

Mathematics, Science, Tornadoes and Hurricanes
PAGE 3

MCR Wins Award for Social Responsibility
PAGE 4

Lifelong Learning in Full Swing at the Hallmark
PAGE 4

Rice Launches K-12 Outreach Website
PAGE 5

Teach for America Comes to Rice
PAGE 5

Tapia Honored for Encouraging Minorities
PAGE 6

Students Sharpen Writing Skills and Knowledge of College Admission
PAGE 7

Rice Culture Fair Charms Briarwood School Students
PAGE 7



FREE-FLYING ATOMS: Using tennis balls as atoms, a group of elementary students learn about solids, liquids and gases and how they relate to engineering.

The Magic of Rick Barrera

Enrique “Rick” Barrera wants to make sure that all students have an opportunity to attend college, even if he has to resort to a bit of magic to entice them into the world of higher learning.

In 1996, Barrera, a mechanical engineering and materials science professor at Rice University, took an existing program — the Materials Science Magic Show — to recruit current Rice students into the materials science major. Barrera also wanted to extend the program to introduce young pre-college students to science and has since presented the show to thousands of K-12 students in the Greater Houston area.

As part of the magic show, Barrera wears goggles and a protective vest while teaching students about solids, liquids and gases and how they relate to science and engineering. To do this, he uses tennis balls to represent atoms and places them on top of a table, to show that, when immobile, atoms create solids. To demonstrate liquids, Barrera pours the tennis balls (atoms) onto the table and explains how in water, the atoms are less organized and move freely. Excitement then follows, as Barrera, to explain gases, throws the balls to students,

Humanities Research Center Reaches Out

Some high school students in Houston are going beyond the basics: they are learning about the history of the Bible and multiculturalism in France, among other topics in the humanities.

This academic year, more local students will also be enriching their knowledge, as the Humanities Research Center’s (HRC) Civic Humanists Program at Rice University plans to offer more than 30 lectures at Houston-area schools.

This will be the fourth year that the Civic Humanists Program has sent Rice faculty from across the humanities and social sciences into Houston high schools with underrepresented student populations at Rice.

The Rice professors showcase the diverse range of scholarship occurring in the Rice humanities departments and address key questions facing humanists with dynamic lectures on their field of research.

The talks not only serve as an introductory lesson on selected topics and approaches in the humanities, but also give the high school students an opportunity to ask questions about college life, the college application



IN FULL SWING: Celebrating five years of lifelong learning at the Hallmark Retirement Community are Mary McIntire, dean of Continuing Studies, Susanne M. Glasscock and Janet Hoagland-Sorensen. See story on Page 4.

who then throw the balls all over the room.

"I ask them, 'What does gas look like?' They say, 'It's everywhere and it's moving,'" Barrera explained. "That's when we've captured their attention and their imagination."

Barrera believes that by making science enjoyable to young minds, he may spark an interest in them to become scientists or professors, but first and foremost, to pursue a college education.

"We don't know what mind is going to have the next best idea and win the Nobel Prize," Barrera said. "There are a lot of people who have the potential but never unlock it."

In addition to the magic show, Barrera is the technical leader for Changing the Face of Math and Science, a mathematics and science program introduced in 2006 with funds from Clarkson Aerospace Corporation. The program brings together talented high school students from 17 Houston public and private schools and introduces students to the field of nanotechnology and careers in engineering. A dozen high school teachers assist Barrera with instruction and in turn learn about the latest technologies and research that they then incorporate into their own classroom instruction.

As part of the program, students spend two weeks during the summer at Rice and Acres Home Chamber for Business and Economic Development, Inc., a nonprofit organization that provides community leadership as well as personal and professional development opportunities. Program participants attend a series of workshops on entrepreneurship, time management, career paths and nanotechnology, among other topics. During the school year, the workshops are conducted on Saturdays at the Acres Home office in north Houston. In the past seven years, 235 students have completed the program.

"The program broadens their knowledge of research and shows them how relevant science is in everyday life," said Jacquie LaFluer, executive director of Acres Home Chamber for Business and Economic Development. "Barrera engages our high school students

and teachers with a wealth of knowledge and experience. He challenges each of them to stretch beyond their comfort zone, exploring not only what is, but what could be."

At Rice, Barrera is all too willing to help his students achieve their career goals. For example, when he learned that one of his graduate students, Danny Olivas, wanted to be an astronaut, Barrera helped him secure a summer internship at NASA. That experience eventually led to Olivas becoming an astronaut after he received his Ph.D. in mechanical engineering in 1996. He then flew two shuttle missions.

"Barrera is an awesome individual. He understands what it means to be a professor

east Texas, where he grew up. He and his two brothers were some of the few Hispanics at West Orange High School, which had 750 students. His mother was a registered nurse and his father was a welder at a local refinery.

His parents encouraged Barrera and his brothers to go to college by offering to pay for it, but Barrera knew that his family did not have the money. "For them to make such a statement was very important to me," said Barrera. After hearing his father speak respectfully of engineers and their ideas, Barrera decided to become an engineer. When he was in 10th grade, Barrera walked into his living room one day and announced to his family that he was going to be an engineer, then turned and walked out.

Nothing else was said. Several years later, Barrera received all three of his degrees — bachelor's, master's and doctorate in mechanical engineering — from the University of Texas at Austin. Before coming to Rice in 1990, he worked as a research associate in the materials science division at the Brookhaven National Laboratory.

In his more than 20 years at Rice, Barrera has served as a resident associate and, from 1997 until 2002, as master of Jones College. In 2002, Barrera received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring, a national honor that was bestowed on him at a White House ceremony. From 2004 to 2010, Barrera served as chair of the mechanical engineering and materials science department. Currently,

Barrera is chair of a national committee established by Congress to broaden participation in research and education for historically black colleges and universities and minority-serving institutions.

Not one to rest on his laurels, Barrera continues to explore ways to improve outreach programs. "I look for new ways to unlock young minds and to broaden participation," Barrera explained. "I want to give people a start to move forward, to give people an opportunity to make an impact by opening doors." ■

DAVID D. MEDINA

Director
Multicultural Community Relations



SCIENCE MADE FUN: Rice Professor Rick Barrera presents the Materials Science Magic Show.

and knows how to be there for the students," Olivas, who is now director of engineering space and airborne systems at Raytheon Company, said. "He has a lot of energy and is very creative."

For a person so eager to help others, Barrera didn't receive much help or encouragement from his primary school teachers and counselors. "When I was young, a school counselor told my mother that I would fail if I was placed in the top group at the school she tried to put me in," Barrera said. "My mother's response to the counselor was, 'Well, then let him fail.'"

Barrera was born in Corpus Christi, but his family moved to Orange County in south-

Mathematics, Science, Tornadoes and Hurricanes

Students from Galveston spent four weeks this summer at Rice University, participating in a camp that took them beyond the classroom in a whirlwind tour of real-world mathematics, science, tornadoes, hurricanes and literature.

The students were part of R⁴: Relations, Robots, Rockets and Roller Coasters, a summer camp designed for students in grades 6–12 to explore physics, chemistry and mathematics. The program is organized by the Galveston ISD and the Rice University School Mathematics Project (RUSMP).

As part of R⁴, students read “October Sky” by Homer H. Hickam Jr. The book, set in 1957, starts at the beginning of the space race between the U.S. and the former Soviet Union. While at Rice, R⁴ participants visited Brockman Hall for Physics and Astronomy, the newest building on Rice’s campus. They had the opportunity to meet world-renowned space scientist, Patricia Reiff, professor of physics and astronomy and director of the Rice Space Institute.

Reiff presented “Here Comes the Sun! Space Weather,” in which she explained how space weather functions and how the seasons



HERE COMES THE SUN: Rice Professor Patricia Reiff explains to students how space weather functions and how seasons are affected by the tilt of the Earth’s axis.

are affected by the tilt of the Earth’s axis and not by the Earth’s distance from the sun.

During her presentation, Reiff showed pictures of sunspots and noted that Galileo discovered the first sunspot. Students were able to view sunspots through telescopes on the rooftop of Brockman Hall and see the university’s observatory. Students also watched “The New Force Five,” a full-dome animated show in the university’s portable planetarium, which showed the effects of force-five tornadoes, hurricanes and solar flares. As the students viewed the show, they were amazed

to learn that the U.S. averages 1,200 tornadoes a year. They also saw the destruction of two major hurricanes that crushed Galveston — the 1900 Galveston Hurricane, which made landfall Sept. 8, 1900, and killed more than 8,000 people; and Hurricane Ike, which hit Galveston Sept. 12, 2008.

The students left the Rice campus with a new-found appreciation for mathematics and science outside of the classroom and a glimpse of the science behind “October Sky,” and they were thrilled at the opportunity to meet and talk with a real space scientist.

Assisting Reiff were Judy Dye, Umbe Cantú and two graduate students, William Langley and Wayne Weichen, all from the Department of Physics and Astronomy at Rice. Susan Troutman, director of secondary programs for RUSMP, who arranged the visit, noted, “The students’ visit to the Rice campus gave them a firsthand opportunity to connect what they were studying to the research of practicing scientists, thus validating their classroom work.”

After their visit to Rice, the students went to the Houston Museum of Natural Science to see “2012: Mayan Prophecies,” another astronomy-related planetarium show. ■

ANNE PAPAKONSTANTINOU

Director

Rice University School Mathematics Project

HRC *Continued from Page 1*

process, various fields in the humanities and qualities that universities are looking for in prospective students.

Based on growing enthusiasm for the program among high schools and Rice faculty alike, the Civic Humanists Program offered 17 such lectures last year, a significant increase from the previous two years.

Four high schools participated in the program last year, including Eastwood Academy, Stephen F. Austin, Reagan and Eisenhower.

“Our humanities students are engaged and enthralled at the opportunity they have to experience an array of topics, taught by Rice professors, which enhance and support the learning objectives in the classroom,” said Natalie Martinez, a teacher at Reagan High School.

“The Civic Humanists Program also creates a bridge between the Reagan community and the Rice community, providing valuable collegiate encounters for students at the high school level,” she added.

The themes of these lectures were as diverse as the professors who gave them. Assistant Professor of English Joseph Campana talked about “Witnessing Life: Seeing and Speaking the Pain of History.” He examined images from Life Magazine throughout the 1950s and 1960s. Students looked through old issues of the magazine while Campana discussed the representation of iconic events, especially those that conveyed moments of great pain or violence.

Linguistics Chair Nancy Niedzielski spoke to students about the fascinating phenomenon of language and its highly complex system that links to one’s culture

and identity. Students then participated in a discussion on how various languages are created, evolve and often die out.

Other participating Rice humanities faculty included April DeConick, the Isla Carroll and Percy E. Turner Professor of Biblical Studies; Terrence Doody, professor of English; Julie Fette, assistant professor of French studies; Scott McGill, associate professor of classical studies; and Nicole Waligora-Davis, assistant professor of English.

For more information about the program and to see a full description of the faculty lectures, please visit www.publichumanities.org. ■

LAUREN KLEINSCHMIDT

Assistant to the Director
Humanities Research Center

MCR Wins Award for Social Responsibility

Multicultural Community Relations in the Office of Public Affairs received an award by the International Association of Business Communicators for its Community Dialogue Luncheon and Rice Connections Speakers Series programs under the category of social responsibility.

Started nine years ago, the Community Dialogue Luncheon serves as a forum for community leaders to discuss social issues that affect all sectors of society. Offered every three months, the luncheons are designed to provide an informal gathering conducive to an engaging discussion and sharing of ideas.

For each Community Dialogue Luncheon, an invited Rice professor talks about a particular social issue, which then serves as the topic of discussion for the select group of participants.

Speakers have included Stephen Klineberg, professor of sociology; Robert Stein, professor of political science; Anthony Pinn, professor of religious studies; and University Professor

Richard Tapia. The most recent speaker, Rebecca Richards-Kortum, the Stanley C. Moore Professor of Bioengineering, presented “Beyond Traditional Borders: Engaging Rice Students in Solving Global Health Challenges.”

Among those who have attended are Yolanda Smith, executive director of NAACP Houston Branch; Johnny Mata, director of publicity for League of United Latin American Citizens (LULAC); City Council member Melissa Noriega; State Senator Mario Gallegos; Native American community leader Sherry Cardinal; attorney Harry Gee, Harris County Judge Ed Emmett; State Representative Rick Noriega; and Daniel David Hu, assistant United States attorney.

“I found the discussion pertinent and lively,” Rabbi Kenneth Weiss said. “The atmosphere that was created should be replicated in many places as a methodology for focusing groups on important issues.”

The Rice Connection Speakers Series, the inverse of the Community Dialogue Luncheon, was launched in fall 2010 and invites community leaders to campus to present a lecture to Rice faculty, staff and students about a press-

ing social issue. The first speaker of this series, Charleta Guillory, an associate professor of pediatrics at Baylor College of Medicine, associate director of Level II nurseries at Texas Children’s Hospital and director of Texas Children’s Neonatal-Perinatal Public Health Program, spoke about health disparities between white and black babies. The second speaker, Stan Marek, president and CEO of Marek Companies, one of the largest interior contractors in the Southwest, spoke about immigration.

Both programs help bring people together from various ethnic and cultural backgrounds and have been very popular with the community.

“These quarterly meetings are a great idea,” attorney Michael Gomez said. “I think they go a long way in building goodwill between the community and Rice, not to mention getting people, at least for a moment, to think about some of the larger issues.” ■

DAVID D. MEDINA

Director

Multicultural Community Relations

Lifelong Learning in Full Swing at the Hallmark

Exemplifying true lifelong learning, the Susanne M. Glasscock School of Continuing Studies at Rice celebrated five years of offering an academic lecture series for the residents of the Hallmark Retirement Community in Houston.

Residents and school representatives commemorated the milestone in late June at a reception held at the Hallmark.

The Rice University Lecture Series at the Hallmark has been offered each fall and spring since 2006. Lectures are given by professors from Rice and other universities or local experts.

The idea for the series came from the residents themselves, many of whom are Rice alumni or retired faculty. Funding to pilot the series was provided by a former resident, the late Ray Watkin Hoagland Strange, a 1936 Rice graduate whose father, William Ward Watkin, served as supervising architect during

construction of the original Rice campus and later as head of the architecture department.

Steve Garfinkel, director of community programs for Continuing Studies, said the residents requested a broad spectrum of lecture topics, including world and U.S. history, art and art history, religion, music and world cultures. “We strive to offer a balanced smorgasbord of offerings in each six-lecture series,” he said. Topics from the spring program included the CERN supercollider, Vincent Van Gogh, Ferdinand and Isabella of Spain, Somalian piracy, Socrates and the Kinder Houston Area Survey.

Hallmark resident Evelyn Howell, whose husband Paul served on the Rice Board of Trustees, said that even before she moved to the Hallmark three years ago, she was “delighted that they offered this very stimulating and wonderful opportunity.” She has attended each lecture since moving to the building. “Every one that I have attended, I have learned from, even the ones that didn’t sound interesting.”

Josephine Rodgers ’75, former director of language programs at Continuing Studies, took many of the school’s courses on campus over the past few decades and now, as a Hallmark resident, attends the lectures. A major advantage of the lectures, she said, is that “we are a group of attendees who know each other — we are part of a community. This means that after a lecture we have friends with whom we can discuss what has just been presented, which is both pleasant and enriching.”

Janet Hoagland-Sorensen, great-niece of Ray Watkin Hoagland Strange, attended the five-year celebration and was pleased to hear her great-aunt’s name mentioned as one of the catalysts of the successful program. Strange died in 2010 at the age of 95. “She would have been so proud, and so pleased that the lectures will go on,” Hoagland-Sorensen said. ■

CAROL M. HOPKINS

Communications Specialist

Susanne M. Glasscock School of Continuing Studies

Rice Launches K-12 Outreach Website

As a service to the community, Multicultural Community Relations in the Office of Public Affairs at Rice University has created a website that contains a comprehensive list of Rice's K-12 outreach programs.

"Houston's future is in large part dependent on the success of its K-12 educational system," said David D. Medina, director of Multicultural Community Relations, "and Rice is making its contribution to that success in many ways."

The website, www.rice.edu/k12, was launched this summer, and the site offers links to more than 85 K-12 programs. Many of the programs are free and available online. To help users find resources in their interest area, the programs are organized by subject

and grade level into three categories: teacher and administrator development, classroom resources and student programs.

Teachers and administrators can find information about various continuing education and training opportunities, including courses, workshops, institutes and conferences, that improve instructional effectiveness and student achievement.

The site also offers a broad range of resources to complement and extend classroom learning. The directory links to a diverse collection of online resources, classroom activities and information about campus tours and classroom visits.

The student programs listed on the site are designed for individual students looking to supplement their education through summer workshops, enrichment classes and learning experiences. Some of these activities have an application and selection process, while others

offer open participation, such as scholarship opportunities and essay contests.

"As part of the university's Vision for the Second Century, Rice is committed to making contributions to improve K-12 education in Houston," said Linda Thrane, vice president for Public Affairs.

"And while we are diversifying the geographic as well as demographic make-up of our student body, we are committed to making a Rice education accessible to hundreds of students from our city. The more we can do to help prepare them in their K-12 years, the more we can expect to welcome them through the Sallyport — much as we did with our spectacular freshman class this fall. Those young people are proof of what can happen when you couple potential with opportunity." ■

SHELBY THURSTON

Events Specialist

Public Affairs

Teach for America Comes to Rice

Six hundred recent college graduates, representing some of the best and the brightest in the country, spent five weeks honing their teaching skills at the Teach For America (TFA) summer institute at Rice University.

This is the second year in a row that Rice has hosted the institute, at which participants undergo intensive on-the-job training, classroom instruction and practice, practice their teaching skills.

Rice's Housing & Dining (H&D) was responsible for ensuring a comfortable environment for the corp members. "Rice hosting an educational organization such as TFA is especially significant, as the two institutions share a mission of promoting the high educational achievement of their students," said Mark Ditman, associate vice president for H&D.

Ditman added that the H&D staff was impressed with the dedication of corp members, who experienced a grueling schedule that allows for very little sleep. "The corp members' level of commitment inspired the staff to go the extra mile to do what they



PREPARING TO TEACH: Corp members for Teach For America take a break during their intensive five-week teaching program at Rice.

could to ensure that participants received the best possible service," said Ditman.

H&D staff members were able to improve parking access and communicate strategies for navigating summer construction. Hosting the summer institute was a campus-wide effort as it required cooperative services from the Rice University Police Department, the parking department, Information Technology, the Barbara and David Gibbs Recreation Center, Delivery Services and campus shuttle buses, among others.

Rice was the perfect host and responded quickly and efficiently to TFA's request. When TFA found out that it could not use HISD classrooms for some courses, Rice was there to help.

"We received the request from TFA on Tuesday, and by Wednesday afternoon we had the needed classrooms set up," said Veronica Boorum, senior operations manager in H&D.

High scores on corp members' feedback earned Rice an agreement with TFA to return for three more years with the expectation that Rice will be the model for other campuses hosting a summer institute.

"We saw what worked, what didn't and what we could do to try to improve even those areas that we have very little control over," said Boorum. "Our planning meetings with TFA began at the first of the year so we could go over every detail. We thought through every step so when they arrived on campus everything ran smoothly." ■

CAROL "CJ" CLAVERIE

Project and Contract Administrator

Housing & Dining

Students Sharpen Writing Skills and Knowledge of College Admission

Maria Montelongo benefitted so much from last year's essay-writing camp at Rice University that she came back this summer to learn more about the art of the written word.

Multicultural Community Relations in the Office of Public Affairs offered four camps in which students honed their college essay-writing skills, learned about the college admission and financial aid process, and picked up some pointers on goal setting and leadership.

Montelongo was one of more than 100 students who participated in the 2011 sessions. And like Montelongo, many will be the first in their immediate families to attend college.

The students came from a variety of high schools, including Eisenhower, Chavez, South

Houston, Yes Prep SW, George I. Sanchez, Sam Rayburn and Austin, and Marshall and the William A. Lawson Institute for Peace and Prosperity (WALIPP) middle schools. The Texas Diversity Council, the Harris County Department of Education and Rice's DREAM program sponsored the workshops.

Montelongo, a senior in the international baccalaureate program at Eisenhower High School, returned to the program because writing is her weakest subject. "The program really helped with structuring my writing," she said, "and I wanted to get more in-depth support for the college essay I am working on."

The workshop sessions varied in length from several hours to several days. Many of the five-day participants wanted more time at camp, with some suggesting in their evaluations that the camps be extended to two weeks.

Another highlight of all the camps was the diversity of corporate and community leaders who volunteered daily, presented information on strategies for finding appropriate careers, and shared stories about their own career paths.

Rice football coach David Bailiff and Rice alumni and Houston Texans Cheta Ozougwu '11 and James Casey '11 were a hit with the middle schoolers from WALIPP Academy and Marshall.

Montelongo's plans for her senior year are clear-cut. "I know that there will be a time to have fun, but right now as I apply to college, I can't play around. There are deadlines to be met, and I must be focused." ■

JAN WEST

Assistant Director
Multicultural Community Relations

Rice Culture Fair Charms Briarwood School Students

Rice University undergraduate and graduate students brought the exotic world of foreign countries a bit closer to students of the Briarwood School, a private school in Houston that excels in teaching pupils with learning differences and developmental disabilities.

The Briarwood School students were special visitors to the Rice Culture Fair 2011, an annual campus event directed by the ADVANCE student club. Each year, Rice students from different countries and regions of the world, as well as U.S. ethnic groups, set up booths to display artifacts, food, posters, music, games and other cultural highlights to share the many distinctive customs with visitors.

The Briarwood middle and high school students prepared for their visit by studying the countries and regions that were represented at the fair. Their preparation was amply rewarded through the activities ADVANCE offered.

The students watched how their names were written in Arabic and Farsi, and they had the opportunity to write their own names in Chinese calligraphy and play a Chinese child's game. They tasted Turkish treats and posed

behind Egyptian posters with the faces cut out. They also heard accounts of Japan and the resilience of its people despite last spring's disasters.

The Rice students could not have been more caring. They were patient with their learning differences and showed elation in seeing them learn new skills. Despite the learning challenges that many of the Briarwood students face, the Rice students taught them how to read in a different language.

Only a few weeks later, Rice engaged again with Briarwood students when Rice head football coach David Bailiff was the keynote speaker at the Briarwood School sports banquet and gave an inspirational speech to the students who participated in Special Olympics.

The students were thrilled to get their trophies, but were further honored that Coach Bailiff helped to pass them out and congratulate them. The honor went both ways, as Coach Bailiff appeared delighted to get hugs from the students and words of appreciation from their



THE THRILL OF VICTORY: Briarwood School students celebrate with Rice football coach David Bailiff (far right) after receiving Special Olympics trophies.

parents.

A special bond between Rice and the Tuttle School division of the Briarwood School has now been created. The Rice community built bridges of friendship, kindness and patience, which will go a very long way in creating special relationships, memories and collaborative learning experiences. ■

ADRIA L. BAKER

Associate Vice Provost for International
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AT LARGE



A PEEK AT THE SUN: A Galveston student views a sunspot through a telescope on the rooftop of Rice's Brockman Hall for Physics and Astronomy. See story on Page 3.

David D. Medina, Director, Multicultural Community Relations, Office of Public Affairs

