Nadia Ahmad C’99 used her laboratory training at Drew to launch a career in science that has taken her from Harvard to Dubai, where today she runs an obesity clinic.
After completing medical school at New York University and a residency in internal medicine at the University of Pennsylvania, Nadia Ahmad C’99 was about to start a Harvard fellowship in a specialty so new it didn’t have a proper name yet.

What she learned at Drew came right back to her. “When I got to the lab again after all those years, I was like, ‘Yeah, I know how to pipette, because I was in Dr. Petrack’s lab,’” she says.

Dr. Petrack is Barbara Petrack, who was Ahmad’s mentor in the Research Institute for Scientists Emeriti (RISE), a program that since its founding more than three decades ago, has trained more than 350 Drew students. Ahmad had her sights on medical school. Petrack had just retired from a 35-year career as a biochemist for a pharmaceutical company. Together they spent two years in Petrack’s third-floor lab in the Hall of Sciences testing the interaction of various chemicals with nitric oxide, an enzyme beneficial to the body’s immune and cardiovascular systems.

“I would huff and puff walking up the flights of stairs, and she was way ahead of me every time,” says Ahmad, whose Harvard fellowship was in the emerging field of obesity medicine. “If I had not had the RISE experience with her, I would have walked into that lab and it would have been so foreign to me. But I understood research, I understood equipment, I understood all of it.”

Undergraduate science majors who want to do lab research—a skill and a résumé feature increasingly expected by graduate and medical schools—tend to hit two roadblocks. At most small colleges, they encounter a scarcity of opportunities. At large universities, they confront a layer of graduate students insulating them from the professors. Drew’s groundbreaking RISE program, believed to be one of a kind, allows undergraduates to gain invaluable research experience working directly with scientists like Dr. William Campbell, a longtime RISE fellow who won the 2015 Nobel Prize in Medicine for research he performed before retiring from Merck.

“We don’t understand why other places haven’t followed this path and taken advantage of retired scientists,” says Petrack, who started as a RISE fellow in 1997 at the age of 71, one week after retiring from Ciba-Geigy. She retired from RISE in 2010, but often returns to speak to the students. “Retired scientists have so much to offer.”

Of course, each year dozens of Drew students also collaborate in research with tenured members of the science faculty. For example, students of Roger Knowles, a professor of biology and neuroscience, routinely participate in Knowles’ research into the mechanisms and treatments of Alzheimer’s Disease, and students of biology professor Tammy Windfelder make binaural marine ecology field research trips to Belize. Moreover, each summer students in the Drew Summer Science Institute (DSSI) perform research with faculty members full time, supported by a stipend. In fact, student participation in DSSI has more than quadrupled since 2001, with more than 50 students involved in each of the past four years. According to Knowles, “My lab and work with my students allows them to fine-tune some of their life goals and career decisions. It is very common for Drew graduates who have done work in my lab to go on to medical school or to get research PhDs.”

The daughter of Pakistani immigrants—her mother is a nurse, her father a pharmacist—Ahmad always wanted to be a doctor; and the enzymology research she found in Dr. Petrack’s lab seemed a good fit for a medical career. Petrack was as eager to enlist a young assistant to help her continue her research as Ahmad was to learn: “She was just so full of energy,” Ahmad says. “That’s what psyched me most about her.”

Ahmad, a double major in English literature and biology, was drawn to the areas that took her deepest into people’s lives and souls, and it’s a privilege to have that window. “To me, practicing medicine is like a window into people’s lives and souls, and it’s a privilege to have that window. I loved literature in high school and college for the same reason, that connection to humanity, and this was the same thing. It felt like everything was tying together.”

During her residency, Ahmad grew interested in obesity, after seeing many of her patients in a West Philadelphia outpatient clinic struggle with their weight.

She contacted Lee Kaplan, the director of the Obesity, Metabolism and Nutrition Institute at Massachusetts General Hospital, which is affiliated with Harvard Medical School. The institute didn’t have a training program yet, but another young doctor was interested as well, so one was created for them. “That fellowship was life-changing,” Ahmad says. “It’s pioneering work, and it’s a specialty, but it doesn’t make me give up any of my passion for knowing the whole patient and having a holistic approach and having a long-term relationship, because that’s what obesity treatment is all about.”

For the next seven years, Ahmad worked in the lab and with patients at the institute and taught

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at Harvard Medical School, advancing the science on obesity, which the American Medical Association recognized as a disease in 2013. “A very big misconception among laypeople is that someone who has weight issues should just exercise and eat better and it should go away,” she says. “That is a huge myth. The majority of people will lose a little bit of weight and then plateau and then get frustrated and stop, because their body biologically is storing excess fat. The brain regulates how much fat you’re supposed to have, and their brains are inappropriately regulating to a very high fat level.”

She and other obesity researchers have been trying to better understand the complex biology behind that process—energy regulation, fat metabolism, hormones. “This field is just so intellectually stimulating because all this knowledge has been developing at the bench in the last decade, and clinicians just don’t know about it,” she says. When her family moved to Dubai, Ahmad and her family moved to the United Arab Emirates three years ago.

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“There are a lot of people who go straight from undergraduate to graduate school without having had a real, true lab experience,” says Von Stetina, a postdoctoral fellow in cell and developmental biology at Harvard. “Taking lab as part of a course is not the same thing as doing research, because those labs are usually designed for success, and if you haven’t tasted the bitter sting of defeat as a scientist, then you don’t know if this is for you. There are going to be more downs than ups.”

Von Stetina was hooked on molecular biology and microbiology as a high school student and came to Drew because of its research opportunities for undergraduates. He worked directly with former professor Louise Temple, and soon found himself with his own key to her lab, where he studied a bacterium that caused a whooping cough–like disease.

“I got the bug, the desire that I can’t wait another day to know the results of this experiment, that I have to go in and do this now,” he says. The skills he acquired in the lab led to a job as a research technician at Memorial Sloan-Kettering Cancer Center, and then to Vanderbilt University for a PhD. “You need that drive in order to stay in science,” Von Stetina says. “I learned I had that by doing good science with Dr. Temple.”

Barsoom was a neuroscience major at Drew, aiming at medical school. “I was the little 7-year-old with the toy stethoscope and taking people’s blood pressure,” she says. “I just couldn’t imagine doing anything else with my life.” With RISE and DSSI, Barsoom worked in the lab of Ronald Doll, a former medicinal chemist at Merck, with cells from glioblastoma, an aggressive brain cancer. But first she had to synthesize a blood-brain barrier, which protects the brain from infection, so she and Doll could test which compounds could penetrate it and potentially get to work on the cancer cells. “It was a good day when it worked,” she says, and it was the subject of her honors thesis, “Drug Discovery Efforts Targeting Mutant p53 for the Treatment of Glioblastoma.” This work paid off—at her interview for Thomas Jefferson University Medical School, where she is now a second-year student, she spent 40 minutes of the allotted hour responding to professors’ questions about her research.

Cordovano came to Drew to study biology, but she fell in love with chemistry after taking organic chemistry with Professor Alan Rosan. “He scrawled across all of the boards all these equations and then the end product,” she recalls, “and then he said, ‘This, ladies and gentlemen, is what a pear smells like.’” She didn’t want to choose between the two subjects, so Cordovano became one of Drew’s first biochemistry majors. Her favorite spot to study was in a small library in the Hall of Sciences, near the RISE program, where she often talked science with the RISE fellows and students. When she later enrolled in RISE, she worked in the lab of microbial biochemist Arnold Demain.

Cordovano earned a PhD at Albert Einstein College of Medicine, where her research was on a potential new drug for prostate cancer. She later worked with companies to get their products through clinical trials. She then founded her own company, Enlightening Results, which works in the emerging field of patient advocacy. As the child of Polish immigrants who grew up in heavily Polish Wallington, New Jersey, Cordovano was inspired by her experience translating for a cousin with cancer. “The need is there,” Cordovano says. “It’s actually very frustrating to see how people struggle with navigating the health care system.”