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Dave Hammond and junior Anya Gushchin examine a vintage piece of scientific instrumentation. (Photo: Sally McCay)

Dave Hammond, electrical instrumentation coordinator for UVM's physics department, has collected and catalogued nearly 400 pieces of teaching and research equipment used in UVM classrooms and research laboratories as far back as 150 years ago.

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In a joint press conference Sept. 30, the presidents of UVM and Trinity College announced that, in December, UVM will take over ownership of the 21-acre Trinity campus.

THE WEEK IN VIEW

Oct. 3 3:30 p.m. Film: "When Billy Broke His Head," Memorial Lounge, Deaf and Disability Month.

Oct. 5 7:30 p.m. Lane Series: Coope Boyes & Simpson and Finest Kind, a cappella stylists, Recital Hall, Redstone. 656-4455

Oct. 8 3:30 p.m. Lecture: "Community Design, Sprawl and Smart Growth," Beth Humstone, Vermont Forum on Sprawl. 301 Williams Hall. 656-0095

Oct. 8 6 p.m. Community Medical School: "Ouch, That Hurts: Research and Strategies for Treating Pain," Dr. James Rathmell, anesthesiology. Carpenter Auditorium, Given. 847-2886

Oct. 9 12:15 p.m. Screen-printing Demonstration: Bill Davison, art, Fleming Museum. 656-0750

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UVM HOMEPAGE



Rachel Bondy '92, a former All-American soccer player, is one of 11 athletes who will be inducted into the UVM Athletic Hall of Fame during Homecoming Weekend. For more inductees, see the story below.

Hall of Fame to Induct 11 Alumni

A two-time Olympic Nordic skier, an All-American women's soccer player and the leader of the undefeated women's basketball teams of the early 1990s are among 11 former student-athletes who will be inducted into UVM's Athletic Hall of Fame on Oct. 4, during Homecoming and Family Weekend.

This year's inductees are: former skiers Laura Wilson Todd '91 and Einar Bohmer '92; Missy Kelsen '92, women's basketball; swimmer Dan Cauty '90; women's soccer All-American Rachael Bondy '92; softball pitcher Katie Quinn Burns '92; all-time leading assist man in basketball, Kenny White '92; former baseball players Steve Mammola '92 and Mike Stamer '86; lacrosse goalie Chris McCabe '91; and former three-sport standout Jennifer Oakes '72.

The inductees will be lauded at the 34th annual Athletic Hall of Fame Celebration and Dinner at the Radisson Hotel, with a reception at 7:30 p.m. and dinner at 8 p.m. A portrait-hanging ceremony will be held at 6 p.m. in the Hall of Fame Room in Patrick Gymnasium.

Ticket information: 656-4410

Study Puts Parents in the Lead to Fight Drug Abuse

An innovative UVM study is assigning parents a lead role in solving their child's drug problem.

\$7.3 million NSF Grant Establishes Math Partnership

As part of its new Math and Science Partnership program, the National Science Foundation has announced an award of \$7.3 million over the next five years to develop the Vermont Mathematics Partnership.

Members in the partnership are UVM, the Vermont Mathematics Initiative, Castleton State and several other colleges in Vermont, six school districts, the Vermont State Department of Education and the Vermont Institutes. The grant will be administered by the Vermont Institutes, formerly known as the Vermont Institute for Science, Math, and Technology, and is jointly funded by the National Science Foundation and the U.S. Department of Education. Ken Gross, UVM professor of mathematics, will be the director of the Vermont partnership.

The overall goals of the VMP are to enhance the performance of preK-12 Vermont students, improve mathematics instruction throughout Vermont, strengthen the systems that prepare and support teachers and school leaders and make significant contributions to research and resources available to educators nationwide.

"Improving student performance is the ultimate goal and justification for the Vermont Mathematics Partnership," Gross said. "We believe that enhanced student performance is only possible through directly impacting the adults who teach and lead them. VMP is founded on the strong conviction that a comprehensive school-wide professional development program, firmly grounded in content understanding and supported by powerful assessments and strong leadership offers the most promise of producing the student results we want and need."

The Vermont Mathematics Partnership is one of 24 such awards funded across the country. The VMP initially will work with four school districts – Barre, Hartford, Milton and South Burlington – and the following year will add two more districts that are representative of the needs of districts across the state.

Community Med School Takes On Bioterror

Welcome to the nightmare: A plume of weaponized anthrax drifts over a football stadium invisibly infecting thousands. Over the coming weeks and months, hundreds fall ill, and tens of thousands more panic and the area public health system is overwhelmed.

Alan Budney, associate professor of psychiatry, and colleague Catherine Stanger, research associate professor of psychiatry, have launched an experimental behavioral treatment program, titled "Behavioral Treatment of Adolescent Marijuana Abuse", funded by a four-year, \$1.66 million grant from the National Institutes of Health National Institute on Drug Abuse. The study teaches the parents of young marijuana abusers how to help ensure their child stays "clean" and establish a relationship based on trust and respect with their child.

In the one-year pilot program that preceded the NIDA award, the research team conducted a four-week intervention with a total of 53 male and 7 female adolescents who abused or were dependent on marijuana. The therapist gave \$10 or \$15 gift certificates for negative urine tests and appropriate treatment participation, and the parents also established positive and negative consequences based on urine and breathalyzer tests. Of the 46 teens who had tested positive for marijuana at the start of the study, 26 tested negative at the end of four weeks. Budney and Stanger found that the youth who did not stop smoking marijuana after four weeks had parents who monitored their children less and reported more family conflict.

The methods are considered a bit controversial, because they ask more of parents than most other treatment strategies. Referred to as "contingency management," this approach has shown promise in studies focused on adult substance abusers. In the current study, both the parents and therapists administer these types of interventions. Parents are taught to respond systematically to their child's drug use or abstinence following regular testing. If the test result is clean, parents provide an immediate reward, such as a special dinner or privilege to reinforce their child's abstinence. If it is "dirty," parents enforce consequences, such as the loss of driving privileges, the phone or access to friends. The clinic administers a similar program. For each clean result, the child accrues cash-value points or vouchers to purchase various therapist-approved goods or services, such as sporting passes, movie tickets and restaurant or music store gift certificates.

The treatment also includes weekly cognitive behavior therapy sessions targeting basic coping skills, family communication and problem solving. The teen and parents meet with the therapist separately for 30 minutes each and then jointly for 10 minutes. According to Budney and Stanger, no research to date has used the combination of contingency-management interventions and cognitive behavior therapy with adolescent substance abusers.

For more information about the study, call 847-3333.

Carillon Request Resonates with Readers

In an [article](#) in last week's issue of *the view*, about David Neiweem and the UVM carillon, we reported that the professor was open to requests for his monthly, live carillon concerts. Several readers responded, with these requests:

Dr. Christopher Grace, associate professor of medicine in the infectious disease unit, has spent quite a bit of time of late thinking through such deadly scenarios as he combines his expertise in medicine and public policy to help develop the regional response to bioterrorism. He shared some of his thinking on Oct. 1 at a Community Medical School event.

"If an airplane crashes or a building falls down, that's a set event and the casualties occur all at once," Grace said. Bioterrorism is different. The attack could be overt or covert, infectious or not, and, depending on the incubation period of the organism or toxin, could go undetected for a period of time. Uncertainty is another key distinction between bioterrorism and other forms of terror. Victims may not know that they have been attacked for some time; public health authorities may have trouble separating those afflicted from those spared.

Even thousands of questioning phone calls combined with jittery hospital staff and thousands of sick patients might be enough to effectively "shut hospitals down," Grace said.

After describing the potential scope and complexity of the problem, Grace went on to describe considerations for public health agencies and other responders to bioterror.

Community Medical School events will be held each Tuesday evening through Oct. 29. They start at 6 p.m. and are held at Carpenter Auditorium in the Given Medical Building. The remaining topics are: Oct. 8, Dr. James Rathmell on pain; Oct. 15, Dr. Marie Wood on genetic testing for cancer; Oct. 22, John McCormack on the FDA drug approval process; Oct. 29, Bruce Fonda on the anatomy of trick-or-treating. Information and registration: 847-2886, or www.med.uvm.edu/cms

Thursdays in Black

Every Thursday, women march in silence in the Plaza de Mayo, Argentina, holding placards and demanding justice for missing loved ones.

For more than 20 years, South African women wearing black sashes regularly held vigils outside parliament to oppose the violence of apartheid.

Every Thursday, Australians wear ribbons and badges to recognize the rape and violence suffered by aboriginal women for over 200 years.

If you want to help demonstrate a desire for a community where people of all sexual, political, gender and ethnic orientations can be safe, consider wearing black on Thursday.

UVM's Gender Violence Response Team, a group of staff and students committed to creating a campus culture with a zero tolerance for violence, hopes that the university community will support the cause by wearing black every Thursday in October, which is Domestic Violence Awareness Month.

From Patrica Allen, of the Rural and Farm Family Vocational Rehabilitation Program: "Imagine, Vermont State Song, We'll Build a Land, We Would Be One."

Sara Solnick, of economics, suggested songs she thinks "would sound really good on bells": "Pictures at an Exhibition, Oh Blah Di Oh Blah Da, I Started a Joke, As Time Goes By, All I Have to Do is Dream."

Gina Sears, in Student Affairs, chose: "Amazing Grace, How Great thou Art, God Bless America, Trumpet Voluntary".

Linda Del Hagen, in medicine, asked for "Stairway to Heaven."

Larry Vigneault, in telecommunications, suggested: "Stolen Moments" by Oliver Nelson.

Anyone else with requests should e-mail them to: music@zoo.uvm.edu

Thursdays in Black began as a human rights campaign by the World Council of Churches during the 1980s as a peaceful protest against rape and violence. The campaign focuses on ways individuals can challenge attitudes and reinforces at a personal and public level that there is something wrong with a world that allows the human rights of women, men and children to be abused and threatened.

For more information, contact Anne Smith, UVM Victims' Advocate, at 656-7892.

Athletics Offering Advance Ticket Sales

Hockey and men's and women's basketball fans will be able to purchase advance tickets started Oct. 7. They'll be limited to six tickets per game for each customer, but they can purchase the tickets by phone – 656-4410 – or at the Ticket Office in Patrick Gym. Special packages will be available for groups and organizations as well.

The Athletic Ticket Office is open 9 a.m.-4:30 p.m., Monday-Friday.

Information: 656-441. Game schedules: [Athletics](#)

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UVM HOMEPAGE



It's fall, it's fun: Homecoming 2002 is expected to draw more than 2,000 back to campus Oct. 4-6. For a rundown on the festivities, see the story below.

Homecoming, Family Weekend Oct. 4-6

Whether it's a day on the links or on the lake, a festive parade or a provocative lecture on the environment, returning alumni and UVM parents and students will have a full schedule to choose from at UVM's Homecoming and Family Weekend, Friday-Sunday, Oct. 4-6.

Among this year's highlights:

Friday, Oct. 4

- Fall Foliage Golf Classic at the Vermont National Country Club. 9 a.m.-3 p.m.
- Women's Soccer vs. Cornell. 1:30 p.m. Centennial Field.
- Lake Champlain Cruise on the Spirit of Ethan Allen III. 4-5:30 p.m
- Homecoming Concert, sponsored by the Department of Music, 7 p.m., Ira Allen Chapel.
- Athletic Hall of Fame Dinner. Eleven new members will be honored, 7:30 p.m., Radisson Hotel.
- *Dancing at Lughnasa*, set in a rural Irish town. 7:30 p.m., other performances on Saturday and Sunday, Royall Tyler Theatre.

Saturday, Oct. 5

- The George V. Kidder homecoming lecture, "Sustainability in Action in Vermont and the Americas," by Thomas Hudspeth, School of Natural Resources and winner of the 2002 George V. Kidder Outstanding Faculty Award for teaching. 9

National Coming Out Week To Focus on Academic Climate

A shift in focus from the cultural to the intellectual will mark the 11th year of National Coming Out Week activities at UVM. Events planned from Saturday, Oct. 5, through Friday, Oct. 11, will celebrate the lesbian, gay, bisexual, transgender and questioning members of the campus community and their allies.

While past celebrations have counted on celebrities like Ellen Degeneres and Anthony Rapp to draw students, staff and faculty, this year will highlight UVM faculty and graduate students' research and teaching. A panel presentation on "Coming Out as a Scholar" and a faculty/student forum on LGBT issues in the curriculum reflect progress toward a more open academic climate.

The following National Coming Out Week events are free, except where noted, and open to the university community and general public:

- Saturday, Oct. 5, Kickoff March, Redstone Campus, 3 p.m. A march through campus to launch National Coming Out Week 2002 and celebrate safety in our communities.
- Sunday, Oct. 6, Screening and discussion of the film, "Scout's Honor," Allen House, 12 to 2 p.m. As part of Alumni & Family Weekend, parents are invited to view this documentary about an Eagle scout's coming of age.
- Sunday, Oct. 6, "Dancing at Lughnasa," Royall Tyler Theatre, 2 p.m. The UVM Theatre performance of Brian Friel's play will be followed by an NCOW reception. Tickets for show and reception are \$10. Call 656-2094.
- Monday, Oct. 7, "Coming Out as a Scholar," Billings Student Center, North Lounge, 5 p.m. Valerie Rohy joins other scholars for a panel discussion about LGBTQ research and curriculum.
- Tuesday, Oct. 8, Student and Faculty Forum, Billings Student Center, Marsh Lounge, 4:30 p.m. A discussion of LGBT issues in the curriculum and the classroom.
- Wednesday, Oct. 9, SpeakOUT!, Bailey/Howe Library steps, 12 p.m. Speak out and listen to others discuss what National Coming Out Week means to them.
- Wednesday, Oct. 9, Coffeehouse and Open Mic, Billings Student Center, North Lounge, 7 p.m. Popular local musicians will perform for a casual evening of entertainment, conversation and coffee.
- Thursday, Oct. 10, Movie Night, Allen House, 7 p.m. Join friends for pizza and a

- a.m., Campus Center Theatre, Billings.
- The Kevin Roberson Memorial Run, a 5K run/walk to benefit the Kevin Roberson Scholarship Fund, 9 a.m., Archie Post Field.
- Lake Champlain Cruise on the *Spirit of Ethan Allen III*, 10-11:30 a.m.; noon-1:30 p.m.; 2-3:30 p.m.; or 4-5:30 p.m.
- Homecoming Parade, from Waterman down College Street to the Church Street Marketplace, noon.
- Homecoming Fest, a carnival in the heart of downtown Burlington complete with games, entertainment, music and food, 1-4 p.m.
- Chamber Music Recital and reception, sponsored by the Music Department, 3 p.m., John Dewey Lounge.
- ALANA Family Reception, 4 p.m., Allen House, 461 Main Street.
- Homecoming Tent Party, 4-6 p.m., Grasse Mount.
- Lane Series - Coope Boyes & Simpson and Finest Kind, one of Britain's best a cappella groups and an Ottawa group, offer exquisite harmony singing and brilliant vocal arrangements, Recital Hall, 7:30 p.m.
- Hockey vs. Northeastern, 7 p.m. Gutterson.

Sunday, Oct. 6

- Hike for Hunger, sponsored by the UVM Outing Club, a moderate climb on either Mt. Hunger or Camel's Hump, 9 a.m.
- President's Brunch, 11 a.m., Marsh Dining Hall, hosted by the Division of Student Life.

Complete schedule, registration, fee information: 656-2010, or [Alumni](#) and click on Schedule of Events.

First-Year Lecture to Focus on Math

Roger Cooke, Williams Professor of Mathematics, will deliver the third lecture in the President's Lecture Series for First Year Students, Oct. 7, at 7 p.m., in the Campus Center Theatre, Billings.

Cooke, a past recipient of the Kidder Faculty Award, will speak on "Mathematics as a Way of Understanding."

First-year students earn one credit hour by attending all five in the lecture series and enrolling in Art 95, The Art and Architecture of UVM. The new program is sponsored by the offices of the president and the provost, the Center for Teaching and Learning, and the first-year committee.

Lecture to Illuminate Anti-Nazi Dramatist

Thomas Ragle, former president of Marlboro College, will lecture on "Carl Zuckmayer in Vermont," Oct. 7, at 4 p.m., in John Dewey Lounge, Old Mill.

- screening of the film, "Beautiful Thing."
- Friday, Oct. 11, National Coming Out Week Gala, Burlington City Hall, 6 p.m. to 1 a.m. Features ballroom dance lessons, 6 - 8 p.m., ballroom music, 8 - 9 p.m. and DJ Craig Mitchell spinning tunes until 1 a.m. Tickets are \$2 for students and \$4 general admission.

Information: www.uvm.edu/~lgbtqa or 656-8637.

Civic Responsibility Forum Aims to Fight Voter Apathy

Voter turnout for the recent primary was the lowest in Vermont history, and only 66 percent of registered voters in Chittenden County went to the polls in the 2000 elections. Hoping to encourage community members to exercise their right to vote, Frank Bryan, professor of political science, will participate in a forum on civic responsibility at 6:30 p.m., Oct. 7, at Burlington High School.

The panel, which is sponsored by the Champlain Initiative, also will include Secretary of State Deb Markowitz and Bud Meyers of the Vermont Department of Education. Radio host Mark Johnson will moderate. Along with a discussion and information, a voter registration table will be set up for new and eligible voters.

Information: 864-7541.

Benefit Fashion Show to Boost Women's Lacrosse

The women's lacrosse program will host a benefit fashion show on Saturday, Oct. 5, at 8:30 p.m., under the tent at Grasse Mount.

Vincent Cox of Acote Salon in Boston, the father of UVM women's lacrosse player Vanessa Cox, is presenting the show, which will serve as a fundraiser for the program's spring training trip. It will feature professional models from the Boston area modeling the latest fashions from a number of Burlington area merchants.

Participating merchants include: Urban Outfitters, Ap.ro.pos, Le Petit Magasin, Monelle and Ecco, as well as Forerunner Sports of Killington. A raffle drawing will be held at the show, with the winner receiving a weekend in Boston.

Tickets for the event are \$25 and may be purchased from the participating merchants and at the UVM Athletic Office. Information: 656-7671.

During World War II, Zuckmayer, a major German and anti-Nazi dramatist, lived in exile with his family in Barnard, Vt. Ragle's talk is an introduction to his life, with emphasis on the writings Zuckmayer completed in Vermont. It is sponsored by the department of German and Russian and the Center for Research on Vermont.

Information: 656-3430

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Oct. 2-Oct. 8

Awards and Honors

Six UVM teachers will incorporate service learning into five fall semester classes using mini-grants provided by the Fund for the Improvement of Post-Secondary Education and Vermont Campus Compact. The grant winners are **Sheila Weaver**, mathematics and statistics; **Nancy Welch**, English; **Karla Karstens**, mathematics and statistics; **Janet Bossange**, education; **Luis Vivanco**, anthropology; and **Rick Paradis**, environmental program.

James Rosen, professor of psychology, is the recipient of a Vermont Leaders in Fitness and Sports Award from the Governor's Council on Physical Fitness and Sports. The award recognizes Rosen's efforts to improve Vermonters' health through weight control programs and research, as well as his personal achievements as a competitive athlete.

Susan Yuan, Family and Consumer Affairs Coordinator at the Center on Disability and Community Inclusion, has been appointed by Governor Howard Dean to serve on Vermont's Olmstead Commission. The group will work to implement the requirements of a 1999 Supreme Court decision that mandates more integrated, accessible services for the disabled.

Publications and Presentations

Tony Magistrale, professor of English, is completing his manuscript of *Hollywood's Stephen King*, the first book-length analysis of King's many films. St. Martins Press will publish the book, which begins with an interview Magistrale completed with King this summer.

Sept. 25-Oct. 1

Awards and Honors

The **Area Health Education Center** program received a two-year, \$1.35 million grant from the Health Resources and Services Administration. The AHEC program's primary goals are to provide off-campus training opportunities for medical and health science students and residents, increase Vermont's healthcare workforce, and improve access to care for rural Vermonters. The program, which is directed by **Dr. Mildred Reardon**, associate dean for primary care at the College of Medicine, has three regional centers located in St. Albans, St. Johnsbury, and Springfield.

The following members of the College of Medicine's Class of 2003 were recently elected to the Alpha Omega Alpha Honor Medical Society: **Julie Bard; Laurel Barkell; John Battiston; Andrew Goodwin; Sarah Howland; Sean Kumer; Bethany Milliken; Eric Newton; Jackie Panko; Satya Stewart; Tammy Teller; Agostino Visioni**. The AOA faculty councillor is **Dr. William Raszka**, associate professor of pediatrics.

Christopher Berger, associate professor of molecular physiology and biophysics, was elected to the Council of the Biophysical Society, a professional organization with 7,000 members in the United States and 45 countries. Berger's research focuses on fluorescence spectroscopy, single molecule biophysics, muscle, motor proteins and protein dynamics.

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UVM HOMEPAGE

New Physics Museum Houses Antique Treasures

By Lynda Majarian



Dave Hammond and junior Anya Gushchin examine a vintage piece of scientific instrumentation. (Photo: Sally McCay)

Foraging for antique science apparatus is “not really what we do here” admits Dave Hammond, electrical instrumentation coordinator for UVM’s Physics Department.

Nevertheless, over the past three years Hammond has collected and catalogued nearly 400 pieces of teaching and research equipment used in UVM classrooms and research laboratories as far back

as 150 years ago. Part of the collection, which ranges from electrostatic generators, early vacuum tubes, mercury vapor lamps and 19th-century textbooks, was unveiled to the university community and the public on Sept. 25.

“I feel that we have an obligation to look after this equipment because of its historical significance,” says Hammond, who built oak display cases in his home and installed them in Cook Physical Sciences, room 106, to house part of the collection.

UVM began purchasing scientific equipment in 1807, but most of it was destroyed in a fire that ravaged the Old Mill in 1824. Hammond has painstakingly collected many pieces the university acquired after the fire and throughout the 19th century. “A lot of it is probably only interesting to physicists,” Hammond says.

Insight into an era

But he’s rescued quite a few historic gems. For instance, microscope tables used in Williams Hall during the 1890s, before the advent of electricity. Hammond says the tables were going to be tossed out by another department. “Today’s students are amazed to learn that the tables were tiered in order not to block the light coming in from the window,” he says. Some years later, holes were drilled to accommodate those new-fangled light bulbs.

The collection also includes equipment manufactured between 1837 and 1852 by Daniel Davis, the first American supplier of science equipment for teaching purposes.

Another rare specimen is a Clark refracting telescope donated to UVM in 1939 by Edward Curtis Smith, former Vermont governor and owner of the Vermont Central Railroad.

“Deborah Jean Warner at the Smithsonian keeps track of all the Clark telescopes in the country,” Hammond says, “but she didn’t know this one existed.” Warner is co-editor of the seminal *Instruments of Science*, an encyclopedia of instruments used from the beginnings of science to the present.

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Foundation for Learning

In introductory science courses, students often don’t know how to apply what they already know to the vexing new problems they face. A new grant to the CTL will help faculty develop innovative technology to fill those gaps.

Life After Oil

Aiken Lectures keynoter Bill McKibben praised UVM’s Alternative Transportation Expo but cast doubt on the political and public will needed to effect the changes such vehicles represent.

UVM to Purchase Trinity

In a joint press conference Sept. 30, the presidents of UVM and Trinity College announced that, in December, UVM will take over ownership of the 21-acre Trinity campus.

Robert Arns, professor emeritus of physics, notes that some of UVM's antique tools, such as a Wimshurst electrostatic generator that delivers a 20,000-volt charge, are still used in the classroom to teach fundamental principles of science. Arns helped to organize the Sept. 25 dedication of the "Physics Museum" and invited Thomas Greenslade, Jr., professor emeritus of physics at Kenyon (Ohio) College, to speak about the genesis of natural philosophy.

Those who missed the dedication can arrange to see the Physics Museum in Cook by calling Hammond at 656-0053. Or, you can access the collection from your desktop. Hammond has compiled a comprehensive index of all the equipment, along with photographs and historical information, on the Web at [Hammond Museum](#).

Although its introduction includes a caveat that "this page won't be finished in the near future," Hammond may be too modest. The Web site provides a wealth of information, along with the capability to search for a particular tool not only by its name but also by manufacturer, topic and date. Equally important, browsing through its contents provides a living link to UVM teachers, scientists and students of an earlier era.

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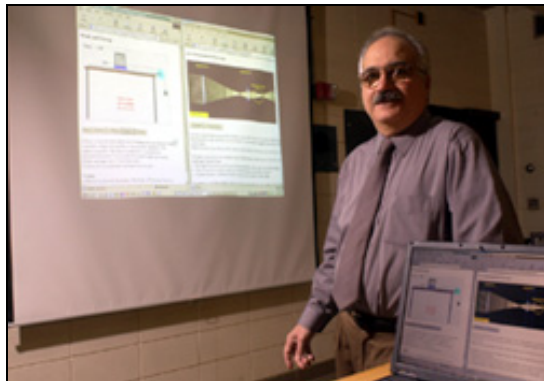
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Foundation for Learning

CTL wins grant to help departments develop technological tools to help students fill their gaps in knowledge

By Jeff Wakefield



Kevork Spartalian is developing animated simulations and other technological tricks to help his physics students. *(Photo: Bill DiLillo)*

Kevork Spartalian, associate professor of physics, had noticed a common problem among students taking introductory physics courses: students often couldn't apply the concepts they learned in calculus, a prerequisite, to the physics problems at hand.

To understand this disconnect and what could be done about it, Spartalian has been working informally with

math faculty and the Center for Teaching Learning for the past six months.

A new three-year, \$250,000 grant from the Davis Educational Foundation to the Center for Teaching and Learning, matched by the university, will spread to the other sciences the collaborative approach Spartalian and his partners are taking to pedagogical problem-solving. The grant also will help fund the development of a library of online, interactive modules designed to attack problems undergraduates frequently encounter in science courses.

Plugging learning gaps

"In the physics example," says Shirley Gedeon, professor of economics and the new full-time director of the CTL, "it's as if students don't know which tool in the math toolbox to use. They know how to use a wrench, but they don't know that this is a 'wrench problem.'"

Every scientific discipline has similar basic problems that interfere with learning, Gedeon says. During the first year of the grant, the CTL will develop modules in physics and animal sciences. In years two and three, the center will address the new unified biology program and environmental sciences, respectively.

"Our goal will be to work with faculty to identify the problems they want to address and then develop technology support materials to close learning gaps," she says.

Working in partnership with faculty, the CTL will develop two kinds of technology modules, one students will use outside of class to address issues like the physics-math disconnect – which faculty don't have time to address in class – and a second to be used as support for lectures.

For the lecture support, the CTL envisions a series of three interactive modules on the Web. Students would use the first to prepare for the lecture, then experience the second during class; the third would come afterwards to help them demonstrate that they understood key concepts. Once the modules have been developed, CTL will test their effectiveness in sections using them and in

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Electronic lifeguard

Although Spartalian will work with math faculty like Jim Burgmeier, Dave Dummit and Joan Rosebush this fall to continue his analysis of the physics-math divide, then work on developing the modules later in the year, he is an early adopter of technology and has been tinkering with prospective solutions for some time.

At the moment he is demonstrating an animated computer simulation that might be used during a lecture to shed light on a word problem that has baffled physics students for generations: How to plot the quickest course between a lifeguard on shore and a drowning swimmer, an analogue for light refraction through a transparent medium.

"You might think the fastest path would be a straight line between lifeguard and swimmer," he says. He uses his cursor to draw a line between two points positioned on a square grid on his computer screen, one in a sandy beige covering the top half of the grid, the other in a watery blue on the bottom half, then hits a button marked go. A tiny dot traverses the line, while its running time is continuously displayed.

"Now let's try a less intuitive approach," he says, creating an angular path that has the lifeguard running down the shore, then heading out to the swimmer through a shorter expanse of water. The time recorded is a few seconds less.

Animations like this one should be particularly useful for students having trouble with word problems, which require them to construct and play in their heads a kind of movie to determine how equations are applied. "If you don't have a movie for the problem," he says, "you're going to misunderstand it."

The technology adds a new dimension to the teaching of physics, Spartalian says. He will demonstrate several of the modules he's developed during a department meeting later in the month.

"Right now we have equations on blackboards and graphs in textbooks," he says. The technology modules allow "us to move in a perpendicular new direction," enabling faculty to make new teaching connections or see old problems in a fresh way.

That's exactly the kind of thinking Gedeon hopes the Davis Foundation grant will help spawn.

"Our goal is to demonstrate to faculty the power of internet-based learning resources for engaging students in learning," she says.

CTL staff member Walter Poleman, a lecturer in biology who has effectively incorporated technology into his teaching, will work with faculty to help them identify the pedagogical issues. The CTL's technical staff will then work with faculty in an iterative style to develop the modules.

The Maine-based Davis Educational Foundation was established by Stanton and Elisabeth Davis after his retirement as chairman of Shaw's Supermarket, Inc.

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UVM HOMEPAGE

Imagining Life 'After Oil'

By Cheryl Dorschner



SUVs not welcome: Cars and trucks fueled by electricity, fuel cells and biodiesel took center stage at the Alternative Transportation Expo on Sept. 28. (Photo: Bill DiLillo)

The heavy clouds of the post-Hurricane Isadore rainstorm vanished by midmorning Saturday, Sept. 28, as about 1,000 people meandered through the exhibits of "The Alternative Transportation Expo" at Patrick Gym. Folks clustered around the engines of shiny new cars, took a few for a spin and listened to exhibitors extol the advantages of the hybrid car versus the fuel cell-driven vehicle.

Inside, on the other side of the gymnasium curtain, it was ideas that were on display. There, some of the top environmental thinkers in the state and nation asked the hard questions and offered up disturbing statistics about life "After Oil: The Future of Personal Transportation," this year's George D. Aiken Lectures topic. The two events, conceived as a complementary set, were sponsored by the College of Engineering and Mathematics and Continuing Education and drew more than 1,800 people.

"The exhibits are inspiring and optimistic," began environmental journalist Bill McKibben, the award-winning author of *The End of Nature* and six other books and frequent contributor to *The New Yorker*, *The Atlantic*, *Harpers* and other magazines. "But I'm going to rain on your parade. I've been to events like this before with cars like this ... and it's not enough."

Since 1989 when he published his first book, McKibben has tracked scientific and public thinking about the fact that the carbon dioxide emitted from burning fuels affects the Earth's atmosphere. "The temperature has changed one degree and that has created huge changes – winter is three weeks shorter, storms like the one we had last night that drop two inches of rain in 24 hours are more common, the ice in the Arctic and Antarctic is thinner," he said.

But still we have not slowed our consumption of fuels.

McKibben predicts we're headed for a five-degree warmer change in the Earth's atmosphere. That's "warmer than human history, warmer than any history. That's uncharted territory," he said. Lake Champlain has not frozen for the past six years, a trend he said would continue and would change the lake ecosystem. Forests will transition from birch, beech and maple to oak-hickory. "It's harder than heck to tap them for sap," he quipped. "Most of what we think of as Vermont is up for grabs.

"That's only the human impact, the environmental context," said McKibben. "The political context is worse." He drew applause when he said that Vermont senators were on the right side of environmental legislation, but concluded, "bipartisan politics has accomplished nothing in this area."

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[Physics Treasures](#)

Dave Hammond, electrical instrumentation coordinator for UVM's physics department, has collected and catalogued nearly 400 pieces of teaching and research equipment used in UVM classrooms and research laboratories as far back as 150 years ago.

[Foundation for Learning](#)

In introductory science courses, students often don't know how to apply what they already know to the vexing new problems they face. A new grant to the CTL will help faculty develop innovative technology to fill those gaps.

[UVM to Purchase Trinity](#)

In a joint press conference Sept. 30, the presidents of UVM and Trinity College announced that, in December, UVM will take over ownership of the 21-acre Trinity campus.

America's current love affair with the sport utility vehicle is a significant contributor to global warming, he said. "In one year, the amount of energy and carbon dioxide emitted by SUVs is the equivalent to opening your refrigerator door until 2009," McKibben said. "You couldn't do that. The voice of your mother would come to you saying, 'Shut the door!'"

McKibben called for car manufacturers to put the kinds of engines on display at the Alternative Vehicle Expo in most of the vehicles they make. "This isn't rocket science, it's automotive science – which we're great at.... We need the same kind of creative thinking applied to political issues. ..."Technology makes change possible, but attitudes make things happen."

More information: [Aiken Lecture Series](#)

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UVM HOMEPAGE

UVM to Purchase Trinity

By Lee Griffin



UVM officials lauded the purchase of the Trinity College campus as an essential investment in excellence. *(Photo: Sally McCay)*

In a joint press conference Sept. 30, the presidents of UVM and Trinity College announced that, in December, UVM will take over ownership of the 21-acre Trinity campus.

Sr. Jacqueline Marie Kieslich, Trinity president, called the decision to close the Catholic College run by the Sisters of Mercy "a bittersweet event." UVM President Daniel Mark Fogel called the purchase agreement "an essential

element of UVM's investment in excellence."

UVM will purchase the property, comprising 17 buildings with a total of 260,000 square feet of space, for \$14.3 million. It likely will use a current general obligation bond for the purchase. Fogel noted that income from current leases on the property and retirement of UVM leases at Trinity and elsewhere – approximately \$900,000 annually – is expected to cover the debt service.

UVM currently leases five residence halls at Trinity for graduate students and senior undergraduates. That use will continue, Fogel said. Other buildings will house staff forced to leave leased space, buildings at University Heights and buildings under renovation, such as Perkins.

Two buildings are under lease to Fletcher Allen Health Care for administrative purposes; those leases will continue for their duration and likely beyond. Leases for other groups will expire June 30, 2003 and not be renewed.

Although the acquisition does not add significant student housing to UVM, Trinity's larger rooms could, in the future, be converted from singles to doubles, Fogel said. He noted also that the university is committed to adding 500 to 600 beds at University Heights and an additional 200 at Redstone when permit hurdles are cleared. He called the agreement "a sound investment in the university's long-term future and that of the people of Vermont" especially in Burlington and surrounding communities.

See also: [Trinity Purchase](#)

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[Life After Oil](#)

Aiken Lectures keynoter Bill McKibben praised UVM's Alternative Transportation Expo but cast doubt on the political and public will needed to effect the changes such vehicles represent.