Scholarship campaign to start ‘Opening Doors to the Future’

Washington University in St. Louis

Sept. 3, 2009
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Bee venom harnessed to kill tumors in mice

By Gwenderson

When bees sting, they pump venom into their victims. Now the toxin in bee venom has been harnessed as a potential antitumor agent.

Washington University students are among the most talented young men and women in the world,” Chancellor Mark S. Wrighton said. “They come from many different ethnic, geographic, economic and social backgrounds, and they bring with them the diverse life experiences that contribute to making the educational experience on this campus so rich and meaningful.

Our scholarship initiative will help to ensure that no deserving student ever has to turn down an opportunity for a Washington University education because he or she doesn’t have the resources to afford it,” Wrighton said.

“Scholarships transform lives — not only for students but for society,” said Robert L. Voigl, Ph.D., executive chair of the scholarship initiative.

Voigl is a trustee of the University, former dean of the Olin Business School and retired partner in the St. Louis-based investment firm of Edward Jones.

“Washington University is a place where outstanding students prepare to become leaders in medicine, law, government, scientific research, education, public policy, business and the arts,” Voigl said. “Many deserving students just need an opportunity to turn their extraordinary potential into achievement. Their future is our future, and a scholarship is an investment that benefits us all for years to come.”

“Opening Doors to the Future” will bring more scholarship opportunities to both undergraduate and graduate students. The initiative will encourage contributions of both endowed and expendable scholarship funds. In addition, it will provide support for stipends and financial aid for students pursuing internships, summer research opportunities and study-abroad programs.

More than half of WUSTL’s undergraduate students receive some kind of financial assistance, which may include grants, loans and work-study. Almost 32 percent of those students qualified for assistance totaling more than the cost of tuition. Graduate and professional students also receive substantial financial aid, including, for example: 81 percent of law students, 89 percent of medical students and 92 percent of social work students.

See Future, Page 2

Each One Teach One extends to KIPP school

By Neil Schoenherr

Each One Teach One (EOTO), the University’s signature tutoring initiative that connects WUSTL tutors with area elementary and high-school students, has launched a new program, EOTO: KIPP.

The program will partner with the KIPP (Knowledge is Power Program) Empower Academy, a new charter school for underserved youth located in south St. Louis. The University announced in early 2009 that it would serve as institutional sponsor of the St. Louis area’s first-ever KIPP charter school.

The school opened its doors for the first time this fall.

KIPP, a network of free, college-preparatory public schools in underserved communities throughout the United States, has been recognized for its success in putting students on the path to college — nearly 80 percent of KIPP alumni have matriculated to college.

Like all Missouri charter schools, the KIPP school is a public school, open to any student who lives in the City of St. Louis. Currently, more than 14,000 students are enrolled in 57 KIPP schools located in 17 states and Washington, D.C. More than 80 percent of KIPP students nationally are low-income, and more than 60 percent are African-Americans or Hispanic. To learn more about KIPP schools, visit KIPP.org.

The KIPP sponsorship is one of many of the University’s efforts to positively impact schools and children in the St. Louis area.

One of those in Each One Teach One. Founded in 2000 and coordinated by the Community Service Office, the program supports more than 180 WUSTL tutors through four programs: EOTO; Jump Start; EOTO; and EOTO: AP Prep and EOTO: KIPP.

Tutors select one day a week and a grade level with which they would like to work. EOTO provides orientation, training and transportation. Tutors are expected to make a three-hour weekly commitment for a minimum of one semester.

“While Each One Teach One started with mainly undergraduate interest and support, these programs are open to anyone,” said Stephanie Kurtzman, director of the Community Service Office and associate director of the Richard A. Gephardt Institute for Public Service. “Graduate and professional students, staff and faculty are also welcome and encouraged to volunteer as tutors. Tutoring is a great way to make a positive impact in the community and mentor some wonderful young students.”

See Tutors, Page 2
A knockout day

Above: Senior Michael Patney (left) and sophomore Dave Lee box each other during the annual First Friday on the Village Green Aug. 28. First Friday is a celebration held annually marking the first Friday of classes. This year, events included inflatible games, portrait drawing, ice cream, a T-shirt flea market, giveaways, a dance party and performances by a comedian and an improv rap group.

Right: Juniors Michele Bush (left) and Molly Stovel pose for a caricature drawn by artist Zachary Ford.

Future

McDonnell Challenge crucial part of campaign

—from Page 1

Last year, undergraduate students were awarded approximately $66 million in financial assistance. Income from the University’s endowment provided only 17.6 percent of that amount, and the rest came from expendable gifts and other University resources.

More than 1,300 endowed scholarships and fellowship funds already have been established, but many more are needed to enable the University to continue to recruit talented students from a wide range of backgrounds.

A significant aspect of the scholarship initiative is a $2 million challenge grant, intended to encourage new and increased annual scholarships for undergraduate and graduate students from alumni, parents and friends.

It was established by John F. McDonnell, former chairman and now vice chairman of the Board of Trustees and retired chairman of the board of McDonnell Douglas Corp.

"Washington University students all share extraordinary potential to make a difference in the world, and I am happy to support their efforts," McDonnell said.

"Among them are the men and women who will go on to become leaders in society, who will found and manage organizations, find cures for diseases, fill important government posts in this country and abroad, author the next Pulitzer Prize-winning novel, design the next architectural monument.

"What a boost it would be, and how sad it would be, that they could have helped, didn't," McDonnell said.

The McDonnell Challenge encourages donors to establish new annual scholarships or to increase their current annual scholarship gifts. A minimum gift of $5,000 will establish a named annual scholarship. Gifts of more than $5,000 can provide support to students who may have needs that range from $5,000 to full tuition, room and board and other expenses; these gifts can also support multiple students. To qualify for the match, a gift must meet certain criteria, which are available from the Office of Alumni and Development Programs.

The challenge will continue until June 30, 2014, or until all of the matching funds have been expended.

Wrighton is optimistic that the University’s supporters will rise to the McDonnell Challenge and recognize the value of investing in students and their future contributions to society.

"As William Greenleaf Eliot said more than 150 years ago, our University is a great work, capable of indefinite extension. Indeed, we will always continue to advance and build on our extraordinary record of excellence in teaching, research and service to society, and we will continue to attract the best students.

"However, these commitments come with a heavy price," Wrighton said. "We must turn to our generous and supportive friends and alumni, who recognize that an investment in Washington University is an investment in the future."

Venom

Melittin easily and cheaply produced

—from Page 1

to package the useful but poten-
tially deadly melittin, sequenc-
ing it so that it neither harms
non-beneficial cells nor gets degraded before it reaches its target.

Schlesinger said.

A significant amount of melittin were injected directly into the bloodstream, widespread destruction of red blood cells would result. The researchers showed that nanoparticles pro-
tected the mice’s red cells and other tissues from the toxic effects of melittin. Nanobees injected into the bloodstream did not harm the mice. They had normal blood counts, and tests for the presence of blood-borne enzymes indicative of organ damage were negative.

When secured to the nano-
bees, melittin is safe from protein-
destroying enzymes that the body produces. Although unattatched melittin was cleared from the mice’s circulation within minutes, half of the melittin on nano-
bees was still circulating 200 minutes later.

Schlesinger indicated that is long enough for the nanoparticles to circulate through the mice’s bloodstream 200 times, giving them ample time to locate, target and destroy tumors.

"Melittin is a workhorse," said Wickline, also professor of phys-
ics in the Arts & Sciences, of biomed-
ical engineering and of cell biol-
ogy and physiology. "It’s very stable on the nanoparticles, and it’s easily and cheaply produced. We are now using a non-toxic part of the melittin molecule to hook other drugs, targeting molecules or imaging compounds onto nanoparticles," Wickline said.

The flexibility of nanoparticles and other nanoparticles made by the group? suggests the ability to readily adapt to fit medical situations as needed and the ability to attach imaging agents to nanoparticles means that the nanoparticles can give a visible indication of how much medication gets to tumors and how tumors respond. "Potentially, these could be formulated for a particular pa-
tient," Schlesinger said. "We are learning more and more about tumor biology, and that knowl-
edge could soon allow us to create nanoparticles targeted for specific tumors using the nanobee ap-
proach."

Campus Watch

The following incidents were reported to University Police Aug. 25-31. Readers with information that could assist an investigation need to call 935-5555. This information is provided as a public service to promote safety awareness and is available on the University Police Web site at a police.acs.wustl.edu.

Aug. 25

10:30 a.m. — A bicycle was reported stolen from a bike rack outside Park House.

Aug. 26

7:48 a.m. — A bicycle was reported stolen from a bike rack between the Women’s Building and Laboratory Sciences Building.

Aug. 27

8:32 a.m. — The vending machine in Tietjens Hall was reported unsecured with approximately $900 in items missing.

8:32 a.m. — A bicycle was reported stolen from a bike rack outside Park House.

Aug. 28

1:57 p.m. — A staff member reported that her vehicle was entered and radiator detector stolen.

3:34 p.m. — Two trucks were damaged and items were taken from the trucks in the parking lot near Whittaker Hall.

Additionally, University police responded to five accidental injuries, two reports of property damage, two reports of trespassing, two pick-pockets, one report of recovered stolen prop-
erty and one report of stalking.

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Food additive may help control blood lipids

By Jim Dryden

School of Medicine scientists have identified a substance in the liver that helps process fat and cholesterol, and they say it is also used as a food additive. This substance is a component of the common food additive lecithin. The research specialty is one day may be possible to use lecithin products to control blood lipids and reduce risk for diabetes, heart disease or cardiovascular disease using treatments delivered in a food rather than medication.

"Doctors use drugs called fibers to treat patients who have "triglycerides," said the study's co-first author Brian J. Lodhi, Ph.D., a postdoctoral fellow in metabolic and endocrinology. Metabolically, by identifying this substance that occurs naturally in the body — and also happens to be used as a food additive — it may be possible to improve the treatment of lipid disorders and minimal side effects by adding particular variations of lecithin to foods."

Semenkovich, Lodhi, John Turk, M.D., Ph.D., professor of medicine and of pathology, and the team, identified mass spectrometry and gene expression studies to isolate the phosphatidylcholine, or lecithin compound, that activated PPAR-alpha in the liver.

It's fortunate, Semenkovich said, that an extremely common compound like lecithin binds to a key drug target like PPAR-alpha, "That information could be used to make better drugs or even to develop what people sometimes refer to as nutraceuticals — nutrients that have pharmaceutical-like properties," Semenkovich said.

Warner receives professorship named for WUSTL's first female surgeon

By Betty Miller

Bread Warren, M.D., professor of surgery and pediatric surgeon-in-chief at St. Louis Children's Hospital, has been named the Jesse I. Ternberg Professor of Pediatric Surgery. Ternberg is professor emerita of surgery and of surgery in pediatrics. A nationally recognized pediatric surgeon, she was the first woman surgeon resident and first woman chief resident in surgery at Barnes Hospital, the first female surgeon on the School of Medicine's full-time faculty and the first woman to head the school's faculty council.

Warner was installed by Chancellor Mark S. Wrighton and Lily J. Shapiro, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine. She organized the Division of Pediatric Surgery in the Department of Surgery, and in 1975 she rose through the ranks to become professor of surgery.

"Dr. Warner's dedication to patient care, research and teaching is an example we can all strive to follow," Wrighton said. "She has been a superb role model and mentor to many people who remain mentally spry in the golden years of life and those who develop dementia."

The NIA, part of the National Institutes of Health, the National Institute on Aging (NIA) Alzheimer's disease researchers have won renewed grant focus on the development of Alzheimer's disease in the brain prior to the onset of dementia.

"Given the amount of damage Alzheimer's in the brain before clinical symptoms, detecting this damage and understanding how it occurs are absolutely essential steps toward successful treatments," Morris said. Studies funded by the grant will:

• Examine potential links between common and asymptomatic beta, the main ingredient of the plaques found in the brain of Alzheimer's patients.

• Search for and evaluate brain imaging agents and cerebrospinal fluid biomarkers that may allow preclinical diagnosis of Alzheimer's disease.

• Identify genetic factors that may influence Alzheimer's disease risk through analysis of cerebrospinal fluid samples.

• Determine whether Alzheimer's disease and vascular disease have discernible effects on attention prior to the onset of dementia.

The ADRC is the only Alzheimer's center to have two war veterans grants from the NIA for Alzheimer's research. "The information gained from this grant because the reviewers look not only at what our team plans to do in the next five years but also at what we've achieved in the past," Morris said. "Our successful renewal is a testament to the high quality of our investigators and their work."
by the Sam Fox School of Design & Architecture," the first joint con- 
creative "economy of means" may 
cisely with the mission of the Sam 
architecture.

"Hopefully, it will serve as an 
and visual artists from across 
North America while also facili-
architects, designers, educators 
& Visual Arts and the 
necessary emphasis across our 
School of Design & Visual Arts 
work-as-urban development, and 
and commercial spaces.

people for revitalizing depressed inner-
works, a community gallery, a 
Baltimore's oldest African-
and discussions.

design assumptions.

University Archives "a portal of the archives division of Sep. 17 at 
for improving public health and the School of Medicine (medical 
and the Watts House Project in Watts, 
United States' national design symposium, and commercial spaces.

"Double Exposure: Al Parker's Illustrations, 
"Changing the Face of Medicine: 
development through design and the 
and osteopathic medicine.

W worldwide-recognized 
opening speaker for "Economies of Art + Architecture," the first joint con- 
the Watts House Project in Watts, 
and "Think Tank." Project M encourages 
and the environment.

...tate in a variety of presentations and 
substantial changes to the 
the Watts House Project in Watts, 
"Thinking Wishing." Project M encourages 
the Watts House Project in Watts, 
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"Building Life Tables for Mortality From 
University of Chicago."

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"At the Laboratory of Nuclear Medicine. 
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Jazz at Holmes fall 2009 schedule

Jazz at Holmes series opens Sept. 10 with outdoor tribute to Woodstock

Jazz at Holmes will open its fall schedule of free, Thursday night jazz concerts with an outdoor jazz tribute to the 40th anniversary of Woodstock. The opening concert takes place at 8 p.m. Sept. 10, when the New Orleans Style Quadrangle and will feature a six-person jazz ensemble led by William Lenihan, director of jazz performance, in the Department of Music in Arts & Sciences.

"The connections between rock music and jazz of the era of Woodstock are many, and not just that which the sonic possibilities of electric and electric musical instruments brought to the stage," Lenihan said. "Breaking Stylick's boundaries, creating new expressions of musical thought, whether through Coltrane, Hendrix or Dylan, American popular music broke itself from its commercial limitations, with audiences fully participating in its creation," Lenihan said. "Jazz at Holmes this fall celebrating the music in this spirit of performance." Jazz at Holmes indoors next the week to its usual locale, Holmes Lounge, for a Sept. 17 concert by Frey Heit, which performs soul-tinted music featuring trumpet and saxophone.

Up next, on Sept. 24, will be Uttar Chaur, featuring baritone saxophone Andy Arnett and trumpeter Cody Gentry. The group will perform works by jazz great Gert Mulligan. On Oct. 1, clarinetist Scott Albertson and his group will explore music of the swing era.

Two concerts will salute trumpeter Miles Davis, who grew up across the Mississippi River just north of St. Louis in Alton, Ill. The first takes place Oct. 8, when Lenihan will lead a local group of music students in recreating — from transcriptions he prepared — Davis' historic album "Birth of the Cool." The record helped introduce the concept of "cool jazz" and its response to its role in the late 1940s. Trumpeter Danny Campbell, drummer Maurice Carnes and vocalist Angela Slatkin will perform Oct. 22, followed by pianist Paul Williams Oct. 29. Saxophonist Willi Alden — the St. Louis jazz legend who frequently performed in Gateway Square during its 1960s heyday — will appear with his quartet Nov. 5.

Quilters of Gee's Bend to sing, talk about craft

Quilters from Gee's Bend, a rural Alabama community famous for its distinctive quilting style, will sing and talk about their craft for the program "The Women of Gee's Bend" at 4 p.m. Wednesday, Sept. 9, in James Hall, Room 110.

Also speaking will be Matt Arnett, curator of the Gee's Bend quilt exhibit at the Missouri History Museum, and folk artist and sculptor Lionel Holland, also from Alabama. The Gee's Bend quilters will perform the gospel songs traditionally sung while they create Gee's Bend quilts — quilts renowned for their vibrant color and abstract patterns. They also will discuss the artistic, process behind making the quilts and the exhibitions at the Missouri History Museum titled "Mary Lee Bendolph, Gee's Bend Quilts, and Beyond." Gee's Bend, Ala., is a former cotton plantation that developed isolated from the surrounding community. Because of their isolation, the once-enslaved tenant farmers who worked at Gee's Bend developed their own distinctive local culture — including the art of creating Gee's Bend quilts.

The program is sponsored by University Libraries, the African American Studies Program in Arts & Sciences, and the Office of Community and Governmental Relations. For more information about "The Women of Gee's Bend," call 955-4518.

Mary Lee Bendolph, Gee's Bend Quilts, and Beyond" is on display at the Missouri History Museum through Sept. 13.
A unique way to learn about St. Louis For some freshmen, service in the community started even before classes began. Arts & Sciences sophomore Tobi Lee (standing), a counselor with the Leadership Through Service program, guides freshman participants in the program as they prepare to paint murals at Hamilton Elementary School in St. Louis last month. Leadership Through Service is a three-day pre-orientation program offered through the Community Service Office aimed at helping incoming students explore the St. Louis community while acclimating to college life. The program includes multiple community projects, leadership enrichment workshops and the speakers we reservation environment around social entrepreneurship.

YouthBridge SEIC is unique in being a sponsor of the competition for entrepreneurial contest. The YouthBridge Community Foundation has renewed its commitment to support student entrepreneurs. The competition for entrepreneurial contest SEIC has made 23 awards totaling $480,000, including $5,000 student awards each year presented to the best student-founded or student-operated venture. The competition defines social entrepreneur as "using entrepreneurial skills to craft innovative processes, approaches and solutions to help resolve social issues."

Last year's 42 entrants in the SEIC included a diverse range of ventures with missions to provide educational, cultural and vocational training. Additional sponsors to the YouthBridge SEIC include the Incarnate Word Foundation, the Lutheran Church of St. Louis, and the Daughters of Charity Foundation of St. Louis.

To kick off the 2009-10 YouthBridge SEIC and the annual Olin Cup entrepreneurial competition, the Skandalaris Center is sponsoring Assembly Series speaker Jessica Jackley at 5 p.m. Sept. 1 in Simmons Hall's May Auditorium.

Jackley is a co-founder of Kickstarter, the first on-demand financing Web site that connects individual lenders to aspiring entrepreneurs in developing countries. It allows people to make loans of as little as $25 directly to small businesses in the developing world and then maintain one-to-one contact with the entrepreneurs who receive the loans.

Jackley's interest in helping third-world entrepreneurs was inspired during travels and study abroad while a junior at Bucknell University. Since launching Kickstarter in 2005, she has spoken widely on micro finance and social entrepreneurship. She earned a master's degree in business administration from the Stanford Graduate School of Business with certificates in Global Public Policy and Public Management. A reception will follow Jackley's presentation.

The 2010 YouthBridge SEIC competition is open to all members of the WUSTL and St. Louis communities and is accepting applications. For information, visit sc.wustl.edu/SEIC/enter.html.

The Olin Cup competition is sponsored by the Skandalaris Center and the Olin Business School. The competition is open to WUSTL students. For more information, contact sc.wustl.edu/OlinCup/enter.html.

A new web site promotes entrepreneurial contest.

Students give back during Service First

As students who have ever volunteered will say, giving back can become addictive. While more than 1,000 Washington University freshmen prepare to help clean up local schools for the upcoming year, a group of seniors has led the way, reliving memories and celebrating the spirit of community service.

The seniors gathered last week to participate in a Service First reunion project.

"The purpose of Service First is to introduce our first-year students to public service and ongoing community service opportunities," said Stephanie Kurtzman, director of the Community Service Office and associate director of the Richard A. Gephart Institute for Public Service.

"It's exciting to see that these seniors took our vision to heart, have continued to volunteer in the community and launched their own "Service First" service projects with great success," Kurtzman said.

The 11th annual Service First will be held Saturday, Sept. 5, at 12 St. Louis area schools. Approximately 90 students will lead to each school to paint indoor and outdoor murals, activities and maps on the playground; create bulletin boards; and assist teachers in preparing classrooms.

New this year, transfer and exchange students will simultaneously be offering service to Gateway Greening in their own version of Service First.

Volunteers will meet at the schools from approximately 12:30 p.m. to 3 p.m. They then will return to the University for a community service fair on the South 40, where they will learn more about the myriad community service opportunities in which they can get involved during their time at WUSTL.

Service First began in 1999 with about 600 student volunteers helping to clean and beautify scenic trails. It has grown and flourished each year, with more than 1,000 students, staff and faculty volunteers participating.

Schools to be visited this year are Busch, Cole, Dewey, Long, LV-Duerrant, Roosevelt, Wash., Woodward and Yeatman in the Saint Louis Public School District; Penn Park in the School District of University City; West End Early Childhood Center and KIPP Inspire Academy.

"Service First is funded by the University and numerous generous donors, including the Washington University Women's Society and local and national businesses," Kurtzman said.

For more information, contact Kurtzman at 935-5599.

New Web site launches to assist WUSTL families

By Jessica Davies

The Washington University Family Network, Web site — WUSTLfamily.net — launched Sept. 7. The WUSTL Family Network provides an online forum where members of the WUSTL community can exchange information about campus events and the St. Louis area.

The site will host the Family Network, WUSTL community members can post questions or notices on family, lifestyle or cultural topics, and other members can offer feedback.

The network, which is sponsored by WUSTL's Diversity initiatives, will be for WUSTL faculty, students and staff only. Though anyone can view the WUSTL family network, a University e-mail address is required to post questions and responses.

"Many faculty, graduate students and parents are transplants to the St. Louis area from other communities, and they may not know where to look for a local network of family and close friends," Hayes said.

"This online resource is a way for people to exchange information on topics where 'local knowledge' is very helpful," Hayes said.

"Such local insight takes time to develop, and for many in the University community, this online program is a great way to learn about other community links that might have set in quickly with the family," Hayes said. "The University community will have resources in place to help women and men balance their work and family obligations while sharing a sense of belonging to our campus family."
Of note
Jan Amend, Ph.D., associate professor of earth and planetary sciences in Arts & Sciences, has received a five-year, $499,418 grant from the National Science Foundation for research titled "RUCN: A Deep-Biosphere Research Coordination Network." Also receiving the grant was Katrina Edwards, Ph.D., of the University of Southern California.

Denis L. Barbour, Ph.D., assistant professor of biomedical engineering in Arts & Sciences, has received a one-year, $6,116 grant from the National Institute on Deafness and Other Communication Disorders for research titled "Effects of Spectral Context on Responses in Auditory Cortices."

Yehuda Ben-Shahar, Ph.D., assistant professor of biology in Arts & Sciences, has received a three-year, $456,600 grant from the National Institute of Drug Abuse for research titled "Chemoreporter Roles for Epithelial Sodium Channels."

Ian Caine and Derek Hooten, both adjunct lecturers in architecture, collaborated with Michael Allison Heller to create one of six winning proposals in the Student Community Design competition, hosted by the School of Architecture and Development Commission. The group's "100 Year Plan" noted that rising tides were one symptom of a larger water crisis and advocated for an adaptive, policy-based "boilert" that trades the "sea level rise method" of mass water transport for a "sea level rise approach." The winning teams share a total prize of $25,000.

Dominae Je. M.D., the John M. Shoemaker Professor of Surgery and chief of cardiac surgery, has been named president-elect of the International Society for Minimally Invasive Cardiothoracic-Surgery and president of the Society's North American chapter.

James W. Hesham Jr., M.D., professor of surgery, has received the Section of the Section and Colon of Rectal Surgery, has been elected president of the American Society of Colon and Rectal Surgery. He

biomedical engineering, have received a three-year, $294,621 grant from the National Science Foundation for research titled "Mapping Spatial Organization of Cardiac E-Cadherin Application to Cardiac Waves and Arhythmia."

John Shereishian, Ph.D., professor of mathematics in Arts & Sciences, has received a three-year, $196,821 grant from the National Science Foundation for research titled "AlphaGMS: Topological and Emerasive Biocatalysis."

Barry Sleckman, M.D., Ph.D., professor of pathology and immunology in Arts & Sciences, has received a five-year, $1,654,845 grant from the National Cancer Institute, entitled "Activation of Cellular Signaling Pathways by DNA Double Strand Breaks."

The Department of Ophthalmology and Visual Sciences received the following awards June 12:

Morton R. Puszter, Ph.D., associate professor of anthropology in Arts & Sciences, has received a one-year, $23,950 grant from the Wenner-Gren Foundation for research titled "Metabolic Cost of Living in Banana.

Joshua Reece, graduate student in biology in Arts & Sciences, has received a one-year, $7,500 grant from the Fort Worth Zoo Associates W. M. Keck Foundation for research titled "Genetic Sex Determination of Cryptodira: Turtles and Tortoises."

Yoram Rudy, Ph.D., the Fred S. Siglie Distinguished Professor of Engineering, and Leonid Livshitz, Ph.D., research assistant professor of biomedical engineering, have received a three-year, $94,621 grant from the National Science Foundation for research titled "Metabolic Osteoplastic Modeling: Technology Development."

A strong moral compass Judge David Coor of the U.S. District Court for the Northern District of Illinois addresses students at the School of the Arts annual Matriculation Ceremony last month in the Crownor Courtyard of Anheuser-Busch Hall. During his address, Coor outlined the importance of a strong moral compass in the law students' chosen profession, and how sometimes following one's gut is better than following the example of one's co-workers. He said that the legal field is not simply an occupation but a "learned profession" in which the students, as lawyers, will have "the duty to place the interests of society over your own interests."
Cindy Grimm, Ph.D. (right), associate professor of computer science and engineering, talks with senior engineering student Paul Holder. "What is special about her is the amount of research she pours into research and teaching, supporting colleagues and students," Robert Peiss, Ph.D., associate professor of computer science and engineering, says of Grimm. "And even more compelling is her ability to translate this energy into lasting contributions."

I was a common meeting of academics. Cindy Grimm, Ph.D., associate professor of computer science and engineering, was wearing protective gloves in the hapkido Korean martial arts class that she taught at Brown University, handing the punches of Bill Smart, Ph.D., assistant professor of computer science and engineering.

Grimm was a second-year doctoral student in computer science, Smart a first-year. They barely knew each other. Smart threw an errant punch, causing his elbow to roll off Grimm's glove and land with a loud, nasty snap on her nose. Smart, flustered and sorry that he hit his instructor, offered to drive her to the emergency room.

There they sat, and sat, and sat, and learned a lot about each other. After an exam and X-rays, the intern sent Grimm home. No break. The next morning she got a call from the hospital and was told to come in. The intern was wrong. She had a broken nose.

Two weeks later, in the same class, Grimm "got Smart," inadvertently tucking him under her eyes and breaking a blood vessel that turned his face into the color of a torn-open tomato. Then, what a strange — and unusual — bond was formed that led to marriage in 2002.

Analyzing real-world data

While Grimm and Smart have set aside computer vision for a less dynamic sport of rock climbing, they will help each other in the academic ring. Grimm is director of the Department of Computer Science & Engineering's Media and Machines Laboratory, composed of十几名 PhDs and an associate professor, Caitlin Kelleher, Ph.D., assistant professor; and Tao Ti, Ph.D., assistant professor. Projects range from computer graphics to computer vision to machine learning, which includes robotics.

"The common thread of our research is that we tend to work with real-world data," Grimm says. "We take data from sensors, lasers, cameras, and even a laser in the way we campus maps present them to other researchers in ways that help them solve their problems. Most of what we try to do is build computer models of the world, based on collected data that we can interact with and explore to better understand what's going on."

For example, Grimm is collaborating with Philip Bayly, Ph.D., the Australian University of Technology, and chair of the Department of Mechanical, Aerospace & Structural Engineering. Bayly is studying the biomechanics of brain development in the ferret, the smallest mammal that has corticofugal fibers in its brain. These fibers are very important in human brain development because some of the most severe neurodevelopmental problems such as schizoaffective, autism and infanticile (a smooth cortex found with severe retardation) are associated with abnormal brain folding. One of Grimm's students is assembling Bayly's data to enable a visualization of the mechanical forces at work in folding.

"The long-term goal of this research is to understand how the brain forms in a particular disease," Grimm says. "I'm interested in the mathematical question of how to analyze the shapes and track physical points through time automatically. I've been mostly pointing Phil and his collaborators toward how the problem looks in graphics."

Says colleague Peiss: "What is special about her is the amount of energy that she pours into research and teaching, supporting colleagues and students. And even more compelling is her ability to translate this energy into lasting contributions."

"She's now leading an effort to make the entire curriculum more modern, modular and interactive," Peiss says. "As a colleague, she has an intuitive sense of what's very theoretical to very applied, from formal tools to models to shapes with complex topologies, to insights on what technology demons will resonate with the public."

Active learning

In 2009, Grimm became principal investigator of a National Science Foundation grant that brings active learning to WUSTL computer science classes, relegating the lecture to being posted on a Web site and viewed the night before in preparation for a class of interaction, group work and peer review. The belief is that active learning, or studio-based instruction, better prepares students for the workplace.

"Active learning is definitely catching on nationally, and the evidence is pretty conclusive that you get more learning in the classroom," she says. "The syllabus of active learning might contain less, but information is retained much better."

Another area she's working in is called subtle gaze direction, which is a sneaky way of getting people to draw their gaze on a part of an image without the subjects noticing it. It works like this: If you take an image and make a part of it "blink" — either by making it brighter or a different, gaudy color — your peripheral vision will pick it up and cause your eye to scan (rapid, intermittent movement) toward that blink. But if the blink is turned off before the eye fully lands on it, the subject doesn't actually see it.

"The subject's peripheral vision responds to it, but it doesn't conscioulsy communicate, there's a blinky dot, I'm going to look at it," Grimm says. "It just glances over there, so the subject doesn't actually see it, consciously."

"The potential application for this is as a training mechanism to help technicians screen for tumors." People who are really good at this develop certain eye patterns that enable them to look through a vast array of images and tumors, she says. "The thought is you could train people with novel computer vision algorithms to make an estimate of where there might be tumors. There are tons of computer visual algorithms out there, but they're at most 96 percent accurate. These can give false positives but no false negatives. Ultimately, a human will make the call."

Art and computers

Grimm grew up in Mountain View, Calif. Her father was a junior-high teacher; her mother worked at home and volunteered as a teacher's aide at a school that had a high population of disabled children. Her parents took a basic computer class, spending hours with grids, maps and simple mathematical graphics. She used her software to help her mother to "organize the data and make it go faster, or just to double check", she says. "And her mom said, 'I wish I knew how to do that.'"

Grimm expects that the shape of things to come for her will be shape understanding.

"We still can't get images to automatically recognize things that we can ask interesting questions about," she says. "That will take time, but there will be some very interesting breakthroughs ahead because there is such an explosion of data available."