Growing global demand for energy and growing global environmental concerns have fueled a significant response from Washington University — including a $55-million commitment — aimed at establishing it as a worldwide hub for renewable energy research.

The new International Center for Advanced Renewable Energy and Sustainability (I-CARES), located on the Danforth Campus, seeks to foster and coordinate University, regional, and international collaborative research into biofuels from plant and microbial systems and other alternative energy applications.

Himadri B. Pakrasi, I-CARES' director and the George William and Irene Koechig Freiberg Professor of Biology in Arts & Sciences, says that important Arts & Sciences contributions to I-CARES will help make it successful.

“It’s an institutional activity where all schools come together, but with a distinct Arts & Sciences presence,” he says. “The I-CARES offices are located in Wilson Hall and researchers come from biology, chemistry, and all Arts & Sciences disciplines.”

Pakrasi points out that the “S” in the I-CARES acronym stands for sustainability — which necessarily involves a broad range of Arts & Sciences participants: “To make efforts sustainable will require the input of people in economics, the social sciences, and humanities to help us deal with policies, international issues, and human values. Arts & Sciences is playing a very important role in the conversation with many disciplines participating.”

Though just created in June 2007, I-CARES is already stimulating much positive response and participation from Arts & Sciences alumni, says Pakrasi. “We’re hearing from a lot of alums, who are central to all we do. We welcome alums to comment through e-mails and letters, to hear their thoughts, and to participate.”

To submit comments, contact I-CARES at mroberts22@wustl.edu or 314-935-9541.

The current $55-million University I-CARES commitment will fund the following:

- A $40-million building on the Danforth Campus’ northeast corner to house I-CARES offices and laboratories, and the University's Department of Energy, Environmental, and Chemical Engineering in the School of Engineering.
- At a cost of $12.5 million, five new endowed professorships in science, engineering, architecture, social science, and/or medicine to attract research leaders in energy, environment, and sustainability.
- $2.5 million in seed money aimed at developing collaborative research within the University and with its regional partners, such as the University of Missouri-Columbia and the Donald Danforth Plant Science Center.
- Funds to support collaborative projects with the University's McDonnell International Scholars Academy partner universities, and to support a campus sustainability officer and green-technology applications for University energy systems and operations.
Big Read

Ian Klaus, AB ’01 and former Rhodes Scholar, returned to St. Louis this fall to participate in the October 6 Big Read. He discussed and signed his book, Elvis Is Titanic, published by Random House in August 2007. This “poignant, funny, and eye-opening story” tells of the semester Klaus spent in 2005 teaching American history and English at Iraq’s Salahaddin University in the midst of war. The author currently is pursuing a doctorate in history at Harvard University.

Community Inquiry and Openness

by Ryan Rhea

For years, the public has been able to learn firsthand about cutting-edge scientific research and fresh academic perspectives in the humanities through the free Science Saturdays and Saturday Seminars series presented by University College in Arts & Sciences. Each program comprises four Saturday lectures, 11 a.m.–12:30 p.m. Science Saturdays is offered in the fall, while Saturday Seminars takes place in the spring. Both lecture programs reflect University College’s commitment to providing continuing adult education of the highest quality to the St. Louis region.

Achieving a balance between intellectual richness and accessible, down-to-earth presentation can be a precarious endeavor. Therein is what distinguishes these lectures: Both the community and the faculty delivering the lectures eagerly engage in a dynamic, rewarding learning experience. The common ground is one of inquiry and openness, and the large, appreciative crowds testify to the lectures’ success.

“The University has many outreach activities, but these lectures are special in that they feature unusually engaging speakers addressing issues of current research and enduring interest,” observes Robert Wiltenburg, dean of University College.

Dean’s Message

by Edward S. Macias

Executive Vice Chancellor, Dean of Arts & Sciences, and the Barbara and David Thomas Distinguished Professor in Arts & Sciences

Just this past month, the Faculty of Arts & Sciences approved a new minor in public health. I would like to tell you about this development.

Several years ago, Bradley Stoner, professor of anthropology in Arts & Sciences and of internal medicine at the School of Medicine, created the Medicine & Society Program, which has been oversubscribed from inception. Its intellectual roots are in medical anthropology and community health. The program appeals to undergraduate students interested in health professions (though not necessarily in attending medical school).

Medicine & Society involves a yearlong freshman seminar on culture, health, and society, followed by a long-term internship at a community health site beginning sophomore year. As upperclassmen, course work intensifies, including development of a senior honors thesis based on research performed in labs on campus or during the internship.

This program attracts students who are academically talented, civic-minded, and committed to societal health and wellness. Due to the overwhelming response, Arts & Sciences has now expanded this program by creating an academic minor, which was praised in a recent issue of Student Life. Eventually, we hope to develop public health into a full-fledged major, successfully weaving together academic perspectives from Arts & Sciences, Social Work, and Medicine.

Public health is one example of Arts & Sciences’ response to student demand and societal need. The unique perspective of this program encompasses both the traditional disciplines of science and medicine, and those of social sciences and the humanities. Arts & Sciences is uniquely equipped to house and develop this intellectual interest.

This fall, Science Saturdays focused on “Physics in Medicine and Biology,” with four presentations:

- “The Intelligence of Biological Cells” presented by Anders Carlsson, professor of physics
- “Assessing the Quality of Medical Tests” presented by James Miller, professor of physics
- “How Does the Brain Work? Our Journey to Gain Insight into the Functioning of the Brain” presented by Ralf Wessel, professor of physics
- “The Laws of Physics Govern What Cardiologists See and Hear” presented by Sándor Kovács, Jr., professor of physics and professor of medicine

Details are posted at ucollege.wustl.edu/freetlect_sciences.php.

The February 2008 Saturday Seminars series will focus on politics and the presidential election. Details will be posted at ucollege.wustl.edu/freetlect_mlalectu.php.
Leading the Search for New Energy

by Rick Skwiot

The Earth’s first oxygen-producing organisms, cyanobacteria, may hold the key to solving the world’s energy problems, says Himadri B. Pakrasi, the George William and Irene Koechig Freiberg Professor of Biology in Arts & Sciences. This biochemist has spent more than 25 years studying the photosynthetic lives of these three-billion-year-old algae.

For those three billion years, the organisms, which cover the surface of the ocean and exist almost everywhere, have been repeating an amazing process: “They capture sunlight and convert water into hydrogen and oxygen. These are the organisms that brought oxygen to us.”

Pakrasi believes that this conversion process might be modified to generate other products. “These are miniature solar factories producing useful biochemicals. We’ve spent a lot of time understanding the basic science and believe we can manipulate them to make biofuels and other valuable substances.”

Pakrasi’s ongoing research recently has been augmented by close to $12 million in grants from the United States Department of Energy and the National Science Foundation. He and his national team of some 25 biologists are using the grants to sequence the DNA of six photosynthetic bacteria and study their biology.

“The Department of Energy,” he says, “is very interested in the production of ethanol or hydrogen and other kinds of chemicals through biological processes.”

That interest is fired by the limitations of the fossil fuels supplying most of the world’s energy. “That fossil fuel biomass took millions of years to produce,” Pakrasi says, “and we’re using it up in a few hundred years. Instead of hoping to find more, why not produce it at our will, using the same process, in five or ten years instead of millions?”

He believes that the current genome sequencing of select photosynthetic bacteria will lead to the creation of the first useful chemicals — biofuels or medically important substances — within five years.

A “strong supporter” of current ethanol production from corn, sugar cane, and other sources, Pakrasi champions the ultimate photosynthetic biofuel production as “an extremely green process.”

“That fossil fuel biomass took millions of years to produce, and we’re using it up in a few hundred years. Instead of hoping to find more, why not produce it at our will, using the same process, in five or ten years instead of millions?”

Himadri Pakrasi

Current ethanol fermentation releases two of six glucose carbons into the atmosphere, he explains. “Fermentation captures four carbons and two go up the chimney. Photosynthesis captures all six.”

However, that developing process is not entirely in the domain of biologists, says Pakrasi, also a professor of energy in the School of Engineering and director of I-CARES (See Page 1). “Our research embodies a very cross-disciplinary approach, with undergraduate, graduate, and postdoctoral researchers not only in biology, but engineering, physics, chemistry, mathematics, and more.”

Pakrasi received his undergraduate and graduate training in physics at the Presidency College and University of Calcutta before earning a doctorate in biology at the University of Missouri-Columbia. He has been a Washington University faculty member since 1987.

He was installed as the Freiberg Professor on October 2. This named professorship was endowed by microbiologist George William Freiberg, PhD ’17. It also honors Freiberg’s wife, Irene Koechig Freiberg, AB ’11, MS ’12, an instructor in Washington University’s medical school and author of Chemistry for Nurses.

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The Summer 2007 issue of Arts & Sciences did not
acknowledge the Metro Theater Company as co-producer
of Hana’s Suitcase. We regret the omission.
Giving Back
by Kristin Tennant

Kate Bloch, AB and MA ’83, is keenly aware of how college debt can affect the career choices of graduating students. “I see how students today struggle with the finances of even a public education,” says Bloch, a professor at the University of California Hastings College of the Law. “It’s a challenge and sometimes not a realistic option for graduates to make loan payments and follow their hearts when it comes to their careers.”

Bloch is “extremely grateful” that a Washington University Arnold J. Lien Scholarship allowed her to enjoy an “amazing education” free of college debt. She then was able to attend Stanford Law School and go into public service as a deputy district attorney in Santa Clara County, California, before joining academia.

Now Bloch is helping other Washington University Arts & Sciences students through the Joyce and Herman Bloch Merit Scholarship. Named in honor of her educator parents, this scholarship provides additional support to the Lien scholarship, one of four types of merit-based awards in the Arts & Sciences Honorary Scholars Program. This year, Kathryn Sparks from Birmingham, Alabama, is benefiting from the Bloch Merit Scholarship.

“The Lien scholarship offered so many opportunities and opened so many doors,” Bloch recalls. “I received tremendous mentoring from faculty advisers, who were always trying to make things possible for us. The entire community of scholars was very bright and engaging, with a strong sense of camaraderie.”

The flexibility of the Lien scholarship was also important, says Bloch, who majored in French and history. She was able to study in France for a year, as well as participate in a one-year intensive master’s program.

“College,” she says, “is a journey of self-discovery. I wanted to find a way to help other students have the same kind of positive and enriching experiences I had.”

Her role as a professor and mentor furnishes another opportunity for her to “give back.” While criminal law is one of Bloch’s primary areas of teaching and scholarship, she also focuses on enhancing ethical awareness in students — a passion that emerged from her hands-on experiences both as a summer intern in the Manhattan District Attorney’s Office and as a deputy district attorney in California.

As a law student working for a summer in Manhattan, Bloch recalls, “It was so powerful to watch attorneys doing justice, following their consciences, and having the ability to make important choices — to do what’s right.”

“Law school,” she continues, “is a time to help students explore the role of an attorney. I went into teaching in part to reflect and write, but also so I could nurture more ethical, reflective lawyers. Being an academic is a wonderful platform for having a more formative role.”

“College is a journey of self-discovery. I wanted to find a way to help other students have the same kind of positive and enriching experiences I had.”

Kate Bloch, AB and MA ’83
A Storyteller for the Environment

by Kristin Tennant

A hero, a villain, and a happy ending are essential to the best environmental stories, just as they’re key to any good narrative, says Orli Cotel.

The host of Sierra Club Radio and a national publicist for the organization, Cotel, AB ’02, is leveraging her degrees in comparative literature and Spanish to inspire people to get involved in environmental issues.

“We’re not telling stories just for the sake of telling stories,” she adds. “It’s all about the happy endings, which ultimately are the campaign we’re running.”

As a student, Cotel was active in social justice issues, particularly those focused on empowering youth and women. Through the Department of Romance Languages and Literatures in Arts & Sciences, she started the Southside Tutoring/Mentoring Program for Latino youth, which is still active. Much of her motivation to make a difference emerged from such hands-on experiences, as well as her upbringing.

“Growing up in Manhattan, it was pretty impossible to be unaware of social inequities,” Cotel says. “My parents really imbued me with the need to respond to social issues.”

Cotel not only learned about the environmental movement, which ultimately led her to the Sierra Club, but also “an incredible resourcefulness” in motivating people to work toward seemingly impossible solutions.

“And another thing I learned is that so many people are out there who really want to make a difference,” Cotel says. “They want to get involved in important issues, but they don’t know how; they’re waiting for direction. We need to build a ladder of involvement and help people up it.”

That’s the main mission of Sierra Club Radio. In this weekly half-hour program, Cotel provides lifestyle tips and advice, as well as commentary and interviews with politicians, musicians, Hollywood stars, journalists, and authors.

The other part of Cotel’s job, coordinating national publicity for Sierra Club, involves maintaining an ongoing conversation with the nation’s top environmental reporters.

“We need to build a ladder of involvement and help people up it.”

Orli Cotel, AB ’02

Past episodes of Sierra Club Radio are archived as MP3 files at sierraclub.typepad.com/sierra_club_radio; a podcast subscription is also available.

2007 Arts & Sciences Scholarship Dinner

Lorraine Carlat (right) sponsors the Louis E. Carlat Scholarship in memory of her husband, AB ’52. She and her son, Louie Carlat (left), met Erika Wade of Argyle, Texas, who received the Carlat award, at the 22nd annual Arts & Sciences Scholarship Dinner held October 11, 2007, at the Ritz-Carlton Hotel in Clayton. Wade is the first recipient of this award, which was created in 2006.
Perlstein served as executive director of the ninth annual St. Louis Area Dance Marathon, a student-run charity fundraiser that drew more than 1,000 young people to a 12-hour dance extravaganza in the Athletic Complex this November. All proceeds went to the Children’s Miracle Network of Greater St. Louis to benefit St. Louis Children’s Hospital and Cardinal Glennon Children’s Medical Center. The 2007 marathon raised more than $162,000.

“It’s amazing,” Perlstein says. “We had performances from on-campus and community groups. We had music the entire time. Every hour had a different theme, and people changed costumes to go with the themes. There were competitions and games. A huge part of the excitement was welcoming the ‘miracle children’ from our hospitals, kids who have been treated and recovered.”

Perlstein also tutors middle school students through the Campus Y.

With his enthusiasm for children’s causes, it’s not surprising that he chose to minor in children’s studies, a new interdisciplinary program offered by Arts & Sciences. “Children’s studies is a combination of sociology, education, and psychology, focusing on children and their development and how society views them,” he explains.

Perlstein has not decided on a career path, but this past summer he interned at St. Louis’ Build-A-Bear Workshop headquarters, working with the company’s two philanthropic foundations and their grant-making process. He found this “company with a heart” a great fit.

Perlstein’s enthusiasm for Washington University is boundless. “I’ve enjoyed all my course work and the opportunity to explore different interests,” he says. And the University’s consistent focus on community service, he believes, has made his experience all the richer. “Through my extracurricular activities,” he muses, “I’ve been able to interact with people and learn how to apply those skills that I study in psychology.”

## Researching Family Decisionmaking

by Brenda Murphy-Niederkorn

Who is most knowledgeable about the wishes of elderly parents when they are unable to speak for themselves? Preliminary results of research focused on family decisionmaking in late life at the Clinical Geropsychology Lab in Arts & Sciences are finding it may not be their adult children.

“We’ve found that children are not necessarily accurate in predicting their parents’ wishes,” says Elizabeth Mulligan, a PhD student in the Department of Psychology. “On average, they’re only fair to good, although the range of children’s knowledge is very broad.”

Mulligan and fellow doctoral student Emily Porensky have played vital roles in recruiting and interacting with family participants in this study. Designed by Brian Carpenter, associate professor of psychology, and funded by the Brookdale Foundation and the United States Administration on Aging, the study is assessing how accurately adult children predict the wishes of their elderly parents regarding such topics as living arrangements, medical care, and end-of-life estate and funeral planning. It also focuses on learning how families reach consensus about aging-related decisions.

“Our long-term goal is to create family education programs,” says Carpenter. “We...
The Spenser Lab

A

n authoritative scholarly edition of British author Edmund Spenser's collected works will result from the Spenser Project, a humanities research project involving teams of students under the direction of Joseph Loewenstein, professor of English in Arts & Sciences.

The National Endowment for the Humanities (NEH) has awarded $150,000 over three years to support this project, which hopes to publish a three volume edition of Spenser's writings and two derivative texts meant for classroom use. The project also plans to develop a digital archive that will make information related to the edition available online to scholars, literature students, and general readers.

The result will provide a rigorous foundation for Spenser scholarship. The last complete scholarly edition of Spenser was finished about 100 years ago.

There are five editors for the Spenser Project, including Loewenstein, who is the principal investigator for the NEH grant. The involvement of teams of graduate and undergraduate students distinguishes the efforts at Washington University.

"Research in the humanities is generally thought of as an individual thing," Loewenstein observes. "Research on Spenser here at Washington University is a communal effort. We call it The Spenser Lab."

Mixed teams of graduate and undergraduate students are reconstructing the transmission and printing of Spenser's texts, and combing through past analyses and commentary on those texts. "Their findings maintain an impressively high standard. And the work is meant to enable students to pursue related research topics," Loewenstein says.

Five other scholars are involved with Loewenstein in the Spenser Project: Nicholas Canny, professor of history, National University of Ireland; Patrick Cheney, professor of English, Pennsylvania State University; Elizabeth Fowler, professor of English, University of Virginia; David Lee Miller, professor of English, University of South Carolina; and Andrew Zucher, lecturer in English, Cambridge University.

It’s estimated that one in five Americans will be over age 65 by 2023. These adults need to open the lines of communication with their children and keep them open, according to the researchers.

“It’s very important that parents don’t just fill out an advanced directive and want to make families more comfortable talking about these issues before a crisis comes up.”

It’s estimated that one in five Americans will be over age 65 by 2023. These adults need to open the lines of communication with their children and keep them open, according to the researchers.

“It’s very important that parents don’t just fill out an advanced directive and want to make families more comfortable talking about these issues before a crisis comes up.”

Emily Porensky

Doctoral psychology students Elizabeth Mulligan (left) and Emily Porensky collaborate with Associate Professor Brian Carpenter on research into how families reach consensus on aging-related decisions.

file it away; preferences do change," says Porensky. “Families need to continue to talk as the parents’ health changes.”

Carpenter appreciates the “tremendous amount of scientific input and logistical support” that both doctoral students have provided. In exchange, they’ve experienced research reality.

“We try to develop tight methods and research designs to answer a question,” he says, “but sometimes always comes up that we didn’t expect.”

Mulligan, who applied to Washington University for its research orientation, says that her work in the lab has put her in “a better position to critically evaluate the journal articles that I read as well as the studies that are presented in the popular media.”

This study started in 2002 with videotaped interviews of 37 families on campus. An additional 30 families have been videotaped in their homes. The study will remain open through 2007. Families who are interested in participating are invited to call 314-935-6173. A communal research effort on Edmund Spenser features a team of undergraduate and graduate students, including Jonathan Shelley, working with Professor Joseph Loewenstein. "Families need to continue to talk as the parents’ health changes.”

Emily Porensky
"First Friday on the 40th" celebrated the end of the first week of classes with relaxing jam sessions and hand waxing.

More than 200 student organizations participated in the fall 2007 Activities Fair, where students can learn about opportunities to become involved at Washington University.

Special Orientation activities for new graduate students included a campus tour and a panel presentation on making the transition to graduate school.

Freshmen found lots of helpful assistance as they moved in on August 23.

Mary Butkus

Whitney Curtis

Kevin Lowder

Mary Butkus
At Service First, held over Labor Day weekend, more than 1,000 students, faculty, and staff helped brighten 13 public schools in the St. Louis metropolitan area.

Faculty and students explored *Einstein’s Dreams* by Alan Lightman for the 2007 Freshman Reading Program.

New students dressed in their residence hall’s t-shirts and their families enjoyed Convocation, where Chancellor Mark Wrighton welcomed them to the Washington University community.

**A Sampling of Other Orientation 2007 Activities**
- University College New Student Orientation
- Managing Finances and Logistics for new graduate students
- New Graduate Student Barbeque
- Letting Go for parents
- New Faculty Orientation
- Chancellor’s Luncheon for new faculty
- Arts & Sciences Dean Meeting with all freshmen
- Taste of Wash U
- Foreign Language Placement Exams
- Club 40 Dance
- Cranium Bonanza (fun with board and group games)
- Choices (skits about the first-year experience written and performed by returning students)
- Freshman Foundations (strategies and techniques for academic success)
For scholar/athlete/musician Priya Srikanth, finding balance has been college’s biggest challenge. “I always want to devote more time to everything,” she says. “But I think I have figured out how much time I can spend on each and still be happy with the results.”

Her results are extraordinary. Twice an All-America diver, Srikanth placed 11th in the 2007 National Collegiate Athletic Association Championships’ one-meter competition. She also was the University Athletic Association’s 2007 Diver of the Year, sweeping the one- and three-meter titles.

On the academic side, Srikanth maintains a 3.98 GPA despite the demands of double majors in biochemistry and women’s studies.

She also works in the School of Medicine research lab of Philip Stahl, the Edward Mallinckrodt, Jr., Professor and head of the Department of Cell Biology and Physiology. In the lab, Srikanth contributes to groundbreaking investigations into a little-known protein. “It’s an oncogene,” she explains.

“When you introduce it into cells, they grow faster and, when you inject it into mice, they grow tumors. We’re trying to figure out how it works.” Srikanth’s thesis will discuss this research.

Srikanth added women’s studies into the mix after finding an introductory course fascinating. Women’s health presents its own challenges, and she expects these studies to help shape her career. After she graduates in May 2008, she plans to conduct research for a year before entering an MD/PhD program.

In these cerebral pursuits, Srikanth believes diving helps her work better. “When I dive,” she says, “my mind shifts gears and I’m all about diving. When I leave, I can go back and be focused.”
Shedding Light on the Middle East
by Candace O’Connor

“Hakhnasat Orhim” — Hebrew for a hearty welcome — is what Michael Widlanski, the Schusterman Visiting Professor in Israel Studies for 2007–08, has felt from St. Louis.

“One of the commandments that God gave to Abraham was welcoming the guest,” says Widlanski, a faculty member at the Rothberg School of Hebrew University in Jerusalem, where he lives with his wife, Sara, a mosaic artist, “and it has become a tradition of Jews as well as Arabs and Muslims. I see it being practiced here very strongly.”

Relations between people, particularly Arabs and Israelis, are Widlanski’s specialty. This year, he will be illuminating the history and state of those relations in courses and a series of community lectures.

During the fall semester, Widlanski is teaching Introduction to Israel Studies.

He is also teaching Middle East Politics and Communication, which focuses on Israel and its four Arab neighbors: Egypt, Jordan, Lebanon, and Syria.

“It will be a lot of reading, a lot of work, a lot of fireworks,” says Widlanski, whose visit has been supported by a grant from the American-Israeli Cooperative Enterprise. “There will be video, radio, cartoons — it will be very interesting. You don’t get courses like this on American or Israeli campuses.”

Examining politics and communications together is crucial, he continues, because political success today depends on conveying a message to a broad audience. Osama Bin Laden sends videocassettes, while Hasan Nasrallah, the leader of the Islamist group Hezbollah, is a “world-class media manipulator,” Widlanski says. “Even in the middle of a terrorist act, they will film themselves, and it will be online within minutes.”

In the spring semester, Widlanski will teach a course on Israeli politics and a course on Middle Eastern terrorism. In addition to the Schusterman lecture on campus this fall, he plans to lecture off campus before Jewish, Christian, and African-American audiences.

“We are especially grateful to the American-Israeli Cooperative Enterprise for helping us initiate this very important program,” says Edward Macias, executive vice chancellor, dean of Arts & Sciences, and the Barbara and David Thomas Distinguished Professor in Arts & Sciences. “Bringing a scholar from Israel to campus each year greatly impacts our ability to offer relevant courses in Israeli studies. I understand that Professor Widlanski’s courses are full, which reflects the strong student interest in this area.”

Because of my experience in the academic and the ‘real’ world,” he says, “I try to give different angles to my students. And it is something that not every professor can do.”

2007 High School Summer Scholars

Getting a jump start on college were 140 high school students who participated in the 2007 High School Summer Scholars Program. For five weeks, these rising seniors earned college credit and experienced college life. Courses were offered in French, German, Italian, Japanese, Spanish, art history, dance, music, biology, chemistry, geology, mathematics, physics, anthropology, English composition and literature, history, philosophy, economics, political science, psychology, religious studies, and women’s studies.

In addition to teaching Washington University students, Michael Widlanski will be going into the St. Louis community to discuss the Middle East.
A National Leader in the Sciences

To science, pilot of industry, conqueror of disease, multiplier of the harvest, explorer of the universe, revealer of nature’s laws, eternal guide to truth.” This motto, inscribed in the National Academy of Sciences’ Great Hall, conveys the breadth of issues addressed by this organization, created by President Abraham Lincoln in 1863 to advise the government and the nation on science and technology.

Helping to lead NAS is Barbara Schaal, the Spencer T. Olin Professor in Arts & Sciences and the first woman to be elected NAS vice president. She began her four-year term on July 1, 2005.

NAS and three other independent organizations that comprise the National Academies issue more than 200 reports each year on subjects as varied as health care, astronomy, the environment, transportation, materials science, behavioral sciences, education, and engineering.

The reports are prepared by NAS members and other volunteer experts. Election to NAS is one of the highest honors a scientist or engineer can achieve; Schaal was elected a member in 1999. Today NAS has approximately 2,100 members and 380 foreign associates; nearly 200 have won Nobel prizes.

Schaal finds her NAS leadership role to be rewarding: “I interact with smart and interesting people about issues of science that are of concern to the nation. And I’ve learned a lot about different areas of science, about politics in Washington, and about international issues.”

As vice president, she heads various scientific programs, including several colloquia and seminar series; serves on the NAS Council and its Executive Committee; and serves on the governing board of the National Research Council, a partner organization. In January 2008, she also begins chairing NRC’s Division on Earth and Life Studies.

Schaal applies molecular–genetic techniques to the study of plant evolution. Recent work includes researching the evolutionary genetics of plants in hopes of enriching crops such as cassava and rice.

NAS projects on which she is focusing include evolution/creationism and a major public outreach initiative.

“This has been time consuming,” she notes. “Maintaining my research program and keeping it well funded is always a concern. So far, so good; we are publishing more papers than before I became vice president, and we just received a grant from the National Science Foundation for genomics of rice.”

Remembering September 11

Joe Daniels (left), AB ’94, president and chief executive officer of the National September 11 Memorial and Museum at the World Trade Center, brought the traveling National September 11 Memorial & Museum Tribute Exhibition to the Danforth Campus November 3–4. Chancellor Mark S. Wrighton joined him to look at signatures on a beam that will become part of the Memorial & Museum when it is completed around 2009. Visitors were able to sign the beam as part of the exhibit, which also featured photos, a film, and artifacts from September 11.
Rethinking an Axiom
by Deb Aronson

Physicist Carl Bender embodies the Missouri saying: “Show me.” His knack for questioning things often taken for granted has led to exciting results.

Quantum physics is formulated in terms of a set of axioms that are physical and that have an experimental basis. All axioms, it turns out, except one.

The axiom that a crucial component of quantum mechanics had to be Hermitian — meaning certain quantities must be real (i.e., whether positive or negative, rational or irrational, they can be found on a number line) — was, says Bender, more an “axiom of convenience, a mantra. It really bothered me because the conventional requirement of Hermiticity was not physical at all. It doesn’t sound like physics; it was purely mathematical.”

About nine years ago, Bender suggested a more physical, alternative axiomatic framework, allowing for complex numbers that lie outside the real number line. This new framework is based on PT symmetry (i.e., the universe is symmetrical if reflected in space and time). He describes this new framework as “more beautiful and interesting, very simple and easy to understand.”

In recognition of his achievements, Bender, who has been with Washington University since 1977, is being installed November 27 as the Wilfred R. and Ann Lee Konneker Distinguished Professor of Physics.

Although he grew up on the East Coast and first taught at the Massachusetts Institute of Technology, Bender is now a confirmed Midwesterner.

In addition to the ease of life in St. Louis, he appreciates the high caliber of Washington University’s students: “The undergraduates here are really good. They are the smartest students I’ve ever met. They also are nice kids and a lot of fun to teach.” Bender treats many of these students as colleagues, co-authoring several papers with them.

One of the biggest thrills of his research, he says, is how many people have advanced their own work using his theory.

“Physics is a very combative field. If you want to convince physicists, you have to have a very big fight and that is how it should be. The first reactions were shock and horror, but what has happened is that hundreds of people all around the world have joined in and I’m basically the leader,” he says with delight.

“You can’t imagine how fantastic it is to go to an international conference where every single paper presented is in this new field. I’ve done lots of work in my lifetime, but this is the first time something this cool has happened to me.”

The Konnekers: Supporting Education

In establishing the Wilfred R. and Ann Lee Konneker Distinguished Professorship in Physics, Wilfred Konneker, PhD ’50, identified a need and addressed it. That has been a common pattern both in his business career, in which he founded or co-founded seven high-tech start-up companies, and in his philanthropical “career” helping Washington University, Opera Theatre of St. Louis, Saint Louis Symphony, and Sheldon Concert Hall. He became so busy helping people that he had to retire.

“It has all been a lot of fun,” he says. A native of Ohio, Konneker came to St. Louis in 1947 to earn his doctorate in physics. Two days after receiving his degree, he started his first company, which used nuclear energy in the medical field. When he realized his potential clients did not have access to radiopharmaceuticals, he started a company to provide them.

“One of my main interests has been to help where I can, both financially and otherwise,” says Konneker. “It is important to support education, not just for the individual student, but for the country as a whole. We need to solve a lot of problems, and we won’t be able to do it if we don’t have educated people.”

Regarding the professorship he endowed, Konneker says, “I am very pleased to have the opportunity to help someone as accomplished as Professor Bender.”
Stimulating Innovation and Growth

by David Fiedler

Even Mickey Mouse doesn’t get any slack when economist Michele Boldrin turns his critical eye to the subject of intellectual property protection.

Boldrin, installed December 11 as the Joseph Gibson Hoyt Distinguished Professor of Economics in Arts & Sciences, points to the Walt Disney Company’s all-out lobbying to extend copyright protection for Mickey and other Disney characters as an example of intellectual property protection that stifles innovation: “Spending resources not to produce something that may provide a benefit is the same as spending resources solely to pull the blanket over to the other side of the bed. Someone else pulls back and eventually the blanket gets torn in two.”

Instead, says Boldrin, loosening the reliance on intellectual property protection that is the norm in many industries fosters innovation and creates new and better ways of doing things; this in turn spurs growth, and increases productivity and welfare.

“When you realize that innovation is a powerful, driving force to be found at the heart of a free open society and that most good things come from the human tendency to innovate, you ask yourself ‘What are the rules, the societal institutions, and social norms that bring this out?’ Then you work to find ways to encourage that and minimize the other things that stifle innovation.”

The ties between innovation and the growth phase of the business cycle are a major focus of Boldrin’s work. He has been a frequent collaborator with David K. Levine, the John H. Biggs Distinguished Professor of Economics in Arts & Sciences. The duo has a forthcoming book, Against Intellectual Monopoly. Consistent with this title, Boldrin and Levine have an agreement with Cambridge Press to put the entire body of the text on the web, free for all to download.

“It really isn’t going to cost us any sales,” says Boldrin. “We keep getting e-mail from people asking when the book will be available in hard copy. No one wants to print out 300 pages from their computer.”

Boldrin and Levine are taking the free exchange of ideas even farther, allowing people to tag along as co-authors. “Following the suggestion of a colleague at Carnegie Mellon University, we’re creating an online version using wiki-type software to make it a living project. When laws change, when new examples and ideas come in from around the world, the information will be updated at once.”

Boldrin’s professorship is named for Washington University’s first chancellor.

New Dean to Lead the Graduate School

Richard J. Smith, the Ralph E. Morrow Distinguished University Professor and chair of the Department of Anthropology in Arts & Sciences, will become dean of the Graduate School of Arts & Sciences July 1, 2008, when Robert E. Thach, dean since 1993, steps down.

Thach, a professor of biology in Arts & Sciences and a professor of biochemistry and molecular biophysics in the School of Medicine, will return to full-time teaching and research. His research in epidemiology and environmental medicine will focus on vector-borne diseases, including Lyme-like and Ehrlichiosis diseases.

Highlights of Thach’s tenure as dean include developing innovative ways to reduce time-to-degree and increasing the completion rate for doctoral candidates; creating a global focus in attracting outstanding graduate students; and encouraging graduate student leaders to participate actively in the University’s administrative activities. He also is recognized as a national leader in improving doctoral education.

Smith, the incoming dean, has held a number of leadership positions since he came to Washington University in 1984 as professor and chair of the Department of Orthodontics in the School of Dental Medicine and as adjunct professor of anthropology in
Leading journals, as well as seven book chapters, and held visiting positions at institutions from the University of St. Andrews in Scotland to Australia’s Monash University. He came to Washington University from the University of Rochester in 2006.

A native Austrian, he earned master’s and doctoral degrees from the Vienna University of Technology in applied mathematics. Then, he recalls, “Although I was interested in probabilistic questions from the start, I experimented a bit first.” One experiment eventually led him to calculate the geometry for constructing the enormous roof of Vienna’s stadium.

The continuing fascination of econometrics, Ploberger says, is that it enables him to carry out Galileo’s exhortation to scientists: “Measure what is measurable, and make measurable what is not so.”

As more quantified economic information has become available and as computers have become more powerful, econometricians meet a compelling need by creating computer models to interpret data. Models can be used to investigate a wide range of economic activity. For instance, a model may answer whether consumers spend more or less of their income as interest rates go up. The hottest area is the potentially lucrative one of econometrics of financial markets.

One of the most important parts for practitioners, Ploberger says, is risk control. If, for instance, a Chinese bank takes a million yen in deposits and underwrites a loan in euros to a German bank, executives need a way to quantify the risk inherent in currency exchange rates changing over time.

He teaches his graduate students techniques for constructing models, avoiding errors and biases — important at a time when researchers are making bold and innovative uses of economic statistics, such as those in the bestselling *Freakonomics* by economist Steven Levitt.

Ploberger enjoys teaching his students at Washington University: “They are so bright, show a lot of intellectual curiosity and technical skills. They will be very successful.”

He received Washington University’s Distinguished Faculty Award at the 2005 Founders Day.

Smith earned his bachelor’s degree in psychology from Brooklyn College of the City University of New York in 1969 and a master’s degree in anatomy and a dental degree, both in 1973, from Tufts University. After completing a three-year orthodontics residency at the University of Connecticut Health Center, he went to Yale University, where he earned a doctorate in anthropology in 1980.

He teaches physical anthropology, advises undergraduate students, and mentors graduate students. His research focuses on the ways in which statistical assumptions are used when new knowledge is incorporated into the general record of human evolution. Popular with students, Smith teaches an introductory physical anthropology course, advises undergraduate students, and mentors graduate students.

“[Washington University students] are so bright, show a lot of intellectual curiosity and technical skills. They will be very successful.”

Werner Ploberger
Associate Professor Elizabeth Childs is a leading expert on the modern French artist Paul Gauguin. Research and scholarly presentations regarding his life and work have taken her to Paris, New York, London, Amsterdam, Melbourne, Tahiti, and the Marquesas Islands.

For all her travels, Childs finds herself drawn to a written manuscript less than a mile from her office. Entitled L’Esprit moderne et le catholicisme (Catholicism and the Modern Mind), this little-known treatise in the collection of the Saint Louis Art Museum is a thoughtful critique of established religion, examining modernity’s relationship to science and nature and to the history of world religion, Childs says.

Gauguin wrote the treatise between 1901 and 1903, the last two years of his life. It features original handwriting, a handful of illustrations, and intricate woodcut and monotype covers. In the text, he discussed his artistic vision for the painting he considered his masterwork, Where Do We Come From? What Are We? Where Are We Going?, which now belongs to the Museum of Fine Arts in Boston.

“In his manuscript and his painting,” Childs says, “Gauguin addresses our common desire, and our inability, to solve life’s mysteries. The motifs are drawn from an eclectic range of world cultures, and he chose hues that are luminous, like stained glass, to link his decorative forms with ideas of the sacred.”

Seminar students often accompany Childs to study the text, one of the few remaining Gauguin manuscripts in the world. “As art historians, our mission is to teach students how to study the creative process, which in this case involves the relationship of philosophical writing to making art,” she says. “Taking them on such field trips gives them critical skills for examining works of art that will stay with them long beyond their time at university.”

Childs is a curatorial consultant for the exhibit titled “Gauguin and Polynesia: South Pacific Encounters” scheduled to open in Copenhagen and Moscow in 2009–10.

In addition to her teaching and research, Childs became chair of the Department of Art History & Archaeology in July 2007. “We are exploring a newly invigorated relationship with humanities and social sciences in Arts & Sciences and with our art and architecture neighbors,” she says, citing new courses that will focus on interdisciplinary approaches to visual culture, art historical method and theory, and advanced seminars culminating in travel to distant collections and archaeological sites.