

SPECTRUM



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

<http://www.unirel.vt.edu/spectrum/>

VOLUME 22 NUMBER 21 FRIDAY, FEBRUARY 18, 2000

TODAY'S EDITION

See page 3 for
information on new
cash-match program.

Virginia Tech honored as leading producer of minority Ph.D.'s

The Quality Education Network for Minorities (QEM) Network has recognized Virginia Tech for the university's important contributions to the number of doctoral degrees in the fields of mathematics, the physical sciences, and engineering (MPSE) earned by African Americans, Alaska natives, American Indians, and Hispanics. Virginia Tech is one of 27 doctoral degree-granting institutions recognized at the Ninth Annual National Conference of QEM's Mathematics, Science, and Engineering Network.

Leonard K. Peters, vice provost for research and dean of the Graduate School, accepted the award on behalf of the university during a special ceremony in Washington, D.C. on February 11. Asked to talk about the single most significant activity contributing to the awarding of Ph.D. degrees to a relatively high number of minorities, Peters said, "The culture at Virginia

Tech is that recruitment, retention, mentoring, and the students' success are shared responsibilities. Not only does the Graduate School, but the colleges spend considerable time and effort on the recruitment of minority graduate students, for instance.

QEM President Shirley McBay said that the network is focusing on the doctoral level because "it is important to more fully understand the reasons minority members receive so few MPSE doctorates, as well as to recognize those institutions that are making a difference. She said that the 27 institutions honored account for 50 percent of the MPSE doctoral degrees received by minority members between 1990 and 1997, although they represent less than 10 percent of the nation's universities offering such degrees.

"The QEM recognition is an honor, but it really demonstrates how far we have to go," Peters said. "We received an award for produc-

ing 21 minority Ph.D. graduates in MPSE fields in eight years. We—along with the other leading research universities—must find ways to address this and to recruit minorities as Ph.D. students."

He urged the university community to read and respond to the essay by Ben Dixon, vice president for multicultural affairs, and himself on "An Inclusive Graduate Community," which appeared in the recent Research and Graduate Studies Report on the Faculty (<http://www.rgs.vt.edu/resmag/annualreport99/>). In that essay, Peters and Dixon call not only for increasing minority-student enrollment, but also for increasing the proportion of the faculty made up of people of color. They point to "examples of the contributions that diversity in a scholarly community bring to the quality and breadth of our scholarship" across many disciplines. They conclude,

"All students and citizens will benefit from an inclusive teaching and learning environment where individuals from under-represented groups have opportunities to enrich the experiences and lives of all.

The other 27 universities honored are: City University of New York, Cornell, Georgia Tech, Howard University, MIT, NC State, Northwestern, Penn State, Purdue, Stanford, Texas A&M, University of Michigan, Ann Arbor, University of Arizona, University of California (UC), Berkeley; UC, Davis, UCLA, UC, San Diego, University of Colorado, Boulder, University of Florida, University of Illinois, Urbana-Champaign, University of Maryland, College Park, University of Miami, University of Pennsylvania, University of Puerto Rico, Rio Piedras, University of Texas, Austin, and University of Wisconsin, Madison.

Surprising horseshoe crabs subjects of research

By Lynn Davis

The next time you take medicine, are hooked up to a hospital I.V., get an organ transplant, or have a hip replaced, you can thank the horseshoe crab. A component of the blood of the horseshoe crab has verified that those items are free of dangerous toxins. Nothing else known to man can do that job as effectively.

And the College of Natural Resources is playing a part in conserving this valuable resource, as fisheries and wildlife Professor Jim Berkson engages in an on-going study of horseshoe-crab populations. In one round of studies, his graduate student Beth Walls spent the summer at Chincoteague on the Maryland/Virginia line monitoring the horseshoe-crab population along its coast and tagging the crabs which will provide future information on the crab's movement and survival. The Virginia Sea Grant College Program funds another research project Berkson has with Steve Smith of the Virginia-Maryland College of Veterinary Medicine. They are studying the blood biochemistry of the species.

On February 15 Berkson was featured on the AgDay television program aired on more than 150 TV stations discussing his horseshoe-crab research and the crab's life cycle.

Berkson hopes his work ultimately will lead to better management practices and resolve some of the conflicts other users and interests have with the commercial fishermen. Researchers in other fields are studying the crab, but few or no other fishery scientists on the East Coast except Berkson are doing research from the fisheries management perspective. He puts this background to good use as a member of the Horseshoe Crab Stock Assessment Committee of the Atlantic States Marine Fisheries Commission (ASMFC).

The Virginia Tech-Sea Grant researcher has also served on ASMFC's Horseshoe Crab



Graduate student Beth Walls and Professor Jim Berkson are engaged in an on-going study of horseshoe-crab populations. The animals have become important in the production of safe medical treatments and pharmaceutical products. (L. Davis)

Peer Review Panel. ASMFC, responsible for coordinating fisheries management for multi-state and federal resources, last week issued regulations that each Mid-Atlantic state reduce its commercial horseshoe-crab catch by 25 percent. This move impacts commercial fishermen who use the horseshoe crab as bait for their conch and eel fishing. The move, however, is seen as necessary to preserve the crab eggs that migratory shorebirds need for food and to preserve the crab population for biomedical use. Many environmental groups recommended a 50-percent reduction.

Horseshoe crabs have been used for biomedical research since the early 1900s. Since the 1970s they have been caught, bled, and released alive to obtain Limulus Amebocyte Lysate (LAL), a clotting agent used to detect the presence of toxins pathogenic to humans in injectable drugs and all implantable medical

devices.

Today the LAL test is the standard test for screening medical equipment for toxin contamination. If LAL clots in water surrounding the medical item, that indicates that drug, IV, or body-part replacement is contaminated with toxins and should not be used.

The FDA estimates that 260,000 horseshoe crabs were caught and bled for the biomedical industry in 1997, compared with 130,000 in 1989. Berkson and his graduate student have been comparing the survival rate of crabs that have been bled to crabs that have not been bled to estimate the mortality associated with the bleeding process.

Previous studies have estimated the mortality rate to be less than 15 percent after release. The commercial fishing industry catches substantially more crabs than the biomedical

(See SURPRISING on 4)

New biomed center established

By Liz Crumley

"The human body is the ultimate machine and we need to understand how and why this machine works so well," Brian Love said. "Engineers bring problem-solving abilities to biomedical research."

These problem-solving abilities have played a crucial role in the creation of hip and knee replacements, kidney-dialysis machines, heart valves and pacemakers, heart-lung machines, medical imaging tools, arthroscopic surgery tools and techniques, and a myriad of other medical devices and treatments.

And now the business of solving the complex problems of the "ultimate machine" will have a focal point for Love, an associate professor of materials science and engineering (MSE), and the 14 other engineering faculty members affiliated with the new Center for Biomedical Engineering (CBME) at Virginia Tech. With establishment of the CBME and a graduate-certification program in biomedical engineering, the Tech College of Engineering has joined ranks with the majority of large engineering schools in the U.S.

Biomedical engineering is not new to Virginia Tech, said Wallace Grant, professor of engineering science and mechanics (ESM) and one of the early researchers in the field at the university. "ESM has always had a biomedical program," he said. "In fact, about half of our undergraduates study the subject, and a number of students from other departments come to ESM for our biomedical-engineering courses." The other three pioneers in this field at Virginia Tech are professors Daniel Schneck of ESM and Michael Furey and Thomas Diller of

(See NEW BIOMED on 4)

ACTIVITIES

EVENTS

Friday, 18

Black History Month Program, 11:30 a.m.-1:30 p.m., Women’s Center: Irene Lamb.
Student Recital, 8 p.m., Squires Recital Salon: Jocelyn Oldham.

Saturday, 19

Men’s Basketball, 2 p.m., Cassell Coliseum: Xavier.
University Chamber Music, 8 p.m., Blacksburg Presbyterian Church: Brass Affair.

Sunday, 20

YMCA Hike, 1:30 p.m., 403 Washington St.: Falls Ridge in Winter.
Women’s Basketball, 2 p.m.: At Duquesne.
University Chamber Music, 3 p.m., Blacksburg Presbyterian Church: Brass Affair.
Student Recital, 8 p.m., Squires Recital Salon: Cyndi Cox.

Monday, 21

University Council, 3-5 p.m., 1045 Pamplin.
Black History Month Program, 7-9:30 p.m., Black Cultural Center.

Tuesday, 22

Family Support Program, noon-1 p.m., DBHCC room. G: Linda Spivey, Montgomery-Floyd Regional Library.
Black History Month Keynote Speaker, 6:30 p.m.,

DBHCC auditorium: James Loewen.
Black History Month Program, 7 p.m., Black Cultural Center.

Wednesday, 23

CEUT Workshop, 3:30 p.m., Hillcrest: “Research-Based Strategies.”
“With Good Reason,” 7 p.m., WVTF: “Art Marries Technology.”
Black History Program, 7:30 p.m., DBHCC auditorium: Kip Fulbeck.

Thursday, 24

YMCA Slide Show, noon, Cranwell Center: Ed Bunce.
CEUT Workshop, noon-1:30 p.m., Hillcrest: “Large Classes: Solutions.”
Black History Month Program, 7-11 p.m., Black Cultural Center. “Black Love.”
Women’s Basketball, 7 p.m., Cassell Coliseum: LaSalle.
Theatre Event, 8 p.m., Squires Studio Theatre: *Rhinoceros*.

Friday, 25

Women’s Month Program, noon-1:30 p.m., Hillcrest dining room: Muriel Lederman, Bernice Hausman, Rebecca Scheckler, Leslie Graham.
Black History Month Program, 7-9:30 p.m., Squires Colonial Hall: Angela Davis.
Student Recital, 8 p.m., Squires Recital Salon: Jackie Wells.
Theatre Event, 8 p.m., Squires Studio Theatre: *Rhinoceros*.

SEMINARS

Friday, 18

Highlands in Chemistry, 11 a.m., 3 Davidson: Dorothea J. Jeffrey, DuPont.
MCBB, noon, 102 Fralin: Liangbiao Zheng, Yale.
College of Natural Resources, 3 p.m., Fralin auditorium: Jim Bowyer, Minnesota.
Communication Studies, 3:30-4:30 p.m., Hillcrest conference room: Stephen Prince.
Botany, 4 p.m., 1076 Derring: Mary Ann Hanson.

Monday, 21

Economics, 3:30 p.m., 3008 Pamplin: Shawn Kantor, Arizona.
Horticulture, 4 p.m., 101 Saunders: Kara Lewallen.

Thursday, 24

Geological Sciences, 4 p.m., 4069 Derring, Phil Bennett, Texas.
Industrial/Systems Engineering, 4 p.m., 349 Whittemore: J.T. Black.
Plant Physiology, 4 p.m., 102 Saunders: John Jalesko.

Friday, 25

Highlands in Chemistry, 11 a.m., 3 Davidson: George Stanley, LSU.
MCBB, noon, 102 Fralin: Ross Whetten, N.C. State.
Communication Studies, 3:30-4:30 p.m., Hillcrest conference room: Matt McAllister.
Botany, 4 p.m., 1076 Derring: Leonard Pysh, Roanoke.
STS, 4 p.m., 132 Lane: Rose-Mary Sargent, Merrimack.

BULLETINS

Nobel laureate to present lecture

Nobel physicist Leon Lederman, will discuss “This Year’s New Thing in High School Science Education” at Virginia Tech Thursday, March 2 at 7 p.m. in the Donaldson Brown Auditorium. The talk is open to the public at no charge.
Lederman, who was part of a group that won the Nobel Prize in 1988 for work done in the 1970s that helped define the Standard Model of matter, will be the first speaker in the Torgersen Lecture Series, named for former Virginia Tech President Paul E. Torgersen. Lederman’s talk will be about middle- and high-school science education.

ICCL fellowships offered

The Institute for Distance and Distributed Learning (IDDL) is offering fellowships to faculty members for the development of on-line courses.
The IDDL Fellowship program is designed to recognize enthusiasm, enterprise and effectiveness of faculty members currently involved in the development of distance and distributed-learning instruction. The program provides a \$5,000 stipend for a faculty member to complete the development of a totally on-line course. Being an IDDL fellow is seen as an honor and the fellow will serve as a spokesperson and resource for distance and distributed learning in their department or college and are eligible to serve as an exemplary instructor of the university’s Faculty Development Institute. For complete information on faculty expectations, selection process and contact information, see <http://www.iddl.vt.edu/facserv/funding.html>.
March 10 is the deadline for submission. Award notification will be March 24.

Staff Scholarships offered

Two merit-based scholarships, the Lt. Col. William A. Trice Scholarship Funds, in the amount of \$650 each are awarded to a Tech classified employee pursuing a degree in business part-time. Recipient must be a Virginia resident for at least 18 years with preference to students from Craig, Floyd, Goochland or Nelson counties. Interested applicants may apply by sending a resume and letter of application to the Pamplin Awards Committee, c/o Dean Spencer, 1046 Pamplin, no later than noon, Monday, Feb. 28. The letter must address

how the applicant fits the criteria. A separate letter and resume must be submitted for each scholarship.

Museum plans Science Saturday

The Virginia Tech Museum of Natural History will hold Saturday Science on February 26 from 11 a.m. to noon. The event is open to children in grades kindergarten through three.
The program will explain how animals survive and adapt in their habitats. Also, children will learn how to classify the members of the animal kingdom using fun-filled games, stories, and crafts. For more information or to pre-register, please call 1-3001.

Fulbright officer to visit campus

Andy Riess, senior program officer for the Fulbright fellowships, will outline the process for getting a Fulbright in DBHCC conference room F on Monday, Feb. 28, at 3:30 p.m. Anyone considering applying for this award will have the chance to learn how to be competitive. For more information or to reserve a spot at the February 28 session, contact David Britt, dbritt@vt.edu or at 1-5888.

BioFair2000 announced

BioFair2000 is a biotechnology and computer-science career fair sponsored by the Fralin Biotechnology Center, the College of Arts and Sciences and the Division of Continuing Education at Virginia Tech. The fair will be held from 10 a.m.-4 p.m. on February 29, in Squires Old Dominion Ballroom. The fair is open to all undergraduate and graduate students.

Have lunch with Kip Fulbeck

On Wednesday, Feb. 23, from 11:30 a.m.-1 p.m., the Center for Excellence in Undergraduate teaching will host a brown-bag lunch with faculty members and graduate students. The CEUT will provide cookies and drinks for the event. This will be an informal discussion of multicultural teaching strategies and diversity in the classroom. Kip Fulbeck is an associate professor of art studio and Asian American studies at the University of California, Santa Barbara. He will be visiting campus to present “I Hope you Don’t Mind Me Asking...Debunking Multiracial Stereotypes” at 7:30 p.m. the same day in the DBHCC auditorium.

CEUT offers workshops

The “Active Learning Strategies” workshop provides ways to keep students more actively engaged during class. Ready-to-use structures that enable student involvement will be explained. This workshop will be presented by Margaret Hable on Tuesday, Feb. 22, 3-5:30 p.m., in Hillcrest.
“Lectures: Research-Based Strategies That Work” is in Hillcrest Wednesday, Feb. 23, from 3:30-5 p.m. Hable will present in this session strategies and activities for immediate application in large or small classes.
The workshop “Large Classes: Solutions” is scheduled for Thursday, Feb 24, 2-4:30 p.m., in Hillcrest Teaching assignments that include sections of 100 or more students present a challenge to many faculty members.
Participants will ask questions and take part in a discussion with other faculty members.

Women’s Center Awards nominations sought

The Women’s Center announces a call for nominations for its annual awards. Four leaders will be recognized for leadership in supporting the center’s mission: To promote a Virginia Tech community that is safe, equitable and supportive for women and that celebrates their experiences, achievements and diversity.
Awards will be given to one woman in each category for her demonstrated leadership as an activist for women’s concerns and contributions to the Women’s Center mission and to the continued development of Virginia Tech’s women’s communities.
Awards will be given to faculty woman of year, staff woman of the year, community woman of the year and student activist of the year.

The award recipients will be determined by a committee with representatives from the Women’s Center, Virginia Tech Staff, and last year’s award recipients. Nominations should include a one-page letter explaining how the nominee exemplifies the criteria for the award and any additional support materials you wish to provide. Staff members of the Women’s Center are ineligible for the award. Self-nominations are accepted. Please submit nominations to Penny Burge (The Women’s Center at Virginia Tech, Price House, Blacksburg, VA 24061-0270) by March.

EMPLOYMENT

CLASSIFIED POSITIONS

The following classified positions are currently available. More details of these positions, specific application procedures and position-closing dates may be found on the Personnel Services web site at <http://www.ps.vt.edu>. Available positions are also listed on the Job Line, a 24-hour recorded message service. For information on all job listings, call 1-5300. Some of the following positions include state benefits. Positions with numbers beginning with a "W" are hourly and do not include state benefits. Individuals with disabilities desiring assistance or accommodation in the application process should call by the application deadline.

Closing date for advertised positions is 1 p.m. Monday. An EO/AA employer committed to diversity.

Full Time

Animal Care Technician B, 2647M, Grade 5, Veterinary Teaching Hospital.

Animal Care Technician C, 2639M, Grade 7, Veterinary Teaching Hospital.

Applications Analyst, 7354D, Grade 0, Computing Center.

Banner Finance Trainer, 2802D, Grade 8, AIS Application Support.

Budget Analyst, 6935T, Grade 10, Budget/Financial Planning.

Budget Manager, 7567T, Grade 14, Budget/Financial Planning.

Carpenter, 7563G, Grade 7, Physical Plant.

Development Associate for Student Calling Program, 1450C, Grade 8, University Development/Annual Giving for Phonathon.

Development Program Researcher, 7556D, Grade 9, University Development.

Electrician, 7565G, Grade 7, Physical Plant.

Six full-time food-operations positions available; two part-time positions.

Food Operations Manager B/Executive Chef, 1781H, Grade 10, Residential/Dining Programs/Dietrick Dining Hall.

Food Operations Manager B/Executive Chef, 0837H, Grade 10, Residential/Dining Programs/West End Market.

Grounds Worker Senior, 7564C, Grade 3, Physical Plant/Grounds/Landscape Services.

Housekeeping Supervisor, 7571G, Grade 4, Physical Plant.

Housekeeping Worker, 7261G, Grade 1, Recreational Sports.

Housekeeping Worker, 0171H, Grade 1, Residential/Dining Programs.

Housekeeping Worker, 7572C, Grade 1, Physical Plant.

Installation/Repair Technician, LC073G, Grade 8, Hokie Passport.

Institutional Traffic/Parking Supervisor, 1111T, Grade 9, Parking Services.

Office Services Specialist, 2084M, Grade 5, CVM.

Office Services Specialist, 0242H, Grade 5, Residential/Dining Programs/Culinary Services Administration.

Office Services Specialist (Motor Pool Dispatcher), 7560T, Grade 5, Motor Pool.

Office Services Specialist/Unit Secretary, 0148, Grade 5, Residential/Dining Programs/Dietrick Dining Center.

Operating Systems Analyst, 1244D, Grade 0, AIS.

Plumber/Steamfitter, 7278H, Grade 7, Residential/Dining Programs/Facilities.

Program Support Technician, 6137T, Grade 6, CAS.

Public Relations Assistant Specialist, 4492J, Grade 8, Center for Transportation Research.

Public Relations Specialist, 7549J, Grade 10, Center for Transportation Research.

Recruiter, 7570D, Grade 10, Personnel Services.

Security Guard (Parking Enforcement Off.), W020415T, Grade 2, Parking Services.

Senior Development Associate of Annual Giving, 6695D, Grade 10, University Development.

Sheet Metal Worker, 7562C, Grade 7, Physical Plant.

Student Programs Coordinator, LC063D, Grade 12, Alumni Relations.

Part Time

Animal Care Technician A, W022970M, Grade 3, Veterinary Teaching Hospital.

Executive Secretary, W022984T, Grade 6, University Leadership Development.

Fiscal Assistant, W022977M, Grade 5, Biochemistry.

Housekeeping Worker, W022490H, Grade 1, Residential/Dining Programs.

Housekeeping Worker, W020574G, Grade 1, DBHCC.

Office Services Assistant, 1075T, Grade 4, Center for Interdisciplinary Studies.

Office Services Specialist, W022980, Grade 5, University Registrar.

Public Relations Assistant Specialist/Web Designer, W022976H, Grade 8, Residential/Dining Programs/Marketing/Conference Services.

Radiologic Technologist, W022238G, Grade 7, Health Center.

Trades/Utilities Worker (Trades Helper), W022966H, Grade 3, Residential/Dining Programs/Facilities.

University Only

Business Manager B, 7575G, Grade 12, Hokie Passport.

Program Support Technician Senior,

7544G, Grade 7, Physical Plant/Utilities.

Off Campus

Evening Announcer, 1962D, Grade 8, WVTF.

Program Support Technician, 5435M, Grade 6, Virginia Cooperative Extension—Nelson County.

Program Support Technician, 7543J, Grade 6, NVC—Computer Science.

FACULTY POSITIONS

INSTRUCTIONAL

Department of Aerospace and Ocean Engineering. Assistant/Associate Professor. Contact: Bernard Grossman, 215 Randolph (0203). Review begins May 1.

NON-INSTRUCTIONAL

University Unions and Student Activities. Student Activities Program Coordinator. Contact: Alan Glick, 325 Squires (0138). Review begins March 27.

Mobile and Portable Radio Research Group. Research Associate Professor/Research Assistant Professor/Research Associate. Contact: Jeffrey Reed, 432 NEB (0350). Review begins immediately.

Residential and Dining Programs. Residence Director. Contact: Gail Kirby, 109 E. Eggleston (0428). Review begins March 13.

Virginia Cooperative Extension. Agriculture and Natural Resources Extension Agent. #FA676, Commercial Horticulture, Southampton. Contact: Steve Umberger, 122 Hutcheson (0437). Review begins March 13.

BENEFITS INFORMATION

General Assembly Approves Cash-Match Program

By Doug Martin, human resources manager

The 1999 General Assembly has approved a cash-match program for all salaried employees who participate in the 403(b) Tax Shelter Program or the 457 Deferred Compensation Plan.

The initial employer contribution will be \$10 per payday and will begin with the April 14, 2000 pay date. The General Assembly initially approved the cash match for the state Deferred Compensation Program (457 Plan); however, we were successful in getting the legislation amended to include the 403(b) tax-shelter program that is used by many of our faculty and staff members.

To be eligible to receive this employer matching contribution, each employee must meet the following criteria: Be a salaried Virginia Tech employee for the last 12 consecutive months; have an active 403(b) tax-shelter account through the university or an active 457 Deferred Compensation account through the university; contribute at least \$20 per payday to the 403(b) or 457 program; and choose a company to receive the employer \$10 match per pay period.

To participate in the Cash-Match program, each eligible participant in the 403(b) program will receive information in a separate mailing that will indicate company choices and investment options for the \$10 per pay day 401(a) Cash Match.

Once the accounts are established, the \$10 per payday will be forwarded to the named company to be placed in the employee's 401(a) account. This program provides an excellent opportunity for employees to invest in their retirement. Meetings have been scheduled on campus at the following times to provide detailed information on this program and to ad-

dress questions or comments that you may have. These on-campus meetings are scheduled in the rear auditorium of the Donaldson Brown Hotel and Conference Center. Dates and times are as follows:

February 17, 9 a.m.-10: 20 a.m.; 10:30 a.m.-11: 50 a.m.; February 18, 9 a.m.-10: 20 a.m.; 10:30 a.m.-11: 50 a.m.; 1:30 p.m.-3 p.m.;

February 24, 9 a.m.-10: 20 a.m.; 10:30 a.m.-11: 40 a.m.; February 25, 9 a.m.-10:20 a.m.; 10:30 a.m.-11:50 a.m.

Additional off-campus sessions will be scheduled for those faculty and staff members located in other areas. Specific questions may be directed to Ella Mae Vaught, EMVaught@vt.edu.

VIRGINIA TECH RECYCLING

Recycling Reminders

By Larry Bechtel, Virginia Tech Recycling

Please take note of the following reminders about recycling certain paper items, based upon phone calls and e-mails to the VTR Office.

The following items should be recycled as sorted office paper: *Spectrum*, Manila file folders, envelopes with windows, and business cards.

• The following items are not recyclable: green hanging file folders, neon- orange, red, or

green colored paper; brown mailing envelopes, and phonebooks.

• Remove Post-it notes. If the adhesive strip is removed, they are recyclable as sorted office paper. Staples are acceptable.

For more information, or to arrange a special pickup of a large quantity of materials, contact the VTR Office at 1-9915 or lbechtel@vt.edu.

Intensive parking patrol formed

Parking Services has implemented of a new enforcement program, the Intensive Parking Enforcement Patrol (IPEP), in response to complaints of increased numbers of illegally parked cars on campus.

This program will target problem areas by sending a special enforcement patrol to these locations. The IPEP patrol will consist of two or three officers who will intensely monitor a loca-

tion throughout the day.

The initial IPEP focus areas are Turner Street (the access road to Burruss loading dock), Derring lot (the large F/S lot off Perry Street), Solitude lot, Owens lot, Engel lot, NEB lot, and the Drillfield. With the implementation of IPEP, Parking Services hopes to decrease the number of illegally parked vehicles on campus.



VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Spectrum, a faculty-staff tabloid, is published each Friday during the academic year, with the exception of certain holidays, exam weeks, and the summer. Copy deadline is noon Friday. No advertising is accepted.

Spectrum is a non-profit publication of the Office of University Relations: Lawrence G. Hincker, associate vice president for University Relations; David Nutter, associate director for Public Affairs.

Editor
John Ashby, 1-6961

Assistant Editor
Christian Moody, 1-8538

Production Manager
Melinda Shaver, 1-8524

Business Manager
1-8819

Letters to the editor and questions for "Ask *Spectrum*" should be addressed to the editor, 105 Media Building, Virginia Tech, Blacksburg, VA 24061.

Electronic *Spectrum*: <http://www.vt.edu:10021/admin/eoaa/index.html>

Virginia Tech does not discriminate against employees, students, or applicants on the basis of race, color, gender, sexual orientation, disability, age, veteran status, national origin, religion, or political affiliation. Any one having questions concerning discrimination or accessibility regarding the programs described in this newspaper should contact the Equal Opportunity Affirmative Action Office: 540-231-7500 (v), 540-231-9460 (TTY).

Second labyrinth walk scheduled for March 5 on campus

By Sally Harris

Labyrinths, two-dimensional tracks on the floor, are used for walking meditation and contemplation, and the Virginia Tech community will have two different ones to walk Sunday, March 5, in Squires Commonwealth Ballroom.

Darleen Pryds, assistant professor of medieval and Renaissance studies in the Center for Interdisciplinary Studies (CIS) in the College of Arts and Sciences, organized the labyrinths. Pryds will explain the labyrinth walk in her slide lecture at 1 p.m. "Walking the Labyrinth through the Centuries: A Historical and Practical Introduction to Walking the Labyrinth" will be presented in 219 Squires. Participants can walk the labyrinths at any time between 10 a.m. and 5 p.m. Children are welcome to walk the labyrinths, especially between noon-1:30. Walkers should bring

socks to wear while walking the labyrinths.

The two labyrinths, which were first found on the floors in the naves of pilgrimage churches of the high and late Middle Ages in Western Europe, are replicas of the labyrinth from Reims Cathedral and Chartres Cathedral. Most labyrinths are round, but the one from Reims is octagonal and has four resting places for contemplation and meditation in addition to the center. Labyrinths are not mazes, so people cannot become lost in them.

"Rarely are two different labyrinths available for walking, so don't miss out on this rare event," said Pryds, originator of the labyrinth

walk at Virginia Tech last year.

"Labyrinths attracted pilgrims who wanted to replicate their longer, more arduous journeys in an enclosed space," Pryds said. "Since the 1980s, walking the labyrinth has grown in popularity in the United States as a means of focusing and clarifying one's journey and meaning in life." Labyrinths can be a place of walking meditation by lay people or a symbol of the pilgrims' journey, Pryds said. Its popularity is due to the search for ways

to meditate using the body, she said. "Although it has been used in the Christian tradition, there

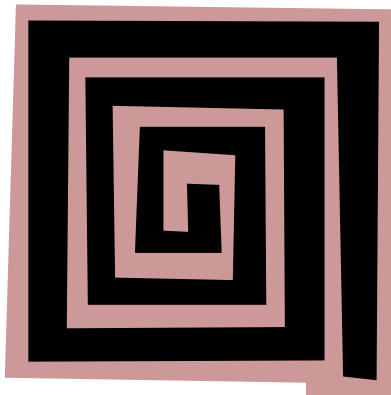
is nothing inherently Christian or even religious in the labyrinth," she said. "It can be used as a completely secular form of meditation." Pryds also views the labyrinth as a method of dealing with stress.

Pryds decided to build a labyrinth last year to supplement the slides and videos that showed students in her medieval-civilization course the architectural elements of cathedrals. The slides could not give them the actual experience of the labyrinth, she said.

To see drawings of the two labyrinths that will be available, go to <http://www.cis.vt.edu/fac/pryds/Labyrinth.html>. Also available there are links to other labyrinth-related sites.

The event is co-sponsored by Programs in the Humanities in CIS.

For more information, go to <http://www.cis.vt.edu/fac/pryds/> or contact Pryds at (219) 631-3967, or by e-mail at dpryds@vt.edu.



Gaining work experience in a multi-cultural environment

By Karen Gilbert,

ISE public-relations coordinator

The Industrial and Systems Engineering (ISE) Department of Virginia Tech recently joined with the *Universidad Politecnica de Puerto Rico* (UPPR) to create a unique opportunity for both students and faculty members.

This is the first time a project with Puerto Rican students has been offered through the ISE Senior Design Course. Each university selected two senior industrial-engineering students who were then placed on a four-person team, comprising four teams all together, for a two-semester collaboration.

Faculty members of both universities advise the student teams. The common goal of the teams was to work with both Puerto Rican

and Virginia-based companies to implement industrial-engineering improvements while gaining experience in a multi-cultural work environment. Additional goals for this joint effort include exposing students to differences in the educational backgrounds of the two universities and to the cultural differences in both the social and industrial environments.

The Virginia Tech student teams and faculty members traveled to San Juan in September for an initial meeting of the project-design teams. The Puerto Rican team will reciprocate with a visit to their Virginia Tech team members during the last week of February to prepare the formal progress reports for the projects and to plan for

the final phases of the work that has yet to be done for each of the sponsor companies. A similar joint venture, which was partly used as a model for this project, is already in place between ISE at VTECH and *Ecole des Mines de Nantes* in France, and is another program very popular with Virginia Tech students.

ISE faculty members Michael Deisenroth and Patrick Koelling spearheaded this joint project with the UPPR. The joint effort demonstrates the feasibility of using various technologies, such as video-conferencing, e-mail, the use of a web-based project-management system, and use of a symposium server to host regularly scheduled meetings of the individual teams and their faculty advisors.

According to ISE student Brad Aiken, language differences did not hamper the success of the student team projects. "When we arrived at Electro Biology Inc. in Guaynabo, which was the company sponsoring our project, my partner and I were united with the other half of our team. As soon as the four of us met we began working as a single unit. In our initial meeting with our sponsor company we were able to exchange ideas and concerns as if we had been long-time consulting partners." Aiken said "It was an unbelievably rewarding experience to be able to work in both an academic and professional environment while learning first hand about a second culture."

NEW BIOMED

Continued from 1

mechanical engineering (ME). ESM Department Head Ed Henneke will act as interim CBME director.

Eight of the thirteen researchers associated with new center joined the engineering faculty within the past six years, recruited in part because of their work in biomedical engineering. Each year in the U.S., surgeons replace about 500,000 deteriorated hip and knee joints with artificial materials, and one-third of those surgeries are performed on people younger than 65. "For the past 30 years, one of the primary materials used as a bearing surface for total joint replacements has been a polymer similar to the plastic used in milk jugs," said Joni Rogers Foy, who joined the ESM faculty in 1998. "Unfortunately, this material is susceptible to wear, often leading to failure of replacement devices." Foy is studying composite structures, designed from a biomechanical perspective, in an attempt to develop joint-replacement materials

that are longer-lasting than those currently used.

Foy's research focuses on orthopaedic engineering, and she also is studying the response of joint cartilage to stresses. "We're looking at the causes of degenerative joint diseases, or arthritis," she said. Foy has teamed with Kimberly Forsten, assistant professor of chemical engineering (ChE), to assess the effects of coupling mechanical stresses with growth-factor responsiveness. One of Forsten's specialties is the study of growth factors, which are the substances that affect growth, migration, differentiation and adhesion in cells. Forsten said external stress leads to the release of growth factors in cartilage cells, so an investigation of the effect of stress on growth factors could provide clues about artificially growing cartilage cells. The two engineering researchers, who are using cartilage from horses, are consulting with Rick Howard of the veterinary college on this project.

Engineers also are designing new materials for a remarkable range of biomedical

applications. As part of his research with a variety of adhesives, Love, who came to Virginia Tech in 1993, is evaluating "glues" that can be used in place of surgical sutures. In addition, Love and faculty members at the Virginia-Maryland Regional School of Veterinary Medicine and the University of Virginia (UVA) School of Medicine are attempting to limit the leaching of dental materials by saliva.

Improving treatments for the rapidly growing population of older people is another high priority for biomedical engineers. In her newly established Musculoskeletal Biomechanics Laboratory at Virginia Tech, Laura Wojcik involved students during the summer of 1999 in experiments on the mechanics of falling.

In her lab at Virginia Tech, Wojcik soon will begin working again with subjects over 65, this time investigating sideways and forward falls to learn more about hip fractures and other injuries. Using the university's CAVE—a virtual reality research tool that projects life-size three-dimensional figures—Wojcik also has developed a "virtual human" for in-depth study of the dynamics of musculoskeletal motion.

"The potential is for doing surgery via a joystick," said Jan Helge Bøhn, an assistant professor of ME since 1993, of a project he is conducting with Jeryl Jones of veterinary medicine. Jones, a radiologist, enlisted Bøhn's help in devising a system for real-time computer-aided surgery on canine brains. Bøhn has created a fixture that holds and rotates a dog's head until a surgeon can precisely pinpoint a target, such as a tumor. Bøhn also specializes in rapid prototyping, which is the automated fabrication of physical parts directly from three-dimensional computer data, and he is interested in developing new medical applications for this process.

SURPRISING

Continued from 1

industry and inflicts a substantially higher mortality rate on the crabs.

As part of the Atlantic States Marine Fisheries Commission's management plan of 1998, biomedical companies are required to tag a proportion of the crabs they take for bleeding and estimate mortality rates involved in the bleeding process. BioWhittaker, the largest producer of LAL in the country, has asked Berkson and Virginia Tech to conduct this research on its behalf. The research program will also collect demographic data, including size, sex, and approximate age, information critically needed to improve the management of the horseshoe crab fishery.

If the horseshoe crab population continues to decline in the absence of coordinated, coast-wide monitoring and fishery regulations, the biomedical industry and all users of the horseshoe crabs would be affected.

Berkson says the problem facing scientists in helping policy makers manage the resource wisely is the lack of data. "We have evidence that the population is declining, but because the horseshoe-crab fishery was historically seen as relatively unimportant, we do not have the extensive population data on horseshoe crabs that we need to properly manage the fishery. Now that we realize how important this crab is to the ecological balance of our coastline as well as to human health, we are going to have to work overtime to get the information we need to effectively manage this resource."

Non-Profit Organization, S. Postage PAID
Blacksburg, VA Permit No. 28

Virginia Tech
Blacksburg, VA 24061