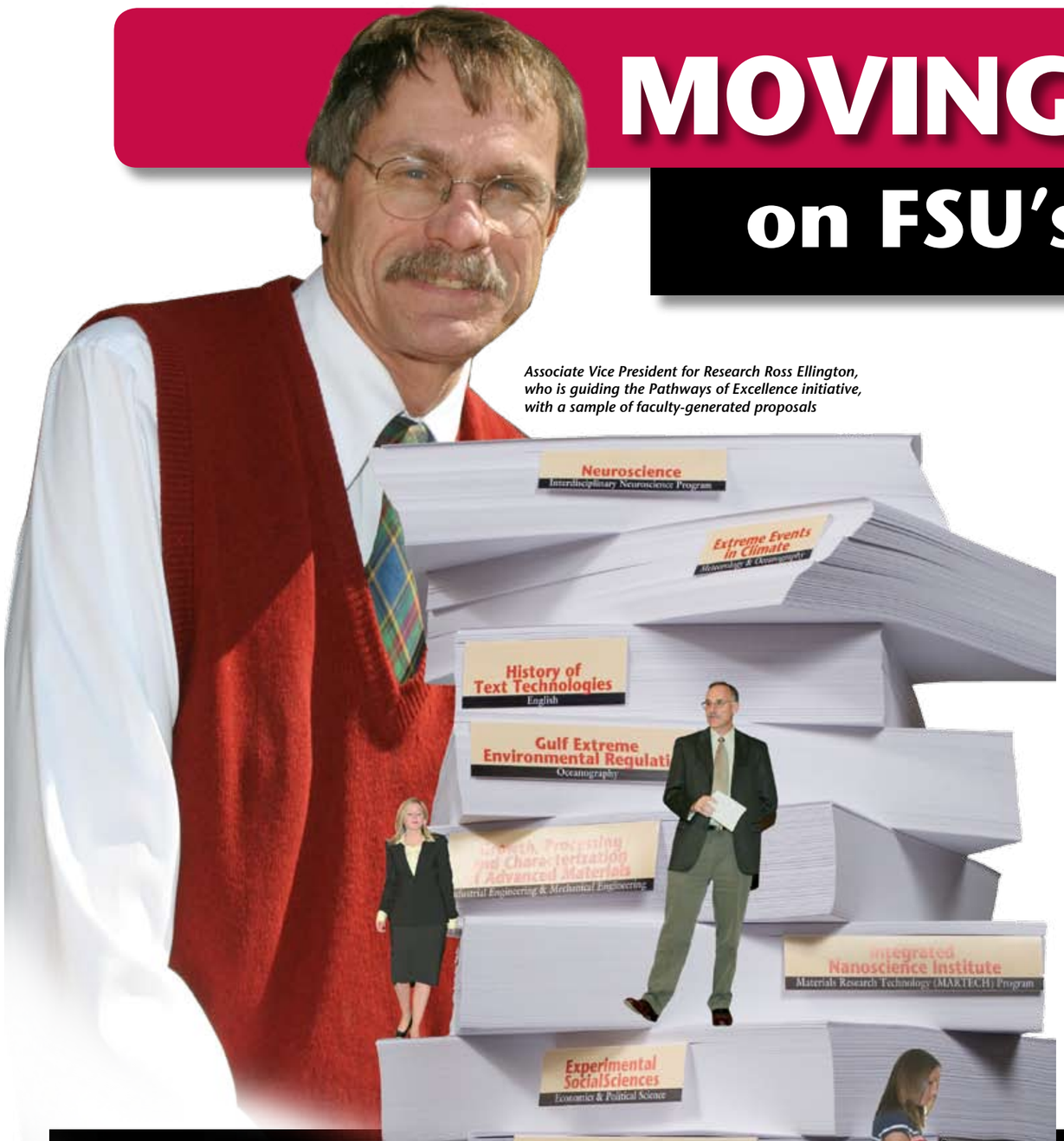
# MOVING FORWARD on FSU's Pathways of Excellence




*Associate Vice President for Research Ross Ellington, who is guiding the Pathways of Excellence initiative, with a sample of faculty-generated proposals*

**You see the signs across campus:**

- New faculty members arriving from around the world
- Current faculty members energized by new opportunities and new colleagues
- New research facilities rising—buildings for medicine, psychology, life sciences, chemistry and materials research
- State-of-the-art laboratories for areas ranging from dance to neuroscience to applied superconductivity—and more to come
- More of the nation's top graduate students choosing Florida State, and more doctorates awarded—an increase of 26 percent over the last two years
- Record amounts of research money flowing in
- More undergraduates receiving top national and international recognition—a Rhodes scholarship, Truman and Goldwater scholarships, a record number of Fulbright awards and more
- More undergraduates accepting the challenges of Honors programs and participating in graduate-level research

These signs are evidence that Pathways of Excellence, a bold initiative with the power to transform Florida State University, is moving from vision to reality.

Now in its second year, Pathways of Excellence is driving FSU's efforts to be recognized as one of the nation's top public research and doctoral education universities. The ultimate sign of success will be recognition of the university's quality according to criteria for membership in the prestigious Association of American Universities.

### How Pathways works

At the heart of the Pathways approach is an investment in human capital: FSU's faculty. Over the past few years FSU has enjoyed extraordinary success in hiring faculty stars—leaders in their respective fields. Just a few examples:

- Francis Eppes Chemistry Professor Sir Harry Kroto, Nobel Laureate and member of the National Academy of Science
- David Larbalestier, a member of the National Academy of Engineering who is viewed by many as the world's leading researcher into practical superconducting materials for magnets and power applications. Eppes Professor Larbalestier brought the renowned Applied Superconductivity Center to FSU from Wisconsin
- Greg Boebinger, director of the National High Magnetic Field Laboratory

*Economics Professor David Cooper, first new faculty member in the Experimental Social Sciences cluster*

Florida State University maintains a steadfast commitment to the Pathways initiative, but the State of Florida's current economic crisis has required some readjustments. FSU President T.K. Wetherell says insufficient state resources have forced an extension of the Pathways timeline from five years to seven. Consequently, of the 23 cluster proposals submitted for 2007-08 funding consideration, resources were available for just two highly promising clusters.

"Even in the face of tuition limitations, scarce appropriations and belt-tightening, Florida State's drive for quality is unshaken. Extending the original timeline of five years to seven or more, the pathway may become longer, but the direction is unchanged," Wetherell says.

"Undoubtedly, we will need more help from our already generous private donors," he adds. "And we will be redoubling our efforts to ask for their financial assistance as we move forward on the pathway to ever-higher quality in higher education."

PATHWAYS of EXCELLENCE

# More clusters being developed

Two faculty-driven proposals were approved in the second round of Pathways competition:

### Tiny tools for huge discoveries

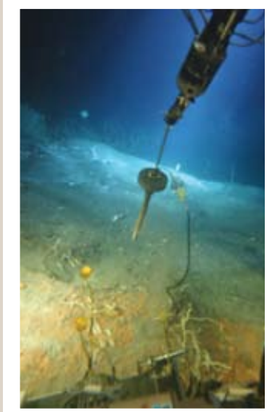
Imagine a rapid, comprehensive medical diagnostic laboratory that fits on a single chip and requires only a single drop of blood. That's the kind of tool that the **Integrative Nanoscience Institute** aims to create.

Based on existing strengths at FSU in materials science, biological science, chemical engineering, chemistry and biochemistry, and physics, the Institute intends to create a world-class comprehensive program on the cutting-edge of bio-nanoscience.

### Cluster's lab: the Gulf of Mexico

The seafloor of the Gulf of Mexico harbors unique life forms, enormous energy reserves and extreme environments, and the **Gulf Extreme Environment Observatory** will provide FSU a springboard to become a world leader in the science of extreme marine environments.

Led by Jeff Chanton, John Widmer Winchester Professor of Oceanography, with participation from biological science, chemistry and biochemistry, and geological science, the cluster will be positioned to investigate problems as vast as the emergence of life on Earth and climate change.



Learn more about clusters at **pathways.fsu.edu/faculty/approved.clusters.html**

- World-class engineer Simon Ostrach, member of the National Academy of Engineering and pioneer in the fields of buoyancy-driven flows and microgravity science, on the faculty of the FAMU/FSU College of Engineering

They have enhanced a faculty that already included renowned veterans like Music Professor Jayne Standley (who holds the Ella Scoble Opperman chair); Creative Writing Professor David Kirby; and Biology Professor Walter Tschinkel—all recent winners of the Lawton award, the highest recognition from their faculty peers—plus young standouts like Debra Fadool of biology, Hong Li of chemistry and biochemistry, Laura Reina of physics and Darrin McMahon from history.

Now picture a faculty with even more Krotos, more Larbalestiers, more Boebingers, more Standleys, more Kirbys, more rising stars.

Then consider the programs, postdoctoral fellows, graduate students and research grants that such academic stars bring.

That's the Pathways picture.

FSU intends to grow its tenured and tenure-track faculty by nearly 20 percent—about 200 new faculty members—an effort that could take as long as a decade to play out.

It's an ambitious goal—and, in a unique twist, current faculty members themselves are in charge.

### Creating a buzz

Dubbed "cluster hiring," it's an approach that is creating a buzz around the country.

FSU President T.K. Wetherell explains, "No other university is saying to current faculty, 'We're going to hire hundreds of top-notch faculty members—and who they are and what they teach is up to you. You come up with the ideas for broad, interdisciplinary approaches. You decide what the clusters and academic themes should be. You nominate the new hires. You evaluate them. And central administration will provide the resources to pay for it."

Cluster hiring recruits groups of five to eight people, all experts in an academic theme that crosses not only academic departments but also traditional disciplines.

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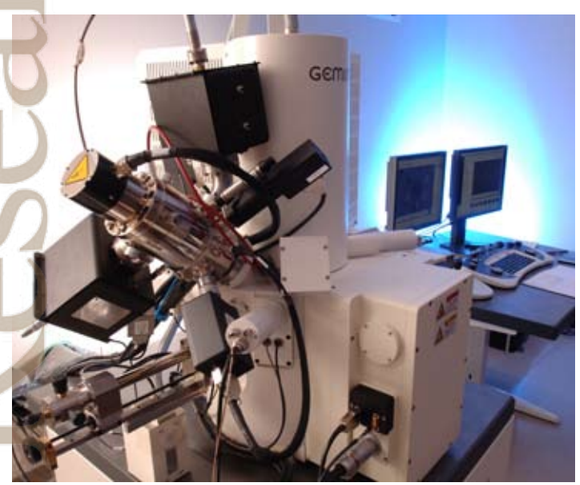



*Left: Nobel Laureate Harold Kroto, Francis Eppes Professor of Chemistry*

*Center: Pulitzer-Prize winner Ellen Taaffe Zwilich, Francis Eppes Professor of Music*

*Right: Kennedy Center honoree Suzanne Farrell, Francis Eppes Professor of Dance*

# New faculty members arriving to build Pathways clusters

An academic cluster links faculty with expertise in related research and associated interests. Over the years, Florida State University has employed cluster hiring to build strength in areas including materials research, structural biology, computational science and neuroscience.

A look at just three clusters, each with new faculty members already on board, gives a sense of Pathways' spectrum and scope.

### New materials—lighter, stronger, more powerful

"We talk about the Bronze Age or the Information Age, measuring progress in human history by the materials we use or their applications," notes Justin Schwartz, the Jack E. Crow Professor of Engineering who is leading the **Growth, Processing and Characterization of Advanced Materials** cluster.

Today, thanks to developments in nanoscience, researchers have the ability to construct matter and molecules one atom at a time. "With the explosion of research in nanomaterials and biomaterials, we have only begun to tap the possibilities," Schwartz says.

Blending engineering with chemistry, physics and computational sciences to develop the next generation of innovative new materials, the cluster is based on expertise at the FAMU-FSU College of Engineering, as well as the Applied Superconductivity Center, which works closely with the National High Magnetic Field Laboratory. FSU is also home to a new Center of Excellence in Advanced Materials.

Already recognized as a research leader in nanomaterials, nanocomposites and superconductivity, and for its ability to move new materials from discovery to production, FSU also boasts new interdisciplinary graduate degree programs and a new Materials Research Building, scheduled for completion by fall 2008.

"With this new building and Pathways-funded faculty positions, we will be among the nation's best research centers in advanced composites," says Vice President for Research Kirby Kemper.

Arriving at FSU this fall to join the cluster is Ongi Englander, a young researcher with a Ph.D. in mechanical engineering from the University of California-Berkeley. Englander's area of expertise is silicon nanowires. Coming from the University of Texas at Dallas NanoTech Institute is Mei Zhang, joining FSU as an associate professor of industrial and manufacturing engineering.

### The Puzzle of Human Behavior

Studying the nature of human behavior—how individuals and groups make decisions, what factors affect those decisions, and how behavior can be predicted and changed—is the realm of the **Experimental Social Science** cluster, at the intersection of disciplines ranging from economics to political science and beyond.

Building on FSU's existing expertise in this area, already acknowledged among the nation's finest, economics professor and cluster director Mark Isaac, who holds the John and Hallie Quinn Eminent Scholar Chair, says the Pathways cluster's goal is recognition as one of the nation's top two programs. Supporting the cluster is FSU's new Experimental Social Science laboratory.

The first new member to join the cluster is Case Western Reserve University's David Cooper, who studies ways to improve productivity and performance.

Cooper, who is joining the faculty as a full professor, says, "Florida State is rapidly becoming a world player in experimental economics, and it's an exciting idea to be in at the start of something as big as building this new cluster."

Also arriving this fall is Jens Grosser, who comes to FSU from Princeton University. An emerging young scholar, he is the cluster's first hire in political science.

Beyond economics and political science, the cluster may draw expertise from other disciplines, including academic accounting, philosophy, psychology and law.

### HOTT—History of Text Technologies

Text can be recorded in technologies ranging from cave paintings, tattoos, stone tablets, clay tablets and papyrus scrolls, to manuscript books, musical scores, maps, printed books, engravings, newspapers, photographs, films, DVDs and computers. All these technologies share a simple purpose: they provide a durable artificial memory system to supplement the transient human mind.

Covering more than 6,000 years, many technologies, civilizations and languages, and relevant to a dozen academic disciplines and departments, research from the **History of Text Technologies** cluster speaks to current and future communications media.

Its first two new faculty members, Associate Professor Anne Goldiron from Louisiana State University and Professor Elaine Treharne from the University of Leicester in England, arrived last January, and three more—Associate Professor David Gants from the University of New Brunswick, Associate Professor Elizabeth Spiller from Texas Christian University, and Professor of Interdisciplinary Humanities Francois Dupuigrenet Desrousilles from the Institut de France, Paris—are on board this fall.

HOTT is directed by George Matthew Edgar Professor of English Gary Taylor. Departments participating in the cluster are English, art history, French, and library and information studies.

# Students step onto Pathways

- During 2005-06, FSU produced 325 Ph.D. graduates, the largest number of doctoral graduates in the history of the university and an 18 percent increase from the previous year.
- Preliminary results for 2006-07 show a further increase, with 347 Ph.D.s
- An increasing number of undergraduate students are choosing to tackle the demands of Honors programs. In addition to about 600 students (10 percent of each entering class) tapped for Honors on enrollment, many more students (320 in 2006-07 alone) are entering the program on the basis of high achievement during their initial term at FSU.
- Undergraduate research opportunities are expanding, with a growing number of students participating in the annual Undergraduate Research Symposium. Undergraduates are also preparing Honors in the Major theses, generally equivalent to master's degree work.
- The creation of an Office of Undergraduate Research and Creative Endeavors this fall will promote, strengthen and coordinate these efforts. The office will help students identify opportunities to engage in research and creative activities.
- Top students are also being supported in seeking national and international awards through the Office of National Fellowships.

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This is tremendously important because, as the pace of information creation grows, traditional, tightly bounded research disciplines are no longer adequate.

### Knocking down 'academic silos'

More powerful computers, more powerful research tools, more in-depth analyses are allowing researchers to cut across traditional boundaries between physics and chemistry, between biology and behavior. Interdisciplinary research allows communication between academic "silos," lowering artificial barriers and allowing the advance of science.

These academic themes build on FSU's unique strengths, says Ross Ellington, associate vice president for research. Ellington, the Michael J. Greenberg Professor of Biological Science who is guiding Pathways, says, "This approach harnesses the creative energy of our faculty to develop new cross-cutting programs and enhance existing programs.

"Cluster hiring gives us a way to advance the university in strategic areas," Ellington continues. "This approach maximizes our opportunity to propel programs into national and international prominence."

Many of the new hires will be senior faculty who will arrive with fully established programs, grants, graduate students and postdoctoral fellows.

Current faculty have responded enthusiastically and have already submitted 67 competing proposals for clusters. Nine clusters have been approved to date, with authorization to hire 56 new faculty members. As of fall 2007, 13 new faculty members, half at the senior level, have been recruited, and the moving vans have been arriving since last January.

Long term, some 30 to 40 clusters are expected to be operating. When all of these clusters are in place, Florida State will be uniquely positioned among the nation's universities in terms of academic quality and expertise.

*Professor of English Elaine Treharne, History of Text Technologies cluster*

*Produced by University Communications. Writer: Fran Conaway; Designer: Pam Morris; Photos: FSU Photo Lab*

# Alumnus returns to build Neuroscience cluster

FSU alumnus Alan C. Spector (Ph.D. '84) has returned to his alma mater to take a position in the **Neuroscience** cluster. Having served as assistant director of the University of Florida's Center for Taste and Smell and professor of psychology, Spector is excited about his decision to re-join FSU as part of Pathways. He brings national grants and several graduate students with him.

Spector's research focuses on chemical sensing, with an emphasis on taste and eating/drinking behavior. His work helps reveal the principles of the nervous system and how they contribute to behavior. He takes pride in his training, noting that FSU has been an internationally recognized pioneer in chemical sensing research since the 1960s. Through Pathways, Spector expects FSU to build its expertise even further, and he hopes to establish a statewide chemical sensory institute.

Pathways' collaborative interdisciplinary approach is the right way to make progress, Spector says. "When work demands move beyond a researcher's area of expertise, and others are called in to fill in gaps, people start hanging out together, and that's the way new ideas are stimulated," he explains.

Spector says the offer to return to FSU was very appealing. "The fact that FSU was actually conducting one of its Pathways cluster searches in neuroscience was intriguing."

FSU's campus has changed remarkably since Spector's student years. In addition to beautiful new buildings and landscaping, Spector and three other new Pathways colleagues have brand-new state-of-the-art labs in the recently opened Psychology Building, with new holding facilities and testing rooms just a few steps away.

Spector's take on Pathways: "Any time a university sets out a goal to hire 200 new faculty members at all ranks, it's going to stimulate efforts to raise its reputation. It's fantastic. That's the way universities progress, get to that elusive next level. It's going to help move toward the goal of membership in the Association of American Universities.

"It's great to be back here, to be a part of FSU again," he says.

*Alan C. Spector*

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## New office to spur undergraduate research

Complementing the Office of National Fellowships and the University's Honors Program is the new FSU Office of Undergraduate Research and Creative Endeavors.

Opening this fall, the office will coordinate the university's efforts to strengthen and develop research opportunities for students pursuing bachelor's degrees. Professor of Communication Disorders Michelle Bourgeois has been named director.

The new office is one way to see that undergraduate students both contribute to and benefit from FSU's Pathways of Excellence initiative, says Karen Laughlin, dean of undergraduate studies.

While almost all graduate students must conduct research, many bachelor's-level students do not. Involving undergraduates in research, however, can be a win-win situation, Laughlin says.

"In addition to helping to keep current students engaged in the university's research mission, the availability of research opportunities can help the university recruit academically motivated and talented students and make the public aware of the excellent work undergraduate students are doing in partnership with their faculty mentors," she explains.

From research on the dynamics of calcium in the pancreas's beta cells to women's rights in Uganda, FSU students already are engaging in research and creative activities in a range of areas, Laughlin says, but the participation varies significantly from academic discipline to discipline. The new office will help expand these opportunities and make them available to a broader range of students.

"This new program will complement the University's Honors Program, as well as our highly successful Office of National Fellowships," Laughlin says. "We look forward to expanding opportunities for students to earn 'honors in the major,' as well as to engage in research projects that will position them to compete for prestigious national awards."

*"This one man had lost everything in Hurricane Katrina—his car, his apartment, everything. FEMA had sent him to Indiana, and when he came back, his luggage was stolen," says Florida State University senior and Student Body President Joe O'Shea, describing one of the memorable survivors he encountered as he transformed a flooded house in New Orleans' Lower Ninth Ward into a free health clinic after the storm. "I met him at a volunteer place and brought him over to the clinic. He stayed for five weeks and worked with me every day."*

Undergraduates on Pathways of Excellence

# Success stories from the Office of National Fellowships

These were the kinds of real-life, human-interest details that Jamie Purcell, director of FSU's Office of National Fellowships, urged O'Shea to include in his application for the Truman Scholarship, a $30,000 grant for college juniors with exceptional leadership potential who are aiming at a career in public service. That advice, in tandem with months of support from Purcell and her office, paid off. O'Shea was one of just 65 students nationwide to win the coveted award.

Hands-on guidance like Purcell's has made a big difference for other FSU students, too. Active since January 2005, thanks to the generosity of Trustee David Ford, the Office of National Fellowships is opening important doors for FSU's most talented and motivated students.

With Ivy League schools having long dominated the most prestigious and generous national and international fellowship programs—think Rhodes, Marshall, Truman, Goldwater and Fulbright awards—ONF's job is to put FSU students on equal footing.

Letting students know what opportunities are out there is the first step. Then comes "demystifying" complex application processes, says 2007 Fulbright winner Natasha Rocas, a graduate of FSU's English Department who will use her grant to travel to Turkey to teach English and work on a book of poetry.

With the goal of putting a candidate's passion, personality and drive up front, ONF support can range from reviewing more than 20 drafts of a personal statement to setting up mock interviews and even advising finalists on whether to go with the red tie or the blue when meeting with a selection committee.

O'Shea and Rocas are just two of a growing number of FSU success stories. Preceding them, Cara Castellana became a 2005 Truman Scholar and in 2006, Garrett Johnson reached the pinnacle of scholarly achievement as FSU's first Rhodes Scholar in 30 years.

The number of Fulbright recipients—each winning a year to study abroad—has skyrocketed to 18 in the past two years from just six in the previous decade. There were 10 winners and two alternates this year alone, making FSU a "Fulbright powerhouse," in the words of Dean of Undergraduate Studies Karen Laughlin.

FSU's bevy of Fulbrights is indicative of the ONF's quick rise to success. In its first year of operation, 12 students won nationally competitive awards; in the past year, 21 students have taken top honors.

Early lessons paid off, Purcell says.

"There was only one major disappointment lingering from the first year," she explains. "Nobody had won a Goldwater Scholarship, the preeminent undergraduate award for students studying science, mathematics and engineering. We had nominated four candidates, and they were all top-notch. It was so frustrating to see such accomplished students get passed over.

"This year we scouted candidates. We put together new faculty committees for more input. We pushed our candidates to put forward the best possible applications," Purcell continues.

The renewed effort worked. Priya Pal, majoring in biochemistry, chemistry and biomedical mathematics, won a 2007 Goldwater—one of 317 scholars named from 1,100 candidates. Two other students—John Bowers, majoring in computer science, mathematics and philosophy, and Keenan Pepper, majoring in physics and computer science—won honorable mentions.

*Goldwater Scholarship winner Priya Pal*

With this kind of support, more candidates like Pal, Johnson, O'Shea and Castellana already are in the pipeline for national and international fellowships.

Now working on an application for a Rhodes Scholarship that would take him to Oxford University for graduate studies, Truman winner O'Shea says, "You become friends with the people from ONF because they have to know you on an intimate level. I couldn't speak highly enough about this program. It was a great investment for FSU—it's so high-yield for the university. Just pursuing a scholarship helps students find their core character and their place in society, even if they don't win."

For more information on the Office of National Fellowships, visit **onf.fsu.edu**.

*ONF Director Jamie Purcell with Truman Scholarship winner Joe O'Shea*