nyckolas Sutherland is a Rutgers University–New Brunswick student whose passionate pursuit of knowledge impressed his teachers and earned him good grades but made it difficult to decide on a major. Strong in the STEM disciplines, Sutherland also has a penchant for pondering deep philosophical questions.

“I enjoy questions like: ‘Why are there so many different expressions of God or soul?’” says Sutherland, a School of Arts and Sciences senior. “I am interested in the bigger picture that might tell us about the way the mind works.”

Sutherland found his niche, fittingly, among a group of Rutgers faculty members whose teaching and research on the human mind stretch across the boundaries of multiple departments in Arts and Sciences and beyond. The Rutgers University Center for Cognitive Science, launched in the late 1980s by a handful of scholars, including the seminal philosopher Jerry Fodor, has been growing in size and stature, drawing professors from psychology, linguistics, philosophy, psychiatry, economics, biomedical engineering, and neuroscience.

(continued inside)
A Gifted Science Student Discovers Her Mission

Learning about compassion while studying spinal cord injury

Avina Rami was always strong in science. She graduated from Biotechnology High School in Freehold, New Jersey, a magnet school focused on the STEM disciplines. But it was at Rutgers, in the W.M. Keck Center for Collaborative Neuroscience, where Rami, a School of Arts and Sciences junior, found the calling that would influence her undergraduate work.

That calling was spinal cord injury, a condition that blocks communication between brain and body, leaving patients paralyzed and needing help with everyday tasks.

She recalls attending a lecture given by Wise Young, an Arts and Sciences professor of cell biology and neuroscience and the founding director of the Keck Center, and one of the world's foremost experts on spinal cord injury.

“I was trying to decide where I should do research,” Rami says. “Dr. Young started speaking and I knew right away this was it.”

She was impressed by Young’s vision for treating spinal cord injury and the down-to-earth way he explained his work to students. She was also struck by his emphasis on collaboration.

“You get to see who your research touches,” she says. “You never forget what it’s all about. It’s always about the people.”

Rami has worked on various research projects at Keck and was selected as the student speaker at the 30th anniversary of the Douglass Project for Rutgers Women in Math, Science, and Engineering. And last spring, she and another student travelled with Young to Taiwan where they presented research at the Pan Pacific Symposium on Stem Cells and Cancer Research. That trip, as well as her Study Abroad mission in Peru, has raised her interest in international healthcare. After graduating, she’s considering going for an MD/PhD. “I can honestly say that the Keck Center has allowed me to grow in ways I could not have foreseen,” Rami says. “It has not only shaped me as a scientist, but has allowed me to grow into a more devoted student and compassionate person.”

Supporting Rutgers and Strengthening Alumni Engagement

Eugene Gentile learned the art of outreach as an undergraduate.

“Eugene Gentile grew up knowing he would attend college. He had no idea which one. He just knew he’d go. "That’s the classic, first-generation college student experience for you,” says Gentile RC’80. “My parents instilled in me the importance of higher education even though they didn’t always understand everything that was involved." His high school guidance counselor suggested Rutgers.

“I didn’t know a thing,” Gentile recalled. "I asked him if it was a good school, and he said ‘Are you kidding?’”

Gentile applied early decision and was accepted.

“When I got here, my world just opened up,” he said. “It was amazing to be living and working with people from different parts of the world, cultures, and faiths.”

After years working in private industry, including running his own career counseling firm, Gentile has put Rutgers back at the center of his life. He serves as president of the Rutgers Alumni Association (RAA), the largest alumni organization in the Rutgers University family with more than 200,000 constituents. Currently, the RAA, founded in 1831, and the School of Arts and Sciences, now celebrating its tenth year, are exploiting ways to work together, with the goal of having RAA extend its support to more SAS students and alumni.

“The RAA does a lot of great things for Rutgers,” Gentile says, citing networking events, mentoring, and scholarships, among other benefits. “The RAA is a wonderful place to show love for your alma mater.”

His day job, meanwhile, brings him full circle. Gentile serves as director of the Office of Career Management at Rutgers Business School, New Brunswick, which helps students find internships, co-ops, and full-time jobs.

The job reflects his passion for outreach that goes back to his undergraduate years when he volunteered for a crisis intervention team.

“Years later, when mulling a job change, he hired a career coach, and enjoyed the process so much he decided to become a coach too,” Gentile says. “That’s the classic, first-generation college student experience for you.”

Gentile and his fellow students would answer phone calls from throughout the New Brunswick area.

“It was a lot of referral,” he said. “But we were college kids doing our best to help people in the community.”

Indeed, his own coach told him he would be a natural.

“Turn back to helping people again,” Gentile says. “Only this time, it’s about helping people find their path and direction in life. And that’s a wonderful calling to have at Rutgers.”

“Eugene Gentile
RC’80

Rutgers, The State University of New Jersey, does not discriminate on the basis of race, color, national origin, sex, sexual orientation, gender identity and expression, disability, age, religion, ancestry, pregnancy, genetic information, Appalachian Heritage,户籍, marital status, sexual preference, gender identity or expression, or any other characteristic protected by law in its admissions, programs, activities, or employment matters.

Photo credits: Kara Donaldson, Roy Groething, courtesy of Thomas Papathomas.
They are engaged in remarkable work at this School of Arts and Sciences center, from developing new ways to diagnose schizophrenia and autism to studying the brain's role in producing religious beliefs to examining how and why people make decisions. Computer scientists work on algorithms for more efficient robots. Philosophers, meanwhile, engage with the ethical issues inherent in our increasing reliance on robots. A recent talk by noted roboticist Angelica Lim sponsored by the center was titled: Building Robots with Emotional Intelligence.

Professor Thomas Papathomas uses optical illusions to study human perception. His research with Professor Steven Silverstein explores how common illusions can be used to diagnose schizophrenia.

"We are a place that bridges humanities and the sciences," says Brian McLaughlin, the center director and a professor of philosophy. "The goal of cognitive science is to understand the mind and mental abilities, and the applications span the academic spectrum."

With enrollments on the rise, this year the center launched an undergraduate major, broadening Rutgers' stake in this emerging field and drawing a devoted community of students.

Ashley George, a senior who switched her major seven times—taking courses in finance, linguistics, religion, and dance—says she has found the perfect fit in cognitive science. George plans on becoming a neuropsychologist and doing research on Alzheimer's and Huntington's diseases.

"I came to Rutgers wanting to study everything..." George says. "It took me four years to find my field, but I have never felt more excited to be a student."

Cognitive science is typically defined as the interdisciplinary study of mind, thought, and learning. Rutgers has long been a leader in the field. Harvard recently announced it was exploring a proposal to offer a concentration in cognitive science. At Rutgers, students from many majors conduct research in cognitive science that stretches their intellectual capabilities and makes them stronger in their fields. Maggy Fread, a junior, works in Professor Kristen Syrett's linguistics lab, observing first-hand how children name and categorize simple objects. For Syrett, the research sheds light on complex questions about when children gain adult-like understanding of words.

"We're interested in the limits on what allows an object to be considered part of a category and how the context and a speaker's goals play a role," Syrett said. "Do children have the same understanding about object-hood, or is there something they are noticing that we as adults have tuned out?"

"The essential question is: 'Do children understand the world in the same way we do, and can we get at that through word meaning?'" Fread, meanwhile, sees a connection to her chosen calling of social work.

"Language and cognitive science have a lot to do with social work," says Fread, who is minoring in cognitive science. "This research makes me far more aware of the ways in which I, as a social worker, would talk to clients, and the ways in which clients would talk to me."

As the center draws faculty from multiple disciplines, it also fosters a culture in which they can work together. The noted vision researcher Thomas Papathomas is collaborating with Steven Silverstein, a Robert Wood Johnson Medical School psychiatry professor, on research exploring how common optical illusions can be used to diagnose schizophrenia.

"Most people with schizophrenia do not see the illusion as strongly," says Papathomas, a professor in the Rutgers Department of Biomedical Engineering. "They see it for what it is, and that gives us an opportunity to develop a portable device that can help diagnose them more quickly and accurately."

In another intriguing collaboration, computer science professor Rostas Bekris and psychology professor Ellen Pshcorf are anticipating a future in which robots and humans will be interacting, both in the workplace and at home. These "service robots," Bekris says, will be softer, more human looking, less mechanical.

"Currently, however, they are not as easy to model, which raises many research challenges," Bekris says. "You don't want to be surprised by a robot's movements, so we did experiments with human subjects to determine what types of motions are best to communicate intent."

"And this is where the cognitive science really comes into play: with the human mind as the model, you need a psychologist and a philosopher working with the artificial intelligence researcher to sort through these difficult questions." One of the key figures in cognitive science was the late Jerry Fodor, who came to Rutgers in the 1980s and helped develop the center into what many say is among the best in the world. Fodor saw the mind as a collection of modules or sub-systems that evolved to have specific functions, such as for language, music, or math.

Fodor's influence is evident in the way the new major is structured into five tracks: cognitive neuroscience; decision making; language; perception; and mind, machines, and computation.

"The major allows students to study the mind and brain from multiple perspectives," says Professor Mary Rigdon, a behavioral economist who oversees the center's academic program. "We expose students to a wide range of methodologies while giving them the opportunity to specialize and develop a strong analytic base."

McLaughlin says the major is excellent preparation for medical school; graduate studies in psychology, linguistics, philosophy, and computer science; and career paths such as big data, human resources, and teaching.

Students like Sutherland, meanwhile, are thrilled.

"All along I had been articulating this major before it even existed," he says. "Now I feel like I've found my home."
Alumni Help Arts and Sciences Students Face their Future

New initiative prepares students from all majors for life and career

Yitzchok Dier walked into the event feeling both excitement and trepidation. The Rutgers University–New Brunswick junior was attending an evening program organized by the School of Arts and Sciences (SAS) in which alumni would discuss their Rutgers experience and how they developed a sense of purpose in their lives and careers.

“I thought it had tremendous potential,” Dier says. “Yet I wondered if I’d actually be able to connect with these alumni, and if they’d want to spend time talking to me.”

As he entered the Cook Campus Center, Dier felt glad he had made it to the event called SAS Connect. The atmosphere was friendly, with students sitting at dinner tables chatting with more than 30 alumni. At the front of the room, Becky Quick RC’93, co-anchor of CNBC’s Squawk Box, was getting ready to moderate.

The speakers were diverse in age and background—from a budding web entrepreneur who graduated a year ago to a psychology major from the class of 1991, now an executive at a company specializing in healthcare policy data.

“I left with a real spring in my step,” Dier says. “The entire program was inspiring, and I felt a sense of strength and confidence.”

The event is more than a blip on the campus calendar; it is part of a larger schoolwide effort to transform the college-to-career experience by guiding Arts and Sciences students from all majors toward successful lives and careers.

The Career Explorations in Arts and Sciences initiative was launched in 2017 with an elective course for students from all majors toward successful lives and careers. The initiative also includes programs like SAS Connect that introduce current students to Arts and Sciences’ rich network of alumni.

“The goal is to foster a schoolwide culture of career and life exploration,” says Jennifer Lenahan Cleary, the director of the initiative. “Major often does not equal career. We want students to learn how to connect their education with careers in deeper ways. We’re helping them figure out how to study what they love, get a good job, and build a purposeful life.”

Alumni speaking at SAS Connect talked about how their major helped them develop core skills that they continue to use, even as their careers take twists and turns in new directions.

Donna Usiskin RC’91 described a continual process of reinvention. She began as a pharmacy student, switched to a premed track in psychology, then launched a multi-faceted career that has traversed healthcare, IT, venture capital, and life sciences.

“I literally met this company, and I knew nothing about IT, and had never taken a single class,” Usiskin says. “But at Rutgers, I got to know what my attributes and skills were, and I pitched them.”

Meanwhile, Jessica Bagtas SAS ’15 advised students to be flexible and open-minded when choosing a major. She arrived at Rutgers thinking she would be premed. But she discovered that geography was the discipline that really clicked with her. She is now an associate project manager of strategic analytics at a global firm.

“At Rutgers, I got to know what my attributes and skills were, and I pitched them.”

“I benefited from taking a lot of different classes, having a range of experiences, and meeting people who were diverse in their ideas and background,” Kerzic says. “In my experience, liberal arts students are the ones who are able to find solutions to problems, because they see the bigger picture.”

The initiative amplifies that message through courses for students, as well as professional development for staff and faculty, and partnerships with academic departments and University Career Services. One key message is that research on employer needs consistently shows a broad-based education in the arts and sciences equips students with competencies that are valued in the workplace—critical thinking, problem solving, and cultural literacy.

Meanwhile, some 250 students in the spring 2018 semester signed up for the elective course, which emphasizes both the big picture—finding purpose and meaning—and nuts-and-bolts instruction on resumes, cover letters, and networking.

In a recent class, students opened up to the instructor about their fears and anxieties as they discussed their initial efforts to draft resumes.

“I see my friends’ LinkedIn profiles, and I’m blown away by how many accomplishments they have listed,” said junior Jonathan Krachtman. “I feel like I have way less experience compared to people I know.”

The instructor, Ildi Koczan, a career management specialist at Rutgers, told students to start with what they’ve got, and to keep their eyes open for ways to build on that foundation.

“What you need to learn at this stage are the skills you can use throughout your life,” Koczan said. “Career development is a lifelong process. You may not have a clue as to what you want to be doing in 20 years, but we’re going to keep working at it, and the picture is going to get clearer and clearer.”

Welcome back, alumni! From left: Vinay Limbachia, philosophy and religion, judicial law clerk; Hao Tong, economics, financial advisor; Christin Nassar, psychology and sociology, academic advisor and assistant; Abrol, economics, financial advisor; Kelvin Alfonso, IT and computer science, student; Ansh Mehta, economics, financial advisor; Alexina de Los Santos, arts and technology, information technology and information software engineer; Christin Nassar, psychology and sociology, academic advisor and assistant.
Genetic counseling program equips students for fast-growing field

Mastering Difficult Science and Practicing Empathy

Students like Amanda Roth say they’re drawn to the field by the innovative science and strong sense of mission. At the University of North Carolina, Roth created the graduate program and is director of the department’s undergraduate certificate program, the only one of its kind worldwide. “There aren’t enough graduate programs turning out well-trained individuals to help people,” Roth says. “It’s all about using knowledge to help people.”

Audrey Marrinette, a health science major at Quinnipiac University whose mother and sister both work in nursing, agreed. “I see genetic counseling as direct patient care with an education piece,” she says. “You are guiding the patient and giving them the information they need to make informed decisions.”

Students Caitlin O’Brien and Laurie Simone both majored in psychology and had strong interests in medicine. “Genetic counseling is a good mesh,” says O’Brien, a graduate of Hartwick College. Simone added that the profession seems to be already expanding beyond hospitals and clinics to private labs and research centers. “We feel like pioneers,” says Simone, a graduate of Seton Hall University. The field’s increased visibility was highlighted several years ago when the actress Angelina Jolie went in the New York Times of discovering she had the BRCA1 gene for breast cancer and deciding to have a preventive double mastectomy. That article drew widespread attention and served notice of genetic counseling’s increasingly influential role in cancer detection and treatment.

“It could be a young woman diagnosed with breast cancer coming in to see whether there is a genetic component,” says Jones, who previously served as assistant director of the genetic counseling graduate program at the University of Maryland and has extensive experience in providing counseling in oncology, pediatric, and neurology clinics. “But it could also be precautionary, such as a patient who has colon cancer in his family and wants to understand the risks.”

The Rutgers graduate program is the first in New Jersey and offers a major advantage: Students can do rotations with trained genetic counselors at Robert Wood Johnson Medical School (RWJMS) and Rutgers New Jersey Cancer Institute, both part of RUMHS. This semester, for example, the students took their “Medical Genetics” class at the Child Health Institute of New Jersey, part of RWJMS. The program offers internships at other hospitals and health facilities, and students have the opportunity to work in industry, advocacy, and research roles. “I like that the program is geared toward the way the field is moving,” says Renee, who majored in biology at Rutgers University–Camden. Meanwhile, students cite another benefit: They’ll soon be entering their profession. Spinosi, who majored in genetics at Rutgers University New Brunswick, shadowed genetic counselors and found the job awe-inspiring. “There is a lot of interaction with people—doctors, laboratories, insurers—and most importantly, the patients,” she said. “I am communicating with people in all these healthcare roles to make sure the patient is getting the highest quality of care.”
Ten Things To Know about the School of Arts and Sciences

1. **200,000 Alumni**
   - From 2011-2017, the School of Arts and Sciences graduated over 32,000 students, who proudly joined the Rutgers alumni of the legacy liberal arts colleges: Rutgers, Douglass, Livingston, and University.

2. **Honors Program encouraging intellectual exchange**
   - The Honors Program is an organic part of the School of Arts and Sciences: a community of students, faculty, deans, and advisors asking big questions and engaging with one another and the School as a whole across the arts and sciences.

3. **Diverse student body reflecting the state of New Jersey and the future**
   - Meeting our mission of excellence and access, 32% of our students are the first generation in their family to attend college, 50% speak a second language at home, and 80% receive financial aid.

4. **Advising and career planning from first semester to first job**
   - A dedicated hands-on advising staff, our new Career Exploration initiative featured in this issue, and a close working relationship with University Career Services are helping students find their way from first year to profession.

5. **Signature courses that address life’s big questions and enduring ideas**
   - In foundational courses of grand intellectual sweep, our award-winning scholars and scientists lead students to ponder the future of Cities, interrogate the American Dream, and examine the persistent problem of economic inequality, among many topics.

6. **New state-of-the-art facilities for chemistry and humanities**
   - Providing a home for humanities programs and centers, the new Academic Building transformed the educational landscape of College Avenue, nourishing interdisciplinary research, teaching, and scholarship. The opening of the new chemistry building in 2018 promises to do the same on Busch Campus.

7. **Research opportunities with world-renowned scholars**
   - Like Aida and Professor Syrett on the cover and Avina and Professor Young in our Student Profile, students and professors across the fields of arts and sciences work together to push the boundaries of new knowledge.

8. **Broad array of majors and minors satisfy student demands**
   - From astrophysics and Arabic to cultural anthropology and criminology to social justice and statistics, we have nearly 100 majors and minors.

9. **Nationally-ranked departments across the academic spectrum**
   - #1 in African American and women’s history, and biology, cell biology, and chemistry programs that make us #1 in preparing students for the health professions.

10. **Largest and most comprehensive school at Rutgers**
    - 20,000 students, 750 faculty, and 47 academic programs across the humanities, biological, mathematical, and physical sciences, and social and behavioral sciences.