administrative Math and Science) worked with the Weber, Cache, and Sevier school districts in Utah, as well as the Hill Air Force Base school system. Robinson is retired but still enjoys substitute teaching and working at the Sylvan Learning Center. He also spends time working in construction with his sons.

1960s

Mary Ann Ebbeler (BS 1966, Medical Technology) has put her skills to work for Intermountain Health Care, Inc.

1980s

Darla Graff Thompson (BS 1987, Biology, BS 1988, Chemistry, PhD 1994), this past year was married and gave birth to twin boys. She is also a full-time staff member at Los Alamos National Laboratories, working in the explosives division.

1990s

Kelly A. Schofield (BS 1997, Microbiology) graduated with an MD degree from Duke University School of Medicine this May, 2001.

Alumni: In Memorium

The College of Science extends its deepest sympathy to the families of the following alumni:

Fred B. Bailey, BS 1933, Zoology—14 April 2001

Fred Somers, BS 1935, Botany—14 June 2000

Darwin H. Jepsen, BS 1936, Geology—19 September 2000

Reed H. Brenchley, BS 1939, Zoology, MS 1965, Educational Administration—15 February 2001

Wilmar W. Condie, BS 1948, Mathematics—11 November 2000

Walter Legrand Whipple, BS 1949, Mathematics—16 May 2000

William E. Harper, BS 1950, Bacteriology—9 August 2000

James E. Lindsay, Jr., BS 1951, Pre-dental Biology—10 September 2000

Richard Baker, BS 1953, Pre-dental Biology—7 August 2000

Ronald David Ransom, BS 1958, Mathematics—29 October 2001

Len Malore Miller, BS 1963, Applied Statistics—4 January 2000

Clinton Lavel Davis, BS 1967, Geology—23 August 2000

Harold A. B. Gardiner, PhD 1968, Physics—10 October 2000

David B. Finlinson, BS 1969, Mathematics—22 February 2000

Richard Lewis Jones, BS 1970, Geology—30 September 2000

Shauna Skidmore, BS 1983, Botany—12 March 2001

Richard Wesley Reynolds, BS 1989, Statistics—21 January 2001

Douglas D. Chavez, BS 1997, Mathematics—12 March 2001

John R. Bennett, BS 1998, Chemistry—19 September 2000

The USU College of Science offers the following undergraduate and graduate level degrees:

DEPARTMENT OF BIOLOGY 435-797-2485 www.biology.usu.edu

Biology: BS, BA-Options: Biology, Cellular/Molecular, Ecology/Biodiversity, Environmental MS, PhD

Composite Teaching-Biological Science: BS, BA

Public Health: BS-Options: Public Health Education, Environmental Health, Industrial Hygiene

Ecology: MS, PhD

Toxicology: MS, PhD

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY 435-797-1619 www.chem.usu.edu

Chemistry: BS-Options: Professional Chemistry, Biochemistry, Chemistry Education, Life Science BA, MS, PhD

Biochemistry: MS, PhD

DEPARTMENT OF COMPUTER SCIENCE 435-797-2451 www.cs.usu.edu

Computer Science: BS, BA-Options: Science, Digital Systems, Information Systems MS, PhD

DEPARTMENT OF GEOLOGY 435-797-1273 www.usu.edu/~geoldept

Geology: BS, BA-Options: General Geology, Hydrogeology, Geoarchaeology MS

Composite Teaching-Earth Science: BS, BA

DEPARTMENT OF MATHEMATICS AND STATISTICS 435-797-2809 www.math.usu.edu

Mathematics: BS, BA-Options: Mathematics, Actuarial, Computation Mathematics MS

Mathematics Education: BS, MM

Statistics: BS, BA, MS

Dual Majors: BS-Mathematics and Physics, Mathematics and Statistics, Mathematics and Electrical Engineering

Industrial Mathematics: MS

Mathematical Sciences: PhD-Options: Pure, Applied, Statistics, College Teaching, Interdisciplinary

DEPARTMENT OF PHYSICS 435-797-2857 www.physics.usu.edu

Physics: BA, BS-Options: Physics, Professional, Applied MS, PhD

Physics Teaching, Composite Teaching-Physical Science: BS

Physics (Upper Atmospheric Physics): MS

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COLLEGE OF SCIENCE

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science.usu.edu



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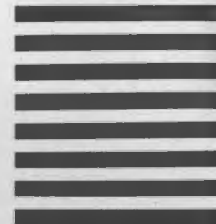


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A L U M N I E T

Dear College of Science Alumni and Friends,

We always enjoy hearing from you and hope you will take a moment to complete and mail this alumni information form. Please note the postage-paid format—simply cut off this last page of the newsletter, fold along the lines marked on page 27, tape it shut, and drop it in the mail. You can also email your information to scido@cc.usu.edu or fax it to us at (435)797-3378.

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Email address _____ Web page URL _____
USU degree(s) _____ Year(s) _____ Major(s) _____
Other degree(s) _____ Year(s), school(s) _____
Profession/employer _____
Professional/personal awards _____
Books Published _____
About yourself _____

Question for "Ask the Scientist" _____

Insights, the alumni newsletter of Utah State University College of Science, is published twice a year. Its purpose is to inform alumni and friends of current events, projects, and changes within the College. The newsletter also provides a forum for alumni to follow one another's careers and professional development. This issue of Insights was produced under the direction of Amber Lucero, editor, and Colette Yates, project coordinator and editor. Special thanks to Interim Dean Don Fiesinger, Liz Allred, Ann Aust, Dan Beaver, Edmund Brodie, Melvin and Ann Cannon, James Hasler, Jon Takemoto, W. John Raitt, and John Wood; Deneil Tippetts and USU Photo Services for photography or other services. Special thanks also to Associate Dean Kandy Baumgardner and Linda Keith for editorial assistance.

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