Virginia Tech's colleges of Engineering, Human Resources and Education, Architecture, and Arts and Sciences all have programs ranked in the top 10 nation-wide by U.S. News & World Report's America's Best Graduate Schools for 2002 survey released April 2.

The College of Engineering once again ranked among the top 25 engineering schools nation-wide, tying for 25th with Rensselaer Polytechnic Institute. According to the survey, the quality of the college's graduate program was rated 4.1 out of a possible 5.0 by corporate recruiters and 3.8/5.0 by engineering-school deans. The rankings are based on surveys of 186 engineering schools.

By Jeanne M. Garon

Already a recognized leader in instructional technology, Virginia Tech will convene an April summit on instructional technology to explore new and better ways of serving and supporting its growing virtual constituencies. Jack M. Wilson, a national authority on distance learning, will deliver the keynote address for the internal summit, one in a series of Executive Forums in Information Technology.

"While other universities have been talking about building a virtual university," said interim Provost James R. Bohland, "Virginia Tech has for nearly a decade laid an ever-growing foundation for its own virtual campus." Citing successful initiatives such as the Cyberschool, Math Emporium, Faculty Development Institute, Electronic Theses and Dissertation Project, and on-line certificate and degree programs in information technology and instructional technology, Bohland said, "Now that we've seen that instructional technology truly does enable significant improvements to teaching and learning when well-conceptualized, supported, and implemented, it's time to further refine our strategies in light of new technologies on the horizon and the impact we wish to have in people's lives over the next five to 10 years."

Invited participants from throughout the university's growing community of instructional technology developers will use the summit to identify pivotal emerging technologies across several disciplines, develop strategies for optimizing new applications, and brainstorm mechanisms for funding and implementing the new technologies. Small-group discussions, to be facilitated in part by John Kraftman, Virginia Tech's associate director of information-technology business development, will be facilitated in part by John Kraftman, Virginia Tech's associate director of information-technology business development, will be

Virginia Tech Staff and Faculty Annual Fund Takes New Direction

By Liz Grunhedy

In addition, six of the college's individual graduate programs were ranked among the top 25 in their fields by a survey of engineering-school deans. Industrial engineering was ranked ninth; aerospace engineering twelfth, environmental engineering thirteenth; civil engineering fourteenth, electrical engineering 21st; and mechanical engineering, 22nd.

In the survey's education-specialties category, the Vocational and Technical Education program in the College of Human Resources and Education again was ranked sixth in the nation by education deans and senior faculty members. The program, which is the only doctoral program of its kind in Virginia, has four past seven years ranked in the top 10 nationwide.

The purpose of the scholarship is to assist Virginia Tech employees in supporting their dependents and spouses as students at Virginia Tech. Presently, scholarships in the amount of $500 are open to freshman or entering transfer students. Last year's awards went to Christopher Purcell, son of Wayne Purcell, professor of agricultural and applied economics; and Jerry Sumpter, son of Dee Shumate who works in Student Accounts. This year, there are enough contributions in the scholarship account to provide awards to four out of 41 who applied. With this initiative gathering momentum, the dream is to help all students. As a result, increased awareness of gender, race, ethnicity, age, and sexual-orientation diversity inside and outside the classroom will be gained. A respectful, comfortable and accessible environment will be created for minority members where people can learn to relate to those different from the majority and to work cooperatively in a diverse community.

This year, the annual employee charitable campaign (formerly known as the University Campaign) has taken on a more universal appeal. Input through meetings with staff and faculty members and retirees has resulted in an effort that will better meet employee needs.

The new direction of the Staff and Faculty Annual Fund places the dream directly into employees' hands. "If each employee gives just one dollar per paycheck, $150,000 would be available this year-enough to fund many more scholarships for Virginia Tech employees' dependents and spouses," Delbert Jones, president of the Staff Senate said.

Larger gifts will make the dream a reality sooner. With this level of support, other initiatives are possible as well. This year, however, the first priority of employees who were surveyed is the Employees' Spouse and Dependent Scholarship Fund, which grew from two awards last year to four this year. The potential exists to help many more spouses and dependents. More information will be mailed to employees in May. On-line giving is also available at http://filebox.vt.edu/univdev/staff.

The graduate programs in the Center for Public Administration and Policy were again highly rated. The report ranks the graduate program in Public Management/Administration tenth in the nation, and the graduate program in Public Affairs at 24th in the nation.

Virginia Tech's sedimentology Ph.D. program again was ranked ninth in the science section of the survey. The sedimentology graduate program is part of the Department of Geology in the College of Arts and Sciences. While the U.S. News rankings are widely quoted by the general public, there are many academic programs at Virginia Tech also highly ranked by academic peer groups and industry.
EVENTS

Friday, 6
International Week Begins (Through 4-14).
Einstein’s Dreams Discussion, 4-5 p.m., Cranwell Center: 1-2375 for information.
International Club Coffee Hour, 5 p.m., Cranwell Center: Bryce L. Geyer.
International Week Presentation, 7-9 p.m., Squires Haymarket Theatre: African Student Association.
Ensemble Concert, 8 p.m., Squires Recital Salon: University Concert Chor.

Saturday, 7
International Street Fair, Downtown Blacksburg.
Student Awards Ceremony.
YMCA Hike, 8 a.m., Lancaster House parking lot.
STS Graduate Student Conference, 9 a.m.-5 p.m., 1020 Torgersen: Visit www.cis.vt.edu/sts/exhibitingsts for information.
VMRCVM Open House, 10 a.m.-3:30 p.m.: E-mail kgoldman@vt.edu or call 1-4699 for information.
Stepping Workshop, 1-2 p.m., Squires Brush Mountain rooms A/B: Call 1-5182 to register.
Student Recital, 3 p.m., Squires Recital Salon: Karissa Swagian.
Ensemble Concert, 8 p.m., Squires Recital Salon: New Virginians.

Sunday, 8
Faculty Recital, 3 p.m., Squires Recital Salon: David Jacobsen.

Monday, 9
Holocaust Awareness Week Begins (Through 4-13): Call 1-3787/TDD 1-8718 for information.
Holocaust Awareness Week Activity, 10 a.m.-2 p.m., 140 Squires: “Unto Every Person There is a Name.”

International Luncheons (Through 4-13), 11 a.m.-1 p.m., Cranwell Center.
Faculty Women’s Club Luncheon, noon, The Farmhouse: Call 951-1402 for information.
BT Public Hearing, 5-6:30 p.m., 236 Squires: Call 1-1737 for information.

Tuesday, 10
Staff Mentoring Workshop, 8:30 a.m.-4 p.m., Custom Catering: E-mail akinsirs@vt.edu for information.
ULD Training Program, 9 a.m.-4 p.m. (Through 4-11), DBHCC Executive Conference Room: 1-6727 to register.
Family Senate, 7 p.m.-32 Pamplin.
Holocaust Awareness Week Speaker, 8 p.m., DBHCC auditorium: Charlene Schiff.

Wednesday, 11
CEUT, 11:15 a.m.-12:15 p.m., Hillcrest large conference room: Register at www.ceut.vt.edu.
Family/Work/Life Resources Program, noon-1 p.m., location TBA.
CEUT, 2-3 p.m., Hillcrest large conference room: Register at www.ceut.vt.edu.
Holocaust Awareness Week Presentation, 6-9 p.m., 3100 Torgersen: Danny Assom.
“With Good Reason,” 7 p.m., WVTF: “Leaded Gasoline and Big Business: A Poisonous Combination.”
Reading, Book Signing, 7 p.m., Volume Two: Katherine Suriat.
Ensemble Concert, 8 p.m., Squires Commonwealth Ballroom: University Symphony Band.

Thursday, 12
CEUT, 9 a.m.-3 p.m., Hillcrest small conference room: Call 1-4254 for appointment.
Holocaust Awareness Week Documentary, 9 a.m.-4 p.m., 140 Squires: “Through Our Survivor’s Eyes.”
Holocaust Documentary Discussion, noon, 140 Squires: Alicia Cohen.
STS Lunch Discussion, noon-1:30 p.m., Squires Cardinal Room: Elissa Bennett.

BULLETS

Alternative therapies for older adults forum set
Three alternative therapies for older adults will be discussed on Thursday, April 12, from noon-1 p.m. in the Wallace atrium. Diane Relf, from the Department of Horticulture, will be discussing plant therapy; Marie Suthers-McCabe, of the Department of Horticulture, will be addressing animal therapy; and Susan Nester, a graduate student in human development, will be speaking about Tai Chi. This event is sponsored by the Center for Gerontology.

Women’s Club announces spring luncheon
The Virginia Tech Faculty Women’s Club spring luncheon will be held on Monday, April 9 at noon at the Farmhouse.
Three scholarships are being awarded to junior women at Tech, and the winners will be announced. Contributions from club members are making possible the third scholarship for the first time this year. Guest speaker Frank Levering will present “Simple Living: Now and in the Future” and will be available for a book signing following the luncheon. For membership information, contact the club’s president, Gloria Parry, at 951-1402.

International Week in the Yorktown Room in Squires First Century” will be held at Virginia Tech and will be attended by American Indian students, and key university representatives will discuss their vision of the program and possibility of forming lasting partnerships between the university and Virginia’s indigenous communities.

Sponsors include the AIS, the Humanities Program, the Center for Interdisciplinary Studies, the Department of Political Science, the College of Arts and Sciences, the Office of the Vice President for Multicultural Affairs, the Office of the President, and the American Indian Science and Engineering Society.

For more information, contact Cook at 1-6490.

Panel discussion on Virginia’s American Indians set for April 12

Eight tribal groups will be represented
By Sally Harris
An informal panel discussion on “What it Means to Be a Virginia Indian in the Twenty-First Century” will be held at Virginia Tech Thursday, April 12, at 7 p.m. in 113 McBryde.

The panel discussion and the reception afterwards in the Yorktown Room in Squires Student Center are open to the public.

Representatives of Virginia’s recognized Indian tribes—the Chickahominy, Eastern Chickahominy, Mattaponi, Upper Mattaponi, Monacan Nation, Nansemond, Pamunkey, and Rappahannock—will “speak from the heart about their personal and historical experiences as indigenous people in Virginia in an effort to dispel stereotypes about American Indians and to bring to the attention of the non-American Indian public the cultural diversity in their own back yard,” according to Samuel R. Cook, director of the American Indian Studies (AIS) Program at Virginia Tech.

The panel discussion is part of a Virginia Nations Summit on Higher Education being held at Virginia Tech to gain input from the American Indian peoples as the AIS Steering Committee seeks to develop the fledgling AIS program, Cook said. Members of the Indian nations, American Indian students, and key university representatives will discuss their vision of the program and possibility of forming lasting partnerships between the university and Virginia’s indigenous communities.

Sponsors include the AIS, the Humanities Program, the Center for Interdisciplinary Studies, the Department of Political Science, the College of Arts and Sciences, the Office of the Vice President for Multicultural Affairs, the Office of the President, and the American Indian Science and Engineering Society.

For more information, contact Cook at 1-6490.
**EMPLOYMENT**

**CLASSIFIED POSITIONS**

The following classified positions are currently available. More details of these positions, specific application procedures/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 dates for advertised positions is 1 p.m. Monday, an EO/AA employer committed to diversity.

**FULL TIME**

One full-time food-service position available.

Accountant, 002557F, Pay Band 4, University Bursar.

Administrative Assistant, 000255M, Pay Band 2, Veterinary Medicine-Dean’s Office.

Animal Care Technician, 002630M, Pay Band 2, Veterinary Teaching Hospital.

Assistant Business Manager, 007740B, Pay Band 4, Engineering.

Business Manager, 000704H, Pay Band 1, RDP/Deet’s Place.

Buyer Senior (Contracts Officer), 001953F, Pay Band 4, Purchasing.

Communications Officer, 001567L, Pay Band 3, Police.

Computer Access Control Analyst, 01244D, Pay Band 5, ISC.

Data Warehouse Architect, 006893L, Pay Band 5, ISC.

Electrical Engineer, 007742Y, Pay Band 5, Physical Plant.

Enrollment Specialist, 001675B, Pay Band 3, Dean of Arts and Sciences Office.

Grounds Worker, 000254Y, Pay Band 1, Physical Plant/grounds/Recycling and Solid Waste.

Grounds Worker, 000251Y, Pay Band 1, Physical Plant/Grounds.

Grounds Worker, 000193Y, Pay Band 1, Physical Plant/Grounds.

Housekeeping Worker, P002005C, Pay Band 1, Physical Plant.

Housekeeping Worker, 000171Y, Pay Band 1, RDP.

Housekeeping Worker Senior, 006926H, Pay Band 1, RDP.


HR Technician Senior, 000516H, Pay Band 4, RDP.

Lab Specialist, 001989M, Pay Band 3, Veterinary Medicine/MLD-Academic Affairs.

Lab Specialist, 007706B, Pay Band 3, Chemistry.

Lab Specialist Senior, 007743M, Pay Band 4, PWPS.

Laboratory Specialist, 007245M, Pay Band 3, Biochemistry.

Laboratory Specialist, 007707B, Pay Band 3, CE.

Laboratory Specialist, 001305M, Pay Band 3, Veterinary Medicine.

Laboratory Specialist, 006375M, Pay Band 2, RDP.

Laboratory Specialist Advanced, 007739M, Pay Band 4, BSE.

Laboratory Specialist Senior, 004275B, Pay Band 4, Chemistry.

Large Animal Supervisor, 006989M, Pay Band 4, Veterinary Teaching Hospital.

Manager Of Development Communications, 007400D, Pay Band 5, University Development.

Network Analyst, 007744A, Pay Band 5, CNS.

Payroll Manager, 002501F, Pay Band 5, Controller’s Office.

Personnel Coordinator, 007711R, Pay Band 3, VBI.

Plumber Steamfitter, 001926F, Pay Band 3, Physical Plant.

Pre-portion Supervisor, 000572H, Pay Band 1, RDP/Dietrick Dining Center.

Programmer/Analyst, 006245M, Pay Band 5, AHNR IT.

Programmer/Analyst, 007376M, Pay Band 5, AHNR IT.

Secretary/Receptionist, 007303B, Pay Band 2, ECE.

Sous Chef, 000940H, Pay Band 3, RDP/Southgate Bake Shop.

Sous Chef, 007266H, Pay Band 3, RDP/Dietrick Dining Hall.

Student/Program Support Specialist, 001990B, Pay Band 2, GIS.

Surgical Ward Technician, 002637M, Pay Band 4, Veterinary Teaching Hospital.

Web Publisher, 007741S, Pay Band 3, Agriculture/Extension Communications.

**PART TIME**

Assistant to College Alumni Coordinator, W023173S, Pay Band 2, Veterinary Medicine.

Assistant to College Alumni Coordinator, W022183M, Pay Band 2, Veterinary Teaching Hospital.

Clinical Research Coordinator, W023222J, Pay Band 4, HNFE.


Fiscal Assistant, W023232J, Pay Band 2, HNFE.

One part-time food-service position available.

ICU Vet Technician-large Animal, W022219M, Pay Band 2, Veterinary Teaching Hospital.

Industrial Hygiene Technician (Program Support Technician), W022050Y, Pay Band 3, EHS.

Inventory Assistant, W022320F, Pay Band 2, University Controller.

Mcl Instructional Support Technician, 007739B, Pay Band 2, Chemistry.

Office Services Assistant, W022577R, Pay Band 2, Sponsored Programs.

Pharmacist (Relief), W022501M, Pay Band 6, Veterinary Teaching Hospital.

Security Guard, W020470S, Pay Band 1, Police.

Small Animal Icu Technician, W020101M, Pay Band 4, Veterinary Teaching Hospital.

Southeast Va Vats Coordinator, W023251S, Pay Band 3, EOA.

UNIVERSITY ONLY

Asst Director of Physical Plant for Contracts/Renovation, U007737Y, Pay Band 5, Physical Plant.

Laboratory Specialist Senior, U001888M, Pay Band 4, Veterinary Medicine/Academic Affairs.

Program Support Technician, U007733Y, Pay Band 3, Physical Plant.

**SYSTEMS ADMINISTRATOR**

Pay Band 4, University Bursar.

OFF CAMPUS

Administrative Assistant, 006186M, Pay Band 3, VCE—Southeast District.

Adult Program Assistant, 006101M, Pay Band 2, VCE—Arlington County.

Enrollment Program Assistant, 002091J, Pay Band 3, Northern Virginia Center.

Office Services Assistant, 007330J, Pay Band 2, HNFE.

Office Services Assistant, 007233J, Pay Band 2, HNFE.

Program Assistant, 005866J, Pay Band 2, HNFE.

Program Assistant, 006613J, Pay Band 2, HNFE.

Program Support Technician, 007543J, Pay Band 3, NVC—CS.


Research Specialist, 007534M, Pay Band 3, CALS, AREC.

Research Specialist Senior, 006504R, Pay Band 4, CMI.

Secretary Senior, 007678M, Pay Band 2, Fauquier County.

Underwriting Account Executive, 001963L, Pay Band 3, WVTF.

**FACULTY POSITIONS**

NON-INSTRUCTIONAL

Alumni Relations, Assistant Director of Alumni Relations. Contact: Thomas Tillar, Alumni Hall (0102). Review begins immediately.


Virginia Tech Transportation Institute, Research Associate. Contact: Tracey Schroeder, 3500 Transportation Research Plaza (0536). Deadline May 1.

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**Hokie Day at General Assembly successful**

On February 1, several alumni chapter representatives participated in the annual “Hokie Day at the General Assembly.”

According to several of the participants, the event was a tremendous success. Alumni were recognized in the House of Delegates opening session, and Delegate Jim Shuler, a university alumnus, announced to fellow delegates that the Tech group represented alumni from 10 different alumni chapters.

The alumni also visited with various (See Hokie Day on 4)

**CORRECTION**

In the promotion-and-tenure listing recommended for promotion with tenure to associate professor in the March 30 issue of Spectrum, Diane Zahm was incorrectly listed in the Department of Architecture. She is in the Department of Urban Affairs and Planning.

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**President Charles Steger Announces Staff Appreciation Day Information**

Wednesday, May 16

10 a.m.—3 p.m. Rector Field House

Staff Appreciation Day is Virginia Tech’s way of recognizing classified staff members and non-student wage employees for their contributions to the university. Additionally, it gives our staff a chance to get together with colleagues around the campus, renew friendships, and strengthen networks. Regrettably, funding is not available to expand the celebration to include families. As in the past, it is intended for employees only.

In a memorandum to deans, directors, and department heads, I am asking that supervisors work with their staff members to plan for his or her participation. A flyer will be mailed to employees within the next two weeks to provide additional details on the day’s events. Employees should report to their usual work location before and after the event based upon the employee’s work schedule.
Researchers from their districts.

Ralph Byers from the president's staff helped legislators from their regions to encourage legislators from their districts to be proactive in the face of growing fiscal constraints. Byers, a former White House chief of staff, has been helping lawmakers in recent weeks to encourage lawmakers to work together on key issues.

Scientists have reported that injecting pregnant mice with an inert substitute large enough will allow and set into action one of the body's front-line of immune cells called "macrophages." These macrophages essentially engulf and break down what they see as foreign—a process called phagocytosis.

In the past, other researchers had hypothesized that the macrophages were acting directly on the fetus. Under this scenario, the cells would cross the placenta from the mother, then find and eliminate abnormally developing cells in the fetus that were causing birth defects such as cleft palates, digit anomalies, and neural tube defects affecting the brain and spinal cord. But that proved to be a dead end.

So instead, Holladay and his colleagues, Loniuldi Sharova, decided to take a new approach. While their own tests clearly showed that immune stimulation did reduce birth defects in mice, they believed something other than maternal immune cells crossing the placenta was causing this phenomenon.

They knew that fundamental reproductive immunology suggests maternal immune cells don't routinely track across the placenta. This is in part because the fetus is genetically different from the mother and will be recognized by her immune cells as foreign, resulting in what is known as a negative "graft-versus-host" rejection response in the fetus.

So instead of a direct effect from maternal immune cells, they looked for an indirect effect. Once set into action, immune cells secrete a vast array of proteins called cytokines or growth factors that regulate immune responses through cell-to-cell communication. Similar or sometimes identical growth factors are also required for the timed expression of cell-cycle genes. Cell-cycle genes control carefully orchestrated waves of cellular proliferation, differentiation, or cell death necessary for normal development.

Consider development of the hand as an example. Cells proliferate, but at some point, some of the cells must undergo programmed cell death to create separate digits. To test this hypothesis, Holladay and Sharova looked at the expression of a limited panel of genes that regulate cell cycle and death during fetal development of the palate. They found that when the mother is injected with a known teratogen like urethane, there is decreased expression of these critical development genes, resulting in cleft palates.

Repeated studies also verified that stimulating the maternal immune system has the opposite effect on activity of these cell-cycle genes in the fetus, significantly increasing their expression levels. So while a normal amount of urethane might reduce the growth factor in the fetus, immunostimulation of the mother may cause an increase in that same growth factor in the fetus. In this way, Holladay's team was able to reduce the incidence of clubbed digits from 20 percent to zero, and cut the number of cleft palates by half.

Holladay's research challenges traditional thinking, which has long held that the fetus is a preprogrammed entity that derives nutrition from the mother, but otherwise directs its own development. But the observation that maternal immune stimulation causes altered expression of critical genes in the fetus indicates it's time for another look.

Holladay said these observations may suggest there is routine cross-talk between fetus and mother via chemical messengers, and that mothers may play a much greater role than once believed in fetal development. Not only does this indicate that optimal maternal immune health may be important for protection against agents or events that lead to many birth defects, but it also raises the question whether interventions to boost a compromised immune system are at greater risk for having babies with birth defects.

Answering these questions could help unlock some of the secrets to fetal development and a mother's early role in ensuring things go right.

Scientists find small streams important in controlling nitrogen

By Susan Trulove

Streams are not gutters that simply deliver nutrients to lakes, oceans and bays. Streams are vibrant ecosystems, and the smallest streams remove as much as half of the inorganic nitrogen that enters them, according to researchers from more than a dozen institutions who studied streams in Puerto Rico to Alaska over the course of two years.

The results were to be reported in today's issue of Science, in the article "Control of Nitrogen Export from Watersheds by Headwater Streams" by Bruce J. Peterson and W.M. Wolffheim of the Marine Biological Laboratory (MBL) in Woods Hole, Mass., Patrick J. Mulholland of Oak Ridge National Laboratory, Jack Webster and Maury Valette of Virginia Tech, Jennifer Tank of the University of Notre Dame, and Dodds at Kansas State University and others.

Human activities, such as fertilizer application and the burning of fossil fuels, result in excessive nitrogen entering ecosystems, changing water quality downstream, such as in the Chesapeake Bay or Gulf of Mexico. The approach to minimizing nitrogen in these waterways has been mainly terrestrial, since the processes responsible for nitrogen uptake and release in streams in most cases is too complex and regional, as ecosystems are little understood.

A breakthrough came when MBL chemists made it easier to measure the stable isotope N15 (nitrogen 15), making it a useful and economically feasible tracer. Previously, N15 could not be detected in solution and analysis cost $30 per sample. Peterson and colleagues used new mass-spectrometer techniques to improve sensitivity and reduce the cost to less than $10.

Meanwhile, the scientists developed mathematical computer models of streams' biological processes that made it possible to compare the nitrogen cycle in different kinds of streams. The model was used to design the experiment, then to track the data. "The model helped to generate hypotheses about the flow of nitrogen through these streams, and then was used to track the N15 tracer, as data from the field experiments were provided," Tank said.

"The bottom line is streams have an impact. They can remove as much as 50 percent of the inorganic nitrogen. So anything we do to streams to modify them will impact the nitrogen that reaches rivers, lakes, bays and oceans," Webster said. The finding could have important consequences for land-use policies.

What affects the nitrogen that is removed from streams? The Science article reports that some of the nitrogen is converted to nitrogen gas through denitrification processes and the rest becomes nutrition for algae, bacteria and fungi, which then become food for aquatic insects and fish. As the plant or organism dies, the nitrogen can then end up as slowly decomposing materials that settle in the stream or lake sediments, Webster said.

He explains that plant life, particularly algae, is a very important nitrogen-user in some streams—such as in Alaska, Arizona and Kansas. Alternatively, in forested streams, such as those in Oregon and North Carolina, nitrogen is removed by fungi and bacteria, which do not photosynthesize, but decompose dead organic material settled on the stream bottom, also a food resource for some aquatic insects.

"The smaller the stream, the more quickly nitrogen can be removed and the less distance it will be transported down the stream," Peterson said. Thus, taking greater care to insure that small streams can work effectively to clean the water will reduce the overall nitrogen load that makes its way into larger bodies of water. "It doesn't mean that you can ignore your sewage treatment plants, but if we can do better with our small streams and do some restoration activities it's going to have some benefits," he said.

The research teams sampled water, algae and other plant life, bacteria, fungi and insects for six weeks at each research site.

Upon completion of the field work in 1998, a number of papers were published about each site, but it has taken since 1998 to synthesize the data from about 1,500 samples per stream for the 12 streams. "It is the first and largest coordinated data set for stream ecosystems," Valette said.

The research was funded by the National Science Foundation and included a $1.4-million grant plus the resources of each unit.

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The summit will be held the afternoon of April 26 in the Math Emporium. For more information, contact Moore at Athenas@virginia.edu.