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In the past year I’ve used this column to keep friends of the School updated on our progress in developing a strategic plan. That plan is now providing us with a blueprint to help us achieve our highest priorities and to ensure that we maintain a strong liberal arts core to provide a foundation for academic excellence across the University.

One of the pillars of our success is the strength of our faculty. In looking back at this academic year, I’m proud to report that they have provided us with ample evidence of their collective strength.

Honors garnered by our faculty across all disciplines attest to their positions as leaders in their fields. We began the academic year with news that Charles Kane (Physics and Astronomy) was named a Thomas Reuters Citation Laureate—considered to be an indicator of Nobel-contender status—and closed the year with an announcement that Dorothy Cheney (Biology) was elected to the National Academy of Sciences. In between came news of a string of other honors including recognition of younger scientists like Alison Sweeney (Physics and Astronomy), Zahra Fakhraai (Chemistry), and Joshua Plotkin (Biology). History professors Sarah Barringer Gordon and Kathleen Brown were awarded Guggenheim fellowships, while Kathy Peiss (History) and Dorothy Roberts (Sociology, Africana Studies, and Law) were named fellows of the American Council of Learned Societies. And the list goes on.

The year also offered up numerous examples of the groundbreaking scholarly production that leads to such recognition, and that demonstrates both the breadth and impact of inquiry in the liberal arts. Among the many exciting finds reported by our faculty was evidence of the connection between summer employment and youth violence reported by Sara Heller of Criminology. Russell Epstein of Psychology published new details on the brain’s internal compass. The far-reaching impact of mass incarceration in the U.S. is examined in a new book by Marie Gottschalk of Political Science. And in the humanities, Gwendolyn DuBois Shaw (History of Art) curated a major exhibit on African American art at the Philadelphia Museum of Art, while English’s Zachary Lesser offered up new perspectives on an early version of Shakespeare’s Hamlet.

The faculty members who produce this outstanding scholarship and who are recognized as leaders among their academic peers are the same faculty who teach our students. Just as when I was an undergraduate at Penn, our students today continue to enjoy access to top faculty that few other research universities can offer. Sophomore Carol Wang, an undergraduate in the Vagelos Integrated Program in Energy Research, is already a published co-author thanks to her experience working with Patrick Walsh (Chemistry). And Mark Devlin (Physics and Astronomy), an esteemed experimental cosmologist, was one of the winners this spring of the School’s highest honor for teaching. His innovative work uses balloon-borne telescopes to gather data about the very early universe.

We are proud to have had so many occasions this year to celebrate the excellence of our faculty, and we will continue to focus our efforts on making this outstanding collective even stronger in the coming years. With this solid foundation in place, we will be able to ensure continued excellence in education, and to thrive in the exciting new frontiers we have highlighted in our strategic plan.
Two Penn Arts and Sciences faculty were recognized this year with the Lindback Award for Distinguished Teaching, the University’s highest teaching honor. The recipients were Robert Ghrist, Andrea Mitchell University Professor in the Departments of Mathematics and Electrical and Systems Engineering, and Masao Sako, Associate Professor of Physics and Astronomy.

In addition, Robert DeRubeis, Samuel H. Preston Term Professor in the Social Sciences in the Department of Psychology, was honored with the Provost’s Award for Distinguished Ph.D. Teaching and Mentoring; and Melissa Hunt, Associate Director of Clinical Training in Psychology, won the Provost’s Award for Teaching Excellence by Non-Standing Faculty.

Mark Devlin, Reese W. Flower Professor of Astronomy and Astrophysics in Physics and Astronomy, and Ayelet Ruscio, Associate Professor of Psychology, received the Ira H. Abrams Memorial Award for Distinguished Teaching, the highest teaching honor awarded by Penn Arts and Sciences.

Other School honorees included Jeffery Saven, Professor of Chemistry, who won the Dean’s Award for Innovation in Teaching; Geoffrey Goodwin, Assistant Professor of Psychology, who won the Dean’s Award for Mentorship of Undergraduate Research; Emily Steinlight, Stephen M. Gorn Family Assistant Professor of English, who won the Dean’s Award for Distinguished Teaching by an Assistant Professor; and Cynthia Damon, Professor of Classical Studies, who won the College of Liberal and Professional Studies Distinguished Teaching Award for Standing Faculty.

Anthony Espósito, Undergraduate Chair of Hispanic Studies in the Department of Romance Languages, won the Dean’s Award for Distinguished Teaching by Affiliated Faculty; and Nedra Lexow, Adjunct Assistant Professor in the Biological Basis of Behavior Program, won the College of Liberal and Professional Studies Distinguished Teaching Award for Affiliated Faculty.
Each spring, Penn Arts and Sciences names 20 students from the College of Arts and Sciences, the College of Liberal and Professional Studies, and the Graduate Division as Dean’s Scholars. This honor is presented annually at the Levin Family Dean’s Forum to students who exhibit exceptional academic performance and intellectual promise.

College of Arts and Sciences

Deqa Farah, C’15, International Relations
Xingting Gong, C’15, Mathematics and Physics
Vanessa Koh, C’16, Anthropology
Kimberly Kolor, C’15, Religious Studies and South Asian Studies
Elana Stern, C’15, Political Science
Allison Siegenfeld, C’16, G’16, Biochemistry and Biophysics
Stefan Torborg, C’16, G’16, Biochemistry, Biophysics, and Physics
Emmett Wynn, C’15, Comparative Literature, English, and History
Aisling Zhao, C’15, Biochemistry and Biology

College of Liberal and Professional Studies – Undergraduate Program

Donald Antenen, LPS’15, Classical Studies

Professional Master’s Programs

Christine Loveland Klein, LPS’14, Master of Liberal Arts

Graduate Division – Doctoral Programs

Iggy Cortez, History of Art
Johannes Eichstaedt, LPS’11, Psychology
Omar Foda, Near Eastern Languages and Civilizations

Amy Goodwin Davies, C’11, Linguistics
Alex Moshkin, Comparative Literature and Theory
Jordan Pickett, Art and Archaeology of the Mediterranean World
Carlos Santana, Philosophy
Daniel Snelson, English
Anru Zhang, GRW’12, Applied Mathematics and Computational Science

The 2015 Dean’s Scholars with Eve M. Troutt Powell, Associate Dean for Graduate Studies and Christopher H. Browne Distinguished Professor of History and Africana Studies; Steven Fluharty, Jr. Professor of Psychology, Pharmacology, and Neuroscience; Nora Lewis, Vice Dean for Professional and Liberal Education; and Dennis De Turck, Stephen A. Levin Family Dean in the College of Arts and Sciences, Robert A. Fox Leadership Professor, and Professor of Mathematics (seated, second, third, fourth, and fifth from left).
COLLEGE SENIOR TO LAUNCH GIRLS’ SCHOOL, COMMUNITY CLINIC IN GHANA WITH PRESIDENT’S ENGAGEMENT PRIZE

Shadrack Frimpong, C’15, has been chosen as one of five undergraduates to receive the first annual President’s Engagement Prizes, awarded to Penn students to design and undertake fully funded local, national, or global engagement projects during the year after they graduate. Frimpong will receive $50,000 for living expenses and as much as $100,000 for project implementation expenses to establish a girls’ school and medical clinic in Ghana. The prizes have been generously supported by University Trustee Judith Bollinger, WG’81, PAR’14, and William G. Bollinger, PAR’14; University Trustee Lee Spelman Doty, W’76, PAR’06, and George E. Doty, Jr., W’76, PAR’06; and Emeritus University Trustee James S. Riepe, W’65, WG’67, HON’10, PAR’98, and Gail Petty Riepe, CW’68, PAR’98.

Frimpong, a biology major with extensive global health coursework, will use the award to oversee construction of the tuition-free Tarkwa Breman Model School for Girls and Community Clinic in his home village in western Ghana.

“Harsh poverty in the village forces parents to place priority on male-child education,” says Frimpong. “Young girls are therefore denied access to education and are exposed to early marriages, sex trafficking, teenage pregnancy, and sexually transmitted diseases such as HIV/AIDS. Using an innovative approach to female education and rural empowerment, the project will employ a new financial model that will capitalize on the existing agricultural and vocational skills found in the village.”

As a freshman at Penn, Frimpong established Students for a Healthy Africa, which provides free health insurance for orphans in Ghana and constructed a health clinic and potable water well in two communities in rural Nigeria. He has since co-founded African Research Academies for Women, highlighted earlier this year by the Clinton Global Initiative, which organizes annual summer research institutes for college women in Ghana and Nigeria.

Frimpong will travel to Ghana this summer to oversee plans for the school and clinic. He hopes to attend medical school beginning in the fall of 2016, pursuing joint degrees in medicine and health policy.

2015 COLLEGE GRADUATION SPEAKERS

Maria T. Zuber, C’80, E. A. Griswold Professor of Geophysics and vice president for research at the Massachusetts Institute of Technology, and Nadia Y. Laher, C’15, were the speakers for the 2015 University of Pennsylvania College of Arts and Sciences graduation ceremony, which took place on May 17 at Franklin Field.

A distinguished planetary scientist, Zuber has held leadership roles on nine NASA missions aimed at mapping the moon, Mars, Mercury, and several asteroids. She remains involved with six of these missions and is the principal investigator for NASA’s Gravity Recovery and Interior Laboratory (GRAIL) mission, which is measuring the gravitational field of the moon in order to reveal its internal structure and thermal history. Responsible for research administration and policy at MIT, Zuber oversees more than a dozen interdisciplinary research laboratories and centers. Previously, she served as the head of MIT’s Department of Earth, Atmospheric, and Planetary Sciences. President Obama appointed her to the National Science Board in 2013. She is also a member of the National Academy of Sciences and the recipient of NASA’s Outstanding Scientific Achievement Medal. In 2004 Zuber served on the Presidential Commission on the Implementation of U.S. Space Exploration Policy.

Nadia Laher, from Burke, Virginia, is a graduating political science major with a minor in creative writing. She received the John Thouron Prize for summer study at Cambridge University in England in 2013 and spent the fall of 2013 at Boğaziçi University in Istanbul, Turkey. Last summer she served as an Immigrant Rights Program intern at the Equal Rights Center in Washington, D.C. She facilitated discussions on the impact of race on society and the
In March, Penn Arts and Sciences Dean Steven J. Fluharty, Vice Dean for Professional and Liberal Education Nora Lewis, and other School faculty and students traveled to Beijing as part of a University-wide delegation to celebrate the opening of the Penn Wharton China Center (PWCC). The PWCC will serve as a vibrant hub for the exchange of knowledge and resources between Penn’s faculty, students, and alumni and University partners in China.

The opening featured two days of academic discussions highlighted by a roundtable with Penn deans, including Dean Fluharty, and university leaders from across China, who explored ways to foster innovation and prepare the next generation of global leaders. Fluharty also moderated a program held by the Center for the Study of Contemporary China (CSCC) that focused on the array of choices facing China today. Panelists included Avery Goldstein, David M. Knott Professor of Global Politics and International Relations and director of the CSCC; Yuhua Wang, assistant professor of political science; Guobin Yang, associate professor of sociology and communication; and John DiIulio, Frederic Fox Leadership Professor of Politics, Religion, and Civil Society and director of the Fox Leadership Program; as well as Penn Law’s Jacques deLisle, Stephen A. Cozen Professor of Law, director of the Center for East Asian Studies, and deputy director of the CSCC.

“The opening was a great opportunity to reconnect with our existing partners in China and be introduced to new potential associates,” said Lewis, who is already working on new projects with two top Chinese universities. Faculty at Beijing’s Tsinghua University who are colleagues of Martin Seligman, Zellerbach Family Professor of Psychology and Director of the Positive Psychology Center, want to organize a positive psychology meeting at the PWCC. And Lewis is helping officials from Fudan University in Shanghai to arrange student participation in Penn Arts and Sciences summer programs.

For John DiIulio and some Fox Leadership students and administrators, the visit was also a chance to reunite with program alumni. Last year, a group of 46 Chinese students spent four weeks at Penn for a course in governance, leadership, and society. Co-sponsored by the Robert A. Fox Leadership Program and Fels Institute of Government with support from the College of Liberal and Professional Studies, the course was the pilot initiative of Fox Leadership International (FLI).

John’s son Danny DiIulio, C’15, was a teaching assistant for the course and had realized that, although the students were enjoying the program and Penn, they were homesick. A Mandarin Chinese major, Danny wrote a song in Chinese and performed it for the group. “It was a gift for them, to show I understood how they were feeling,” he said. He and some Chinese Penn students made a video of the song and posted it on the internet before their trip. By the time they got to Jiangsu province for the reunion, the story was getting media attention for FLI and the PWCC.

The PWCC opening kicked off a six-month series of events in China, which will culminate with a gala celebration and forum in September.
The high-decibel incivility on political TV talk shows doesn’t only take a toll on public discourse. Diana Mutz says that these shout-fests also affect the human body in ways that change how people think about politics and politicians.

“Loud and angry voices trigger a fight-or-flight reaction that draws people’s attention and puts people on alert. As a result, these shows create strong physiological responses in viewers,” says Mutz, Samuel A. Stouffer Professor of Political Science and Communication. “Just as rubberneckers commonly stare at accidents on the highway, even people who say they hate shout shows have a hard time turning away.”

In her new book, *In-Your-Face Politics: The Consequences of Uncivil Media*, Mutz argues that the emotional intensity of political television draws audiences because it is highly arousing for viewers to watch politicians and pundits clash, particularly while appearing to be in close physical proximity on the television’s screen.

“The faces are shot in close-up and fill up TV screens to create an intimacy the way close-ups do in film,” says Mutz, who studied film and television as an undergraduate. “That adds even more intensity than incivility alone.”

Mutz’s research further demonstrates that televised incivility decreases trust in politicians in general as well as trust in government. She also suspects that in-your-face incivility turns many away from potential political careers. If what people see on television is what it is like to be a politician, then it is natural for them to want to “avoid partisan politics like the plague,” she says.

Research for the book, which is the first comprehensive study of the effect of high-octane political TV, was aided by Penn undergraduate and graduate students who helped manage Mutz’s lab and analyze data.

Politics is in the blood for Mutz, who is also the director of the Annenberg Public Policy Center’s Institute for the Study of Citizens and Politics. Her father John Mutz served as an elected official in her native Indiana for decades and was the state’s lieutenant governor for eight years, so she has seen firsthand the excitement that elections can generate.

*In-Your-Face Politics* also challenges the prevailing wisdom that Bill O’Reilly-style shows have no benefits. Highly arousing, conflict-filled programs make people more likely to remember the content and to relay it to others, whether online or in conversation. “Emotional intensity makes information memorable. It also drives viewership up,” Mutz argues. “The PBS-style of presentation may be civil and respectful, but it is also boring to most viewers, so they don’t watch it.”

Mutz feels that politics can be entertaining without being antagonistic. She says that the highest levels of political participation in the U.S. were in the days when politics were extremely social, with big parades and party gatherings. She would like to see a rekindling of that enthusiasm and the sense that politics need not be a dry, boring affair. “Americans love competition,” Mutz says. “If primary candidates had an *American Idol*-type show, they could talk about different issues each week, and viewers could then vote the weakest ones off the following week’s show.” Free air time would lure the candidates to participate, while viewers would be attracted by the opportunity to see what politicians did with their airtime, and to have a say in who gets still more free air time to communicate with the American public.

She cites two Canadian television shows that combine substance and entertainment: *The Naked News*, which features attractive people reading the news while taking off their clothing, and *Canada’s Next Great Prime Minister*, a competition among political novices who try out their oratory before judges who are former prime ministers themselves.

“We need more innovation to make politics fun and interesting for the public without all the disrespectful discourse,” Mutz says.
“I didn’t want to write a book that anyone else would write,” says Associate Professor of English Paul K. Saint-Amour. Scholarship and personal history coalesce in his latest project, *Future Tense: Modernism, Total War, and Encyclopedic Form*.

Saint-Amour studies modernist literature with a particular focus on the period between the first and second World Wars, known as the interwar period. His current book zeros in on literature from the 1920s. Though this era is known as “roaring” and “golden,” *Future Tense* finds it overshadowed by past and future conflict. “World War I was the first global conflict in which cities were bombed from the air,” says Saint-Amour. “That experience produced traumatic memories, but it also provoked terror and dire speculation about the next big war, which seemed likely to take far more civilian lives.”

In *Future Tense* Saint-Amour describes a “collective psychosis” of anticipation whose traces can be found in a range of interwar writing. Other scholars have written about traumatizing anticipation in the Cold War, especially at moments like the Cuban Missile Crisis, but Saint-Amour argues that aspects of the nuclear condition—the concern about how nuclear arms affect international politics and the human condition—started appearing in literature much earlier, right after World War I. “Seeing hints of something like a nuclear syndrome in the ’20s gives us a continuity across 1945, a year we tend to see as an absolute break between the pre- and post-nuclear world,” he says.

*Future Tense* reevaluates a collection of interwar writers who didn’t write explicitly about war, and shows they were not only writing in the shadow of war, but with the specter of total war, which sees both soldiers and civilians as legitimate targets. Saint-Amour says James Joyce’s *Ulysses* is a well-known example of a novel that responded to total war without being “about” war. “Joyce boasted that he had put so much of Dublin into *Ulysses* that if the city vanished it could be rebuilt out of his book,” says Saint-Amour. “I’m interested in the boast, which turns the novel into a world-portrait that’s not sponsored by war. I’m also interested in the ominous premise of the boast: the disappearance of a city, something that could happen with a new suddenness and severity in the twentieth century.” Ultimately Saint-Amour’s own life experience frames *Tense Future*. His mother survived the attack on Pearl Harbor in a bomb shelter in Honolulu when she was two months old. As a teenager in the ’80s, Saint-Amour became obsessed enough with impending nuclear doom to become active in the disarmament movement. And now, as a father, he must help his children grapple with the prospect of a future altered by climate change.

But writing is its own kind of shelter. For Saint-Amour, any big research project becomes a place to inhabit, where personal affect and memory can mortar scholarly ideas together. “The scholarly books that have meant the most to me were clearly like that for the writer,” Saint-Amour says. “They were houses that the writer had been living in for a while and probably couldn’t ever fully abandon.”
Could there be a Leonardo without Vinci? The Italian Renaissance master is so closely associated with his home city, located about 30 miles west of Florence, that his name and birthplace have become inextricable. Scholars have traditionally viewed this era’s painters and sculptors through the lens of place, as though they were rooted in a primary locale: Leonardo and Michelangelo are said to epitomize a “Florentine” style, Bellini is identified closely with Venice, and Raphael’s style is said to be “Roman.”

“We’ve been looking at Italian Renaissance artists as though they spent their lives working out of a single studio that they never left,” says David Young Kim, Assistant Professor of History of Art, who specializes in the teaching and research of Southern Renaissance art. These artists lived in an age of discovery—one we associate with the Italy of Marco Polo and Christopher Columbus—and like these explorers, they were mobile and eager for new sights, says Kim. They traveled to see the work of other artists, explore new landscapes, and gain commissions.

Artists not only traveled, but many wrote autobiographies in which they described their journeys. Kim is fascinated by the link between artists’ travels and the impact their mobility had on their artistic process and changing style. Foreign lands and foreign artists influenced their work more than has been previously recognized.

In his new book The Traveling Artist in the Italian Renaissance: Geography, Mobility, and Style, Kim bridges the divide between these artists’ work and their writings. In doing so, he broadens the conceptual scheme of art history, which organizes artists by time and place, and offers a comprehensive and holistic account of the development of Italian Renaissance art.

The relationship between culture and place is personal for Kim. He was born in Michigan to Korean-born parents and grew up in a number of states because his father’s engineering job continually relocated the family. In addition, his mother’s parents lived in South Korea and his father’s family had settled in Brazil. Kim’s world was tripartite: the United States, South Korea, and Brazil.

“We were constantly moving around, so I grew up with an outsider’s perspective,” says Kim, who cites Bernard Berenson, an American art historian who popularized the scholarship of Renaissance art, as one of his heroes. “That view has given me a fresh outlook which I think is valuable because many of the experts in this field are from the same places as the artists they write about.”

Kim says being a Korean-American was one of the most challenging things about writing in his field. “Students didn’t know you could become an expert on European art and be Korean,” he says. “At Penn, you are part of a community where you can pursue what you want regardless of who you are.”
Imagine a world where solar cells are so efficient at harvesting light that solar energy becomes a primary means of generating electricity.

Ramping up the capability of solar cells is just one of many path-breaking potential outcomes of the work of Assistant Professor of Chemistry Zahra Fakhraai, who specializes in understanding interactions between light and matter. Many experts in materials science, Fakhraai’s specialty, create theoretical models of structures that don’t actually exist. Fakhraai has been able not only to turn theory into practice, but to do so in three dimensions, creating new structures that are not found in nature.

To innovate in her field, Fakhraai has gathered a unique interdisciplinary team that works at the interface of physics and chemistry. Her research group includes scientists from both Penn Arts and Sciences and Engineering and Applied Science. Together, they manufactured the first 3-D nanoparticles in existence. Called “raspberries” because of their shape, these nanoparticles enable scientists to manipulate light in a novel way, and represent a breakthrough in what some scientists dub “the taming of light.” The potential applications include improvements not only in solar energy but in the diagnostic and therapeutic capabilities of medical technology.

Fakhraai’s team wrote up their findings in the article “Raspberry-Like Metamolecules Exhibiting Strong Magnetic Resonances,” published in January in the journal ACS Nano, produced by the American Chemical Society. She credits the work of Penn colleague Nader Engheta, H. Nedwill Ramsey Professor of Electrical and Systems Engineering, as providing the basis of her team’s research.

Born and raised in Iran, Fakhraai received her bachelor’s and master’s degrees in physics from Sharif University of Technology in Tehran before emigrating to Canada with her husband, a mechanical engineer. “I knew I wanted to be a physicist in eighth grade,” Fakhraai recalls. “I read an article about superconductivity and found the idea of generating electricity with no resistance really intriguing. My dream was to do exactly what I am doing now, teaching and researching at a world-class university.”

Although there are many female physicists in Iran, Fakhraai has found that in the United States there are fewer women in her field, and she does her best to advocate for young women students at both the high school and college level. She has also opened her lab to talented high school interns of both genders. She plans to do more outreach in Philadelphia to provide equal opportunity for students from a range of school districts. Fakhraai says, “I want them to know that they can enjoy math, physics, and chemistry.”
“In America, every child is told he or she can grow up to be president,” says Annette Lareau. ”But success is not a result of confidence and aspirations alone.”

Americans, more than any other population, believe this narrative—but research suggests a disconnect between this perception and reality. Lareau has dedicated her career to understanding the key components that impact children’s outcomes, and in order to achieve success, she says, kids need access to knowledge about how the system works—access they often depend on their guardians to provide. “Different parenting strategies lead to dissimilar rewards. Often, success requires child-rearing practices that are in sync with the attitudes and expectations of dominant institutions.”

In her groundbreaking 2003 book Unequal Childhoods: Race, Class, and Family Life, Lareau, the Stanley I. Sheerr Endowed Term Professor

By Maureen Haggerty
With Blake Cole

Illustrations by Jon Krause
Photo by Shira Yudkoff
in the Social Sciences, describes two distinct parenting styles, and how each affects development. “If you want a quick glimpse at someone’s parenting style just check the household calendar,” Lareau says. “If the days are crammed full of back-to-back soccer games and school plays, chances are you’re looking at the heavily-regimented schedule of a middle-class family.” This parenting style, coined “concerted cultivation,” is a stark contrast to the “natural growth” style found in a typical blue-collar household, where parents tend to expect their children to find ways to fill their own unstructured hours. And while concerted cultivation might have its drawbacks—children developing a sense of entitlement, for instance—lack of parental involvement puts children at a disadvantage. “Not having attended college themselves, many working class parents rely on teachers and other professionals to direct their children’s educational experience,” says Lareau.

Though Unequal Childhoods cements the argument that social class is the prime factor in determining children’s outcomes, Lareau says there needs to be a deeper understanding of the role cultural processes play in the maintenance of inequality, a topic she examines the 2014 book Choosing Homes, Choosing Schools. “You also need to illuminate the role of non-economic forces in key life transitions and the little moments that build up to these,” says Lareau. “This brings into sharper focus the roles that knowledge, expertise, and cultural skills play in navigating institutions and shaping life paths.”

With co-editor Kimberly Goyette, an associate professor of sociology at Temple University, Lareau focuses on a crucial moment in reproducing inequality: how parents of young children select a home and school. “Research suggests children’s life choices are influenced by the schools they attend and the neighborhoods in which they live,” says Lareau. “How parents of different social classes come to live in the same neighborhood is not well
understood, but economic factors only partially explain how parents decide where to live.”

Most of those in Lareau’s study depended on social networks to narrow their focus and recommend a community. People asked family and friends for suggestions about where to live, and these contacts pointed them to neighborhoods with other people like themselves. “Life is so stratified that we are primarily embedded in networks of people like ourselves, in networks that are hard to separate from cultural practices,” says Lareau, who recently completed her term as president of the American Sociological Association. “Finding reliance within these networks is extremely important, but they telescope individual vision.” She adds that most parents making these important decisions seem to be guided by a single tenet: Trust whom you know, which in many cases perpetuates the stratification of social class.

For Unequal Childhoods, Lareau conducted in-depth interviews, carried out classroom observations, and did extensive ethnographic research. She observed both white and African-American families with 10-year-old children in order to study social structural forces and how they shape crucial aspects of daily life. Time and again she found it was the parents’ education that had a transformative effect on the lives of their children. “These are parents that are more apt to read to their children, and therefore their child is more likely to know the alphabet when he or she enters kindergarten,” says Lareau, whose work has been discussed at length in Outliers, Malcolm Gladwell’s best-selling analysis of high achievers, and cited by New York Times columnist David Brooks as having helped to change the way people regard child-rearing.

In 2011, Lareau released a second edition of Unequal Childhoods with new research stemming from follow-up interviews with 12 children selected from the 88 participants observed in her study almost a decade earlier. These interviews reveal that cultural origins cast long shadows on life outcomes. Young adults raised in middle-class families know, for example, what grades they will need if they want to go to medical school and when to drop a class to preserve their academic standing. “They feel entitled to ask teachers, coaches, and other authority figures for help,” says Lareau. “When confronted with a problem, they draw on what they know about the inner workings of institutions and often manage to resolve the situation to their satisfaction. Grade protests, for example, are more common at Ivy League universities than they are at state colleges.”

Young people whose working-class parents had
less education and less involvement with academic institutions are unfamiliar with what Lareau calls “the rules of the game.” “They tend to be unaware of the options available to them and more likely to be frustrated by bureaucracies,” says Lareau. “They may not realize that grades in high school are important, or that community colleges and technical schools are not as prestigious as four-year colleges, or that they have a right to question decisions that affect them.” However, children of working-class parents also exhibited independence and problem-solving abilities their affluent peers are likely to lack. “Autonomy and the ability to negotiate the world on one’s own are important skills,” says Lareau. “We also need to have a clear-eyed view of the disadvantages of middle-class parenting.”

The second edition’s findings are echoed by public statistics. The Pew Foundation has reported that only 4 percent of low-income youth reach the highest income category. In research conducted with Penn Graduate School of Education alumna Heather Curl and doctoral student in sociology Tina Wu, Lareau found that most upwardly mobile individuals have benefitted from the presence and assistance of cultural guides. “These guides often take the form of teachers or counselors who help show working-class youth how to apply for college, where to apply, and other crucial pieces of information,” says Lareau. “These cultural guides can shine a light on complex situations by making the invisible visible. You cannot assume that working-class parents understand that four years of high school English are required to be admitted to many universities, or that a student who has enrolled in a college may still have to be encouraged to come to office hours. Little pieces of information can matter a great deal in a college career, and cultural guides can help upwardly mobile youth find their way.”

That’s not to say any one parenting style is problem-free. Concerted cultivation can go too far, resulting in “helicopter parenting,” in which many parents perform tasks that their children could and, some argue, should do. Parents in this category have been known to resort to hiring professional journalists to write their children’s college-admission essays. In one case, when the journalist explained that admissions officers want to see how prospective students express their ideas, the woman offered to pay more than she had first proposed. “This mother’s goal was to ensure that her daughter’s enjoyment of her senior year was not compromised by necessary but time-consuming

**“ULTIMATELY, IT’S ABOUT COMBINING COMMUNITY ENGAGEMENT WITH A COMMITMENT TO MAKING ACADEMIC RESEARCH APPLICABLE TO PROBLEMS THAT PEOPLE CONFRONT IN THEIR EVERYDAY LIVES.”**
tasks,” says Lareau. “She seemed perplexed by the journalist’s insistence that such behavior was unethical and inappropriate.”

Lareau hopes to continue unraveling the many ways that childhood inequalities manifest at later stages of life. “Ultimately, it’s about combining community engagement with a commitment to making academic research applicable to problems that people confront in their everyday lives. Parenting has come a long way since Colonial America. Many of those individuals would probably be imprisoned today for the way they treated their children,” Lareau says. “But it’s important to remember that there isn’t one right way to raise a child which transcends all. We have to find the sweet spot along the continuum of teaching our children beneficial and useful skills, giving them wings to fly, and stepping back to allow them to fail.”
Two satellite photos of the ancient Roman city of Apamea are juxtaposed on the computer screen. On the left, a vertical line marks an ancient colonnaded street crossing the smooth brown earth. In the right photo the street looks like it’s on the moon.

The first image of the site, located in western Syria, was taken in July of 2011; the second just nine months later. The “craters” covering the landscape are pits dug by looters. “Sites all over Syria look like this now,” says C. Brian Rose, James B. Pritchard Professor of Archaeology. “They dig one pit next to the other, next to the other, next to the other. And all of this material has been lost.”

Ancient history and modern politics are inextricable for Rose, who has co-directed excavations at Troy, on the northwest coast of Turkey, since 1988, and Penn’s massive Gordion project in central Turkey since 2007. He was the first to run the war desk created by the Archaeological Institute of America (AIA) in 2003 in response to the looting happening in Iraq. He’s seen colleagues forced to move their
work from Iran to Iraq to Syria to Turkey as war followed war. Now he watches as the Islamic State in Iraq and Greater Syria (ISIS) loots and destroys archaeological treasures. In February a United Nations resolution condemned the devastation of cultural heritage in Iraq and Syria by ISIS and the al-Nusra Front (ANF), “whether such destruction is incidental or deliberate,” and the income generated for these groups by stealing and smuggling antiquities.

“It was frightening and nauseating,” Rose says of the video of ISIS members smashing statues in a Mosul, Iraq, museum with sledgehammers and a jackhammer. Iconoclasm—the deliberate destruction of icons—has been around for millennia, but he realized he was watching a brand new approach. “ISIS has its own branch of digital humanities,” he says. “There were slow motion effects. There was special lighting. Their marketing department has conceived of this as a way in which to pull in recruits. And it seems to be working. But it’s beyond my powers of comprehension.”

At present, says Rose, scholars can only monitor the extent of the destruction. He believes that the archaeologist’s biggest responsibility today is to teach cultural property protection at every age level. “If you get to individuals while
they’re children and teach them respect for difference, for cultural heritage and the need for protection, you are investing in the future in the hope that they will be more aggressive in their efforts to protect cultural heritage.”

Last summer his team at Gordion, led by Gordion Assistant Director Ayşe Gürsan-Salzmann, began teaching the area’s children about the significance of the place where they lived. The royal city of King Midas, Gordion was the capital of the Phrygian people who dominated much of Asia Minor during the first millennium B.C. The site was inhabited for more than 4,500 years, and Penn’s dig there, which dates back to 1950, is one of the most important excavations in the world.

Rose sees the continuum from past to future in everything he does: “You want to leave as much as you can, not only for the next generation, but generations, plural, of archaeologists who will come in armed with better tools and techniques than those we currently possess.”

That means not only keeping extensive records but avoiding damage to the site whenever possible. As part of the Digital Gordion project launched in 2007, the team has been digitizing decades’ worth of past records and is using 21st-century tools to help map and preserve the different layers of the site.
They’re combining magnetic prospection—which gives a rough picture of what’s below the ground without digging—with radar data, information from previous digs, and aerial views with GPS information taken by drones to put together a three-dimensional map showing the site at different times through history.

“We’ve been able to model the landscape and map a series of settlements and the land around them far faster than ever before,” says Rose of the new digital tools. “In and Iraq, but what is feasible?” he asks. “You could, in theory, send the entire U.S. military to Syria to stop the iconoclasm, but that’s not a practical solution. Mapping these areas, photographing the looting, charting the destruction, and then making sure you have a sufficient number of cultural heritage outreach programs for the relevant stakeholders. And the relevant stakeholders include children in every country.”

In 2003 Rose expanded his teaching to another new type of student: soldiers. Charged with finding a way to stop the looting in and protect the cultural heritage of Iraq and Afghanistan, he developed a training program for the U.S. troops who would be responsible for protecting historical sites. After working through initial resistance from both the military and academics, he began speaking at military bases.

His first audiences hadn’t yet been to Iraq or Afghanistan, so Rose highlighted well-known tales from the Bible—the Garden of Eden, Abraham at Ur, Daniel in the lion’s den in Northern Iraq—that have been linked to discoveries in the area, to give the soldiers some association with the places. He also described Alexander the Great’s challenges in Afghanistan, which mirrored the hurdles the U.S. troops were facing. He named everyday things which came from Mesopotamia: the first dictionaries, first schools, and first code of law, as well as coffee and soap.

Troops who had been deployed began to tell Rose about the things that they themselves were seeing. “So I learned from firsthand experience about a lot of these sites that I had never seen, and that no one but the soldiers was seeing now,” he says. “They relate to the culture in ways I can’t imagine.”

“WE NEED A UNITED NATIONS OF ARCHAEOLOGISTS.”

areas like Syria that’s vital because we’re running out of time to record the cultural heritage of the Near East.

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tell him how they’d stopped people from looting or changed a construction site when traces of ancient walls were found.

Eventually Rose and the soldiers also began to talk about similarities between what they were experiencing and war as described in the Homeric epics. “In the Trojan War there’s a Greek soldier named Ajax who experiences temporary insanity, a kind of PTSD, and commits suicide,” says Rose. “This happens in the armed forces, in almost every country, I suppose.”

Rose has begun to work with Kimberly “Max” Brown, GR’04, a Penn Ph.D. in archaeology of the Mediterranean world who is co-director of research development and grants manager for the U.S. Department of Veterans Affairs Center for Health Equity Research and Promotion, and other Penn faculty and VA staff to create EternalSoldier.org. Their goal is to empower veterans by showing that the emotional, spiritual, and psychological experiences of war have a timelessness that unites all warriors. (See “Movers and Quakers,” page 36.)

At the same time, Rose takes kindergarteners and scout troops through the Penn Museum and has developed a program on archaeology for kids in long-term care at the Children’s Hospital of Philadelphia. He continues to work with the U.S. military and the Navy ROTC students at Penn. He’s trying to get other nations to commit to cultural history training for soldiers. “We need a United Nations of archaeologists,” he says. “Antiquity has never been more relevant to the modern world than it is now. We can’t know where we are unless we know where we’ve been. That’s why scholars specializing in the ancient world are vital to an understanding of what’s happening all around us, both in war and in politics.”

He remains an optimist, but one who works nights and weekends. “There’s never a glass I see as half-empty,” he says. “But we’re all going to have to work a little harder if we’re to have a future that continues to feature the great monuments of world civilization.”

To visit the Digital Gordion site, go to: http://sites.museum.upenn.edu/gordion/
When graduation time rolled around, Josephine Shin, C’01, started getting a lot of advice—not all of it good. “Everyone told me how women’s studies majors don’t generally put in for finance jobs,” says Shin. “But instead of limiting my options, it’s what made me stand out.” Then there’s Kiel Berry, C’05, the successful banker who now spends his days shaping a world-renowned rock group’s creative brand. What do they have in common? They’re both products of a Penn Arts and Sciences education they say provided them with the skills and knowledge to succeed in whatever they endeavored.

Ask any young Penn alumnus and they can readily recall moments from their undergraduate studies that had a profound impact on their ability to adapt to evolving career choices.

We spoke to five young alumni about how Penn Arts and Sciences helped prepare them to follow their callings.
For Josephine Shin, there is no typical day on the job. As a portfolio manager and credit analyst for global alternative fixed income asset management firm Alcentra in New York, she thrives in fast-paced, high-pressure environments. “It’s intense because at the end of the day it is performance-driven and every day something new happens with the companies we invest in,” says Shin. “You have to make smart, educated, and timely decisions that will best serve your clients.” Her secret weapon, she says, is her eagerness to learn and her ability to thrive outside of her comfort zone—skills she attributes to her liberal arts education at Penn.

“I didn’t go to college at age 17 to be a banker, doctor, or a lawyer,” says Shin. “For me, it was about exploring what interested me, and being in the College at Penn allowed me to do just that.”

That interest turned out to be women’s studies and sociology, fields that hadn’t even been on Shin’s radar before she explored her elective choices freshman year. “There was no doubt in my mind when I took my first women’s studies course that it was what I wanted to pursue,” says Shin. “It pushed me to think about the things that I had taken for granted in my life. Spending those years debating these notions with an open mind prepared me for life after college, and to be comfortable challenging conventional ways of thinking.”

It was her unique liberal arts background that got her in the door when she started applying to financial firms, she says. “I credit my confidence in my own voice, which is especially important in a male-dominated industry, to my choice of studies.” And even after 15 years in the financial sector, Shin says, she still loves what she does.

“It’s important that we’re not just surrounded by people that think like each other all the time,” Shin says. “As a College graduate I am grateful for those four years I spent studying something of interest in a nurturing environment, and I hope to reciprocate by providing opportunities to those who are interested in paving their own paths.”

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Kiel Berry, C'05

For as long as he can remember Kiel Berry has been engaged in an internal struggle. “I constantly bounce between the right- and left-brain,” laughs Berry, an economics major. “I always had this creative side, but I could never really find a way to get paid for it.”

Leaving a banking career with J.P. Morgan behind, Berry now runs Machine Shop, an innovation company for rock band Linkin Park, which has sold over 60 million albums worldwide and won two Grammy Awards. The venture combines a host of talents Berry says he cultivated during his studies in the College.

“When I first came to Penn it was a bit of a culture shock, so I just tried to soak up all types of amazing classes,” says Berry, a self-described global citizen who spent his formative years in Paris, France. “The fact that I could take international economics and study the history of jazz at the same time was really important. I was able to get an understanding for the business nuances of the markets I would work in, as well as references for the music genres of deep house and funk that I would end up DJing later in life.”

Berry, who has been a musician from a young age and currently performs as one half of DJ duo Laedi, says his work with Linkin Park has provided him the opportunity to work in music while also using his economics background to be at the forefront of non-traditional business initiatives. He cites a recent fashion capsule collection release in collaboration with the company Square, which produces technology that allows anyone to accept payments on their mobile devices, as one of his most recent initiatives.

“We mobilized select fans and set them up with the tools they needed to promote the new album and the fashion line, then let them act as vendors,” says Berry. “We launched the album simultaneously in 19 markets around the U.S.” Under his lead, Machine Shop is harnessing everything from fashion and design to games and movies in an effort to ensure the band is reaching as many fans as possible. More recently, Berry helped launch the venture capital arm of Linkin Park, Machine Shop Ventures, to invest in startups and tech companies they believe in.

In 2013, Berry decided to chronicle his experiences in a book he hopes will inspire other young professionals. For Stunt: Navigate the Journey, he interviewed millennial entrepreneurs from all around the world. “Instead of writing an autobiography, I wanted to teach young people they can embrace a non-traditional path to reach their ideal lifestyle and dream career,” says Berry. What comes next? “You never know with me. I like to break glass and run rogue into new terrain—that’s what I stand for.”
On a lark, Amanda Mintzer decided to sign up for a World War II history class her freshman year at Penn. “My professor for the course was Thomas Childers, and I fell in love with his style of teaching. Every day it was like listening to a great storyteller,” she says. “There were a lot of older Philadelphians who would come in to audit the class, and you could see them in the front row nodding their heads as he vividly described the turbulent times they had lived through.”

As graduation approached, Mintzer faced the age-old question: “What am I going to do with my life?” Her answer was to follow in the footsteps of her professor and become a history teacher. She enrolled in New York City Teaching Fellows, a two-year program that begins with an intensive boot camp designed to gear up young teachers to work with underserved populations. Before long, Mintzer was in front of a classroom full of seventh- and eighth-graders, teaching what she had come to love in college.

But it turned out Mintzer’s favorite part of being a teacher was in-between classes, when her students hung around to talk. “A lot of my students needed more social and emotional support than a teacher could provide … that’s when I realized I wanted to make a move.” So Mintzer embarked on the second half of her educational journey, embracing her Penn minor in psychology. After three years of working in public school, she enrolled in the Ferkauf Graduate School of Psychology to pursue a career in child and adolescent mental health. Now, for her post-doctoral fellowship she is working in the Anxiety and Mood Disorders Center at the Child Mind Institute in New York.

“When your foot is broken, people have sympathy for you. When you say you’re depressed, people don’t really want to talk about it,” says Mintzer, a cognitive behavioral psychologist who specializes in a range of anxiety disorders, including selective mutism. “These kids might be fabulous little chatterboxes at home, but they are unable to speak at school or in the community. They often get labeled as shy, but selective mutism is an anxiety disorder that children do not simply grow out of.” Mintzer says early intervention is best to break the cycle of negative reinforcement that perpetuates the pattern of not speaking.

She also teaches coping skills to help children learn how to gradually face their fears. “For kids with social phobia, we’ll walk around the city wearing wigs to draw negative attention towards ourselves so that they can learn to tolerate the distress instead of avoiding it,” she says. “When you avoid what you are scared of, you never learn that you can face your fears.”

Mintzer credits her unique career trajectory to her time at Penn. “I have been fortunate to be able to combine all the things that stood out to me in college, especially my background in education and history, and find something I really love doing.”

“Amanda Golden Mintzer, C’06

“WHEN YOUR FOOT IS BROKEN, PEOPLE HAVE SYMPATHY FOR YOU. WHEN YOU SAY YOU’RE DEPRESSED, PEOPLE DON’T REALLY WANT TO TALK ABOUT IT.”
In Dennean Davis’ line of work, you need to know what consumers want before they know it themselves. And Davis, Senior Account Executive in digital brand strategy at Google, says it was the psychology program at Penn that gave her the tools she needed to excel in understanding people’s needs.

“I’ve always been curious about what makes people tick. In the new digital world, there is a wealth of user information that we have access to in order to help clients understand who their consumers are and how they want to be spoken to,” says Davis. “With millennials especially, they aren’t interested in having messages pushed out to them—but when they do decide to seek information out, it needs to be readily available.”

Davis’ first two roles out of college were in the pharmaceutical industry, at Sanofi-Aventis and Novartis Pharmaceuticals. The healthcare field spoke to her second major, Health and Societies. “Many of the courses I took focused on under-privileged communities and the outages that existed when it came to access to care,” she says. “So when I went into the pharmaceutical industry out of college, I was very interested in how they provided aid and treatment to these communities.” From there, Davis transitioned to a brand management role at Johnson & Johnson, where she focused on product marketing in the consumer healthcare space.

During her time at Johnson & Johnson, it quickly became clear to Davis that the future of marketing was in digital. That’s when she decided to make the move to Google. “One of the biggest mistakes you can make in my line of work is not changing with consumers as they grow and evolve,” she says. “It’s critical that you unpeel the layers and take an in-depth look at people’s habits and needs if you want to know what drives the consumer’s mindset and connect with them on an emotional level. There’s no better place to do that than online.”

Davis says that one of the many things she values about her current company is the diverse set of people she gets the opportunity to work alongside every day. She credits her time in the Arts and Sciences program at Penn as uniquely preparing her to engage with a diverse team. “At Penn, students came from all different backgrounds and I quickly understood how important diverse thinking is when it comes to finding the best solution to a problem,” says Davis. “At my job it’s very difficult to look around and say this is what a typical person at this level looks like. So being able to appreciate different schools of thought and approaches to solving complex problems is a major key to success.”

"ONE OF THE BIGGEST MISTAKES YOU CAN MAKE IN MY LINE OF WORK IS NOT CHANGING WITH CONSUMERS AS THEY GROW AND EVOLVE.”
Like many aspiring young writers, Zachary Sergi dreamed of penning the next Great American Novel. Little did he know that a course during his junior year at Penn would steer him in a different direction entirely: Hollywood.

“I applied to Penn with an eye to the creative writing program, but then my junior year I took a unique class with TV director and writer Andrew Wolk, C’70, who was a visiting instructor at the time,” says Sergi. “We would have these epic sessions where he would help us write our own screenplays. I loved TV and movies, but it just never occurred to me that this was something I could actually do as a career. It marked a switch for me.”

Sergi had interned for popular author James Patterson’s brand management team his first two summers at Penn, but after the course with Wolk, he decided to move to L.A. to pursue his television writing career. “I had done a lot of networking when I applied for internships through Penn’s RealArts@Penn program. Mingo Reynolds, the director there, was phenomenal at creating opportunities for me,” Sergi says. “So I ended up going to California to work on a movie called Free Birds.”

His newfound passion for television writing hadn’t diminished his love for fiction writing, though. Sergi’s big break came when he joined an experimental think tank for the Disney Channel. “I got the job based on a pilot I had written my senior year under the mentorship of TV writer Mark Rizzo, C’92,” he says. “It was me and five other young writers brainstorming new ideas for original movies.” While he was there, Sergi was introduced to his first manager, who helped land him a gig at publisher Choice of Games.

“They wanted to modernize the old choose your-own-adventure books and turn them into apps you could interact with,” Sergi says. “I had always been a huge comic book fan so I pitched this idea about an American Idol for superheroes.”

Sergi took a year to write Heroes Rise. “I thought maybe my parents and friends would read it,” Sergi laughs. “Long story short, it sold well and now I’m working on a fourth book. We’ve sold 130,000 copies, and we have this kind of a cult following that really allows me to connect with readers.”

Sergi recently completed work on a television pilot that is being shopped to networks with a production company attached. “Penn taught me to be very entrepreneurial, which is crucial because writing for yourself and writing for a career are two very different things.”

“I HAD ALWAYS BEEN A HUGE COMIC BOOK FAN SO I PITCHED THIS IDEA ABOUT AN AMERICAN IDOL FOR SUPERHEROES.”
Martha Farah can still remember the smell of the Hayden Planetarium in New York City’s Central Park: “I used to save up my allowance so I could take science classes there. I practically lived in the place.” For Farah, whose parents were both in the arts, wanting to become a scientist was a form of rebellion. As a graduate student in experimental psychology in the 1970s, Farah broke with the pack yet again and joined a group of scientists bent on understanding whether human behavior and psychology were influenced by the brain’s neurological properties—a connection met with widespread skepticism at the time. Now a leading expert in the field of cognitive neuroscience, Farah is conducting research at the interface of neuroscience and society—and nowhere are the stakes higher than poverty’s impact on childhood brain development.

“It goes back to when my daughter was an infant and I hired babysitters. Some of these women had grown up on welfare and were receiving welfare themselves,” says Farah, Walter H. Annenberg Professor in the Natural Sciences. As she got to know them better, Farah was shocked by what she learned of the women’s lives. “Their daughters and sons and nieces and nephews began life with the same evident promise as my daughter and her friends. Yet as the years went on, I saw their paths diverge. On our side of the tracks, preschoolers knew their letters and numbers, elementary school children were familiar with different neighborhoods and different cities, and middle school children read newspaper headlines and asked their parents about them.”

The children raised in poverty did not keep up with these milestones, but they were ahead of their peers in their first-hand experience with violence, death, and the criminal justice system. “The preschoolers knew to fear the neighbors from the local crack house, by elementary school they recognized the sound of gun shots, and by middle school they knew about prison because a relative had been there,” says Farah, who has been named a fellow of both the American Association for the Advancement of Science and the American Academy of Arts and Sciences. “While middle class children get abundant opportunities to explore with relative safety, poor children live under great stress and fall more behind each year.”
Her findings are based upon field research that began in 2000, and is still ongoing. Farah, along with graduate student Kim Noble, C’98, GR’05, M’07, and pediatrics professor Hallam Hurt of the Children’s Hospital of Philadelphia, started working with Philadelphia families in order to collect information on childhood socioeconomic status (SES) and investigate its correlation with lifelong mental health, cognitive ability, and academic achievement. She used computerized testing to measure aspects of the children’s performance during tasks that were known from previous research to engage specific neurocognitive processes. She found that poor children were less likely to develop strong learning and memory abilities, and this was attributable in part to their stressful lives.

“The samples we examined suggested these stress levels were negatively impacting language, memory, and the ability to flexibly focus attention on the task at hand,” Farah says. She was particularly interested in the link between stress and memory: “You might not expect the two to be closely related, but there is ample neuroscience research showing a link, and we found that the kids with the weakest memories had parents who were less able to protect them from the stress of poverty.”

Noble, who is now a professor at Columbia University, recently led a comprehensive project to examine whether children’s brains were being affected on an anatomical level. “It has greatly clarified the picture of these effects,” Farah says. “They are independent of race and ethnicity, and the differences are biggest between the very poor and poor, rather than differences within middle class between, say, lower- and upper-middle class.”

Where do the results lead? “A little bit of stress is inevitable and probably healthy, but unrelenting severe stress, which is surprisingly common in poor families, is neurotoxic,” says Farah. “It’s just one more argument for providing the necessary aid for parents to ensure these kids are not overly stressed in their formative years.”

It wasn’t long ago that such connections would have been discredited. The inception of cognitive neuroscience as a serious research field was a complicated one, she recalls. “In the 1970s, relating neuroscience to the mind was considered radical,” says Farah, who was a graduate student in experimental psychology at Harvard at the time. "When I asked my advisor to sign a cross-registration form for a neuroscience course, he lectured me on the mistaken notion that the brain’s hardware could tell us anything about its software."

Cognitive psychologists were making tremendous progress studying the mind scientifically by using a theoretical framework from computer science. This model made it possible to discuss mental entities scientifically, even though they were not concrete physical objects, by viewing them as information structures. “Unfortunately, this conceptual advance in psychology got people thinking about information as it was represented in their office computers—where hardware and software had been engineered to be quite separate,” says Farah. “So they assumed that information in the brain’s ‘software’ was independent of the physical details of the brain.”

By the 1980s this perspective began to change. For her dissertation, Farah was confronting a question that was proving difficult to solve using traditional methods of psychology: “There was a controversy over mental imagery, or ‘seeing with the mind’s eye.’ Was it based on perceptual representations, or a more abstract form of thought?” Her research found that patients with damage to the visual areas of the brain showed changes in their mental imagery that paralleled changes in their perception. This made sense only if they were using their damaged visual perceptual representations for imagination. With the advent of functional brain imaging, she confirmed this: “The parts of the brain that became active when people imagined with their mind’s eye included parts of the visual system,” says Farah. “It was very exciting to be able to open the black box of the mind and see how it was organized.”

Now that the science is established, the challenge becomes using the extrapolations from a wide-arching, dynamic study like the
one of poverty and its effects on the brain, and implementing real-life solutions. Toward this end, Farah’s team is combining forces with the Abecedarian Project, which between 1972 and 1977 carried out one of the most successful interventions ever documented to promote early childhood education and development of infants from low-income families. Farah, along with Craig Ramey, a professor of psychology and pediatrics; Sharon Ramey, a professor of psychology and psychiatry; and Read Montague, a professor of physics and of psychiatry and behavioral medicine (all from Virginia Tech), will be inviting “graduates” of the infancy-through-elementary school program and the control subjects to Virginia Tech for fMRI scanning, in order to see how a good education-based intervention impacts brain development.

Farah has balanced her research with her duties as founder of two centers at Penn: the Center for Cognitive Neuroscience (CCN), which she directed from 1999-2010, and the Center for Neuroscience and Society (CNS). The CCN is a multidisciplinary community dedicated to understanding the neural bases of human thought. As director, Farah used various forms of social engineering, including mixing students and staff from different faculty labs and housing them in offices with communal resources. “You’d be bumping into other faculty and students when you were heating your lunch or analyzing your brain images,” says Farah. “We ended up with a wonderful group of people, with many close collaborations among them.” The CCN continues to flourish under the co-direction of Christopher H. Browne Distinguished Professor of Psychology Sharon Thompson-Schill and Professor of Neurology and Radiology John Detre in the Perelman School of Medicine.

The CNS, which Farah founded in 2009, works to address the ethical, legal, and social implications of neuroscience. It brings together faculty and students from Penn Arts and Sciences, the Perelman School of Medicine, Engineering and Applied Science, and Law, as well as Wharton. “With neuroscience touching our lives in so many ways, from ad campaigns formulated with neuromarketing methods to judicial decisions citing brain imaging evidence, we need to analyze the impact of neuroscience on society and work to encourage responsible, positive uses,” says Farah. CNS also hosts the Neuroscience Boot Camp, which brings non-scientific professionals like reporters and lawyers to Penn to learn more about the latest in neuroscience and what it means to society. Farah and colleagues have also worked with the Franklin Institute and the School District of Philadelphia to introduce neuroscience courses into several city high schools.

In addition, CNS now offers a new certificate program in Social, Cognitive and Affective Neuroscience (SCAN) that helps prepare graduate students to work knowledgeably with neuroscience in a wide range of careers. The curriculum focuses on the aspects of neuroscience that have the most direct application to the understanding of human behavior, and so far students have come from a variety of humanities and social sciences departments as well as the law school and the Graduate School of Education. “We want to equip these students to think critically about the role of neuroscience in the new ‘neuro-fields’ like neurolaw, neuroeconomics, neuroethics, and so forth,” says Farah. “It is so rewarding to teach these students, who are smart, mature learners but just beginning to discover neuroscience.”

This summer, Farah plans to catch up on her writing, including an article on transcranial direct current simulation (tDCS), a new method for influencing brain function by running very low current through the brain. “A lot of people have started using it—some even at their own home with batteries and wire from a hardware store,” she says. “Not recommended, by the way!” Her article is a quantitative review of the cognitive enhancing effects of tDCS. “There is a lot of controversy over whether it can improve cognition in a normal, healthy person. We are hoping to clear things up a bit.”
The recent focus on Ferguson, Missouri has generated a welcome national dialogue about criminal justice policy in the United States and the rampant use of legal financial obligations, such as fines and court fees, to fund government services. In a report analyzing all that went wrong in Ferguson, the Department of Justice highlighted costly penalties for municipal violations, which saddle the poor with a sizable amount of debt to the courts. Ferguson assessed these penalties regardless of an individual’s ability to pay, and then put individuals who could not afford to pay their debt on payment plans that carry high fees. Every missed or partial payment was treated as a “failure to appear” offense, which may then result in an arrest warrant. While in some ways the case of Ferguson is an outlier, less extreme versions of this same story could be documented across the United States.

We have spent the past year researching the role of criminal debt in Alabama. One of the major issues we have identified in carrying out this research is that while individual fines and fees might not seem overly burdensome, they accumulate to form a substantial amount of debt. When considered in isolation, it seems quite reasonable to charge someone convicted of a crime $30 for the investigation of their criminal history and $21 to help fund the Alabama Solicitor General’s Office. Yet it isn’t unusual to find that all of the fines and fees associated with a single conviction, felony, or misdemeanor add up to $2,000 or more. If a conviction involves restitution, the total cost can be substantially more.

Another reason fines and fees accumulate is that different levels of government all want their share of the revenue. Consider docket fees, which are the price of a case being placed on a court’s calendar and are present in every case the court hears. Docket fees, like every other type of fee, are not part of the punishment, but rather reflect the cost of using the courts. In Alabama, the statewide felony docket fee is $247, but counties can tack on their own fees too. So Coosa County, for example, adds an additional $58 to the docket fee. Surprisingly, municipal violations can be even worse. A municipal ordinance violation docket fee can range from $144 to $374. The docket fee for a traffic infraction can be $111 to $199.

Our research shows that the median amount of fines, fees, and restitution associated with a felony conviction in Alabama in 2005 was about $2,000. The median annual income reported in a 2014 survey of Alabama ex-felons by Foster Cook was less than $10,000. Cook’s study found that 60 percent of individuals in Alabama paying court costs had to choose between paying
off their debt and buying essentials. In the same study, 17 percent of individuals admitted to committing crimes to pay court costs. Given this, we were not surprised to find that the median balance owed today on a 2005 felony conviction is about $1,000.

Despite this, our research documents a general increase in court costs over time, leaving more and more individuals with outstanding criminal debt. Not only is it common for courts to charge fees for payment plans as in Ferguson, but courts may also charge fees for debt collection. Alabama imposes a fee of 30% after 90 days. Failure to pay this criminal justice debt may result in an individual having his or her driver's license suspended or even spending time in jail. In some states, including Alabama but also Arizona, Arkansas, Florida, Iowa, Kentucky, and Tennessee, restoration of voting rights are conditioned on the payment of these legal financial obligations.

More work on this topic is needed. The extent of criminal justice debt—and the broad inability to pay it off—suggests that legal financial obligations themselves could play an important, though under-theorized, role in structuring inequality and mediating citizens' relationship with the state.

Marc Meredith is an associate professor of political science at Penn, and Claire Greenberg, C’17, is a Philosophy, Politics, and Economics (PPE) major. Michael Morse, C’13, is a graduate student in government at Harvard University.
ROOMS OF THEIR OWN
NEW CENTER LETS STUDENTS GET HANDS-ON WITH PENN MUSEUM’S VAST COLLECTION

BY SUSAN AHLBORN

Three professors, 21 students, and a 6,500-year-old human skeleton fit perfectly into the largest classroom in Penn Museum’s new Center for the Analysis of Archaeological Materials (CAAM) this spring. Their class, Living World in Archaeological Science, was designed specifically for CAAM, created to allow Penn students to study archaeological specimens hands-on.

The Living World class introduced undergraduate and graduate students to the scientific laboratory analysis of human, animal, and plant remains. The course was team-taught by Assistant Professor of Anthropology and Weingarten Assistant Curator for North America Megan Kassabaum; Adjunct Professor of Anthropology, Associate Curator-in-Charge of Physical Anthropology, and Keeper of Collections Janet Monge; and Mainwaring Teaching Specialist, CAAM, and Lecturer in the Department of Anthropology Katherine Moore.

Each professor led a section—Monge

Janet Monge and students study a human skeleton at the Center for the Analysis of Archaeological Materials.
on human skeletal remains, Moore on animal remains, and Kassabaum on plant remains—in a course designed to develop an interdisciplinary approach to excavation and analysis—something still rare in archaeology. “It was a challenge for us to put together these methods that are not routinely put together,” Moore says. “It really needed all three of us.”

Their goal was to produce students who could synthesize findings in all three areas to answer big questions—about the environment, about the production and consumption of food and its impact on labor, health, and trade.

In each section, the professors gave students never-before analyzed material to work with. “The difference between the lab work we do here and the lab work in chemistry and biology is that there are no answers on the back of the paper here,” says Moore. “The students were working with unknown, uncharacterized, totally mysterious materials. And they were giving them context and meaning.”

The skeleton used in Monge’s section had been “rediscovered” just last year in the museum basement, its identifying documentation gone. “The students took on the challenge of laying out a long-term research project framed around this individual,” says Monge. “It’s a completely unique specimen. We couldn’t blow it.” The testing, which includes X-rays, CT scanning, and DNA sampling, is still in progress, and Monge will follow up with the students over the next year to let them know the results.

The stakes were high for all three sections. When one student was worried about finding only a few seeds in her samples, Kassabaum told her that just one seed could push the date of agriculture development in the Lower Mississippi Valley back by 300 years. “This isn’t going into their final research project to never be looked at again,” Kassabaum says. “I’m going back to these sites this summer, so what they find in this class will affect my own research program.”

Graduate students in the class did a capstone project in which each examined a site using all three types of materials. The professors hope that some will turn their papers into presentations at national meetings. Kassabaum says, “If we can have a cohort of grad students who go out and present papers that integrate all three of these datasets, they’ll be on the forefront of the way people are thinking about archaeobiology.”

“It’s given me a background so that I can better examine the things I’ve found in a cohesive way,” says Megan Postemski, a first-year doctoral student who has dug in Pennsylvania and New England. “The different remains—animal, human, and plant—are all interconnected, and come together in nice messy triangles.”

The best part was the chance to do hands-on work, she says. “Most other classes are theory and discussion. Here, it’s, ‘Go try it in the lab.’”

Pre-med biology major Omar Sobh, C’15, was able to incorporate some of the information from his anatomy and physiology classes in his analyses, and learned how biological data can be used to draw conclusions about society. He says the interdisciplinary and collaborative approach used in the course will be a model for him as a physician working with professionals in other fields like public health to understand context “It’s the same idea—working with individuals with different areas of expertise and unique experiences to form hypotheses and to draw conclusions.”

Because of the size of the museum’s collection—nearly one million objects from six continents—and its active research agenda, CAAM is “absolutely unique,” says Clark Research Associate Professor of Assyriology Steve Tinney, who is CAAM’s director, Penn Museum Deputy Director, and Associate Curator-in-Charge of the Museum’s Babylonian Section. The museum staff and Penn Arts and Sciences faculty are continuing to develop a range of opportunities in the center, from a freshman seminar to independent research. Tinney says, “We hope it will be interesting enough for students to take the classes and get the benefit of learning to think by combining related disciplines, in ways they might not be able to do in other areas of the University.”
Kimberly “Max” Brown, GR’04, has never been afraid to try something new. She was the first person in her family to go to college. Later, she became the second African American in the country to earn a doctorate in Mediterranean archaeology. Then, setting her sights on public service, she started a career as an administrator with the U.S. Department of Veterans Affairs’ National Center for Health Equity Research and Promotion. Now she’s combined her passions for ancient cultures and veterans’ experiences to launch a personal project, Eternal Soldier—an accessible, humanities-based project uniting veterans, scholars, and clinicians to engage other veterans and their caregivers in therapeutic conversations about the experience of war. (*Eternal Soldier is not funded by the VA.*)

**Q: How did Eternal Soldier come about?**

I teach a class on ancient Rome at the University of the Arts in Philadelphia, and the daughter of a veteran was one of my students. While reading *The Aeneid*, she pointed out that the story surrounding one character reminded her of her father. And that led us to talk about her father and his two tours in Iraq and some of the things that he was struggling with. She felt he was a stranger to her in some respects and that reading *The Aeneid* helped her understand some of the things that were driving his behavior. And that just opened my mind.

**Q: How can engaging with ancient cultures help modern veterans?**

Any veteran who’s been involved in any war is a part of history. And we want to help them have that sense. For example, you can find many illustrations from ancient art—literally 3,000 years ago—of retrieving dead and wounded comrades from the battlefield. The technological details may be different today, but the intent is the same. To understand that a little bit better would be valuable not only for veterans, but for clinicians who are confronting former soldiers who feel a great deal of guilt over who survived the battle and who didn’t, what happened to their bodies afterwards, and what happened to the wounded.

**Q: What have you accomplished so far?**

We started in February 2014. We had a workshop, which was the idea of [Penn Arts and Sciences’ James B. Pritchard Professor of Archaeology] Brian Rose, who’s the curator of the Penn Museum’s Mediterranean Section. It was an incredible day, and it has just grown from there. We launched a web site in January, and in the spring we had a speaker give talks at Penn and the Philadelphia VA Medical Center about reading *The Iliad* and *The Odyssey* with veterans.

**Q: What’s next?**

We’re starting off with works that are familiar and have a currency that modern veterans will be able to appreciate. For instance, we’ll look at the Trojan War because a lot of people at least know of it. We don’t need to focus solely on Greece and Rome, though. I’ve been approached by scholars in other specialties—for instance, a person who wants to do something on *Beowulf* and work on these issues from a medievalist’s perspective. I’ve also been working with an expert in the ancient Near East, and we’re going to do some programming on interesting correspondences between ISIS and the same types of military movements that have been happening in that exact landscape since 2000 B.C.

We’ve also been working on ways to get veterans to visit museums, but to do it in a fashion that responds to what the veteran would like to see instead of what the museum thinks the veteran would like to see—sometimes that’s a little different. We have clinicians who want to start a reading group. We also have plans for veterans to do archaeology at Valley Forge National Historic Park as a chance for them to see how other soldiers lived 240 years ago.

**Q: What effect do you see Eternal Soldier having?**

When veterans come back to our beautiful society, which hasn’t been touched by war in obvious physical ways since the Civil War, a lot of them feel their experiences are invisible. So Eternal Soldier is about making visible something that has, for the most part, been invisible. But it has a twofold purpose. I recognize that the humanities are under a certain amount of pressure and many people feel they should be studying only those things that improve their economic status. For those of us who don’t see education in that light, Eternal Soldier has become an outlet to disprove that.

*Eternal Soldier does not represent the views of the Department of Veteran Affairs or the U.S. government.*

Learn more about Max Brown’s work at www.eternalsoldier.org
Petra Todd, Alfred L. Cass Term Professor of Economics, started training in ballroom dancing almost a decade ago. She now competes at the silver level in Latin, which includes the cha-cha, samba, rumba, paso doble, and jive; and smooth and international standard, which includes waltz, tango, foxtrot, Viennese waltz, and quickstep. Her dance teacher (pictured) is Vitaliy Logishev, three-time U.S. Rising Star Champion and a Russian Professional 10-Dance Champion.

Photo credit: Charles Ryder Photography
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