Sophomore Shiza Sarfraz says the new pilot biology lab course is expanding her understanding of science.

Nonprofit US POSTAGE PAID New Brunswick, NJ 08901 Permit 157
A Gifted Student Learned Life’s Lessons from Immigrant Parents

A demanding double major provides opportunity for growth

Jimmy Patel says he gets his aptitude for science from his mother and his work ethic from his father. Judging from his accomplishments in the School of Arts and Sciences (SAS), both parents have had a strong influence on their son’s life.

The senior from Edison, New Jersey, is taking a demanding double major in chemistry and molecular biology while also serving as a teaching assistant, student researcher, and part-time employee at a health insurance agency. By the end of his junior year, he was just one course shy of meeting his graduation requirements.

“I’m not happy unless I am multitasking,” he quips.

But professors say that this gifted student, who wants to be a researcher and physician, stands out in ways not reflected in his academic transcript.

“He has that special combination of being very smart and hardworking, but also humble and modest,” says chemistry professor Jeethun Katherine Lee. “Jimmy is a very caring person; that is going to serve him extremely well as a physician.”

Patel is serving on a research team led by Lee that is examining how DNA in humans becomes damaged, a phenomenon that can lead to cancer.

Patel began charting his own path as soon as he entered Rutgers, opting for a unique double major: chemistry and chemical biology, and molecular biology and biochemistry.

“It was the first time I was given a choice of what to study,” Patel says. “And I chose what I believed would help me grow and define me as an individual.”

Patel’s accomplishments exemplify the tradition of academic excellence at SAS. But his background reflects another SAS hallmark—socioeconomic and cultural diversity.

His parents moved from India to the United States, seeking greater opportunities for their children.

“They worked hard and pushed us to work hard,” says Patel, the eldest of two sons. “When I wanted to play basketball they said, ‘Finish your math.’

“I brought that work ethic with me to middle school, then high school, and finally to Rutgers.”

Nevertheless, he is able to find room for basketball.

“All the tools that I needed to succeed as a premed student were right here,” says Borghini, a 1993 graduate of Douglass College.

Today, Borghini has a thriving internal medicine practice in Jersey City. She speaks at churches, schools, and on local radio to educate people about health risks.

“A physician should be a public servant,” she says. “And one way to serve people is to make them aware of issues that affect their lives.”

At Rutgers, Borghini was one of the first students to participate in what is now called the Office of Diversity and Academic Success in the Sciences, or ODASIS. Through the program she was introduced to mentor-like professors Francine Eussen and Kamal Khan.

“It really opened doors,” she says. “It was all about providing opportunity for community, for research, and for intellectual growth.”

The value of her undergraduate experience hit home when she attended medical school.

“I had classmates that went to Harvard and Princeton,” she said. “But I was just as well prepared.”

Her work at Rutgers built on an already-strong family foundation. Her first inspiration was her uncle.

“I was always sick with tonsillitis, and he would talk to me,” Borghini recalls. “I just admired the way he could connect with patients.”

Her mother sent her to an enrichment program so she could get ahead of her class.

“There was no question about going to college,” she said.

That early support was on Borghini’s mind when she spoke to parents recently at the same school she attended in Passaic.

“I talked about the importance of having dreams for your children,” she said.

“Children need to know that they can do anything they put their minds to.”

Finding the Route to Medical School as an Undergraduate

A dream that began in the Dominican Republic took shape at Rutgers

Margarita Borghini got the idea to be a doctor from her uncle, a pediatrician in the Dominican Republic where she was born.

She developed the drive to become a doctor from watching her mother, who moved the family to Passaic, New Jersey, and worked in a garment factory to support her children.

Borghini found an academic community that nurtured her dream at Rutgers, where she was born.

“All the tools that I needed to succeed as a premed student were right here,” says Borghini, a 1993 graduate of Douglass College.

Today, Borghini has a thriving internal medicine practice in Jersey City. She speaks at churches, schools, and on local radio to educate people about health risks.

“A physician should be a public servant,” she says. “And one way to serve people is to make them aware of issues that affect their lives.”

At Rutgers, Borghini was one of the first students to participate in what is now called the Office of Diversity and Academic Success in the Sciences, or ODASIS. Through the program she was introduced to mentor-like professors Francine Eussen and Kamal Khan.

“It really opened doors,” she says. “It was all about providing opportunity for community, for research, and for intellectual growth.”

The value of her undergraduate experience hit home when she attended medical school.

“I had classmates that went to Harvard and Princeton,” she said. “But I was just as well prepared.”

Her work at Rutgers built on an already-strong family foundation. Her first inspiration was her uncle.

“I was always sick with tonsillitis, and he would talk to me,” Borghini recalls. “I just admired the way he could connect with patients.”

Her mother sent her to an enrichment program so she could get ahead of her class.

“There was no question about going to college,” she said.

That early support was on Borghini’s mind when she spoke to parents recently at the same school she attended in Passaic.

“I talked about the importance of having dreams for your children,” she said.

“Children need to know that they can do anything they put their minds to.”
Richard S. Falk Appointed Acting Executive Dean

Richard S. Falk has been named acting executive dean of the School of Arts and Sciences.

A professor in the Department of Mathematics, Falk has been a member of the Rutgers faculty since 1972, following undergraduate work at Brown University and a Ph.D. in applied mathematics from Cornell University.

He is the 2007 recipient of the Daniel Coersenstein Memorial Award for outstanding scholarly achievement given to a faculty member who has also performed exceptional service to the university community.

Falk has served in key leadership positions at Rutgers, including as acting executive dean of the Faculty of Arts and Sciences and acting dean of the Graduate School—New Brunswick.

A POET TRANSFORMS HER CLASSES INTO COMMUNITY

Evie Shockley helps students empower themselves through literature

She’s now recognized as a compelling new voice in American poetry, as well as a gifted professor in the School of Arts and Sciences who draws students from across academic disciplines.

Her latest poetry collection, the new black (Wesleyan University Press, 2011), is a synthesis of experimental and traditional styles. Her scholarly book, Renegade Poetics (University of Iowa Press, 2011), examines the expansiveness of black poetry.

“Some people bloom late, and for me that was certainly the case,” Shockley says. “I eventually came into an understanding of what poetry could do, and that was incredibly empowering.”

During a recent class, students stood at rectangular tables as they worked creatively through experiments, learning how to use tools like micropipettes, which dispense microliters of solution containing DNA and proteins.

“I like that it’s so hands-on,” said Carly Karpowicz, a student considering a major in cell biology and neuroscience. “I’m actually getting an understanding of what I will be doing in medical school.”

Enrollment for “General Biology” is on the rise, a trend that suggests a corresponding surge of interest in the health care field, Haviland notes.

In New Jersey, the health care sector includes pharmaceutical companies, biotechnology firms, and medical device manufacturers, which accounted for $14 billion in wages during 2010, or 8.1 percent of the state’s total wages, according to an analysis by the New Jersey Department of Labor and Workforce Development.

“All of those industries, as well as the allied health fields and the medical fields, need a well-educated, well-trained workforce,” Haviland says. “And with this new lab, we are helping to meet those needs.”
Erin Vogel goes to Borneo where she studies orangutans to gain insights into human behavior.

Angelique Haugerud analyzes the work of American satirists who raise delicate issues of class and inequality. Despite their disparate research interests, the scholars share a common academic home. They are anthropologists, dedicated to studying human life in all its complexity.

“We are all speaking to core issues,” says Dorothy L. Hodgson, chair of the Department of Anthropology in the School of Arts and Sciences. “Out in the field and in the classroom our faculty ask the big questions: Who are we? Where did we come from? How do people’s lives differ depending on the culture in which they live?”

Renowned for its research and teaching, the anthropology department is constantly reimagining its field for the 21st century to keep up with a rapidly changing world.

Recently Rutgers anthropologists have:
• excavated the home of the last Jewish resident in the Polish town that was home to the Auschwitz concentration camp.
• documented the experience of Hmong actors in Clint Eastwood’s Gran Torino film;
• discovered the oldest known footprints with modern human anatomy;
• revealed the plight of immigrants attempting to cross the U.S.-Mexican border; and

Her research on the dietary choices made by orangutans during periods of low caloric intake may shed light on human illnesses such as obesity and anorexia.

Rob Scott, also an evolutionary anthropologist, raises one of humankind’s most vexing questions in his Signature Course “Extinction,” which takes students on a journey from the beginning of the universe to the present and then asks, “How might we go extinct?”

“That question is a real conundrum because I can’t imagine us going extinct,” Scott says. “But it is the fate of species after species.”

Cultural anthropologists, meanwhile, are pioneering the practice of engaged anthropology, which goes beyond producing scholarship about other cultures to promoting social change.

Goldstein has taken students to Bolivia, where they helped build a community center and assisted residents in their struggle for water rights.

“This is a little reciprocity for the communities in which we do our research,” Goldstein says. “It’s using the knowledge we’ve gained to transform social realities in a more positive direction.”

Hodgson, known for her work on the Maasai pastoralists, agrees.

“There are anthropology programs that may place more emphasis on keeping an objective distance and gathering esoteric knowledge,” she says. “But that is not what we are all about. We believe the best theory emerges from ethnography that focuses on issues of concern to the people we are working with.”

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

Daniel Goldstein travels to Bolivia to examine how the justice system has failed the most vulnerable residents.

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

A Vision of Anthropology for a Rapidly Changing World

Anthropologists at SAS expand the boundaries of their field

Out in the field and in the classroom, our faculty ask the big questions: Who are we? Where did we come from?
Undergraduates gain knowledge and poise working on traveling physics show

E lana Resnick acquired some unusual skills this year. She learned how to set off small explosions, shatter glass with high-pitch frequencies, and use liquid nitrogen to put objects into a deep freeze.

Resnick, a 2012 School of Arts and Sciences (SAS) graduate, wasn’t auditioning for a spy movie thriller. She was working as an assistant to David Maiullo, the charismatic Rutgers staffer whose traveling physics show has been captivating audiences across New Jersey for decades.

Last spring during her senior year, Resnick joined a small team of undergraduates who accompanied Maiullo to each show, helping to set up and take down the equipment and assist in the demonstrations.

“It seemed like a pretty cool thing to do in my senior year,” Resnick says. “But it has turned out to be much more. Resnick, now a student in the Graduate School of Education, is preparing for a career as a high school physics teacher. She says that working with Maiullo has provided her with an enduring lesson in how to engage kids in a classroom.

“Seeing the way Dave does the demos and the way he gets the audience to interact—all of that helps me develop my own path for instruction,” Resnick says. “And it’s definitely giving me ideas that I can use in the classroom.”

Maiullo’s show is based on a simple proposition: physics is fun and fascinating. And he’s willing to demonstrate—hydrogen-filled balloons or lie down on a bed of nails to prove it. Many of his undergraduate assistants have enjoyed the experience so much that they’ve gone on to become physics teachers, including some who had never planned to teach.

“Working with me, my assistants definitely get an understanding of how much fun physics education is,” says Maiullo, who uses his skills to support physics courses in the Department of Physics and Astronomy in SAS. “Then they start to think, ‘Well, maybe I can be a teacher.’”

Jonathan M ayes, a 2011 SAS graduate, said he had planned to work as a scientist in the private sector until he began working with Maiullo. Now he’s teaching physics to high school and middle school students in Edison, New Jersey.

“Working with Dave… helped me understand how much you can help students and help society,” M ayes says. “It helped me understand how much you can help students and help society. When you see the faces of the kids in the audience light up, it’s such a good thing.”

The show was developed from the Rutgers Faraday Christmas Children’s Lecture that Maiullo and physics professor Mark C roft perform every December.

Maiullo does about 40 additional shows outside of Rutgers every year, beginning each one with an explanation of basic physics concepts and then demonstrating these concepts in imaginative ways. To illustrate, for example, Newton’s Law, which states that for every action there is always an equal and opposite reaction, Maiullo sits on a cart and sprays a fire extinguisher to propel himself across the stage.

Maiullo engages and encourages his audience, creating a friendly atmosphere of discovery.

“You are all scientists,” he said last spring to an audience of middle school girls at a private religious school. “And I am going to convince you of that by the time I leave.”

The 15th annual Rutgers Faraday Christmas Children’s Lecture will take place at 7 p.m. on December 7, 8, and 9 at the Physics Lecture Hall on Rutgers’ Busch Campus, 136 Frelinghuysen Road, Piscataway, New Jersey.
**Points of Pride**

Senior Walter Fortson, an exercise physiology major, is the recipient of a Truman Scholarship, a national award for top students pursuing careers in government or public service. Fortson, a Philadelphia native, is also one of three New Jersey college students recognized by the New York Nets with its Nets Foundation Appreciation Scholarship for his academic achievement and commitment to community service.

Kenji Tsuda SAS ’12, a triple major in philosophy, cognitive science, and mathematics from Chatham, New Jersey, is one of only 15 students worldwide to be awarded the Erigena Scholarship to Oxford University for graduate study in the humanities. Tsuda also received a Chancellor Scholarship, awarded to academically excellent students to cover expenses at Oxford.

Heleen Janszewska SAS ’12 has been awarded a three-year Graduate Research Fellowship from the National Science Foundation. Janszewska, from Lionia, New Jersey, graduated with majors in both geological sciences and physics, with dual minors in math and Russian studies, and is now pursuing graduate studies in solid earth geophysics at Columbia University.

Senior Kelvin Ma, a physics major from Flemington, New Jersey, is among 282 students selected by the Barry M. Goldwater Scholarship and Excellence in Education Foundation to receive awards in mathematics, natural sciences, and engineering. The Goldwater Fellowship is regarded as the premier undergraduate award of its type in these fields.

**Bookshelf**

**Between Hananel and Motherland: Africa, U.S. Foreign Policy, and Black Leadership in America**
Cornell University Press, 2011

Alvin B. Tilley Jr. (Political Science) examines the African-American elite as they tried to shape U.S. foreign policies toward Africa from 1816 to 2000.

**Between Feminism and Islam: Women Rights and Sharia Law in Morocco**
University of Minnesota Press, 2011

Zakia Sahnin (Sociology) studies the interactions between Islamist women and liberal feminists in the battle for women’s rights in Morocco.

**Know How**

Oxford University Press, 2011

Jason Stanley (Philosophy) argues that knowing how to do something, such as swim or cook a meal, amounts to knowing certain truths. Thus, it is knowledge that matters and leads to our capacity for engagement with the world.

**Lincoln’s Hundred Days: The Emancipation Proclamation and the War for the Union**
Harvard University Press, 2012

Louis P. Masur (American Studies and History) examines the period from September 22, 1862, when Lincoln issued his preliminary Emancipation Proclamation, to January 1, 1863, when he signed the final, altered decree.

**Getting the Small-College Experience at SAS**

The School of Arts and Sciences (SAS) Honors Program is a community:

- It provides a full range of experiences and opportunities for high-achieving students, including housing, personalized advising, research funding, special seminars, faculty mentors, and many cultural and social activities.
- Our students are supported by mentors, special classes, and professors who work one-on-one to guide their research. We also provide a circle of friends, teachers, and advisors.
- Q: How do you build community when students are coming from different backgrounds and with disparate interests and skill sets?
   A: There are multiple ways. The most fundamental way is with dedicated honors housing across the campuses in New Brunswick and Piscataway. When we ask alumni what they remember about being part of the Honors Program, they often say, “Oh, it was living in Brett Hall” or “living with my roommates in McCormick Suites.” There’s nothing like living with other students who are excited about learning.

**Q: The Honors Program is thought of as a community or even a small college within SAS. What is the vision behind your approach?**

A: It’s the small liberal arts college experience within the big research university. We focus on building programs and unique opportunities for students who like to learn and want to be in a scholarly, intellectual environment. Our students are supported by mentors, special classes, and professors who work one-on-one to guide their research. We also provide a circle of friends, teachers, and advisors.

**Q: Many of the courses and seminars for honors students explore emerging knowledge that exists at the intersection of academic disciplines. Can you give an example?**

A: Bioregions is an area where we support both faculty teaching and student organizations. Half the participants are philosophers or future legal scholars, while the other half are researchers in genetics, microbiology, chemistry, or cell biology and neuroscience. It’s a crossover area with rich possibilities for intellectual engagement.

**Q: How does the Honors Program shape students over the course of their undergraduate years?**

A: It’s like being an athlete. You can practice, but you don’t know if you are good until you compete with the best. That’s where community is very important.

When the students come into the program, they are smart and promising. But over the years, they have classes together; study together; take exams together, and live together. They only keep up by teaching each other, and they excel academically by making friends and forging bonds that will stay with them forever. Then they really know they are getting the honors experience.