



FROM THE DEAN

Dr. Heidi Bostic
Dean, Klingler College of Arts and Sciences

W

elcome to the 2020 issue of *A&S Marquette* magazine. It illustrates the excellence, dedication and resilience of the faculty, staff and students in the Helen Way Klingler College of Arts and Sciences. Here you will find testimonials to the transformational difference our college makes as it enacts Marquette's Catholic, Jesuit mission. The research, teaching and community engagement described here spans Milwaukee, Washington, D.C., Guatemala, the South Pole and beyond. Our cover story reflects the importance of the humanities and social sciences as

preparation for careers in medicine. These fields provide perspective on the human condition and hone the capacities of medical students to assess situations and understand patients. Related stories describe a method developed by a physics faculty member to sterilize masks for the Kenosha (Wis.) Fire Department as part of our community's response to the COVID-19 pandemic and an English faculty member's award-winning book about the written reporting skills of first responders.

Our faculty exemplify the teacher-scholar model in the classroom and beyond. Stories in this edition span the history of rock and roll, opportunities for students to interact with persons studying while incarcerated, an archaeological study of

“What drew me to Marquette and to the college are the purpose, the people and the place. There is nowhere I would rather be.”

EDITOR'S NOTE: The production of *A&S Marquette* magazine was nearly complete when the coronavirus pandemic closed the Marquette University campus. Although pandemic conditions ended plans to print the issue, the Klingler College's leadership has decided to share the inspirational stories of faculty research, college happenings and alumni accomplishments found in this issue with you, as a digital-only release. In a few cases, updates were made to existing stories most affected by the COVID-19 crisis. Within this issue, however, we have not addressed the transformational recent protests gripping the nation since the death of George Floyd. Please understand, the protests and subsequent calls for racial justice are important to the Klingler College and Marquette University as a whole, and we are committed to covering this movement in future communication efforts.

an African American neighborhood and the use of big data to understand the 2020 election cycle.

Our alumni are central to Marquette and to our college community. Alumna Dr. Malore Brown testifies to the impact of the Educational Opportunity Program, founded at Marquette, which recently celebrated 50 years. We also recognize another recent milestone, the 30th anniversary of The Les Aspin Center, which has provided generations of students with incredible opportunities.

The stories in this magazine amply demonstrate why I am delighted and honored to join the college as dean. What drew me to Marquette and to the college are the purpose, the people and the place. There is nowhere I would rather be.

Special thanks to Dr. Heather Hathaway for her leadership as acting dean over the past year. I also want to thank staff members across the college for their adaptability and professionalism. And my heartfelt gratitude goes to our faculty members, who have continued to provide students a world-class educational experience while carrying on with their research, creative activity, university service and community engagement.

True to the spirit of Marquette's founders and benefactors and to all of those who have come before, the college this year faced formidable challenges with grace and determination. That spirit will carry us onward. Thank you all for your steadfast support of Marquette. I would love to hear from you!

Heidi Bostic



MARQUETTE UNIVERSITY KLINGLER COLLEGE OF ARTS AND SCIENCES MAGAZINE 2020

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Editor
Sarah Koziol, Arts '92

Creative director
Sharon Grace

Art director
Karen Parr

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Stephen Filmanowicz
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Jennifer Russell
Enrique Torruco, Comm '15,
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John Nienhuis, page 7;
Dan Johnson, page 8;
Stu Nielsen, page 9

Illustrators
Traci Daberko, cover, pages 22-27;
the i spot, page 14

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INSIDE ARTS AND SCIENCES

COLLEGE HAPPENINGS Peace Works gets its message to more students, rock and roll at the core of a team-taught course, Les Aspin Center for Government celebrates 30 years, Klingler College's broad research on full display.

RESEARCH Filling the critical need for computer science education, a method to identify sex chromosomes in reptiles, how state litigators influence public policy, remembering Madre Rosa's influence on a Guatemalan village, assessing reporting skills of first responders, lab contributes to big-time international projects.

FEATURES

IN PURSUIT OF JUSTICE A psychology course's internships provide students with real-world experiences while tackling community challenges.

REMAINS OF THE DAY Artifacts from a historically relevant African American neighborhood lead to a cultural case study.

A PHYSICIAN'S FOUNDATION How the diversity of a liberal arts curriculum informs the human spirit for a career in medicine.

THE LANGUAGE OF OPPORTUNITY Alumna Dr. Malore Brown recognizes the Educational Opportunity Program that supported her dreams of a Marquette degree is just as relevant today as it was when it launched 50 years ago.





INTERNSHIP
OPPORTUNITY

The Arthur Vining Davis Foundations have awarded the Klingler College of Arts and Sciences with a nearly \$300,000 grant to ensure inclusive access for all students to participate in career-readiness internships. Through this two-year grant, for which Dr. Andrew Kunz, associate dean, serves as principal investigator, the college will be able to provide financial support for 140 students to participate in what are normally unpaid internships in local community organizations and government offices. Internships allow students the opportunity to apply their skills in the workplace so that they can experience firsthand how the transferrable skills of their liberal arts education translate into career preparedness and competitiveness in the job market.

1,500+



A screenshot of Dr. Leah Flack’s Modern Irish Literature class on Best Disguise Day.

The number of spring semester courses that had to be moved online in March because the COVID-19 pandemic forced the university to complete the semester’s course work remotely. Visit stories.marquette.edu and search for “digital transformation” to read how that Herculean transition materialized in just over one week.

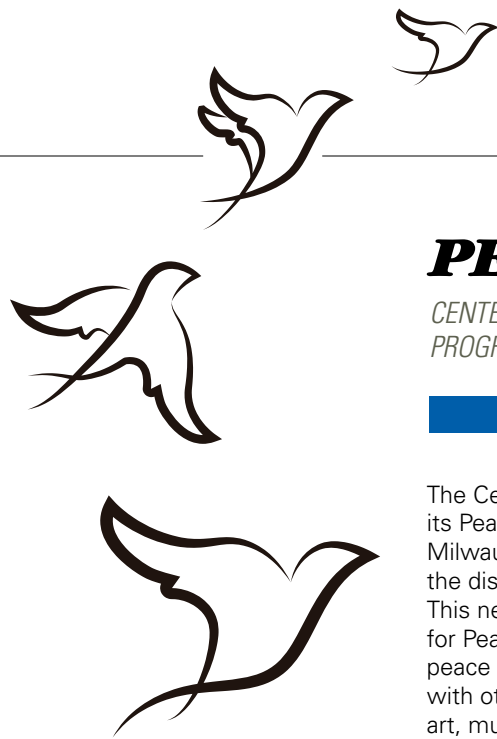
DATA SCIENCE DIRECTOR

KLINGLER PROFESSOR GUIDES INSTITUTE STRATEGY.



Dr. Edward Blumenthal was appointed Marquette’s director for the Northwestern Mutual Data Science Institute for the 2019–20 academic year. The institute is an industry and academic partnership between Northwestern Mutual, Marquette and the University of Wisconsin–Milwaukee, formed to help advance southeastern Wisconsin as a national hub for technology, research, business and talent development. Together, the three institutions will contribute \$40 million over five years toward these goals. As Marquette’s director, Blumenthal is responsible for setting research priorities, enhancing the university’s data science programs, growing data science skill sets in the Milwaukee region and establishing the institute as a national and global leader of data science. Blumenthal is the Klingler College’s associate dean for research and graduate affairs and was quick to embrace the role of data analytics in his previous role as the Biological Sciences Department chair. In the first round of projects supported by the institute, the Elecurator project is analyzing 2020 voter sentiment. Co-led by Dr. Amber Wichowsky, associate professor of political science, the team is mining data sources such as political polls and advertising, debate transcripts and social media interactions to understand which issues are on voters’ minds this election season.

Visit marquette.edu and search for “big data A&S magazine” for more information on the institute.



PEACE WORKS

CENTER FOR PEACEMAKING BRINGS SUCCESSFUL NONVIOLENCE PROGRAMMING TO MORE PUBLIC SCHOOL STUDENTS.

The Center for Peacemaking is bringing its Peace Works education program to Milwaukee Public Schools students at the district’s new MPS Success Center. This new partnership allows the Center for Peacemaking to offer its nonviolence, peace education program in collaboration with other therapeutic services, including art, music, drum and dance, and yoga therapy, for MPS students in grades 4 through 12. Peace Works utilizes a social-emotional curriculum, restorative practices and peer mediation to teach youth communication, anger-management and problem-solving skills through skill-building exercises, role play, games, reading, writing, art and reflection. Peace Works has been delivered in public and private schools in Milwaukee

and Chicago since 1997, serving more than 1,100 students in MPS behavioral reassignment schools alone. This new partnership will allow the center to reach more of MPS’ student population. In November, the Center for Peacemaking mourned the loss of its founding director, Rev. G. Simon Harak, S.J. In his six years at the center, Father Harak helped build a thriving research and cocurricular center that actively explores the power of nonviolence. His teachings, spirituality and leadership inspired students, faculty, staff and community members. A student room in the center has been dedicated in his memory. Search for “arts and sciences magazine” at marquette.edu to read more about the Center for Peacemaking in the A&S 2019 issue.

- ABBOTT LABORATORIES LAKE BLUFF, ILL.
- AMAZON SEATTLE
- AMERICORPS WASHINGTON, D.C.
- BAKER TILLY VIRCHOW KRAUSE CHICAGO
- BANK OF AMERICA CHARLOTTE, N.C.
- CHICAGO PUBLIC SCHOOLS
- DEPARTMENT OF DEFENSE WASHINGTON, D.C.
- DISCOVER FINANCIAL SERVICES RIVERWOODS, ILL.
- GE HEALTHCARE CHICAGO
- EL GOBIERNO DE ESPAÑA MADRID
- GUAM DEPARTMENT OF EDUCATION BARRIGADA, GUAM
- INTERNATIONAL ATOMIC ENERGY AGENCY VIENNA
- JESUIT VOLUNTEER CORPS BALTIMORE, MD.

WHERE IN THE WORLD
DO OUR A&S ALUMNI
WORK AFTER
GRADUATION?

Here’s just a sampling of employers
pulled from our most recent
First-destination Survey, along with
the employers’ headquarters’ locations.

- J.P. MORGAN CHASE NEW YORK
- LEO BURNETT CHICAGO
- MACCABI HOLON FC HOLON, ISRAEL
- MAYO CLINIC ROCHESTER, MINN.
- MILWAUKEE BUCKS
- NATIONAL DOWN SYNDROME SOCIETY NEW YORK
- SOCIÉTÉ GÉNÉRALE PARIS
- SPEAKER OF THE HOUSE WASHINGTON, D.C.
- UNIVERSITY OF CALIFORNIA, DAVIS
- U.S. SENATE WASHINGTON, D.C.

LONGTIME
FACULTY

The Klingler College recognizes the following faculty members who are celebrating 50-plus years at Marquette. We appreciate their steadfast dedication to the university and our students.

Rev. Ron Bieganowski, S.J., adjunct associate professor of English (50th anniversary as a Jesuit; 45th as a faculty member)

Dr. Curtis Carter, professor of philosophy

Dr. Carla Hay, associate professor of history

Dr. Jeanette Kraemer, associate professor of French

COMPUTING
SUCCESS

Marquette was ranked 16th in the nation for best online computer information technology graduate programs in the 2020 *U.S. News & World Report*. The success of the computing graduate program was boosted by the university's hosting of the 2019 Computers, Software and Applications Conference for the IEEE Computer Society this past summer. The event marked the return of COMPSAC to the U.S. for the first time since 2016, when it was in Atlanta, and just the third time since 2007. The conference was held in Tokyo in 2018 and Torino, Italy, in 2017.

MUSIC
LESSONS

INTERDISCIPLINARY COURSE
IN ROCK AND ROLL PROVES
THERE'S MORE TO THE GENRE
THAN MEETS THE EAR.

BY JIM HIGGINS, JOUR '79

Studying rock and roll is a vehicle for studying U.S. history, particularly racial relations, history professor Dr. Phillip Naylor contends. In a new team-taught course, studying rock also became an avenue for learning how ears and brains hear and interpret sound, differences between analog and digital recording, the role of algorithms in determining what we listen to, psychological development, mental illness and drug abuse.

During the fall 2019 semester, Naylor joined Dr. Stephen Saunders, chair and professor of psychology, and Dr. Elaine Spiller, associate professor of mathematical and statistical sciences, to teach Rock and Roll in the U.S.A.: The Music of America's History, Technology and Psychology. It is one of several interdisciplinary Methods of Inquiry courses designed to bridge the Foundation and Discovery tiers of the new Marquette Core Curriculum.

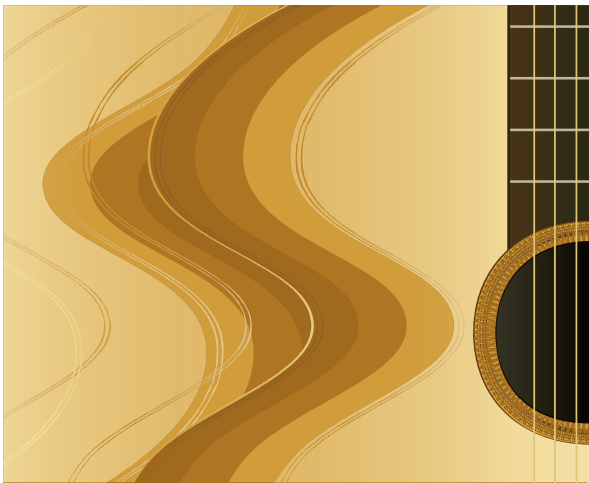
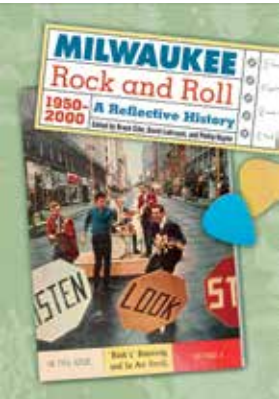
"Rock subsumes so much," Naylor says, noting its "transcultural mélange" of European influences, including lyricism, and its synthesis of African beats and rhythms. Required reading for the course included a book written by Greg Kot,

Jour '78, *I'll Take You There: Mavis Staples, the Staple Singers, and the Music That Shaped the Civil Rights Era*, which not only traced that group's development of blues and gospel into popular music, but also considered their role as the de facto house band for many of Dr. Martin Luther King, Jr.'s speeches.

Kot, the *Chicago Tribune* rock critic, also spoke to the class.

As a final project, student groups created 20- to 30-minute podcasts on a rock act of their choice, analyzing the performers from historical, technological and psychological perspectives, and demonstrating their mastery of contemporary digital technology by editing and balancing the music included. Naylor says The Beatles and Queen were popular choices, the latter stimulated by the 2018 biographical movie *Bohemian Rhapsody*.

Naylor, Grad '72, '80, also co-edited a kindred Marquette University Press book, *Milwaukee Rock and Roll 1950–2000: A Reflective History*, with Bruce Cole, curator of the Jean Cujé Milwaukee Music Collection at Marquette's Raynor Memorial Libraries, and veteran Milwaukee journalist David Lührssen. Drawing on archives and invited contributors, their book takes a mosaic approach to chronicling several generations of the music scene in southeastern Wisconsin.



FOUNDING FATHER

REV. TIMOTHY O'BRIEN AND THE ASPIN CENTER CELEBRATE
30 YEARS OF SHAPING THE LIVES OF CIVIC-MINDED STUDENTS.

ANNA MILLER, ARTS '17

Rev. Timothy O'Brien, Ph.D., founder and director of Marquette's Les Aspin Center for Government, is a pioneer. Thirty years ago, after years of independently connecting political science students with internships, he founded a congressional internship program, which eventually became the Aspin Center. One of the first of its kind, the program provides students with the transformational opportunity to put their studies into action and intern at various political offices, executive agencies and interest groups throughout Washington, D.C.

Under his steadfast guidance, the Aspin Center has since served more than 3,000 students and launched the careers of countless political and community leaders, many of whom attribute their later success to their time with Father O'Brien and his entertaining stories, sound advice, endless network and Labrador retrievers. Rana Altenburg, Arts '88, Marquette's vice president for public affairs, notes that Father O'Brien's influence stems from his ability to connect with students on a personal level.

"Father O'Brien is one of those legendary leaders," Altenburg says. "He has that unique and wonderful ability to make students feel like they matter and that he is going to be there for them on their academic, professional and personal journeys."

As part of his commitment to students, Altenburg says, Father O'Brien strives to

make this program accessible to people from all economic backgrounds. The \$725,000 he helped raise last spring as part of the program's 30th anniversary celebration will go toward this end, as does the Kleczka Program, a sister program that provides students with local internships with Milwaukee-area government agencies and nonprofits.

"I have worked very hard to make sure that the program is not just for wealthy students; that would simply not align with my Catholic values," Father O'Brien says. "Another way I incorporate these values is that all Les Aspin students take an experiential learning course that educates them on pressing social issues like income inequality, addiction, homelessness and elder care."

Over the next 30 years, Dr. Karen Hoffman, the Aspin Center's associate director, hopes the program will become even more accessible and interdisciplinary. The O'Brien House in Washington, D.C., was recently remodeled and its door painted Marquette blue, ready for the next generation of leaders to flourish under Father O'Brien's mentorship, just as Eduardo Perea-Hernandez, Arts '19, has.

"He's investing in me by allowing me to invest in myself," Perea-Hernandez says in a 2019 video tribute to Father O'Brien. "To him, I'm more than just a student. To him, I'm the future of this nation."



Father Tim O'Brien walks his dog alongside Aspin Center student Daniel Cady, spring 2018.



WHEN IN ROME

NEW INTERNSHIP
OPPORTUNITY TAKES
STUDENTS TO THE HEART
OF THE JESUITS' HISTORY.

BY GUY FIORITA

Led by Rev. Michael Maher, S.J., Interpreting Jesuit Rome, a new summer internship program, gives students the opportunity to study Jesuit history at its source. For five weeks, 10 students live and study in a special area of the Society of Jesus' mother church, Church of the Gesù. Here, along with learning about the art and architecture of the church, the students also act as tour guides, taking groups through important churches and other historical sites in the city. This hands-on approach teaches them the skills required for the presentation and interpretation of everything they have learned. (Although the program did not send interns overseas this summer due to the pandemic, Father Maher hopes it will continue in 2021.)

Philosophy student Sam Solowicz, who participated last summer, says the experience taught him that, "Everything [within the churches] is meant to convey something important to the audience. Understanding this helps us better understand history, theology, philosophy and even why Marquette emphasizes service and reflection. And to top it off, sometimes we were lucky enough to have a coffee and cannoli before the tours began."

DISCOVERY DAY

POSTER SESSION PUTS COLLEGE’S DIVERSE AND BROAD RESEARCH ON FULL DISPLAY.

BY SHELBY WILLIAMSON

This fall, the Klingler College showcased the rich variety of research within arts and sciences at an inaugural poster session titled A Celebration of Research. More than 140 students, faculty and staff across the college’s 17 departments, as well as the Center for Peacemaking, MU4GOLD and interdisciplinary programs, presented various research projects to an enthusiastic campus community.

“This poster session is designed to encourage interdisciplinary interaction and discussion among researchers in different departments and majors,” says Dr. Edward Blumenthal, associate professor of biological sciences and associate dean for research and graduate affairs. “The research on display shows the passion and skill of our students and faculty as they develop innovative ways to understand ourselves, to solve problems and to improve our world.”

A sampling of the noteworthy presentations from the event include: Dr. Iqbal Ahamed, professor and chair of computer science, and Dr. Richard Love, an OB-GYN and research colleague of Ahamed, are developing hardware and software to measure blood hemoglobin levels noninvasively using 10-second smartphone videos of the index fingertip. The technology gauges light absorption to identify blood-oxygenated hemoglobin and



Graduate student Bikram Mandal explains his research “Sulfur Allotropes: A Connection Between the Past and the Future” at the college’s Celebration of Research.

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The research on display shows the passion and skill of our students and faculty as they develop innovative ways to understand ourselves, to solve problems and improve our world.

DR. EDWARD BLUMENTHAL

plasma. The researchers are proposing a study to validate the system by testing individuals with various blood disorders. The tool would improve the lives of the nearly 2 billion people worldwide who suffer from hemoglobin-related blood disorders and have to test their blood through venipuncture and await laboratory testing — methods that can be inconvenient and costly.

Research by Dr. Brittany Pladek, assistant professor of English, assesses if literature can heal. Her research culminated in her first book, *The Poetics of Palliation: Romantic Literary Therapy, 1790–1850*. Pladek’s research looks to the Romantic period to expand on the idea that literature as medicine cures by making sufferers whole again and considers palliative forms of literary medicine — therapies that stressed literature’s manifold relationship to pain and its power to sustain, comfort and challenge even when a cure was not possible. Pladek has found palliation offers a more comprehensive metric for literary therapy than the curative traditions we have inherited from Romanticism.

The Klingler College expects to present research poster sessions annually. To view all the research from the 2019 event, visit marquette.edu and search for “celebration of research.”



JOSEPH DANIELS

AUGUST 24, 1959 – FEBRUARY 11, 2020

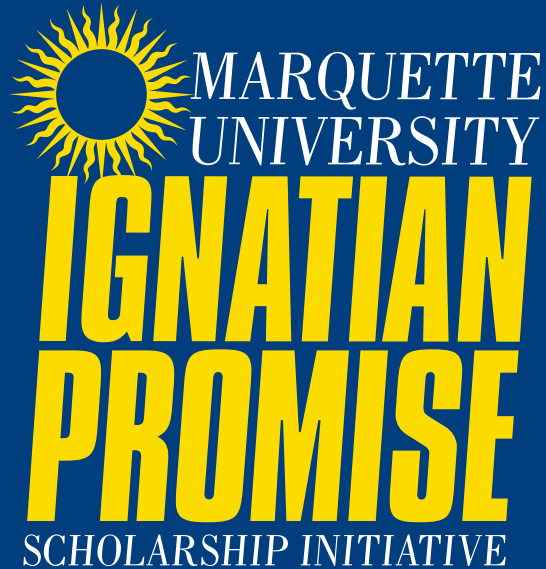
BY DR. HEATHER HATHAWAY

Marquette lost one of its most beloved members and most brightly shining stars when Dr. Joe Daniels, Keyes Dean of Business Administration, tragically lost his life in a pedestrian accident on February 11, 2020. We continue to miss him greatly.

A professor of macroeconomics in the College of Business Administration, Joe was also an important member of the Arts and Sciences family. The major in economics is housed jointly in the two colleges, and during his nearly 30 years at Marquette, Joe served several terms as chair of the Economics Department. Joe’s calm, steady and discerning approach to decision-making was distinctly Ignatian and highly respected. When he was selected to become the Keyes Dean in January 2020, we in Arts and Sciences were delighted, knowing that our decades-long collaboration would continue to serve students in both colleges well.

As many tributes to Joe have noted, he was a strong leader, a great scholar and a beloved teacher. But as importantly, Joe was a deeply compassionate person who cared genuinely for those around him. Having survived an aggressive cancer nearly 15 years ago, for example, he never stopped looking after colleagues he met through a Marquette cancer support group. Joe sought the best in every circumstance and person, and his optimism, dry sense of humor, and twinkle-eyed grin brought joy to all who worked with him. We are grateful for his presence in our lives.

Joe’s greatest love was his family, and we send our deepest condolences to his wife, Lora, and their children, son Bill and his wife, Angela; daughter, Leigh, and her husband, Michael; and son Wesley. The Dr. Joe Daniels Memorial Scholarship was established by his family to honor his memory, and we ask you to consider honoring his contributions to Marquette by visiting give.marquette.edu/joe-daniels.




MARQUETTE UNIVERSITY
IGNATIAN PROMISE
SCHOLARSHIP INITIATIVE

KEEP THE PROMISE ALIVE.

Scholarship gifts carry the promise of a transformational Marquette education for generations to come. Through scholarship, students learn to be problem solvers, fearless leaders and willing servants, ready to Be The Difference for others. Your gift, in the spirit of St. Ignatius, can inspire them to “go forth and set the world on fire.”

To make a gift in support of scholarship aid, contact Molly Eldridge at 414.288.4497 or mary.eldridge@marquette.edu.

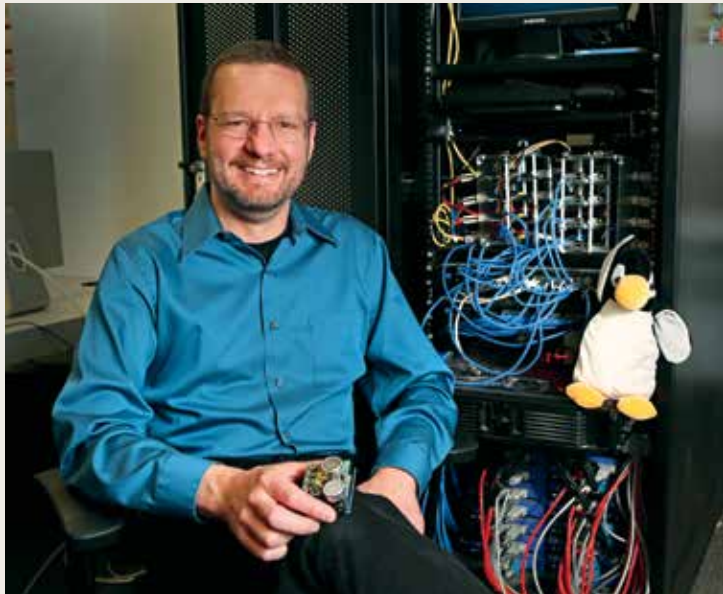


KLINGLER
College of Arts & Sciences
MARQUETTE UNIVERSITY

DIGITAL-WORLD DEFICIENCY

PROFESSOR ACTS ON AN UNEXPECTED COMPUTER ILLITERACY PROBLEM AND TEACHER SHORTAGE IN AN ERA OF UNPRECEDENTED TECHNOLOGICAL ADVANCEMENT.

BY LAUREN HERB SCHUDSON, GRAD '97



Today's high school students have fewer opportunities to learn computer science than students did in the 1990s, according to Dr. Dennis Brylow, professor of computer science. Before Brylow launched a K–12 computer science education program, he says, “Only 15 percent of high schools had computer science classes, mainly because they didn’t have qualified teachers for those classes.”

When Brylow noticed enrollments decreasing in Marquette’s own Computer Science program, he set out to discover why. As he collected information and looked for researchers keeping track of the data, he was surprised to learn that no one was.

Understanding the critical need for computer science before graduation, Brylow and his colleagues introduced a Milwaukee Public Schools program in 2015. With a National Science Foundation grant, they researched the obstacles to offering K–12 computer science classes and held teacher workshops to provide tools to teach grade-appropriate computer science content.

This initiative — Preparing the Upper Midwest for Principles of Computer Science — recently received its third NSF grant. The \$2 million grant will fund the program for the next four years. “Our goal is to expand computer science curriculums so that all students have the foundational skills necessary during their lifetimes,” Brylow says. “Computers are involved in automating every kind of task. Some people will be coding, but most will interact daily with computers and need to know how.”

Another of Brylow’s objectives is to promote computer science education across Wisconsin. Brylow found that a key reason six out of seven Wisconsin high schools didn’t have computer science classes was that they didn’t know what they didn’t know. “Principals told me they have 1:1 ratios of students to laptops, and they thought that was offering computer science education. But they had no teachers instructing students in the science of computers and no training for the teachers.”

Brylow says the word “science” is essential in describing the subject. “Science means the computer is the object of study; we’re looking at how the computer works, why it does what it does, and how to use it to do new things,” he explains.

An added challenge was that the computer science teachers of the ‘90s were retiring, and there was no system for replacing them. “Since computing skills are not tested in the No Child Left Behind Act, there was no route to produce new computer science teachers,” he says.

This has all improved over the last five years as Brylow and many volunteers have leaned into advocacy with 464 school districts and rolled out more interesting curriculums. “We found a way to teach computer science in a welcoming way, and it’s had an impact on 67,000 school children,” Brylow says.

“
Our goal is to expand computer science curriculums so that all students have the foundational skills necessary during their lifetimes.
”

DR. DENNIS BRYLOW

DNA DISCOVERIES

EVOLUTIONARY BIOLOGIST BREAKS GROUND BY DEVELOPING A METHOD TO IDENTIFY SEX CHROMOSOME SYSTEMS IN REPTILES.

BY SARAH KOZIOL, ARTS '92



As a child, Dr. Tony Gamble reveled in the outdoors — playing in the mud and unearthing nature’s varied residents. When he learned that he could make a living doing just that, it was a “huge discovery” for him. “I feel like I’ve won the lottery in that I can go to work every day and do things I am super excited about,” says Gamble, assistant professor of biological sciences.

Now, as an evolutionary biologist, Gamble has made a name for himself by discovering chromosomal truths about geckos that could influence the field’s understanding of biological diversity patterns among thousands of species. His groundbreaking research has upended decades-long scientific assumptions made regarding sex chromosome identification within the reptile family.

In most species, the complement of the two sex chromosomes that an embryo gets at fertilization will determine whether it becomes female or male. Gamble explains that many species have either an XY or ZW sex chromosomal system, but that the vast majority of species’ two sex chromosomes don’t look different from each other under a microscope, making them indistinguishable among the species’ other chromosomes. Geckos fall in that category.

“If you want to study how sex chromosomes transition — they are changing all the time, and we knew that from the little bit of data we did have — and you can’t even identify the sex chromosome system for a species, there isn’t hope for any further research,” says Gamble.



As DNA sequencing became more affordable, Gamble started sequencing thousands of genome fragments from 10 male and 10 female geckos and compared them. His team then developed a software program that sorts through this data to find sequences that were only in males and never in females, or only in females and never in males — characteristics called sex-specific genetic markers. With this data, they plotted out an evolutionary tree, which showed a significant number of transitions in sex-determining systems among geckos and other reptiles.

“We showed about a third to a half of the transitions in sex-determining systems in all lizards and snakes occurred just within geckos. This opened up a whole host of different organisms to be amenable to studying how their sex chromosomes evolved,” he adds.

The evolutionary tree also allowed the team to identify how many times geckos have gained or lost their sticky toe pads, used to climb surfaces. Historically, scientists believed this characteristic evolved a few times at most.

“But we showed that it evolved more than a dozen times and also was lost many times,” he says. This finding set him on a new research track to learn how different modes of locomotion evolve, which earned his team a \$1 million collaborative National Science Foundation grant to study gliding behavior in geckos.

As that project wraps up, Gamble’s long-term plan is to continue using the gecko evolutionary tree to study sex chromosomes — only 3 percent of the species’ sex chromosome patterns have been identified — so that the next-level evolution question of why these chromosomes change can eventually be solved.

IN THE PUBLIC’S INTEREST

STUDYING HOW STATE LITIGATORS USE LAWSUITS TO INFLUENCE PUBLIC POLICY IS A “TRUE JOY” FOR A POLITICAL SCIENCE PROFESSOR.

BY DAN SHAFER



Since Donald Trump became president, state attorneys general have filed more than 100 multistate lawsuits. In Barack Obama’s eight years as president, that number was just 78. As the role of state attorneys general continues to grow and evolve, so has Dr. Paul Nolette’s study of it.

“Not only do I think it’s an important institution in American politics now, it’s something that raises all sorts of very interesting questions about the relationship between the states and the federal government, and political ambition and public policy and all of these sorts of issues that have been interesting me for quite some time,” says Nolette, chair and associate professor of political science.

A Massachusetts native who joined Marquette’s faculty in 2011, Nolette wrote *Federalism on Trial: State Attorneys General and National Policymaking in Contemporary America* in 2015. After writing the book, he thought he might move on to other topics, but the attorneys general role remained interesting and active. Within the last year, utilizing the research he’s done dating back to 1981, he launched attorneysgeneral.org, a free, extensive, real-time resource chronicling the actions of attorneys general around the country. Nolette plans to expand upon this educational database in the months and years to come.

Nolette’s research interest sparked after reading *Up in Smoke: From Legislation to Litigation in Tobacco Politics* by Martha Derthick, an in-depth look at the 1998 historic tobacco settlement, in which 46 attorneys general agreed to “the biggest civil settlement in U.S. history,” he says.

“It restructured the entire industry of tobacco, and that was with no action by Congress, no action by the Food and Drug Administration. It was from the states,” he adds.



After that settlement, the pharmaceutical industry became the most common target of multistate attorneys general investigations, most recently the opioid industry. “The opioid crisis is literally a life-or-death situation, and I would consider it the most important single issue that they’re focused on today,” Nolette says.

This bipartisan litigation effort by state attorneys general has expanded to target companies, manufacturers, distributors and even individuals, particularly the Sackler family, who own and operate Purdue Pharma, the developer of Oxycontin. Not unlike the tobacco settlement, the litigation is upending an entire industry and doing so for the benefit of public health.

These attorneys general-led cases are reshaping public policy in America in myriad ways, and Nolette is there to monitor these elected officials at every step.

“The nature of the office has changed where they’re not only doing the day-to-day work but are getting involved in an important way in national politics and policy,” he says. “It’s an office I would encourage voters to be paying more attention to when they go to the ballot and vote.”

REMEMBERING MADRE ROSA

A HISTORY PROFESSOR ENSURES THE STORY OF HOW A GROUP OF MARQUETTE-EDUCATED NUNS SERVED A RURAL GUATEMALAN VILLAGE IS NOT FORGOTTEN.

BY DELLA O'HARA, JOUR '70

Sister Rose Cordis, M.D., a Maryknoll nun born Dorothy Erickson in Boston, was an experienced physician when, in 1961, she arrived on muleback to start a hospital in Jacaltenango, a Maya pueblo in the Western Highlands of Guatemala.

The people of this rural town had asked Maryknoll, which had already assigned priests and schoolteachers to Jacaltenango, to send a doctor as well. “Madre Rosa,” as the Jacaltecs affectionately called Sister Rose, Med ’51, had worked for eight years in Bolivia at the first hospital established by the Maryknoll sisters in Latin America. A graduate of Marquette University’s medical school (now the Medical College of Wisconsin), she was a logical choice to lead this new mission. Other nuns, including Sister Mary Annel, M.D., and other Marquette alumnae, later joined her.

Shortly after Sister Rose arrived, Guatemala descended into a long, brutal civil war, but the nuns persevered and built their 50-bed hospital, treating half a million people by 1987, immunizing 182,000 children, training local people to help serve their community’s health care



needs and becoming a beloved community partner in the process. “Their model of service was very respectful. They made a lifelong commitment. We talk a lot about service at Marquette, and this project makes you think very hard about what it means,” says Dr. Laura Matthew, associate professor of history, whose research focuses on Mexican and Central American history.

Sister Rose died in 1992 and is buried in Jacaltenango. A local school is named



Maryknoll Mission Archives

for her, and she is depicted in a mural in front of the town market, says Matthew, who stumbled across her story on a 2017 research trip.

“As a historian, I think a lot about what is left out of the historical record,” Matthew says. “It seemed to me on that first trip that the stories I was hearing were important to preserve. I also wanted to remind the Marquette community of this past connection it has to Guatemala.”

Two cohorts of Marquette students, all heritage Spanish speakers, worked on the Remembering Madre Rosa project, most as part of independent study courses with Matthew, beginning in 2018. Their activities included conducting preliminary research at the Maryknoll Mission Archives outside Ossining, New York, and a number of subsequent trips to Jacaltenango, funded by the college’s Mellon Foundation, to interview

townspeople who remembered Sister Rose. Each cohort produced its own report.

Student Isabelle Soto was a member of the second cohort. When she traveled to Jacaltenango in spring 2019, Soto was impressed with what the Maryknolls had accomplished in the town, and with the many good things she heard from the townspeople about the nuns’ dedication and generosity.

Soto, whose own family roots are in Mexico, appreciates that, even while Sister Rose and the other nuns brought Western medicine to the town, “They weren’t saying, ‘This is the only way.’ They allowed the people to perform their own rituals and traditional type of medicine, too. They were willing to go outside their comfort zone.”

CRISIS COMMUNICATORS

RESEARCHER FOCUSES ON ASSESSING AND IMPROVING THE WRITTEN REPORTING SKILLS OF FIRST RESPONDERS.

BY SHELBY WILLIAMSON



Angeli's book *Rhetorical Work in Emergency Medical Services: Communicating in the Unpredictable Workplace* received the 2020 Best Book in Technical and Scientific Communication Award from the Conference on College Composition and Communication, a constituent organization of the National Council of Teachers of English.



On top of treating and transporting patients — often in high-intensity, life-or-death situations — emergency medical responders are required to write comprehensive reports about each 911 call to which they respond.

Dr. Elizabeth Angeli, assistant professor of English and leading expert in EMS writing, is working with the Milwaukee and Kenosha fire departments on a first-of-its-kind research project assessing the writing capabilities of first responders in training. The goal, Angeli says, is to transform EMS education by creating effective training programs that equip first responders with the skills necessary to compose well-written, detailed patient reports.

Angeli says quality reports are vitally important in emergency services because the reports become part of patient medical records and are used to guide patient care and reflect paramedics' expertise and decision-making.

EMS writing training has historically been completed in a brief, one-time workshop

that focuses on the writer's job after a call is complete. Angeli is discovering, though, it's what happens before the first word is even written that makes all the difference in reports.

"What's less understood in EMS are all the processes and factors that impact the final written product," Angeli says. "I'm interested in how first responders are being trained to show up on scene and engage

their sensory and situational awareness. I want to know about collaboration skills, their ability to listen, how they ask questions, determine pertinent information. Then, how are they taught to remember all of it and fill out these patient care reports? I want to identify the best practices."

Lawyers, health care providers and organ procurement teams may read patient reports for various reasons. It is up to first responders to include all of the necessary information.

"It's about getting the report writer to think about all of their audiences," Angeli says. "The job is to give whomever reads the report everything they need to understand why [the EMT] made the decisions they made."

Angeli has spent time at firehouses, interviewed and conducted writing exercises with trainees, and had various report readers provide feedback. She has even gone on several ride-alongs. It's a dream come true for a researcher with a self-proclaimed "passion" for the medical field and emergency services that far preceded her research in EMS writing.

"Normally when people think English professor, they think about the written word," Angeli says. "But I am about building relationships with people to help transform their writing practice. That's what I do."

Joshua Parish, deputy chief of the Milwaukee Fire Department, says Angeli investing in the department's trainees and having them at the forefront of groundbreaking EMS writing training will make these first responders the best at their jobs. Chief Jim Poltrok of the Kenosha Fire Department concurs: "Testing Dr. Angeli's model against other traditional approaches is a bold step toward improving medical documentation and the field of emergency medical services."

SMALL PARTICLE RESEARCHERS HIT BIG-TIME EXPERIMENTS

POSTDOCTORAL FELLOW AND UNDERGRAD STUDENT FROM DR. KAREN ANDEEN'S LAB CONTRIBUTE TO PRESTIGIOUS INTERNATIONAL PROJECTS.

BY CHRIS BARNCARD, COMM '03



Dr. Matthias Plum, right, postdoctoral fellow in the Physics Department, shows his Marquette pride while stationed at the South Pole. He is pictured with Matt Kauer from the University of Wisconsin–Madison.

signatures from cosmic rays interacting overhead with an array of complex cameras. Plum added prototype gear expected to extend the capabilities of IceTop.

"These telescopes enhance the IceTop data by measuring the properties of cosmic ray air showers interacting in the atmosphere," Plum says. "They can lower the energy threshold for the air shower detection and also improve the physics capabilities we can use in our analysis of the data."

Smedley's summer was spent at the other end of the thermometer, working in the relative warmth of Geneva, Switzerland,

on instruments to be aimed at plasma burning 100,000 times hotter than the center of the sun.

One of just 15 American students working at the Large Hadron Collider through a prestigious research program for undergraduates, Smedley used instrumentation experience earned in Andeen's lab to build and test equipment that would eventually be used to detect subatomic particles called muons. The muons are the product of the decay of other, short-lived particles thrown off by the plasma created when the Large Hadron Collider slams together atoms of heavy elements like lead on a 17-mile loop of collider more than 500 feet beneath France and Switzerland.

"The collisions create a state where you get weird particles that you'd never find unbound in any other way. This plasma — we think — looks like what would have been created immediately post-Big Bang," Smedley says. "If the detectors are precise, we can understand that strange state of matter better, and perhaps we get a better understanding of the unfolding of the early moments of the universe."

For physicists, searching for the smallest, most elusive building blocks of the universe now means collaborating around colossal international experiments. A duo from the lab of Marquette Assistant Professor of Physics Karen Andeen — postdoctoral researcher Dr. Matthias Plum and undergraduate Jack Smedley — was selected in the last year to contribute to two of the most significant projects on the planet.

Plum spent several weeks in January at the South Pole — where the Antarctic summer bathes a barren plain of snow in sunlight 24 hours a day, and temperatures peak around 25 degrees below zero. Frozen into a cubic kilometer of South Pole ice is the IceCube Neutrino Observatory, a massive detector looking for nearly massless subatomic particles called neutrinos as they zip through Earth on their way across our universe.

Hundreds of physicists from around the world collaborate on IceCube, but space and time "on the ice" are limited. Plum worked 16-hour days (broken up by safety breaks from the brutal cold) to deploy equipment made in Andeen's lab. While IceCube's main detector watches for neutrinos under the ice, an above-ground experiment called IceTop searches for



In Pursuit of Justice

Psychology course internships provide students with real-world social justice experiences while tackling community challenges along the way.

By Jennifer Anderson

Esme Lezama Ruiz, a psychology major, has given a lot of thought to her future. She's made plans for graduate school, and after that she wants to earn a doctorate in forensic psychology and work for the FBI. But for all her carefully formulated goals, Ruiz felt that the part of her plan that was missing was real-world experience. This is where the yearlong Field Studies course helped round out Ruiz's résumé and give her a chance to take up Marquette's challenge to all of its students to become men and women for others.

For the past seven years, Dr. Ed de St. Aubin (left), associate professor of psychology, has thoughtfully developed a number of internships with nonprofit organizations throughout Milwaukee, internships where Marquette students come face-to-face with many of the most challenging issues facing the city. Doing much more than making coffee and taking out the trash, students in Field Studies work alongside community leaders doing meaningful work and make deep personal connections in the process.





Above: Field Studies interns at The Family House, a transitional living facility that is part of Table of the Saints, a nonprofit that serves men coming out of prison.



Last year, Ruiz (left) interned at the Sojourner Family Peace Center, Wisconsin's largest nonprofit provider of domestic abuse prevention and intervention services. There she worked within its Beyond Abuse program, comprised of group education sessions for women who have been physically abusive and want to develop the skills to stop. "These women are trying so hard to become better for themselves and for their families," Ruiz remarks. "Many of them had been dealt such an unfair hand and had developed a lot of unhealthy coping mechanisms."

As part of her internship, Ruiz helped to facilitate a three-day retreat for the Beyond Abuse members, an experience she calls "intense" but invaluable for helping her gain an understanding of how she could best be of service to these women.

"Most of them just needed someone to listen to them," she adds. "I got to be that person."

The Field Studies course currently includes five nonprofit organizations and internships for 17 students. Students are matched with an organization for which they work eight hours per week and are paired with a mentor there who can work closely with them throughout the year. Students also meet weekly with de St. Aubin to discuss what they're working on and what they're learning. He also has students read relevant content and write frequent reflections on their work.

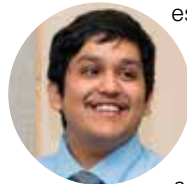
"The prison experience needs to be much more rehabilitative than debilitating. It's not working if people leave worse than when they came in."

—FRANCISCO TEJEDA

Francisco Tejada interned at Project Return, a 40-year-old Milwaukee organization that helps ex-inmates find stability. The experience has been eye-opening, and Tejada has been struck by the difficult challenges these men face when they return to life after incarceration.

"It's been humbling," Tejada says. "These are people who are a lot less fortunate than I am, and it's made me feel compelled to do something and not just turn a blind eye."

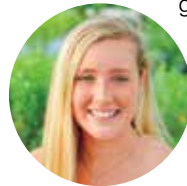
The experience with Project Return clients impressed upon Tejada the importance of addressing issues of mental health, especially in minority communities where the issue is often neglected. Tejada (left), a cognitive science major, has subsequently added a psychology major in hopes of becoming a therapist. "The mental health



needs of inmates are often neglected," Tejada says. "The prison experience needs to be much more rehabilitative than debilitating. It's not working if people leave worse than when they came in."

Marquette intern Casey Kleeman has become deeply engaged in Table of the Saints, a small, faith-based group that runs Family House, which provides temporary housing for men coming out of prison. Kleeman organized the group's monthly "Let's Talk About It" meetings. Open to anyone in the community, these meetings bring in professionals to cover stigmatized issues such as depression and addiction.

Kleeman hopes to work in criminal justice social work either in reintegration services or victim advocacy. "It's been great to have an experience in the field before graduation," said Kleeman (left) in a Riverwest Radio interview. "Having the chance through Marquette and through [Dr. Ed de St. Aubin] to try this out before we get into the real world has been invaluable."



De St. Aubin has also arranged for Marquette students to intern at EXPO (EX-Incarcerated People Organizing), an advocacy group focused on changing the laws that pertain to former felons and led by men and women who have been previously incarcerated. In addition, de St. Aubin has installed interns who help develop dossiers on parolees, attend sessions between parolees and the judge, and collect data and evidence on high-risk cases in Milwaukee's U.S. Probation and Parole Office.

The Field Studies internship program continues to grow as students learn of the unique real-world opportunities it can offer and as area nonprofits learn of the free skilled labor they can access. De St. Aubin plans to add internships in the areas of local LGBTQ organizations, as well as with faith leaders who focus on social justice issues. Building the course over the years has clearly been a labor of love for de St. Aubin.

"I'm lucky that I'm a professor, so I know how fabulous 20-year-olds are," de St. Aubin says. "I get to watch their growth over the year, and it's really a privilege to witness."

Reflecting on Perceptions

Philosophy course immerses students into the lived experiences of incarcerated people through virtual collaborative course work.

By Jennifer Anderson

An ambitious new philosophy course, Engaging Mass Incarceration: Freedom, Justice and the Arts, brings the study of philosophy to an unusual mix of scholars: Marquette Honors Program students and inmates within area correctional facilities. Co-taught by Dr. Theresa Tobin, Marisola Xhelili Ciaccio, a doctoral student in philosophy, and James Mahmood Watkins, a community subject matter expert, the course is designed for both sets of students to "work collaboratively and individually to reflect on and critically examine how social identity and social situatedness influence our perceptions, beliefs, judgments, emotional experience and knowledge," Tobin explains.

The class comprises 25 Marquette undergraduates and coordinates with a Milwaukee Area Technical College online course whose enrollees are incarcerated. As part of the course work, all students are divided into small groups to focus on a single location in Milwaukee that has history and meaning for one of its members, such as a park or intersection. The collaboration between the Marquette and MATC students is achieved virtually.

The Marquette students photograph that spot, and each student in the course

writes and shares an individual reflection on it. Marquette students then research the space, collecting empirical data such as crime statistics, area school funding and amount of green space. They also interview a person living in the area. As part of the university's commitment to "engaging social systems and values" throughout its core level courses, this class is designed "to be as community immersive in Milwaukee as possible," says Tobin, Arts '97, associate professor of philosophy.

"The idea is for students to ask after themselves 'How does knowledge, both of data and other people's lived experiences of a place, confirm or refute my perception?'" Xhelili Ciaccio says.

The Center for the Advancement of the Humanities sponsored Watkins' participation in the program, an addition that Tobin calls "vital to the success of the course." Formerly incarcerated, Watkins now works on issues of prison reform and restoration of prisoners' rights.

"People don't see the incarcerated as still a part of the fabric of our community," Watkins says. "When you educate someone, you appeal to the humanity in them, and in turn, hopefully they will recognize the humanity in others."

Drs. Theresa Tobin; Robert Smith, Harry G. John Professor of History; and Darren Wheelock, associate professor of social and cultural sciences, were named the 2020 Way Klingler Teaching Enhancement Award recipients. Working with Xhelili Ciaccio, who co-founded this course, the award supports their project, Bringing Mass Incarceration into the Classroom: Expanding the Blended Course Model, which brings Marquette students and current/former incarcerated students into the classroom together.

REMAINS OF THE DAY



Artifacts from a historically relevant African American neighborhood are discovered amid an unrelated Civil War excavation.

The unearthed treasures led to a cultural case study for a Marquette anthropology professor and her students.

By Ann Christenson, CJPA '91



Courtesy of University of Chicago Library

Homes line Grand Boulevard in the Bronzeville neighborhood, c. 1910.



Noel Hinch, center, Arts '19, excavates a south side Chicago neighborhood as part of her senior project.

It started with a Civil War military camp on the south side of Chicago. Leading a dig for historical evidence of Camp Douglas, a 60-acre training ground for up to 40,000 Union soldiers and a prison for 30,000 Confederate soldiers during the 1860s, archaeologist Dr. Michael Gregory stumbled on a wealth of late-19th and 20th century artifacts related to another history — that of the residents of Bronzeville. The neighborhood, with homes built on the same land after the war, evolved into a rich center of African American culture as a result of the Great Migration beginning in the early 20th century. This historical archaeological site is a valuable discovery — interpreting it depends on the hard work and expertise of students and faculty from Marquette’s Department of Social and Cultural Sciences.

Five Marquette students, under the guidance of Dr. Jane Peterson, professor of anthropology, have made contributions to furthering the Bronzeville work as independent study projects. One of those students is Noel Hinch, who says the experience bolstered her confidence both as a student and budding archaeologist. Hinch, Arts '19,



devoted both semesters of her senior year to studying materials from the Bronzeville excavations, making it the focus of her senior thesis presented at the Midwest Archaeology Conference in fall 2019. Artifacts recovered from Chicago’s Bronzeville neighborhood are housed in the Archaeology Lab inside Marquette’s Cramer Hall. In this small, organized room, pieces of old pottery, glass, toys, even animal bones are cleaned, labeled and analyzed to learn more about the people who lived in Bronzeville — from

Students learned that historical reconstructions are built using archaeological materials excavated from sites in tandem with documentary sources.

their diets to how they occupied their time. “There is very little written about African American households and domestic settings in turn-of-the-century Chicago, particularly the lives of women and children,” Peterson says. Hinch’s senior project involved plenty of hands-on lab work, organizing the artifacts into workable data that enabled her to analyze it from a historic public-health perspective. Hinch, who plans to pursue archaeology in a Durham University graduate program in the United Kingdom, says the experience provided the “necessary foundation for my professional career.”

PHOTOS: DR. MICHAEL GREGORY



A stratigraphic profile of an excavation unit showing the different layers identified at the Bronzeville site.



A fieldwork volunteer screens to find artifacts.

learned in their course work at Marquette. Searching property tax records and utilizing some history background, the two students were able to plug information into their laptops and figure out who actually lived in a certain house on site during the 19th and 20th centuries. “We spent at least an hour investigating the residents’ backgrounds through municipal forms and census data,” Hinch says. “It was a real eureka moment when we finally found the names and identities of the people.” Students learned that historical reconstructions are built using archaeological materials excavated from sites in tandem with documentary sources. Like Hinch, anthropology major Brittany Hinkle, Arts '20, spent days in the lab reconstructing what life was like in Bronzeville 100 years ago. Hinkle studied the makers’ marks on shards of pottery to estimate the dates of various archaeological layers and hypothesize the socioeconomic status of the people living in the house. She also created a database that other students could use to post photos of research items that will be used as the model for a photo archive for continuing research by professors Peterson and Gregory and future students. Both Hinkle and Hinch say the chance to apply what they learned in classes to concrete anthropological work was vital. The teamwork that excavation and analysis require made Hinch think about the care with which she was entrusted “to research and conserve the stories of our past. Handling an artifact on site, literally digging into the past, presents me with a lot of feelings of awe, respect and curiosity.”

Peterson is spending her 2019–20 sabbatical year working on the Bronzeville project in tandem with Gregory, a former DePaul University professor who serves as the project’s field director. The Marquette connection happened organically enough. After leaving DePaul, Gregory sought another academic partnership. Marquette was a natural fit for a couple of reasons. “We have known each other personally and professionally for a number of years, and I saw the value to our students of having an active field and artifact analysis opportunity for them,” Peterson says. Along with participating in excavation work — which takes place in the backyards of historic Bronzeville homes — Peterson is co-authoring two articles about the project, which she intends to submit for publication by the end of her sabbatical. Historically, the artifacts reflect a culturally pivotal time in history, as they date to the Industrial Revolution. During this time large numbers of African Americans were heading to northern cities attempting to avoid violence and seek employment, as part of the Great Migration. Although the fragments uncovered from the excavations are small, the researchers are slowly cobbling together more details about how early Bronzeville residents lived. “We are only at the very beginning of examining public-health issues from the project,” Peterson says. “Among the time periods represented in our excavations are those when municipal trash collection services are just emerging, incineration is still a common solution to dealing with household waste and documentary sources indicate a number of public concerns about sanitation and disease.” Former student Hinch remembers a particular day in the Archaeology Lab, when she and a fellow student were able to put to use some of the skills they had



Hinch and others dig and screen for relevant artifacts.

A Physician's FOUNDATION

Eduardo Dolhun, M.D., Arts '88, arrived at Marquette as a freshman with plans to study biology. His goal: to become a marine biologist, following in the footsteps of his childhood hero, Jacques Cousteau.

So Dolhun switched gears, changing his majors to philosophy and Spanish literature. After graduating, he moved to Spain and began a philosophy doctoral program at the University of Madrid, but he soon felt pulled back to his first love of science.

"Over the course of my first and second year, I fell in love with humanities and the questions that they asked."

Fast forward to today in San Francisco, where Dolhun has been practicing family medicine since 1999. He's the inventor of DripDrop, an oral rehydration solution used to treat dehydration-related illnesses around the world. He has traveled on humanitarian missions to countries including Haiti, Ecuador, Pakistan and Nepal in the days after devastating natural disasters. He has also taught medicine at Stanford University and served as co-director of ethnicity and medicine at Stanford for 18 years. His path from aspiring marine biologist to philosopher to doctor may seem atypical, but for Dolhun, humanities and health sciences go hand in hand. He credits his arts and sciences education at Marquette with preparing him for a challenging career in medicine and, now, for working in medicine at the height of the COVID-19 pandemic.

"[Being a physician] is an intensely human experience that pushes you in many unexpected ways emotionally, spiritually and physically," Dolhun says. "Having the discipline and the familiarity with the process of reflection — What does this mean? Why am I doing this? — is crucial to staying healthy and being useful to others."

When the Bay Area's shelter-in-place order began in March, Dolhun and his team quickly implemented rigorous sanitation protocols at the clinic and switched to phone and video visits. Dolhun also began sending a weekly newsletter — the *Dolhun Dispatch* — to patients as the pandemic evolved. Each newsletter answers questions about the virus, debunks myths and shares updates on the clinic.

"Sometimes with the classes that I took [at Marquette], it was head-spinning. I would go from a literary criticism course and then I'd head over to neuroanatomy," she says. "But really, the worlds aren't all that different. You have to be able to take information and synthesize it and articulate it in a way that another human being is going to be able to understand. ... It's great to have this background where I have experienced so many different things through literature."

Learning through literature continues to be an asset for Thomas as she navigates her role as a provider during the coronavirus pandemic.

"To really understand something like this, you have to read about it," she says. "We haven't had a significant plague in about 100 years. You can't really prepare

"You really need an ABUNDANCE OF COMPASSION to get through each day."

—JENNY (PEELEN) THOMAS, M.D., ARTS '89

"The dispatches were very reassuring to my patients ... and I feel very grateful that Marquette taught me how to write well," he says. "Messaging is critical. People are really looking for guidance, especially when there's chaos and tons of fear. How you frame a topic is really important, and the word choice is very important."

"The worlds aren't all that different"

Dolhun, who since 2018 serves as an adjunct professor in the College of Health Sciences, is one of many Klingler College of Arts and Sciences alumni who have gone on to successful careers in medicine. Jenny (Peelen) Thomas, M.D., Arts '89, studied English at Marquette before completing medical school at the Medical College of Wisconsin and becoming a pediatrician.

Thomas knew from a young age that she wanted to be a doctor, but she says her English degree is what makes her a well-rounded physician.

yourself for something like this, but you can look at it through the eyes of other people who have had to live through this."

In the fall, Thomas gave a talk for Marquette's Center for the Advancement of the Humanities called "The English Major Goes to Med School." The response from students was overwhelming, she says, especially among students who came in thinking there was only one "right" way to become a doctor — by focusing exclusively on science during their undergraduate years.

"I hope that was a catalyst to get them to take an elective or do something different than they had planned," Thomas says. "I don't think it always has to be medicine, medicine, medicine. You can't become a good doctor without having experiences with people."

Some students arrive at Marquette thinking if they want to get into medical school, they can only choose a science major, says Julia Farley, academic and pre-health professions adviser in the Klingler College. Students are

often surprised to learn that only about half of medical school matriculants major in biological sciences; the rest major in humanities, social sciences and other subject areas, according to data from the American Association of Medical Colleges.

Farley says part of her job is helping students understand that they can pursue their passions and still be strong candidates for medical school, whether they major in theology or biology.

"Sometimes I'll go onto a medical school website and show them in black and white that many say they don't have a preference for what your undergraduate major was," Farley says.

For students hoping to stand out in the competitive medical school applicant pool, a liberal arts degree can also signal a well-rounded applicant to the admissions committee.

"It's very important for med schools to know you're pursuing subjects that you want to, that you're not doing this to be a checklist applicant," Farley says. Plus, when students choose majors that inspire them, it can bolster their GPAs — another advantage when applying to medical school.

Lauree Thomas, M.D., Arts '75, says that a major like hers — biology — undoubtedly prepares students for medical school course work, but it isn't the only path to medicine.

"You can go into psychology, you can do chemistry, you can do liberal arts, English. You can do any degree, as long as you take the required pre-med prerequisites," says Thomas, who serves as associate dean for career counseling at University of Texas Medical Branch.

When students "explore museums and look at art, it only helps your appreciation on a totally different level about different types of cultures and different kinds of people, so you have a deeper understanding of diversity," Thomas says. Ultimately, a liberal arts background gives students a solid foundation for becoming physicians.

"Any exposure to the social sciences helps lend an element of compassion and empathy and also a way of understanding life challenges," she says. "Medicine is a giving profession. You need to be about the business of helping others for the rest of your life."

"Being a physician is an intensely human experience that pushes you in many unexpected ways emotionally, spiritually and physically. Having the discipline and the familiarity with the process of reflection —

WHAT DOES THIS MEAN? WHY AM I DOING THIS? —

is crucial to staying healthy and being useful to others."

—EDUARDO DOLHUN, M.D., ARTS '88

“The great thing about reading an array of histories, narratives and sociological studies is that **STUDENTS OPEN THEMSELVES UP TO THE DIVERSE ARRAY OF PEOPLE** they would be working with as health practitioners.”

—DR. JASON FARR, ASSISTANT PROFESSOR OF ENGLISH

Prep work for a future in medicine

At Marquette, faculty in the Klingler College are also helping undergraduates find meaningful links between medicine and the humanities.

Dr. Jason Farr, an assistant professor of English, studies the intersection of health and the humanities, with an emphasis on disability studies and gender and sexuality studies. He says he’s noticed a growing number of students in his literature classes who aspire to study or work in the health sciences field.

“In my classes, students learn about the history and literatures of disabled populations,” Farr says. “The great thing about reading an array of histories, narratives and sociological studies is that students open themselves up to the diverse array of people they would be working with as health practitioners.”

Arts and Sciences students are also preparing for careers in medicine outside of the classroom. Many take advantage of research and service-learning opportunities in the college, Farley says, while some students intern at the Center of Bioethics and Medical Humanities through a partnership with the Medical College of Wisconsin, which until 1967 was the Marquette University School of Medicine.

Other Marquette partnerships with MCW include efforts aimed at diversifying the medical field by ensuring underrepresented students learn that the profession is within their reach. MCW’s Student Enrichment Program for Underrepresented Professions, or StEP-UP, is a supplemental program that supports undergraduate students on their journeys to medical school. Students move through the program with the same cohort and have opportunities to work directly with MCW faculty, and medical and graduate students.

Toward the same end, Marquette’s Women’s Innovation Network hosted a fall road trip to MCW for nearly 20 undergraduates, many from the Klingler College, to tour campus, visit classrooms and even perform mock clinical exams. The networking event provided opportunities for students to observe medicine in action. Arts and Sciences student Crystal Boyd said that there are many professional options in the medical field with which she was not familiar, and after the visit, she is now considering MCW’s anesthesiology assistant program. “As a person of color, I felt very welcome at MCW,” she added.

Navigating the pre-med track, one student at a time

Specialized advising within the Klingler College also helps students stay on track for medical school. In addition to workshops and panels that help prepare students for entrance exams, letters of recommendation, and the experiences necessary for medical school, Farley offers one-on-one advising year-round. This specialized approach for liberal arts students with medical aspirations is an extension of Marquette’s commitment to *cura personalis* — care for the whole person.

“The pre-health track ... it’s a lot to navigate,” Farley says. “There are a lot of factors to consider: What makes me a competitive applicant? What are things I need to think about each year? Advising that specializes in pre-med from an adviser who also truly cares about a student’s whole experience is a huge advantage.”

Farley directs students toward the prerequisites they need for medical school, but she also points out that the American Association of Medical Colleges encourages students to round out their science studies with psychology and sociology course work. Additionally,

some medical schools even require more social sciences and writing-intensive classes, which is “really advantageous for students who pursue courses in the liberal arts,” she says.

Ultimately, the path to medical school isn’t one-size-fits-all, and a long list of Klingler College alumni bears testament to the ways a liberal arts degree can lay the groundwork for a successful career in medicine. Other notable alumni include Dr. Jay Varkey, Arts ’98, who studied international affairs at Marquette before becoming one of the lead infectious disease specialists involved in treating Ebola-infected American patients in 2014. Today, he is taking lessons learned during the Ebola outbreak to address the COVID-19 pandemic as an infectious disease specialist at Emory University Hospital in Atlanta.

“During the COVID-19 pandemic, and throughout my career as an infectious disease physician, my liberal arts background has reinforced the words of Sir William Osler ... who said, ‘The good physician treats the disease; the great physician treats the patient who has the disease,’ ” Varkey says. “Treating a virus requires mastery of anatomy, physiology, pathology, microbiology, epidemiology and pharmacology. Treating a person requires empathy.”

Thomas, the pediatrician who studied English at Marquette, says her Jesuit values have been crucial as she provides care during a pandemic.

“You really need an abundance of compassion to get through each day,” she says. “You do it at Marquette; you learn that while volunteering, and it’s very steeply enriched in a Catholic tradition.”

Dolhun, who arrived at Marquette with dreams of becoming a marine biologist before pivoting to philosophy and then medicine, has a simple piece of advice for undergraduates: Follow your passion, whatever it may be.

“Find your fire in the belly. That’s what’s crucial,” he says. “What is it that really interests you? If it is medicine, it’ll all come together.”

MAKING THE MOST OF MASKS:



Physics professor calculates sanitization solution

By Shelby Williamson

When the coronavirus pandemic hit and a mad dash for personal protective equipment ensued, the Kenosha (Wis.) Fire Department wanted a contingency plan to make the most of its supplies.

Foreseeing a mass shortage of the surgical face masks its medical professionals must wear to perform their jobs safely, the department contacted local experts including Dr. Jax Sanders, assistant professor of physics. The goal: Find the best way to decontaminate masks using ultraviolet light.

“My job does not usually involve UV wavelengths,” Sanders says. “I normally deal with lasers and infrared. But as much as those things are different, they are also kind of similar, and I am able to figure out how certain parameters and conditions affect the flow and strength of light.”

The fire department, already equipped with a powerful UV lamp meant to rid ambulances of germs, set up a mask sanitization area in a storage closet, complete with a fresh coat of UV-reflective paint and hooks to hang the masks.

Using a physics principle and published research on UV dosing, Sanders calculated the necessary placement of the masks in relation to the light and the exposure time needed for effective decontamination. Sanders says the procedure requires masks be flipped to expose each side to the light for 90 minutes — for a total of three hours. Sanders determined the masks could go through the process up to 10 times, if necessary.

Collaborators from other institutions tested Sanders’ recommendations using bacteria samples and confirmed the proposed process kills bacteria on masks.

The method, Sanders says, allows the department to reuse masks in a safe and sanitary way, though each mask must be worn only by the same user.

“This is extremely beneficial for frontline health care workers who, I have been told, during the height of the mask shortage had to wear the same masks over five work shifts,” Sanders says. “In reality, these masks are only meant to be worn for a few hours.”

Helping solve problems that are part of a global health crisis is a position in which Sanders never thought they’d be.

“But I’m happy to use my knowledge to make a difference,” Sanders says. “As someone who has always had an interest in epidemiology, aiding in this capacity lets me be in both spaces.”

Sanders says among many things, like broad supply chain issues, the pandemic underscored a need for higher PPE standards. Sanders hopes in the coming years, manufacturers will develop sustainable PPE from materials that can withstand continued decontamination.



Photo: U.S. Embassy Bogotá, Colombia, Fernando Soto

THE LANGUAGE OF OPPORTUNITY

By Lora Strum

Alumna Dr. Malore Brown recognizes the Educational Opportunity Program that supported her dreams of a Marquette degree is just as relevant today as it was when it launched 50 years ago.

Dr. Malore Brown, Arts '88, can't think of the word she's looking for in English.

"I'm still thinking in Spanish," Brown laughs.

Trilingual in English, Spanish and French, Brown is a regional public engagement specialist with the U.S. Department of State, a role that allows her to leverage her career in library sciences against her love of international relations. She has served at the U.S. embassies in Nigeria and Ghana and traveled to many more West African countries to encourage students and others to take advantage of the educational and informational resources available through the U.S. government.

Today, speaking from Bogota, Colombia, her current assignment, Brown pauses — using her fluency in multiple languages to consider a few phrases — before settling on the word "necessity" to describe her experience in Marquette's Educational Opportunity Program.

EOP was established in 1969, and for the past 50 years it has sought to enable greater access to higher education for students of diverse backgrounds, including those who may not be able to afford a college education or who are the first in their families to attend college.

For Brown, a member of the 1984 cohort, EOP offered a parity in education access she believes remains critical today. "The EOP program was very important to me, and the program will continue to be important until we get to a point in our country where everybody can benefit from the education system evenly."

Brown was 11 when her Jamaican family immigrated to Wisconsin from the Bahamas. To provide for their family of five, her mother worked as a substitute teacher while her father pursued a career as a United Methodist minister, preaching in pulpits across the state. Her parents, college graduates themselves, always knew Brown would attend college, but never how they would pay for it.

"My parents were not familiar with scholarship programs," Brown says, "but the EOP was for young minorities and first-generation college students who had the grades and the potential but didn't have the means."

Brown had the grades. When she arrived in the States, she already knew chemistry and Spanish at an 11th grade level and graduated high school at just 16. Her academic success ran parallel to her success adapting to her new city's cultural expectations. Milwaukee was 90 percent white for the majority of her childhood, and in eighth grade, Brown was the only person of color in her classroom. She felt like "a Fudgsicle in a sea of vanilla ice cream," she says.

But Brown, savvy beyond her years, adopted different language styles or dialects to move easily between communities — regardless of their race, culture or other differences. "We didn't have a word for 'code switching,'" Brown explains, referring to how she learned to communicate. "Back then, it was just survival skills."

When considering colleges, Brown longed for a diverse experience, perhaps in another state, but her parents were adamant their 16-year-old attend school close to home. Brown enrolled at Marquette and was initially wary of its potential to provide a diverse atmosphere. Her ideas changed when she was admitted into EOP and met with her cohort for the first time on campus.

"Suddenly there were so many other black and brown people just like me, ready to take on the world," Brown recalls.

Brown graduated with a degree in Spanish. With minimal student debt to consider, Brown continued her education at the University of Wisconsin–Milwaukee, where she received a master's in history and a master's in library sciences, and a multidisciplinary doctorate in urban education, with a focus in library and information science. Before joining the U.S. Department of State, she spent two decades in content development and children and young adult services in public libraries and associations across the country. She's worked on the Emmy-winning children's series *The Electric Company* and lectured at the University of Wisconsin–Milwaukee and Rutgers University.

"I hope that, at some point, the EOP program will not be a necessity because all students will have equal access to education," Brown says. "Until then, we need to keep finding those smart kids who don't have the financial means to get a quality college education that Marquette University has to offer."

Marquette University, P.O. Box 1881, Milwaukee, Wisconsin 53201-1881 USA

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