

# Insights

Spring 1998

College of Science

Alumni Newsletter

Vol. 6 Issue 1

## MacMahon's Musings

When you read this note we will be in spring quarter, our last academic term in the quarter format. In the fall we make the switch to the semester system. The transition has not been without problems; however, the faculty have worked hard and the switch will be about as smooth as possible. Every department in the College of Science used the switch to semesters as an opportunity to examine their teaching programs, including requirements for majors, course content, the development of new courses and, as might be expected, dropping courses that no longer fit our concept of an excellent curriculum. We do such introspective analyses of various classes frequently, but wholesale analysis is much less common. From my vantage point, I am excited by what the faculty has initiated. I can, without hesitation, recommend that you send your sons and daughters to major in science at USU, knowing that they will be even better trained than you were.

Spring quarter also marks the second time we contacted you by mail and perhaps by phone to ask for your financial support. Many of you have already responded generously, and I thank you. We have many projects that need your help and we hope that you will find that your current circumstance will allow you to help us out a little. Students still need scholarships, as well as some funds that will support them while they are conducting undergraduate research projects. Our experience is that graduate schools, medical schools and a variety of employers all like to see

**MUSINGS...**

*Continued on page 4*



Dean Jim MacMahon

## College of Science Leads the Way in Technology-Enhanced Learning

Ask Dr. Chris Coray of the Department of Mathematics and Statistics about the opportunities technology offers to the science classroom and his voice quickens. He interrupts a torrent of information to say, "Stop me if I lose you. I tend to get carried away."

Questions directed toward any other department in the College of Science elicit similar enthusiastic response.

Technology-enhanced learning is enlivening College of Science classes, and USU professors are contributing significantly to the growth of computer-enhanced learning across the country.

Much of this growth is fueled by funds from the Utah Higher Education Technology Initiative (HETI), and curriculum developments are aimed at both classroom instruction and distance learning.

In 1993-94, Dr. Bob Heal, Department of Mathematics and Statistics, worked with Dr. Jim Dorward, Department of Elementary Education, to develop a unique computer-enhanced classroom thanks to ETI funds and financial support from the provost's office at USU. The classroom, housed in Geology 405, has thirty networked computers, one for each student. Each computer is mounted beneath the desk and the student views the monitor through a transparent Lexan desktop. The keyboard and mouse pad are pulled from under the desktop and a computer-equipped instructor's station integrates an Elmo projection unit with an overhead color projection system. This design gives each student immediate

**"We believe technology can help students learn mathematical concepts in ways that have never before been possible"**

access to mathematics software while allowing for maximum flexibility of instruction.

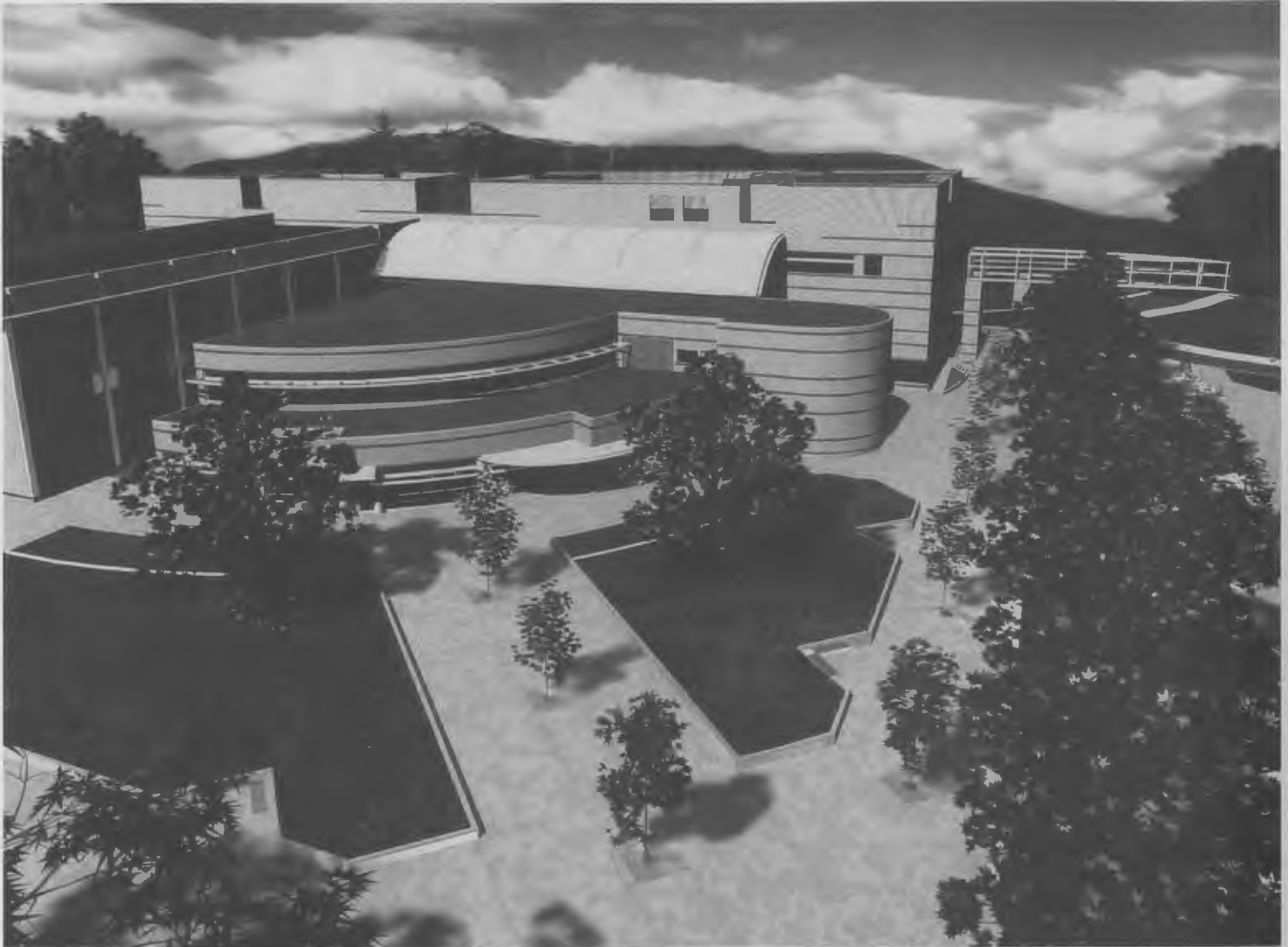
Heal also worked with Dr. Larry Cannon, Department of Mathematics and Statistics, to develop an interactive, computer-based learning environment for precalculus. Together they developed highly interactive concept tutorials which "truly engage and involve students," says Heal. "In many ways," he continues, "the computer-based learning environment becomes the student's own

**LEARNING...**

*Continued on page 8*

## Inside Insights

Alumnet Form .....	back cover
Alumnet Responses .....	17
Alumnus Honors Father .....	7
Awards, Honors and Publications .....	15
Calendar .....	7
Class Reunions: 1938, 1948 and 1958 .....	16
College Coffee Break .....	10
Commencement Activities .....	9
Expanding Your Horizons Conference .....	12
Gordon Research Conferences .....	14
Grant Funds Curriculum Expansion .....	4
In Memoriam: Dr. Reed Warren .....	6
MacMahon's Musings .....	1
Readers' Survey .....	19
Science Learning Center Nears Reality .....	2
Support of the College .....	5
Technology-Enhanced Learning .....	1



*The Eccles Science Learning Center (foreground) and Widtsoe Hall (background) will join Sherwin Maeser Laboratory (left) to serve as the catalytic center of the College of Science learning facilities.*

## Science Learning Center Nears Reality

As construction of the state-funded new Widtsoe Hall progresses, the financial cornerstones are falling into place for the Science Learning Center that will replace old Widtsoe Hall. The new Science Learning Center will be built where Widtsoe Hall now stands and will offer the opportunity for seamless integration of technology into science instruction at USU, as well as provide a gathering place for students, faculty and visitors to the University.

The Science Learning Center, which will be joined to new Widtsoe Hall by an atrium, will encompass an auditorium, a computer lab, two flexible classrooms each accommodating 80 to 100 students, student group project conference facilities, a media prep room, a prep wet lab, and department lockers for instructional material storage.

The centerpiece of the Learning Center will be the 500-seat auditorium. The auditorium will be equipped with a computer port at every chair, an electronic chalkboard, a demonstration bench fitted with a separate air-handling system, blast protection, and cameras to project work done on the bench to every student in the facility. All slides projected on the electronic blackboard will be downloadable via the individual computer ports, and two-way electronic interrogation will be possible between the instructor and each student. Satellite uplink will allow worldwide information sharing.

In the flexible classrooms, group learning tables will provide computer connections, will be easily moveable, and will encourage individual investigation of principles discussed in class.

Student group conference rooms will provide space for study groups, group learning projects and student interaction.

Dean Jim MacMahon hopes both the atrium and the computer lab will be accessible twenty-four hours a day. "The atrium will give students an attractive place to study or take a break from project work," MacMahon says. An area outside the auditorium will provide space for collegial meetings and receptions.

Construction of the Learning Center will begin after chemists move from the old Widtsoe Hall to the new Widtsoe Hall. The George S. and Dolores Doré Eccles Foundation has offered a \$3 million challenge grant for construction of the new Science Learning Center, which will be named the Eccles Science Learning Center. An additional \$1.5 million remains to be acquired by the College of Science.

The Eccles Science Learning Center will benefit all students at USU, regardless of their major. Faculty members agree that learning and instruction has been profoundly impacted by the integration of technology into instructional practices (see related story on technology-enhanced education). USU students must have the opportunity to investigate concepts and to handle complicated problem-solving situations made possible by technology. Without technology, "we could only present simple problems which are at best contrived versions of real world problems," says Joe Koebe of the Department of Mathematics and Statistics.

In addition to expanding problem-solving possibilities, technology broadens learning opportunities. Students with an investigatory learning style are able to explore concepts and theories; modeling in various disciplines becomes possible; and students are able to question instructors, even in large lecture classes.

As the College of Science enters the final phase of fund-raising for the project, individuals and corporations will be offered the opportunity to have a direct impact on the intellectual life of the College and on the future of all USU students. Several significant naming possibilities are still available on the Eccles Science Learning Center. The three-year project timetable has begun, and funding must be in place soon. In 2001, the Eccles Science Learning Center will open and learning possibilities at USU will be significantly enhanced. ♦



*A 500-seat auditorium will provide state-of-the-art computer access, electronic media capability and camera-equipped demonstration facilities to all USU students.*



*The three-story atrium connecting Widtsoe Hall and the Eccles Science Learning Center will provide students with an attractive place to study or take a break from project work.*

## Department of Education Grant Funds Science Curriculum Expansion

It's just past dusk as the hunter brings in his latest kill, a cougar, to be checked by the conservation officer. Cougars cannot be killed after dusk or before dawn, and it is the officer's job to verify the approximate time of death. Using a mathematical model of biological cooling, the officer is able to verify when the animal was killed.

This same type of problem is faced by conservation officers daily, and is the model for a new lab in a Utah State University biology class. The cougar cooling problem, as Dr. Jim Haefner, associate professor of biology, calls it, was developed in an attempt to integrate more quantitative thinking into the biology curriculum and is only one of many biomath labs that will soon be used.

Thanks to a recent Fund to Increase Post Secondary Education (FIPSE) grant from the US Department of Education, the USU biology and mathematics and statistics departments will be receiving \$100,000 per year for the next three years to develop classes that use math and require students to integrate learning from other disciplines into biology.

"We created this program because we were dissatisfied with the ability of students to use quantitative methods. Students were not getting a high quality education because they didn't have practice using math skills," Haefner says. "This is a pervasive problem across the nation."



*One of the goals of the FIPSE labs is to teach math and modeling concepts with hands-on experience. Here, Biology 126 students participate in a lab to develop a general model of a predator foraging. Blindfolded student Ryan Bradshaw plays the part of a general predator while his classmates determine the handling and search times with a stopwatch.*

The program is being spearheaded by six faculty members: Alice Lindahl, Jim Haefner and Dick Mueller from the Department of Biology, and Joe Koebbe, Jim Powell and Jim Cangelosi from the Department of Mathematics and Statistics. Together these professors have identified eight or nine courses which would benefit from math model labs. For example, in the introductory classes the students will

use math to study osmosis, cooling and photosynthesis. In the ornithology class, a mathematical model will be used to determine which types of birds are able to fly across the Gulf of Mexico to their wintering grounds in Central America.

"Our philosophy for this program is to give students exposure early in their career and then repeatedly have

**FUNDS...**

*Continued on page 13*

### **MUSINGS...**

some sort of research experience on a student's record of accomplishments. A summer research experience can be extremely valuable to a science-oriented student, so we are attempting to develop some summer scholarships. Of course, the faculty research grants also provide funds for some students, as do grants that are generated especially for education, such as the Howard Hughes Program in the Department of Biology.

Finally, spring means graduation and I want to invite each of you to join us for the festivities. Late May and early June are ideal times to be on campus. If you will be near Logan during that period, let us know and join us as we celebrate the work of our graduates. It is even possible that the Widtsoe Hall building project will be more than merely a huge hole in the ground by then. Maybe not. At any rate, visit us when you can.

Sincerely,

# Support of the College of Science Takes Many Forms

As you have seen highlighted in the article about the Widtsoe Hall/Eccles Science Learning Center in this issue of *Insights*, the partnership between public and private entities for the betterment of the College of Science is critical. Imagine the Widtsoe Hall project without the Eccles Science Learning Center or vice versa. Without the State, Widtsoe would not have funding for construction, and without the private charitable support of numerous Eccles foundations and other collaborators, the Eccles Science Learning Center would not be built for the benefit of all 20,000 students at USU.

**Did you know that only slightly more than one-third of the University's total operational budget comes from State tax appropriations?** In truth, Utah State University—and by extension our College—more closely approximates a State-assisted institution than a State-supported one. As such, the College's commitment to excellence in science education and research can be enhanced and dramatically strengthened with the help of increased private support from our alumni, friends, faculty, staff and others.

This is not to say that we no longer need the State to provide us with tax appropriations. Rather, it acknowledges that a partnership between the State and private sources can accomplish more in collaboration than can be attained individually.

**You, our alumni and friends, represent the greatest potential for private support of the College of Science.** Now, and in the years to come, the growing number of science majors in our College, fast approaching 2,000 students, need additional resources to be successful and competitive in our world. As a College committed to meeting the needs of our students, **the most critical support we seek is in the form of unrestricted gifts or scholarship gifts.**

**Regardless of the amount you are willing to contribute or the type of gift you may use, you can help support your College's collective commitment to excellence in science education and research.**

The following College of Science giving programs provide everyone with a way to make a charitable contribution in support of the College and to benefit our students:

- **The Annual Fund Campaign** is the nucleus of our giving programs and uses both direct mail and phonathon appeals to encourage contributions. It solicits gifts of all amounts from alumni, friends, faculty and staff. In March of this year, you should have received the College's direct mail appeal. Subsequently, those of you we were able to reach by phone were also asked to participate with a gift. In either case, if you responded with a gift, thank you. If you have yet to do so, know that whenever you are able to make that gift and no matter the amount, your participation is needed and appreciated.

- **Planned gifts** take the form of charitable bequests, life insurance, various trusts, appreciated real estate and securities, etc. Planned gifts are typically those gifts granted from one's assets rather than from one's income. Gifts such as this can be outright, but in most cases are deferred and therefore provide significant support for the future.

- **Endowment gifts** provide a means of perpetual support and can be established outright or grown over a period of time. A gift contributed to create or enhance an endowed fund is "the gift that keeps on giving," as only a portion of the earnings generated from the endowment's investment are used to annually provide support for the fund's established purpose. Annual, planned, and memorial or special gifts can all be used to create or enhance an endowment benefiting the College of Science.

- **Memorials and special gifts** can be made in someone's name or memory or for some other special purpose. Gifts of any size can be contributed at any time and can be one-time gifts designated for any purpose or on-going gifts to establish or enhance an endowment.

In this section of *Insights*, you will find a postage-paid reply envelope to request additional information on any of the giving programs mentioned here. Our Director of Development Jerome Davies is available to address your questions about these programs at (435) 797-3510. He can send you information by mail or will meet with you in person. We look forward to hearing from you. ♦

# In Memoriam: Dr. Reed Warren

Scientist, teacher, mentor and friend, Dr. Reed Warren died 26 January 1998 following a valiant fight against cancer of the kidney.

Internationally recognized for his research in immunology, Dr. Warren left a gap at Utah State University that will be difficult to fill. Dr. Warren had dual appointments with the Department of Biology and the Center for Persons with Disabilities. Renowned for his breakthroughs in the study of autism and attention deficit hyperactivity disorder (ADHD), Dr. Warren was also a highly respected immunology teacher.

One of Dr. Warren's associates, Dr. Bob Sidwell, director of USU's Institute for Antiviral Research, said, "He was very excited about what he was doing. He was a good writer, a good speaker, and an excellent teacher. He had a lot of care for individuals."

Raised and educated in Utah, Dr. Warren's influence in the medical community reached around the world. He was born in Price, Utah, and was awarded bachelor and doctorate degrees by the University of Utah. He worked as a research scientist at the Fred Hutchinson Research Center in Seattle, Washington, before coming to Utah State University in 1982.

Early in his career, Dr. Warren conducted studies that showed immune abnormalities were involved in autism. At the time he discovered this, few scientists had even considered the possibility. Five years ago, other findings began to confirm what Dr. Warren had found much earlier. In the last year and a half, he had become an internationally recognized leader in the field and in 1995 he spoke at the International Conference on Autism in Tronja, Sicily. In 1996 he was listed in *Who's Who in the West*, and his research had recently earned him an invitation to give the keynote address at the International Autism Society Conference to be held in London this year.

"Before Reed started this work in the early 1980s, there were isolated reports suggesting that autistic children have immunological abnormalities, but Reed was the first to really pursue these ideas in detail. No one had looked so closely at the possible role of infection," said Dr. J. Dennis Odell, a Logan pediatrician, medical director at CPD, and adjunct associate professor in biology, in a recent article in USU's alumni magazine.

Dr. Warren's own experience with a developmentally disabled son alerted him to the fact that such children are often sick; their ear infections, strep infections, and other health problems linger or reoccur frequently. As an immunologist, he wondered if this phenomenon might be related to developmental problems. In 1983 he started looking specifically at autism. Dr. Warren obtained two grants from the National Institute of Health, one in collaboration with Oregon Health Sciences University and the other in collaboration with the University of

Utah, to fund research in these areas.

"He had an extensive, broad understanding of immunology. Immunology is a rapidly growing field, and he kept on top of it, a challenge for any scientist," Dr. Sidwell said.

Roger Burger, research associate on Dr. Warren's research team, first met Dr. Warren ten years ago. For five years, Burger worked with Dr. Warren and Dr. Sidwell studying potential drugs to treat AIDS. For the last five years, Burger had worked with Dr. Warren on his autism research at the CPD. "His greatest quality was his ability to see beyond what we would find in the lab. He was able to put this in the greater picture," Burger said.

Despite the magnitude of his work, Dr. Warren never lost sight of basic qualities that he had developed. He was humble, caring and supportive. "He very seldom took vacation. He was a hard worker, but he was also very free and open with his time," Burger said.

His work ethic, however, never derailed him from what mattered most. "Even though all researchers strive for perfection, studies in biology research seldom are,"

Burger said. However, Dr. Warren was not upset by imperfection, even when experiments went wrong. "He would say there was always something to be learned from them."

One of Dr. Warren's closest associates was his wife, Louise, who worked with him as Dr. Odell's nurse. "His wife has always worked with him, and has been very instrumental in helping with the research. He depended on her a lot," Burger said. She visits the homes of ADHD-diagnosed patients, collecting blood samples from them and their families, and manages the detailed medical records of these families. "She would go all over the state collecting blood and gathering information," Burger said.

Mrs. Warren said Dr. Warren liked being at Utah State University. "Here he was able to really focus on his research. He enjoyed teaching his class. He enjoyed his students very much, and enjoyed his association with other colleagues," she said. "We're all trying to continue the research he started: Dr. Odell, Dr. Sidwell, Dr. Burger. We are going to keep the projects and grants he started going."

Working with other USU professors, Dr. Warren secured another grant from the Howard Hughes Foundation that introduced undergraduate students to research through multi-year laboratory experiences. Dr. Warren had a profound affect on the students he mentored. In a letter to the *USU Statesman*, Jennifer Gardner, a student in the program, wrote: "This patient and unobtrusive man supported me and undergraduates like myself and taught us to believe in our abilities to make significant contributions to research and society in general...He was an inspiration to us and will be greatly missed." ♦



Dr. Reed Warren

## Alumnus Honors Father with Endowed Scholarship



Dr. J. Keith Sorenson

Dr. J. Keith Sorenson is listed as a 1945 graduate of USU, with a major in pre dental biology. He was awarded his DDS by Northwestern University in Illinois in 1944. While those dates may seem to be an error, remember there was a war going on.

"I started my undergraduate work in 1938," says Dr. Sorenson, "and went to school straight through, summers and all." In 1941 he was accepted at Northwestern University and began postgraduate work. Pearl Harbor was bombed in December.

"Everything was speeded up then," says Dr. Sorenson. He was given a reserve commission in the army, summer vacations were eliminated, and he finished dental school in three years.

In 1944 Dr. Sorenson began his active service, a 1st lieutenant, and served his first year at Bushnell Hospital at Brigham City, Utah. "That was wonderful for me," he says. Science credits he had earned at Northwestern were applied to his USU requirements, and he was awarded his BS that year.

The following year the newly promoted Captain Sorenson was posted to Germany, where he served with the 776th Dental Operations Detachment.

The postwar years found Dr. Sorenson and his wife, Nancy, once again in the Chicago area. Dr. Sorenson had a private practice in the Loop, and the growing family lived in Evanston, an hour commute from Dr. Sorenson's office. In 1952, the family moved to Salt Lake City.

"I sold a good practice to move to Salt Lake and start over," says Dr. Sorenson. "For a while I wondered if I'd made a mistake. But I'm glad we took the chance and made the move. It's been wonderful."

Dr. Sorenson took another chance when he turned fifty and retired to pursue other business interests. But this move, too, is one he is glad he made. "I actually started at USU as a business major," he says. "I enjoyed both my careers. I've been a lucky guy."

Now seventy-seven, Dr. Sorenson winters with Nancy in the San Diego area near his son, Jim, and Jim's family and is still a man of wide and varied interests. He is a member of the San Diego Zoological Society—"I never tire of visiting the San Diego Zoo"—and a season ticket holder to the opera. Summers are spent in the family cabin near Yellowstone with the two Sorenson daughters, Ann and Jean, and their families (the Sorensons have six grandchildren in all).

Dr. Sorenson's most recent financial move has been the establishment of an endowed scholarship honoring his father. The Charles J. Sorenson Scholarship will be awarded each year to a College of Science student who exhibits academic and community leadership and financial need.

Professor Charles Sorenson was a research entomologist at the USU Experiment Station from 1926 to 1954. "My dad was the greatest believer in education," says Dr. Sorenson. "He was a kind, good teacher and a wonderful father. The best thing I could do to honor him is to support young people."

Dr. Keith Sorenson got his strong belief in the value of the whole person from his father, and that belief is reflected in the scholarship award requirements. "There's more to life than straight As," says Dr. Sorenson.

A proud USU family, Charles Sorenson (BS 1914, MS 1927), both Sorenson sons, and all three of Keith Sorenson's children are USU alums. It is a measure of Keith Sorenson's belief in the value of individual decision that he views the prospect of his grandchildren attending other colleges and universities with equanimity. "We all live our own lives," he says.

Dr. Sorenson has certainly lived his. ♦

### 1998 USU/College of Science Calendar

Science Week .....	11-15 May
College Awards Program .....	15 May
Aggie Day .....	15 May
University Hooding Ceremony .....	5 June
College of Science Graduation Open House .....	5 June
University Graduation .....	6 June
College Graduation .....	6 June
Aggie Lagoon Day .....	16 July
Class Reunions: 1938, '48, '58 .....	17-19 July
Aggie Hogle Zoo Day .....	1 August
Fall Semester Begins .....	31 August
Aggie Family Day .....	5 September
Homecoming .....	17 October
Science Week .....	19-23 October
Expanding Your Horizons Conference .....	14 November

**LEARNING...**

personal mathematics laboratory." The user interface provides immediate connection with the mathematical concepts and structure. Slider bars, graphing tools, buttons, drag-and-drop mouse manipulations and simple keyboard input allow students to explore and manipulate, encouraging experimentation and the self-discovery of mathematical concepts. The precalculus project is distributed via CD-ROM, and is available over the USU computer network.

Heal, Cannon, Dorward and Dr. Richard Wellman, a visiting professor in the Department of Mathematics and Statistics, are presently exporting their curriculum tools to JAVA, where the tools will be available in the form of applets which can then be embedded in a Web page. There they can be used along with additional math narrative and two-way instruction by individual students and in distance learning classes via the Web, and in technology classrooms and labs. Students will be able to communicate mathematically using standard mathematical language and the JAVA math editor developed by the team.

This summer, Cannon, Heal and Wellman will introduce their technology-based instruction to K-8 in-service math teachers in North Carolina and Ohio as part of a NASA educational project. "We believe technology can help students learn mathematical concepts in ways that have never before been possible," says Heal, and he quotes Jacob T. Schwartz: "'The long-term impact will be as significant as Gutenberg's printing press.'"

Chris Coray mirrors this enthusiasm. He is presently developing three-dimensional illustrations to enhance multi-variable calculus learning. The illustrations, says Coray, are interactive, allowing students or instructors to highlight and color individual aspects of the illustration, to reduce the object to a skeleton or to change perspective. Instructors were previously limited to two-dimensional representations of complex concepts, and were forced to modify rudimentary representations on the blackboard during the course of a class. "We usually ended up with a mess," says Coray.

The seamless generation of illustrations of, for instance, vector fields, allows the instructor to stress important points without losing the value of the visualization, says Coray. And, he continues, the speed of computer-enhanced calculations allows both students and researchers to investigate realms previously closed to them.

Instructor preparation is key to the successful integration of technology into the classroom, says Coray. If the technology becomes an interruption rather than a tool, he warns, the class is lost.

Dr. Joe Koebe, too, has found preparation key to the successful integration of technology and the learning process. His Math 462 and 463 are computer-aided mathematics courses. One, Math 462, was developed for preservice secondary mathematics teachers. It is taught without a book, because Koebe has not been able to find one appropriate to the class's content.

Developing materials appropriate for the class has been both time consuming and key to the success of the program, says Koebe. In fact, he and co-author Dr. Jim Powell are contacting publishers about the text they have written.

Both Math 462 and Math 463, Computer-Aided Mathematics for Scientists and Engineers, allow students to integrate knowledge from the undergraduate curriculum to solve applied problems presented in class. Both classes require students to solve fairly complicated problems and to develop visualizations. Each education major must also develop an innovative computer-enhanced method of teaching a mathematical concept, while students in the science and engineering section must solve complicated problems and include some analysis in their presentations. Koebe says, "The software allows them to understand complicated mathematical concepts very quickly."

"Students who are not able to use computers in problem solving in the future will be at a significant disadvantage relative to students who have experience with computer-aided problem solving," says Koebe. The use of computer-aided instruction will continue to increase, maintains Koebe, and students will need to develop skills in formulating problems in a way which lends itself to computer implementation. Further, once a computer has produced a set of results, students must know how those results should be interpreted and what is the next step in the problem-solving process.

Dr. Pete Kolesar, Department of Geology, was the principal investigator on a HETI grant to develop a package of CDs to supplement an introductory geology class. One of the newly developed CDs deals with the possibility of the occurrence of a major earthquake in Utah. Students accessing the CD can examine the general plate tectonic settings in which earthquakes occur; examine the 1995 earthquake in Kobe, Japan, in some detail, exploring the particular plate tectonic setting for that quake; examine some of the damage that Kobe experienced as a result of the quake; and evaluate various areas of Utah for their earthquake potential. The CD, along with another CD developed in the College of Science, an annotated photo album of geologic features and processes found in Utah and surrounding states, is available to all on-campus student computer labs on the geology department server. The two CDs have been sent to the geology departments of all nine of the Utah System of Higher Education campuses as part of a package to supplement introductory geology classes.

Kolesar sounds a note of caution echoed by several other College of Science faculty members and familiar to all information technology users: technology in education will come at a high cost. "The technology changes so rapidly that state-of-the-art equipment is out of date in a year or two," Kolesar says, and cites his purchase of an authoring program to produce the CDs. Within a year, he says, a new version of the program was released, and the two versions were not entirely compatible. "I was lucky an older version of the program was still available so I could complete the project without having to completely reprogram the CDs. What happens if we don't continually upgrade? And who will pay if we do upgrade?"

College of Science faculty members agree, however, with Schwartz's comparison of Gutenberg's press with the advent of information technology. The revolution in educational practices engendered by technology will be profound and permanent as knowledge is increasingly shared in ways not bound by place, space or time. ♦

# Commencement 1998

*One Hundred and Fifth Annual Commencement of  
Utah State University  
will be held 5 & 6 June*

## **FRIDAY, 5 JUNE**

### **ROTC Commissioning Ceremony**

9:00 a.m., Eccles Conference Center Auditorium, Reception follows

### **Spouse Recognition Ceremony**

11:30 a.m., Chase Fine Arts Center, Morgan Theatre

### **Hoarding Ceremony for Master's and Doctoral Degree Candidates**

12:30 p.m., Assembly of Candidates, Tunnel of the Dee Glen Smith Spectrum

1:30 p.m., Dee Glen Smith Spectrum

### **College of Science Open House**

3:30 - 5:00 p.m., Science Engineering Research Building Patio. *Alums are encouraged to attend.*

### **Graduation Dinner and Concert**

6:00 - 8:00 p.m., (Tickets required) Graduation Dinner, Taggart Student Center, Evan N. Stevenson Ballroom

8:00 p.m. (Free concert, tickets required) Collage of Sounds Concert, Chase Fine Arts Center, Kent Concert Hall

## **SATURDAY, 6 JUNE**

### **Assemble**

8:00 a.m., Taggart Student Center, Juniper Lounge for Graduate Students  
the University Quadrangle for Undergraduate Students

### **Academic Procession**

8:30 a.m., Taggart Student Center and University Quadrangle to Dee Glen Smith Spectrum

### **Commencement Ceremony**

9:30 a.m., Dee Glen Smith Spectrum. Mary L. Cleave will give the keynote address.

*Dr. Cleave received a master of science in microbial ecology and a doctorate in civil and environmental engineering from Utah State University in 1975 and 1979, respectively. Cleave will be awarded an honorary degree, Doctor of Engineering Science. She has received five NASA recognition medals and flown aboard the Shuttle Atlantis and the Orbiter Atlantis (where she deployed the Magellan Venus exploration spacecraft). In 1991 Cleave left Johnson Space Center to join NASA's Goddard Space Flight Center (GSFC) to work in the Hydrospheric Processes Laboratory. She is working on Earth observations at GSFC because of her concerns that human activity is changing the surface of the earth too rapidly, based on the changes she observed in the four years between her two space flights. Cleave is the project manager for the Sea-viewing Wide Field-of-view Sensor (SeaWiFS), an ocean color sensor that is monitoring global marine chlorophyll-a concentration. SeaWiFS launched on 1 August 1997 and is currently operating successfully on orbit.*

### **College of Science Graduation Ceremony**

12:00 Noon, Taggart Student Center, Evan N. Stevenson Ballroom

### **Alumni Graduation Picnic**

11:00 a.m. - 2:30 p.m., University HPER Field (Tickets required)

### **Alumni Reception**

11:00 a.m. - 3:00 p.m., Open House, David B. Haight Alumni Center

*For additional information regarding Commencement  
see <http://www.usu.edu/~edserve/commence98/>*

# College of Science Coffee Break



Mary V. Kolesar, computer science,  
and Joanne Hughes, biology



John Raitt, department head of physics, and School of  
Graduate Studies Dean Jim Shaver



Jim Watson,  
mathematics and  
statistics, and  
Associate Dean  
Tony Brighurst,  
College of Science



William Kemp, entomologist, and department head Butch Brodie, biology



Dean Jim MacMahon, Jack Simmons, biology, and  
Development Director Jerome Davies



President George Emert



Members of the College of Science and invited guests gathered to celebrate  
an early snow break and exchange news.



Sue Morgan, geology

# Expanding Your Horizons Plans 12th USU Conference

Expanding Your Horizons in Science and Mathematics (EYH) will hold its 12th annual conference at USU on 14 November 1998. Part of a national series of conferences designed to nurture girls' interest in science and encourage them to consider science and math career options, the local 1998 EYH presentation will focus on rockets.

The keynote speaker will once again be Jayceen Craven-Nicholson of the Hansen Planetarium, who has earned the accolades of former participants. Born and raised in Price, Utah, Craven-Nicholson joined the planetarium staff in 1989 as educational technician and has taught lessons in electricity and rocketry. Currently, she is the volunteer coordinator for the planetarium. She is also an actor with the Salt Lake Acting Company and Park City Performances and can be seen in the movie *A Life Less Ordinary*.

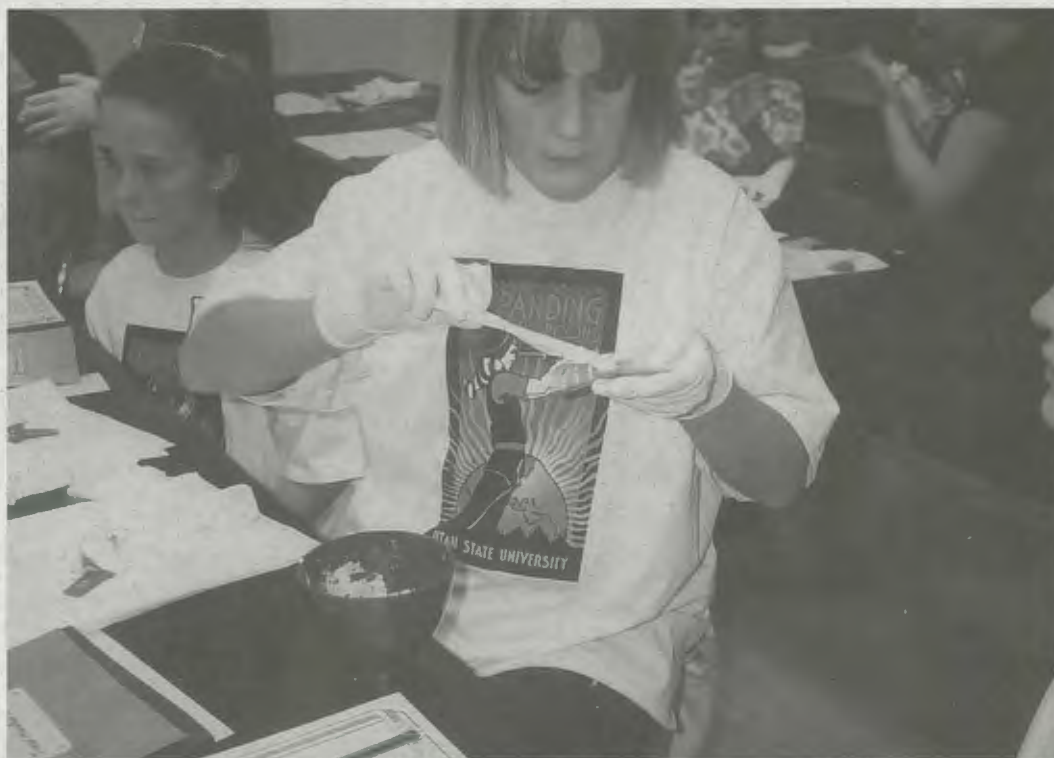
The day-long conference consists of a keynote address and hands-on workshops for girls in grades 6-9. The \$12 fee includes all activities, lunch and a T-shirt. A concurrent program for adults will discuss challenges faced by girls as they study mathematics and science.

Last year, workshops for girls included sessions on marine biology, veterinary practice, physical therapy, and space exploration rescue. Adult workshops included a discussion of college preparation and finance, rapport building tips, and an exploration of how gender expectations may affect young women. Similar workshops will be offered at the 1998 conference.

EYH workshop leaders are all volunteers. The conference is funded through private contributions and with the support of the College of Science.

Expanding Your Horizons is the flagship program of the Math/Science Network, a nonprofit educational organization. EYH seeks to provide girls and young women with enthusiastic, positive women role models in the fields of science and mathematics, and to support girls and young women as they study math and science.

Information regarding the USU Expanding Your Horizons program is available on the USU Website at <http://www.usu.edu/~horizons/horizons.html>. For further information or to request registration materials, please contact Sue Morgan in the Department of Geology at (435)797-2176 or [famorgan@cc.usu.edu](mailto:famorgan@cc.usu.edu). Information about EYH programs offered on various dates at more than 120 locations across the United States can be found on the Math/Science Network Website at <http://msnucleus.org>. ♦



1997 EYH participant explores dental care

*Alumni & Guests  
are invited  
to attend an  
Open House  
in honor of our  
1998 College of Science Graduates*

*Friday  
5 June 1998*

*3:30 p.m. - 5:00 p.m.*

*Science Engineering Research Building Patio*

*In case of inclement weather  
the Open House will be held*

*in the*

*Science Engineering Research Building  
Room 101C*

# FUNDS...

them exposed to this method of doing science," Haefner says.

Students will see these types of math labs at least four times as they progress through their curriculum.

Along with enhancing the biology courses at USU, biology and math professors will be teaching workshops for secondary education teachers. In the workshops, teachers will be taught methods of teaching math skills in biology as well as how to design labs that reinforce these skills, Lindahl says. To help evaluate their usefulness, the workshops will be taught for the first time this summer to local teachers. The following summer, they will be offered to teachers throughout Utah. The workshops will also be offered on the Internet with supplementary data sources, biomath lab ideas and other resources for teachers.

"The whole idea is to increase quantitative thinking both up and down from where we are in the academic setting," says Lindahl. USU biology professors hope that by teaching students in secondary schools to think quantitatively they will be better prepared for college and the work force.

"Integrating science and math will become very important in the future," Haefner says. "There has not been enough training for people to go into the work force and deal with problems there."

Besides integrating new math model labs in biology classes and teaching secondary education teachers new curriculum ideas, the biology and mathematics and statistics departments also developed a new biomath minor this year. The minor encourages students in both departments to take more classes in the other departments and

strengthen their science backgrounds. It also brings biology and mathematics students together in an investigative biology lab setting to model real biological systems.

Computer literacy is another aspect the FIPSE project is working on. Significant computer hardware contributions to the project have been made by Sun Microsystems, helping to make computer workshops in the classroom possible. Webpages are being developed by Koebe to assist student learning. The pages will allow students in the introductory classes to brush up their algebra skills or get extra help. "It will help the students in big classes to feel like they can get help, though not personal, through the computers," Lindahl said.

While these programs only began in the fall, Haefner said they are already getting feedback. Some is very positive, but they have heard students complaining that introductory biology should be biology not math. However, the faculty is working to change these notions. The math being used in the

labs is taught in high school, but it is often not put into context and more often has been forgotten by the students. "When the math is put into context, students have a reason to learn it," Haefner said. They also emphasize that students will see the math again in their biology studies, and it is part of biology that needs to be learned.

The biology and mathematics and statistics departments have also joined with six other departments to carry this emphasis on math into the graduate program. Recently, a proposal to the National Science Foundation was submitted to provide financial support to students to study mathematical models of biological spatial dynamics. This facet of the program is being headed by Dean Jim MacMahon.

Lindahl says, "These improvements will make the students more competitive when they get out; it will make them better able to compete with people from other institutions." ♦



Craig Crookston times his classmate Keith Batty as he plays the part of a predator. Classmates Debbie Stringham and Mylie Thompson watch and assist with the lab.

## Department of Chemistry and Biochemistry Recognized at Gordon Research Conferences

The Utah State University Department of Chemistry and Biochemistry is quickly becoming recognized as an international leader in the field of metallobiochemistry.

This recognition is due in part to the fact that many USU faculty and graduate students are speaking and chairing prestigious Gordon Research Conferences throughout the world.

These conferences were initiated by Dr. Neil E. Gordon of Johns Hopkins University in the 1920s to establish good, direct communication between scientists in the areas of biological, chemical and physical sciences. Scientists meet for a week of intense discussion and examination of the most advanced aspects of their field.

To encourage open communication, information presented and ideas discussed are not for public use. The recording of lectures by any means and printed reference to Gordon Research Conference papers and discussions is prohibited.

Dr. Lance Seefeldt, assistant professor of biochemistry, has been one of the professors participating actively in these conferences. Seefeldt will serve as vice chair of the Nitrogen Fixation Conference from 28 June to 3 July in New Hampshire, and he will act as chair at the succeeding conference. The chair of a Gordon Research Conference is in charge of choosing the speakers, organizing the scientific program, and selecting those who will be attending. The chair is also in charge of fund-raising. USU graduate student William Lanzilotta will also be speaking at that conference.

"This is one of the most prestigious of scientific meetings. People attend by invitation only," Seefeldt said.

Facilitators of the Gordon Research Conferences like to keep the number of participants at each conference around 100 people. Having small groups helps keep everyone together and gives each the opportunity to speak. This is one of the conference's most important features, Seefeldt said.

Seefeldt understands the workings of the conferences. At the Gordon Research Conference on Metals and Biology in January 1998, he and assistant professor Rick Holz, also from the USU chemistry and biochemistry department, spoke. Seefeldt also served as session chair and speaker at the Nitrogen Fixation Conference in 1996.

One of the newest features of the Gordon Research Conferences is a seminar on metals and biology for postdoctoral and graduate students. In only its third year, Matt Ryle, a USU graduate student, was named as the chair at the conference in January 1998 for the next conference in 1999. USU was well represented at the 1998 conference by its younger scientists. Lanzilotta, Ryle and postdoctoral fellow Dr. Brian Bennett spoke at the conference, and graduate student Ventris D'Sousa presented a poster. This conference has long been one of the most popular, Seefeldt said, and

graduate, postdoctoral students are often left out because of the cap on attendance. The graduate conference is held at roughly the same time as the other conference, overlapping by one day to allow graduate students and other participants to share ideas.

"Attending these conferences is a real recognition of the sort of strength that has developed in the chemistry and biochemistry department at USU," Seefeldt said. "It is reflected in the fact that so many faculty and graduate students are chairing and speaking at these conferences. Even being chosen to attend is a big deal." ♦

### The 1997-98 College of Science Awards have just been announced.

#### Teacher of the Year

Adele Cutler

♦

#### Advisor of the Year

James Cangelosi

♦

#### Researcher of the Year

Zhi Qiang Wang

♦

#### Valedictorian

Carrie Liechty

♦

#### Scholar of the Year

Nanette Cropper Jensen

♦

#### Graduate Student Teacher of the Year

Jared R. Burch

♦

#### Graduate Student Researcher of the Year

Jeffrey Allen

# Awards, Honors and Publications

Insights welcomes news of alumni awards and publications. Please mail announcements to Insights, Utah State University, College of Science, Office of the Dean, 4400 Old Main Hill, Logan, UT 84322-4400. Please include book covers if available. Announcements may also be emailed to [scido@cc.usu.edu](mailto:scido@cc.usu.edu) or faxed to (435)797-3378.

## Alumni

### Publications: Fiction

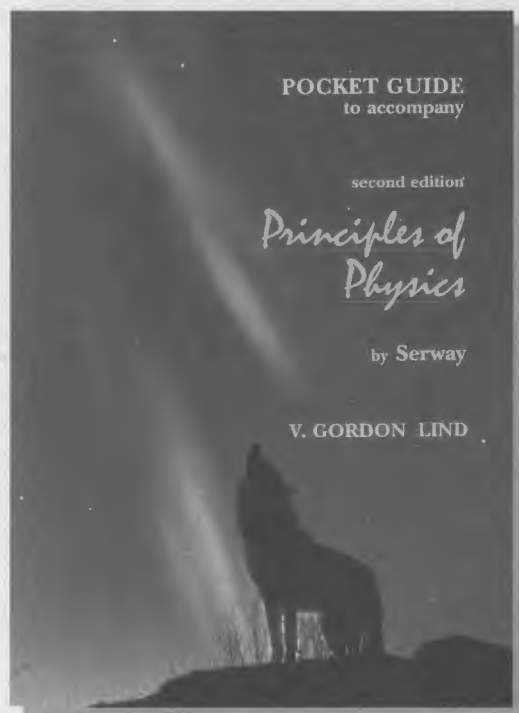
*World Order* by **Andrew Goliszek** (MS 1981, PhD 1983, Biology) is a thriller revolving around psychochemical warfare. *World Order* is his second novel. Hardcover, Forge Press, distributed by St. Martin's Press.

## Faculty

### Awards and Honors

**Donald Cooley** and **Stephen Clyde**, Department of Computer Science, received a \$262,000 equipment grant from Hewlett Packard. The grant will provide hardware and software for an 18-workstation computing facility, providing students with an integrated laboratory for studying data and computer communications, networking protocols, distributed operating systems, client/server architectures, CORBA, network security, object-oriented development environments and distributed databases.

**J.R. Dennison**, Department of Physics, was awarded a three-year NASA grant through the Space Environments and Effects Program to study the electronic properties of spacecraft materials. The effects of the space environment will be simulated in a state-of-the-art ultra-high vacuum surface analysis chamber at USU. The measured materials' properties will be used in conjunction with existing modeling programs to predict the nature and extent of spacecraft charging, a phenomenon responsible for numerous onboard electronics glitches and even failure of entire satellites.



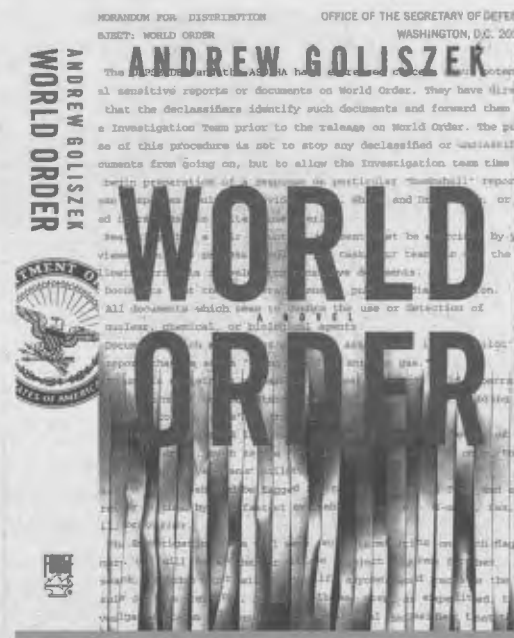
**James P. Evans**, **Kevin Hestir** and **Thomas E. Lachmar**, Department of Geology, received a \$313,000 three-year grant to examine how faults affect the flow of water in aquifers near the earth's surface. The work will lead to better techniques of interpreting the directions and amounts of water flow in rocks that have been faulted and fractured.

**Darrell S. Kaufman**, Department of Geology, received a \$30,000 grant from the Petroleum Research Fund of the American Chemical Society. Kaufman's work will investigate geochemical processes that govern protein diagenesis and its application as a geochronological tool.

**Thomas Wilkerson**, Department of Physics and Center for Atmospheric and Space Sciences, visited David Guerra at Western Maryland College to make atmospheric measurements using a hologram-based lidar system similar to one being developed at USU under a grant from NASA's Goddard Space Center. Hologram adaptations of USU lidar systems will come online in early 1998.

### Publications: non-fiction

*Pocket Guide to Accompany Principles of Physics by Serway* by **V. Gordon Lind**, Department of Physics, is a capsule of the textbook and a notebook with problem solving hints. Paperback, Saunders College Publishing, a division of Harcourt Brace College Publishers. ♦



# USU Alumni Reunions

For the Classes of 1938, 1948 & 1958  
17-19 July 1998

Utah State University will be hosting class reunions this summer for all graduates of the classes of 1938, 1948 and 1958. USU science graduates from these years are listed below. If you are not listed and are a graduate of one of these classes, or know of someone who is, please contact USU Alumni Relations. For more information on the class reunions, please contact Alumni Relations at either 1-800-291-ALUM or email them at [alumni@cc.usu.edu](mailto:alumni@cc.usu.edu).

## 60 Years

1938 ~

William T. Adams  
D. Merlin Archibald  
Joe Carling  
Herbert B. Currier  
Gene W. Greenhalgh  
Almon S. Harmon  
Donald E. Hartvigsen  
Williard K. Hill  
Linden J. Leatham  
Herbert Newby  
Max S. Oldham  
George Piranian  
Richard Preston  
Martin L. Robinette  
William Scholes  
Clyde F. Smith  
Royal H. Sorensen  
Madison Thomas  
C. Ray Thompson  
Elvin Wayment  
Vern Weatherston  
Charles W. Ziemer

## 50 Years

1948 ~

Glenn B. Bergeson  
Robert B. Bradshaw  
Franklin Brough  
Jack Chatelain  
K. LeRoi Nelson  
Edward H. O'Donnell  
Seletta M. Pitcher  
Parker P. Pratt  
Wayne Rich  
Wendell O. Rich  
Reed S. Roberts  
Richard J. Shaw  
J. LeGrande Shupe  
Raymond M. Turner  
Gordon A. VanEpps  
Stephen Wood  
John Worley

## 40 Years

1958 ~

James W. Baldwin	Jerry Martin
Neil B. Ballif	John C. McDaniel
Gwen H. Barfuss	LaRue W. Miller
Roger Beckstead	Rich Mitchell
Stanley Beus	James E. Mohr
Claude Brown	Larry R. Moncur
Lawrence O. Cannon	Robert George Mortimer
Lee G. Cantwell	Albert J. Munk
Demont Christiansen	Murray Nichols
Lee R. Chugg	Gerald L. Nielsen
Glen W. Clark	Ruth Lemon Novak
Wayne N. Clark	Candland L. Olsen
William Clark	Kent W. Payne
Robert E. Dolph, Jr.	Duane Phippen
Jerald L. Fawcett	Ronald R. Potter
Lyman Fluckiger	Ronald D. Ransom
Clair Garner	John D. Rice
Ronald H. Gelnett	Donald Richins
Bert Gividen	Thomas J. Rocchio
Don F. Gowans	Fred H. Ross
Darrell Graff	Clyde M. Senger
Ronald H. Gunther	Orval Sorensen
Darwin R. Halling	William E. Strobelt
Richard A. Heckman	Lindsey K. Thomas, Jr.
Leon D. Hicken	Hal Thomason
Larry Hyatt	Keith Tilley
Cecil B. Jacobson	Allen D. Willard
E. F. Legner	Emery H. Willes, Jr.

# Alumnet Responses

## 1940s

**Glen J. Behling** (BS 1942, Bacteriology/Biochemistry) is a retired chemist living in Utah. His busy professional life, spent with DuPont and General Electric, took him all over the country until his retirement in 1982. He married Beverly Clement in 1946, and the two have seven children—four boys and three girls—thirty-four grandchildren, and one great-grandchild.

**Maxine Burgoyne Laser** (BS 1944, Bacteriology/Biochemistry) taught at Montpelier High School, USU and USC following graduation. She became a full-time homemaker after she married **T.J. Laser** (1949), who taught at Davis High School. The two raised six children, three of whom attended USU (**John Laser**, BS 1971; **Wendy Thueson**, BA 1977; and **Carol Willis**), and have seventeen grandchildren.

**Robert Hammond** (BS 1948, MS 1952, Mathematics) is retired and lives in Logan, Utah.

**Wilford R. Gardner**, (BS 1949, Physics) was awarded an MS in 1951 and a PhD in 1953 from Iowa State University. He was a professor and administrator at University of California at Berkeley until his retirement. Elected to the National Academy of Sciences in 1983, he now serves as scientific advisor to governmental agencies and universities. He is a fellow of SSSA, AAAS, and ASA, and chairs the NAS Committee on Soil Science. He continues to play the flute and was a member of the Riverside, California, Symphony Orchestra.

## 1950s

**Malcom Ross** (BS 1951, Zoology) was awarded a PhD in geology from Harvard University in 1962. He worked with the US Geological Survey from 1961 to 1995, and now holds scientist emeritus status. His present research is on the health effects of mineral dusts; climate change; acid rain; and the crystal structure of minerals.

**Ferron L. Anderson** (MS 1957, PhD 1963, Zoology) is professor emeritus at Brigham Young University. He taught and did research at the College of Veterinary Medicine at the University of Illinois from 1963 to 1967 and in the Department of Zoology at BYU from 1967 to 1997. His research on parasitic diseases led to cooperative projects in China from 1985 to 1993 and in Morocco from 1995 to 1998.

## 1960s

**Thomas D. Coppin** (BS 1963, Premed Zoology) was awarded an MD by the University of Utah in 1967. He spent thirty years in the army before his retirement in 1993. A pathologist, he has directed medical laboratories for FHP and Paracelsus hospitals and is now with Columbia Lakewiew Hospital in Bountiful, Utah. Last May he was elected to a three-year term as president of the Utah Society of Pathologists.

**Tariq Abdul Rahman Kergaye** (MS 1963, Civil Engineering/Math) emigrated to the United States from Iraq in 1958. He worked for the State of Utah in the Department of Transportation following his graduation until his retirement. He presently lives in Salt Lake City, Utah.

**John A. Cox** (BA 1965, Entomology) received a second degree from the Evergreen State College in 1987. He is employed by the Centers for Disease Control and Prevention and is the STD Program Manager for the City of Milwaukee in Wisconsin.

**Edwin M. Duffy** (BS 1969, Geology) is with the Reliance National Insurance Company in Texas.

## 1970s

**John I. Mosher** (PhD 1972, Zoology) holds professor emeritus status in biological sciences at the SUNY College at Brockport. He enjoys outdoor activities and teaches stress reduction classes and developing spirituality classes. His wife, Constance, is a professional artist, painting local scenes and accepting commissions.

**Ken Rees** (BS 1972, Geology) was awarded an MAS in 1989 by the Embry Aeronautical University. He is a Lt. Col., USAF (retired, 1992), and earned a teaching certificate at UNLV. He is presently a graduate student at UNLV working toward a master of education degree and is teaching at Becker Middle School in Las Vegas.

**Douglas B. Tabor** (BS 1974, Computer Science) is a technical account manager for Sun Microsystems Computer Corporation. He has been with Sun for seven years at an account doing \$1 billion of Sun business. He and his wife, Deborah, enjoy flying their plane with their son. He also belongs to several amateur radio service organizations, including Weather-Watchers.

**Guy Durrant** (BS 1975, Biology) teaches science to grades 7 to 12 in the Daggett School District in Utah and is the technology director for the district. He is married with three daughters. The oldest is attending the University of Utah, and the two youngest are in high school.

**William T. Egar** (BS 1978, Computer Science) is an information technology consultant with Integrated Systems Engineering, Incorporated, in Minnesota.

## 1980s

**Andrew Goliszek** (MS 1981, PhD 1983, Biology) has been the principal investigator and coinvestigator on several grants from the National Institutes of Health, the most recent being a four-year grant involving neuroendocrine and cardiovascular functions. He is a professor and biomedical researcher at North Carolina A&T State University. His second novel has just been released (see Awards and Publications).

**Ingrid (Reynolds) Niesman** (BS 1981, Biology) was awarded an MS in biology in 1984 by the University of Illinois Urbana. She is presently a research associate at the University of Arkansas Medical Science Department of Anatomy. She does spinal cord research and is also investigating Alzheimer's Disease.

**Matthew Davis** (BS 1982, MS 1984, Geology) is vice president and owner of the Davis Food Company, a wholesale food redistribution company in Delaware. He is married with three children and enjoys skiing, tennis, golf, hiking, and life in general.

**Sven T. Berg** (BS 1983, Chemistry) was awarded an MD in 1987 by Cornell University Medical College. He completed his residency in pediatrics at Wilford Hall USAF Medical Center in 1990 and served a fellowship in pediatric hematology/oncology at St. Jude Research Hospital from 1990 to 1993. On the staff of Wilford Hall Medical Center in pediatrics from 1993 to 1995, he served as chief of pediatric hematology/oncology at Wilford Hall from 1995 to 1997, and chief of the pediatric specialty clinic at Wright-Patterson Medical Center from 1996 to 1997. From 1997 to 1998 he served as squadron section commander of the 74th Medical Operations Squadron at Wright-Patterson Air Force Base and was just selected deputy hospital commander and chief of the medical staff of the 65th Medical Group at Lajes Field, Azores. He is married to A'Lynn Johnson of Girard, Ohio, and they have five children.

**Bill Cruft** (BS 1983, Biology) is a teacher in the Weber School District in Utah. For the past eight years, he has taught chemistry at Weber High School.

**John Goodrich** (BS 1986, Biology) was awarded a DDS in 1991 by Creighton University. He has a dental practice in Idaho and loves his profession. He and his wife have four children—boy/girl/boy/girl—ages five to twelve, who are home educated.

**Sheri Smith** (BS 1986, MS 1990, Biology/Applied Biology/Entomology) is employed by the United States Forest Service as an entomologist. She covers four national forests, one national park and all other federal lands in northeastern California. She enjoys hiking, fishing, golfing and living in the mountains.

**Julie Robinson** (BS 1989, Chemistry, BS 1989, Biology) was awarded a PhD in 1996 by the University of Nevada, Reno. She is an ecologist with an interdisciplinary team of NASA scientists at the Johnson Space Center. The team is tracking global change using space photography.

## 1990s

**Stephen Lee** (BS 1990, Chemistry) was awarded a PhD in analytical chemistry in 1990 by Ohio State University. He is an analytical chemist with Proctor and Gamble in Cincinnati, and is married to **Kayla Lee** (BS 1990, Chemistry and Education). Kayla was awarded an MS in analytical chemistry in 1993 by Ohio State University.

**Marianne (Hossner) Savola** (BS 1991, Computer Science) is an engineer at Hewlett Packard. Still actively involved at USU, she is a member of the Industry Advisory Committee, works with the Department of Computer Science to acquire equipment grants, and participates in computer science camp, E-week and the career fair.

**Jewel (Jarvis) Naffziger** (BS 1992, Public Health) serves as an engineer officer with the army reserve. She is a licensed environmental health specialist senior at the South Central District Health Department for the State of Idaho. She is 12 credits away from a bachelor of music therapy degree.

**R. Brent Crosbie** (BS 1993, Public Health/Environmental Health) is a project manager with Thiokol Corporation in Utah. He is responsible for all elastomeric seals, nozzle metal hardware, fasteners and transportation support equipment for the space shuttle renewable solid rocket motor project.

**Mike R. Jenkins** (BS 1994, Biology) began his five-year residency in head, neck and oro-facial plastic surgery in 1989 at Oakland General Hospital in Madison Heights, Michigan. He is married and has two boys, ages three and a half years and eighteen months.

**Mahshid Asrari-Staheli** (BS 1995, Public Health) is in his first year at Marquette University Dental School in Wisconsin. He is working toward a DDS.

**Jennifer Bumgardner** (BS 1996, Biology) is attending Chicago Medical School.

**Brent Jensen** (BS 1996, Public Health/Industrial Hygiene) is an industrial hygienist with Kennecott Utah Copper Corporation.

**Shantel (Roberts) Stanworth** (BS 1996, Public Health) is a customer service representative at Banner Distribution in West Valley, Utah. She was recently married to Nathan C. Stanworth.

**Tamara Stone** (BS 1996, Biology) is a first year medical student at California College of Pediatric Medicine in San Francisco, California.

**Steven Larsen** (BS 1997, Premed/Biology) is attending the University of Utah School of Medicine in Salt Lake City, Utah. ♦

*Insights, the newsletter of the 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 happening 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 under the direction of Sally McGovern, intern coordinator and editor, and Colette Yates, project coordinator and editor. Contributors include Sally McGovern, Department of English intern Lisa Archibald, Dean Jim MacMahon and Development Director Jerome Davies. Special thanks to Gene Underwood, Sue Morgan, Alice Lindahl, Louise Warren, and USU photo services for the photographs, to Kandy Baumgardner, USU editorial services and Watkins Printing.*

# Insights Readers' Survey

Name: \_\_\_\_\_

Name while at USU: \_\_\_\_\_

Nickname: \_\_\_\_\_

Gender: \_\_\_\_\_

Email address: \_\_\_\_\_

Occupation: \_\_\_\_\_

Company/business: \_\_\_\_\_

fold Title/position: \_\_\_\_\_ fold

If retired, former employer: \_\_\_\_\_

Do you read *Insights*? \_\_\_\_\_

What do you like about the newsletter? \_\_\_\_\_

What do you dislike? \_\_\_\_\_

Who was your most memorable teacher at the College of Science? \_\_\_\_\_

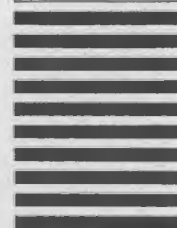
Thank you for your time.

☐ Yes, I am interested in participating in Alumni Career Network.

fold  
From \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



fold  
NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 1 LOGAN, UT

POSTAGE WILL BE PAID BY ADDRESSEE

COLLEGE OF SCIENCE  
OFFICE OF THE DEAN  
4400 OLD MAIN HILL  
UTAH STATE UNIVERSITY  
LOGAN UT 84321-9981



# A L U M N 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 19, tape it shut, and drop it in the mail, or fax it to us at (435)797-3378. Or, email us at [scido@cc.usu.edu](mailto:scido@cc.usu.edu).

Name \_\_\_\_\_

Mailing address \_\_\_\_\_

Home phone ( ) \_\_\_\_\_ Work phone ( ) \_\_\_\_\_

Email address \_\_\_\_\_ Webpage URL \_\_\_\_\_

USU degree(s) \_\_\_\_\_ Year \_\_\_\_\_ Major \_\_\_\_\_

Other degree(s) \_\_\_\_\_ Year, school \_\_\_\_\_

Profession/employer \_\_\_\_\_

About yourself \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



College of Science  
Office of the Dean  
4400 Old Main Hill  
Logan UT 84332-4400

Nonprofit Org.  
US Postage  
PAID  
Permit 1  
Logan, Utah



Printed on recycled paper