



The Dean's Corner—

Within the College of Science, the semester has gotten off to a good start and our search for a new dean continues. The search committee recently reported that it is working toward a short list of candidates to interview right after the Olympics. It is also that time of year when we solicit nominations for various college and campus-wide faculty, staff, and student recognitions for the year. It is hard to think of spring awards when there is so much snow on the ground, but please consider nominating outstanding colleagues and students so that we can recognize our best. Information about these various awards is available from your department head.

The Eccles Science Learning Center is in full use again this semester and there are hundreds of students pouring in for classes all through the day. There are still some problems in the building, but we hope to have most of the bugs worked out within a few weeks. As I mentioned in the previous issue of *Science Scene*, "smart boards" have been installed in the Emert Auditorium and the lecture hall in the basement. There will be some faculty training sessions set up, once all the parts and related software arrive and get installed. Dedicated computers were installed in the teaching consoles within the last few weeks. There have also been some delays in getting the data ports and electrical outlets installed in the auditorium. Again, we are waiting on parts, but once these arrive, it will be a matter of scheduling open hours for the electricians to attack the job. Thank you for your patience.

I have been working with your department heads on the compact planning process introduced by our new President Kermit Hall. This process has given us the opportunity to enter into a dialogue with colleagues in the College of Science and other units across campus, to establish collaborations and partnerships that will improve our efforts in teaching and research, all to benefit the students we serve. It has been a lengthy (and sometimes frustrating) process that will not conclude until later this spring, but I think that we will eventually be able to reflect back on this and value the experience.

I wish you all the best for a successful winter/spring semester.

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**Interim Dean Don Fiesinger's
Office Hours**

Wednesdays & Fridays
10:00 am to Noon

**Utah State University & College of Science
Calendar
— 2002 —**

January

New Year's Day	1 Jan	USU Holiday
Spring Semester Begins	7 Jan	Class Schedule
Martin Luther King, Jr. Day	21 Jan	USU Holiday

February

Washington & Lincoln Day	18 Feb	USU Holiday
Olympics Break (no classes)	19-22 Feb	Class Schedule

March to May

Spring Break (no classes)	29 Mar	Class Schedule
College Awards Program	19 Apr	Eccles Science Learning Center Auditorium-Rm 130—3:30 - 4:30 pm <i>(Note the change to the location and the time)</i>
No Test Week	22-26 Apr	Class Schedule
Spring Semester Last Day of Classes	26 Apr	Class Schedule
Spring Semester Final Exams	29 Apr -3 May	Class Schedule
University Hooding Ceremony	3 May	Dee Glenn Smith Spectrum—1:30 pm
College Graduation Open House	3 May	Haight Alumni Center—3:30 - 5:00 pm
University Graduation	4 May	Dee Glenn Smith Spectrum—9:30 am
College Graduation	4 May	TSC Ballroom—12 Noon

UTAH STATE UNIVERSITY
COLLEGE OF SCIENCE
(AY 2001-02)

Faculty Senate

[8 Representatives, elected by the College of Science; they serve for three-year terms]

William Brindley (04)
Dennis Welker (04)
Lance Seefeldt (04)
Stephen Biakowski (03)
[on sabbatical 01-02; need replacement]
J.R. Dennison (03)
Kathryn Turner (02)
Daniel Watson (02)
Greg Jones (02) [Senate President]

*** Educational Policies Committee (EPC)**

Jim Evans (03)
[replaced by Dick Mueller 01-02]

Academic Standards Subcommittee of EPC

Richard Cutler

General Education Subcommittee of EPC

Jim Evans
[replaced by Dick Mueller 01-02]
Don Fiesinger

Curriculum Subcommittee of EPC

Don Fiesinger

*** Professional Responsibilities and Procedures Committee**

Greg Podgorski (04)

*** Academic Freedom and Tenure Committee**

Lance Seefeldt (02)
[replaces Greg Swain]

*** Faculty Evaluation Committee**

Jim Haefner (02)

*** Budget and Welfare Committee**

Kathryn Turner (04)

Graduate Council

John Stark (02)

Council on Teacher Education

Dick Mueller
Don Fiesinger

Distance and Electronic Education Committee

Bob Heal

Athletic Council

Jerry Ridenhour (elected by Senate)

***Note: * = one representative elected by COS;
serves for a three-year term***

SCIENCE STUDENT COUNCIL

David Hoyal, Science Senator

Angie Cefalo	Biology
Alexander Curtis	Chemistry & Biochemistry
Travis B. Hartwell	Computer Science
Mark Homgren	Mathematics & Statistics
Justin Hoopes	Biology
David Hoyal	Biology
Janalyn Hoyal	English (graduated)
Leila King	Biology
Jeff Leek	Mathematics & Statistics
Matt Spencer	Biology
Steve Skinner	Biology
Nora Wilson	Geology

COLLEGE COMMITTEES FOR 2001-02

COS Undergraduate/Curriculum Committee

Biology	Dick Mueller
Chem & Biochem	John Hubbard (Vernon Parker 01-02)
Computer Science	Dan Watson
Geology	Pete Kolesar
Math & Stat	Dan Coster
Physics	Mark Riffe

COS Graduate Advisory Committee

Biology	John Stark (COS rep on Grad Council)
Chem & Biochem	David Farrelly (sabbatical replacement this yr only for Steve Bialkowski)
Computer Science	Vicki Allan
Geology	Dave Liddell
Math & Stat	Joe Koebbe
Physics	Jan Sojka

Department of ChemistryOn-Campus Presentation

Dewain K. Garner, Magdalena M. Makowska-Grzyska, Russell A. Allred, Kyle J. Tubbs, Atta M. Arif, Lisa M. Berreau presented a poster titled "Modeling the Active Site Chemistry of Liver Alcohol Dehydrogenase" at the Student Showcase, Utah State University, 28 September 2001.

Upcoming Seminars—ESLC 046, 4:00 pm

March 3 **Ralph Bradshaw**, University of California-Irvine. "Co-Translational Processing and Protein Turnover. Role of Methionine Aminopeptidases." Host—Rick Holz

March 20 **Peter Kennelly**, Virginia Tech. "Protein Philosophokaryotes Adventures In Phylogeny." Host—John Peters

March 27 **Hilary Godwin**, Northwestern University. Title to be announced. Host—Lisa Berreau

April 3 **Wallace Cleland**, University of Wisconsin. "The Use of Isotope Effects to Study Enzyme Mechanisms." Host—Alvan Hengge

April 10 **Mike Adams**, University of Georgia. Title to be announced. Host—Scott Ensign

April 17 **Don Bryant**, Pennsylvania State University. "Structural and Functions Studies on Cyanobacterial Photosystem I." Host—Lance Seefeldt

April 24 **Greg Petsko**, Brandeis University. Title to be announced. Host—Rick Holz

May 1 **Richard Eisenberg**, University of Rochester. Title to be announced. Host—Lisa Berreau

Student Activities**Kyle J. Tubbs**

URCO Grant for research (with Professor Lisa M. Berreau)
2001-2002 Academic Year, \$1,000
"Dopamine to Norepinephrine: A Chemical Investigation."

The goal of this project is a better understanding of the role of copper in the bio-synthesis of the neurotransmitter norepinephrine. He is particularly interested in examining the structural and reactivity properties of a proposed intermediate (a copper hydroperoxide) involved in this chemical pathway.

Department of PhysicsStudent Publication

David Peak, Richard Datwyler, Nels Rasmussen, Paul Simonson, Thomas R. Wood and Thomas M. Stoop, presented a poster titled "Giant Fluctuations in Flow Through Fractured Media: A Stochastic, Self-Organized Dynamics Model," at the International Conference on Chaos and Nonlinear Dynamics: Dynamics Days 2002, Baltimore, Maryland, 4-7 January 2002.

Department of BiologyPatent Awarded

Jon Y. Takemoto, John R. Forney, Mark C. Healy, Shi-Guang Yang, and Karl A. Werbovetz. "Method of Controlling Protozoan Infections Using Syringomycin-Family Lipodepsipeptides." U.S. Patent #6,310,037. Issued 30 October 2001.

Department of Physics

Charles Torre has been selected as an ITP Scholar for 2002 - 2004. This award supports visits to the Institute for Theoretical Physics at the University of California, Santa Barbara.

*Grants & Proposals—*Department of BiologyWayne Wurtzbaugh, Michelle Baker, James Haefner, and Robert Hall

National Science Foundation
March 1, 2002 through February 28, 2005, \$1,008,314
"Influence of Stream-Lake Interactions on Nutrient Transport and Function of Aquatic Ecosystems: Modeling, 15N Experiments and Watershed Analyses."

Research will address three hypotheses arising from the spatial pattern of connectivity between streams and lakes: (1) lakes are nutrient sponges, absorbing spring nutrient pluses and then slowly releasing them over the summer, thus stabilizing biology production downstream; (2) lakes reduce biological productivity downstream because nutrients are lost via sedimentation and denitrification; (3) lakes are solar collectors, thus increasing watershed temperatures and the metabolic rates of organisms. The work will be useful for eutrophication and lake fertilization studies, for the protection of endangered fishes, and for the prediction of production in streams, rivers, and lakes.

Department of Computer ScienceStephen W. Clyde

Utah Department of Health
12 November 2001 to 30 April 2002, \$25,000
"Development of a CHARM-II Architectural Prototype"

This project aims to create an architectural prototype of a middleware system, called CHARM-II, that will allow existing health-care databases in the state of Utah to share information.

Department of Biology

Robert C. Christy, John D. Boughter, Jr., Chris H. Lemon, Timothy A. Gilbertson, and David V. Smith presented a paper titled “Immunocytochemical Identification of Cell Types in Rat Taste Buds: Functional Correlations” at the Society for Neuroscience Annual Meeting, San Diego, California, 10-15 November 2001.

Hiroko Hama, Doreen Ma, Julia Tang, and Jon Y. Takemoto presented a paper titled “FAH1-Independent Ceramide Hydroxylation in *Saccharomyces cerevisiae*” at the Charleston Ceramide Conference, Charleston, South Carolina, 14-17 November 2001.

Carol von Dohlen presented a paper titled “Evolution of Aphid-Plant Relationships” at the Sixth International Symposium on Aphids, Rennes, France, 3-7 September 2001.

Carol von Dohlen presented a paper titled “Phylogeny and Biogeography of Aphids” at the Annual Meeting of the Entomological Society of America, San Diego, California, 9-12 December 2001.

Department of Chemistry & Biochemistry

The following posters were presented at the 10th International Conference on Bioinorganic Chemistry, Florence, Italy, 26-31 August 2001.

Lisa M. Berreau, Russell A. Allred, Atta M. Arif. “A Binuclear Cadmium(II) Hydroxide Complex and its CO₂ Reaction Product.”

Lisa M. Berreau, Magdalena M. Makowska-Grzyska, Atta M. Arif. “Mononuclear Nitrogen/Sulfur-ligated Zinc Methanol, Formamide, and Sulfoxide Complexes Relevant to Substrate- and Inhibitor-Bound Forms of LADH.”

Department of Geology

James Evans gave a talk titled “Results from the Shallow Drilling Project of the Chelungpu Fault” at the International Continental Drilling Project Workshop on Chelungpu Fault Drilling Planning Session, Menlo Park, California, 15 December 2001.

Andrew Hanson and Bradley Ritts presented a paper titled “Organic Geochemistry and Thermal Maturity of Upper Paleozoic and Mesozoic Potential Source Rocks in the Ordos Basin, North-Central China” Stanford-China Geosciences Industrial Affiliates Meeting, Stanford University, 7 December 2001.

Bradley Ritts and Brian Darby presented a paper titled “Structural and Sedimentary Evolution of the Northwest Ordos Basin” at the Stanford-China Geosciences Industrial Affiliates Meeting, Stanford University, 7 December 2001.

John Shervais attended the American Geophysical Union Fall Meeting in San Francisco, California, 10-13 December 2001.

Yongjun Yue, Bradley Ritts and Steve Graham presented a paper titled “Initiation and Long-Term Slip History of the Altyn Tagh Fault” Stanford-China Geosciences Industrial Affiliates Meeting, Stanford University, 7 December 2001.

Department of Mathematics & Statistics

Zhi-Qiang Wang gave an invited speech titled “Weighted Soblev Inequalities and Related PDE’s” at the PDE Seminar, Brigham Young University, Provo, Utah, 5 November, 2001.

Department of Physics

David Peak, Richard Datwyler, Nels Rasmussen, Paul Simonson, Thomas R. Wood and Thomas M. Stoop, presented a poster titled “Giant Fluctuations in Flow Through Fractured Media: A Stochastic, Self-Organized Dynamics Model,” at the International Conference on Chaos and Nonlinear Dynamics: Dynamics Days 2002, Baltimore, Maryland, 4-7 January 2002.

David Peak, R. J. Glass, and R. A. LaViolette, presented a poster titled “The Role of Complexity in the Prediction of Contaminant Transport in a Fractured Rock Vadose Zone,” at the American Geophysical Union 2001 Fall Meeting, San Francisco, California, 10-14 December 2001.

Center For Atmospheric & Space Sciences

The following papers were presented at the American Geophysical Union Fall Meeting, San Francisco, California, 10-14 December 2001:

Hamed A. Bekerat, Robert W. Schunk, Ludger Scherliess, and Vince Eccles. “Determination of Ionospheric High-Latitude Drivers for GAIM Using DMSP Data.”

William B. Cade III, and Jan J. Sojka. “Wavelet Analysis and Possible Geophysical Applications.”

Michael David, Clark M. Groves, Jan J. Sojka, Robert W. Schunk, and John C. Foster. “Ionospheric Impact of Magnetospheric Ring Current Polarization Electric Fields.”

Howard G. Demars and Robert W. Schunk. “Three-Dimensional Velocity Structures of the Polar Wind.”

Clark M. Groves, Jan J. Sojka, Robert W. Schunk, and Delores J. Knipp. “Defining Structure in Tongues of Ionization.”

Josh P. Herron, Karen L. Nelson, and Vincent B. Wickwar. “Mid-Latitude Mesospheric Temperature Climatology Above a Lidar Site in the Rocky Mountains.”

Geonhwa Jee, Robert W. Schunk, and Ludger Scherliess. “On the Determination of the Global Neutral Wind Field Using TEC Observations.”

Ludger Scherliess, Robert W. Schunk, Jan J. Sojka, and Donald C. Thompson. “A Global 3-D Kalman Filter for Ionospheric Data Assimilation in GAIM.”

Robert W. Schunk, Ludger Scherliess, Jan J. Sojka, Donald C. Thompson, David N. Anderson, Mihail Codrescu, Cliff Minter, Timothy J. Fuller-Rowell, Roderick A. Heelis, Marc Hairston, and Bruce M. Howe. “Global Assimilation of Ionospheric Measurements (GAIM).”

Jan J. Sojka. “CEDAR High Latitude Plasma Structures (HLPS): A Modeler’s Viewpoint.”

Continued from Page 5

Center For Atmospheric & Space Sciences, Continued

Jan J. Sojka and Robert W. Schunk. “Will Data Assimilation Techniques Open a New Frontier for Aeronomy?”

Lie Zhu, Robert W. Schunk, Jan J. Sojka, and Jinsong Liang. “Model Study of Magnetic Disturbances During Substorms.”

The following papers were presented at the International Union of Radio Science (URSI) meeting, Boulder, Colorado, 9-12 January 2002:

Ludger Scherliess, Robert Schunk, Jan J. Sojka, and Donald C. Thompson. “Development of a Physics-Based Reduced State Kalman Filter for the Ionosphere in GAIM.”

Robert W. Schunk, Ludger Scherliess, and Jan J. Sojka. “Ionospheric Tomography and Data Assimilation Models.”

Jan J. Sojka, Robert W. Schunk, Ludger Scherliess, and Donald C. Thompson. “Determining a ‘Break-Even’ Point for Kalman Data Assimilation in the Ionosphere.”

Publications—

Department of Biology

A. Kent Hauck, Michael R. Marshall, Joseph K.-K. Li, and Russell Lee. 2001. A New Finding and Range Extension of Baculovirus in the Freshwater Crayfish *Cherax Quadricarinatus* in Utah, North America. *Journal of Aquatic Health* 13:158-162.

Canhua Huang, L. R. Zhang, J. H. Zhang, L. C. Xiao, Q. J. Wu, D. H. Chen, and Joseph K.-K. Li. 2001. Purification and Characterization of White Spot Syndrome Virus (WSSV) Produced in an Alternative Host: Crayfish, *Cambarus clarkii*. *Virus Research* 76:115-125.

Young-Cheol Kim, Kristopher A. Blee, Joseph Robins, and Anne J. Anderson. 2001. Oxycom™ Under Field and Laboratory Conditions Increases Resistance Responses in Plant. *European Journal of Plant Pathology* 107:129-136.

Charles D. Miller, Wesley S. Mortensen, Gilberto U. Braga, Anne Anderson. 2001. The rpoS Gene in *Pseudomonas Syringae* Is Important in Surviving Exposure to the Near-UV in Sunlight. *Current Microbiology* 43(5):374-377.

Kendall K. Morgan, Justin Hicks, Ken Spitze, Leigh Latta, Michael E. Pfrender, Casse Weaver, Marco Ottone, and Michael Lynch. 2001. Patterns of Genetic Architecture for Life-history Traits and Molecular Markers in a Subdivided Species. *Evolution* 55:1753-1761.

Diane L. Rowe, Michael T. Murphy, Robert C. Fleischer, and Paul G Wolf. 2001. High Frequency of Extra-pair Paternity in Eastern Kingbirds. *Condor* 103:845-851.

Yuriy Y. Vilin and Peter C. Ruben. 2001. Slow Inactivation in Voltage-gated Sodium Channels: Molecular Substrates and Contributions to Channelopathies. *Journal of Cell Biochemistry and Biophysics* 35:171-190.

Paul G. Wolf. 2001. Profile: Buying Used Lab Equipment. *The Scientist* 15:27-28.

Department of Mathematics & Statistics

Zhi-Qiang Wang. 2001. Nonlinear Boundary Value Problems with Concave Nonlinearities Near the Origin. *Differential Equations and Applications*. 8:15-33.

Zhi-Qiang Wang, Thomas Bartsch and Alexander Pankov. 2001. Nonlinear Schrödinger Equations with Steep Potential Well. *Communications in Contemporary Mathematics* 3:1-21.

Zhi-Qiang Wang and Florin Catrina. 2001. Asymptotic Uniqueness and Exact Symmetry of k -bump Solutions for a Class of Degenerate Elliptic Problems. *Discrete and Continuous Dynamical Systems*. Added Vol. 80-88.

Zhi-Qiang Wang and Florin Catrina. 2001. On the Caffarelli-Kohn-Nirenberg Inequalities: Sharp Constants, Existence (and nonexistence) and Symmetry of Extremal Functions. *Communications on Pure and Applied Mathematics*. Liv.:229-258.

Zhi-Qiang Wang, Shujie Li and Zhaoli Liu. 2001. Positive Solutions of Elliptic Boundary Value Problems without (P.S.) Type Assumption. *Indiana University Mathematical Journal* 50:1347-1369.

Department of Physics

John R. Tucker and T.-C. Shen. 2001. Fabrication an All-Epitaxial Silicon Quantum Computer. *Quantum Information and Computation* 1:129-133.