

SCIENTIA

A publication for College of Science and Health alumni



Associate Professors Bridget Tenner and Ilie Ugarcovici both received Collaboration Grants from the Simons Foundation. Read more on page 10. Photo courtesy of Mark Zalewski.

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Exciting start to the year at CSH

The start of the new academic year arrived amid considerable excitement at the College of Science and Health (CSH). Enrollment of science and health majors has increased significantly, with more than 1,200 new undergraduate and graduate students joining us for the fall quarter. The three most popular majors for our first-year students remain psychology, health sciences and biology, but the health sciences major has attracted increased attention among high school students interested in health-related careers. It seems that our plans to enhance the educational opportunities for future science and health professionals have taken root.

Our alliance with Rosalind Franklin University of Medicine and Science in North Chicago has drawn 59 students to the first class of our new undergraduate Pathways Program, which will provide them with the opportunity for accelerated entry into doctoral programs at Rosalind Franklin after their junior year at DePaul. The Pathways Program is currently in place for doctorates in pharmacy and podiatry, with approval of the doctor of medicine degree likely in the next few months. We also expect to gain approval for accelerated entry into the doctoral program in physical therapy, as well as the physician assistant and pathologists' assistant programs in the coming year. We now offer our Master's Entry to Nursing Practice program at both the Lincoln Park and Rosalind Franklin campuses, and we have plans underway to develop a program for registered nurses who want to complete a bachelor's degree and progress to the master's level.

Great things are happening in other CSH departments as well. Four 2013 graduates with degrees in environmental science were featured recently as part of a National Public Radio story on Latinas in STEM programs. Visit latinousa.org/2013/09/06/stem-sisters to hear the program. In addition, our chapter of the Society for Advancement of Chicanos and Native Americans in Science, for which physics professor Jesús Pando serves as advisor, won the society's Undergraduate Chapter of the Year award (see page 10). Meanwhile, our mathematics department is moving forward with plans to enhance our statistics offerings and develop a new undergraduate specialization in actuarial science.

As a new member of the DePaul community, I find myself continually impressed by our highly motivated student body and accomplished faculty. I recently received an email message from a young man I will call "James." He had read my bio on the DePaul website and asked if he might come by to talk about his hopes for a career in medicine.

The fact that an undergraduate was reading about faculty and reached out to meet with the dean was impressive enough, but now for the rest of the story. James recently transferred to DePaul from another private university in Chicago because



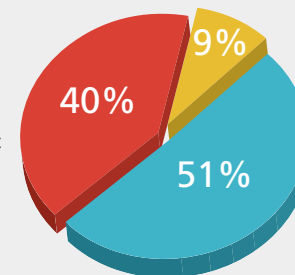
he saw us as "more focused on healthcare careers." James grew up in an ethnic minority family in rural Illinois, and he is the first young adult in his family to attend college. In addition to his full-time studies, James works as a live-in, personal-care attendant for an adult with a degenerative brain disease. He also reported, "I love organic chemistry." James is clearly bright and highly motivated, with a strong commitment to others. James *is* DePaul science and health.

We are on track to become the Chicagoland destination of choice for students seeking careers in science and health professions. Please keep in touch with us to keep us abreast of your own DePaul stories and accomplishments.

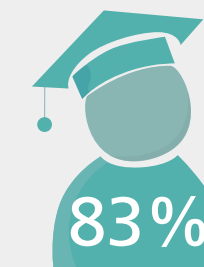
2012 Undergraduate Degree Recipients' Career Outcomes

Forty percent of graduates are employed in the nonprofit or government sectors.

Nine percent of graduates are employed in the manufacturing sector.



Fifty-one percent of graduates are employed in a service industry.



of all 2012 CSH graduates are employed and/or in graduate school six months after degree completion.



88% of mathematics graduates



88% of chemistry graduates

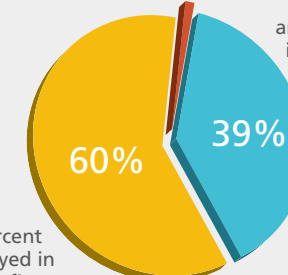


85% of psychology graduates

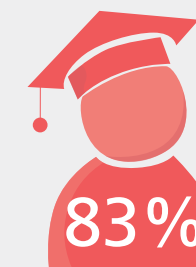
are employed and/or in graduate school six months after graduation.

2012 Master's Degree Recipients' Career Outcomes

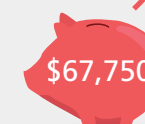
One percent are employed in the manufacturing sector.



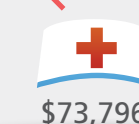
Thirty-nine percent are employed in a service industry.



of 2012 CSH master's degree recipients are employed and/or pursuing advanced studies six months after degree completion.



is the average salary for CSH master's degree recipients.



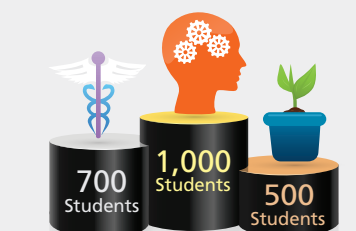
is the average salary for graduates in the nursing field.

2012 Psychology PhD Recipients' Career Outcomes



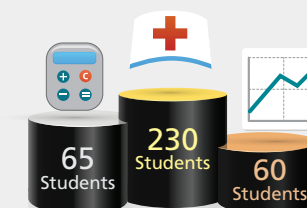
One hundred percent of 2012 psychology PhD recipients are currently employed. Sample positions include employment in a mental health center, post-doctoral research, consulting and teaching.

Most Popular Undergraduate Majors (Approximate)



Health Sciences Psychology Biology

Most Popular Graduate Majors



Applied Mathematics General Nursing Applied Statistics



Science program offers a college sneak peek for Southside youth



This past summer, a group of teenagers from the Gary Comer Youth Center (GCYC) got their hands dirty—literally—during a three-week immersion program led by faculty from the Department of Environmental Science and Studies. “We decided that a soil science experiment would be a good introduction to scientific exploration at the college level,” shares Christie Klimas, an assistant professor in the department. As participants in the Green Teens program at GCYC, the students had already worked in GCYC’s rooftop garden, but the DePaul experience introduced a more analytical side of environmentalism.

The program’s science component was paired with a broader goal. “The soil testing was important, but it was even more important to show these students that they can have access to, and attain, a college education,” says Associate Professor James Montgomery. To that end, Montgomery and Klimas designed a curriculum that incorporated classroom instruction at GCYC, field trips to nature sites, lab work at the college and presentations from DePaul representatives.

During a visit to Prairie Wolf Slough in Lake County, where the students collected soil samples, Montgomery asked the Green Teens to do a sensory analysis of what they heard, saw, felt and smelled. “Then we got them all together to explain how this area was different from their neighborhoods,” Montgomery says. “One young woman said, ‘I didn’t hear any gunshots.’ That really hit me like a ton of bricks.” According to Cora Marquez (LAS ’11), the assistant urban agriculture instructor at GCYC, the student’s response speaks to the daily realities facing many of the Green Teens. “These youth are surrounded by violence,” she says. “It’s normal for them to have known someone killed by gang members.”

Marquez notes that the majority of the students live with single parents or guardians who never attended college. In this regard, the program’s intern, Xochyl Perez (CSH ’13),

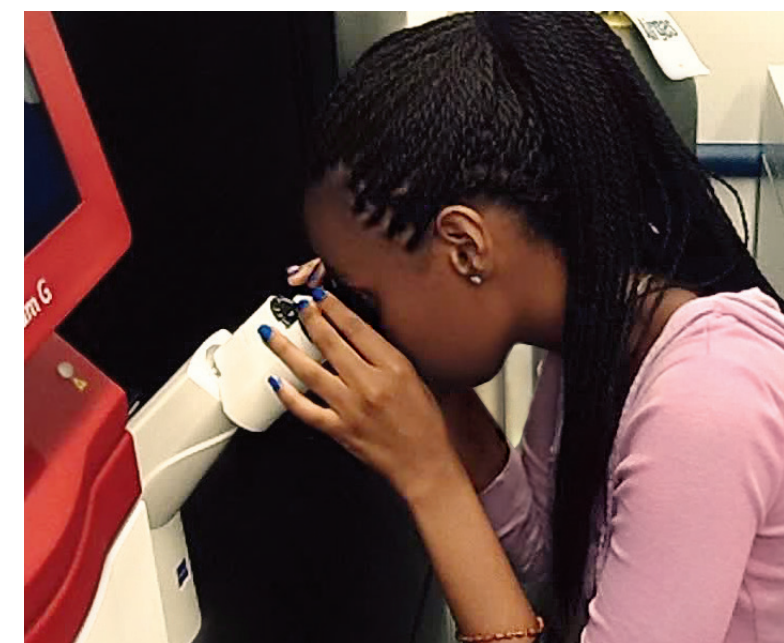


found a point of commonality with the students. “I was the first person in my family to graduate high school, and I wasn’t planning to go to college,” Perez says. Thanks to a supportive teacher, Perez navigated the application process and enrolled at DePaul. “I started as a business major because I grew up in a really poor family. I thought that if I became a CEO or an accountant, I could take my family out of poverty,” Perez explains. “But when I took an environmental studies class at the end of my sophomore year, it changed my life.” Now, Perez is an enthusiastic advocate for green living and eco-friendly infrastructure.

Perez worked tirelessly to engage the students on their own terms. “We didn’t relate to the students the same way,” Klimas observes. “She was a far better mentor than we could be!” Perez adopted a strategy of one-on-one interaction to make the course material come to life. “If a student said he loved to eat at McDonald’s, I’d run with that,” Perez enthuses. “I’d ask, ‘How do they grow McDonald’s? What is the process? Do you know where their farm is located? Do they compost there? Do you know what composting means?’” This approach resonated with the students and helped to eliminate the “blank-faced” looks Perez encountered on the first day, when she led off with a PowerPoint presentation.

With each passing week, the students became more confident in their scientific skills, as well as more comfortable in the college environment. Senior Christian DeKnock, who assisted with the soil analyses in the lab, attests that the students demonstrated impressive proficiency and dedication. “For high school students, they blew me away,” he says. “They really excelled.” The lab experience offered an inside peek at advanced coursework, which the students appreciated. One student noted that “doing the in-depth experiments prepared me for college. It was much more rigorous than high school.”

Guest speakers from various DePaul departments, such as admissions, financial aid, and the Office of Mission and Values



shared information about college readiness and resources. Many of the visitors stayed for lunch with the students, which facilitated continued dialogue. “I got a chance to ask questions about going to college and how I should get familiar with the campus,” says Nadia Rayford, one of the Green Teen participants. “The speakers didn’t hold anything back.” Fellow high school student Musa Killins, who called the program “one of the most immersive experiences of my life,” recalls soliciting career advice from Klimas, Montgomery and guest speakers.

Halfway through the program, Klimas and Montgomery distributed monogrammed lab coats, which the students proudly donned. Hopefully, this memento will provide continued inspiration through high school and beyond. “I know it sounds clichéd, but these students are our future,” Perez says. “I think it’s great that DePaul is committed to helping communities around Chicago.”

Photos courtesy of Musa Killins.

The math class you've been waiting for

Associate Professor Bridget Tenner's classroom is typically filled with eager young mathematicians, but one day last year, she faced a more subdued student audience. "We had freshmen through seniors from many different colleges and schools," Tenner remembers. "There was not a lot of commonality among the group, except they all had to take LSP 120." The students had gathered in the Quantitative Reasoning Center on the Lincoln Park Campus to tackle LSP 120, a class within the liberal studies program that is also a graduation requirement. "If a student is in a major that does not require calculus, that student must take LSP 120 or demonstrate proficiency through a placement test we administer," explains David Jabon, director of the center. "We teach about 1,700 students each year."

For many students, LSP 120 is the last time they will encounter mathematics in a formal classroom setting. "This experience can affect their overall perspective on the subject, well beyond the college years," Tenner says. "That's why the mathematical content and quality of mathematical instruction are so important." LSP 120 is taught in a computer lab setting that allows for collaboration among small groups of students. "The course is highly contextual," Jabon explains. "We place an emphasis on the practical use of mathematics so students can gain valuable skills for both their academic lives and their personal lives." For example, professors ask students to critique and analyze graphs from actual media sources. When the students discover errors in published work, they may think twice the next time they come across data-driven claims in advertisements or on the news.

Whether it's voting results from the most recent election, bacterial contamination



among a population or the cost of milk throughout the past 20 years, LSP 120 helps students to understand and evaluate complex sets of data. Tenner chose a salient topic to introduce her LSP 120 class to this concept. "I asked how many text messages each student had sent the day before," Tenner laughs. The answers ranged from one, which was Tenner's response, to 250. This dramatic difference incited an animated conversation. "Pretty soon, they were trying to figure out why those numbers were the way they were," Tenner shares. "That's what LSP 120 is all about." By the end of the course, the room of non-mathematics majors had really dug into the data.

Financial mathematics also plays a key role in the course. "Most of the students don't know how loans work or how to make judgments about them, so we built that into the curriculum," Jabon says. "When students see the value of this class, they feel empowered. LSP 120 is the math class they've been waiting for." Linear and exponential modeling, dealing with rates and percentages, and designing graphs and tables may not



seem practical to students at first, but this type of critical and engaged thinking prepares students for life beyond the classroom. "As a society, we constantly use quantitative reasoning to help us make decisions," Jabon asserts. Tenner wholeheartedly agrees: "Analytical thinking is math. Deductive reasoning is math. The truth is that you can't get through a day without math."

Nursing Double Demon shares story of success

Throughout her professional career, Therese Fitzpatrick (CSH '75, MS '84) has worn many hats. She's been a staff nurse, the CEO of a specialty staffing company, and a chief nursing officer several times over for a multi-hospital system, a community organization and in academia. Today, Fitzpatrick is the executive vice president of the consulting firm Assay Healthcare, an assistant professor in the College of Nursing at the University of Illinois at Chicago and the co-author of a recent book, "Claiming the Corner Office: Executive Leadership Lessons for Nurses."

Fitzpatrick, who hails from Des Plaines, Ill., knew of DePaul through her father, who graduated from the College of Law. When it came time to chart her own path, Fitzpatrick researched several options before wholeheartedly committing to DePaul. "I did some research on the clinical affiliations and distinguished faculty, and that definitely helped sway my decision," she shares. "I also decided on DePaul because the university is integrated into the fabric of the city." At DePaul, Fitzpatrick's keen self-awareness further defined her journey. "Very early in my academic career, I realized that I wanted to pursue leadership, and I knew I could do that with a nursing foundation."

During a research methods course as an undergraduate, Fitzpatrick bonded with her professor, Connie Curran (CSH MS '72), EdD, RN, FAAN, now a DePaul trustee. "She became my mentor throughout my entire career," Fitzpatrick says. "Connie has

really helped me be brave about pushing the envelope." Thinking back on her years at DePaul, Fitzpatrick recognizes Curran's willingness to go the extra mile as emblematic of DePaul as a whole. "There are certain expectations made of DePaul graduates," she recalls. "There's an expectation that you will live the mission of the university in your work." About 15 years ago, Curran challenged Fitzpatrick to ramp up her own mentoring efforts, and in this way, Fitzpatrick has been able to pay forward her professor's generosity and counsel.

The two executive nurses collaborated on "Claiming the Corner Office," which draws from personal testimonials to identify trends among nurses in advanced leadership positions. "Nurses often think that the terminal position is chief nursing officer," Fitzpatrick explains. "But there are all sorts of entrepreneurial, CEO and president positions that are well within the reach of a practiced nurse executive." Throughout the process of interviewing and coding the data, Fitzpatrick and Curran found that they readily identified with their fellow nursing professionals. "While they all spoke about how deliberately they managed their careers, they left some room for serendipity," she shares. "Interesting detours along the way can give you a new set of skills." Fitzpatrick has learned to embrace those forks in the road. "Actually, Connie and I became two case studies in the book," she says. "We interviewed each other!"



Fitzpatrick's top four tips for recent graduates:

Learn From Disappointment

Career disappointments are part of the journey and something you should expect and be prepared for. What is most important is how you deal with, and learn from, those disappointments.

Respect Others

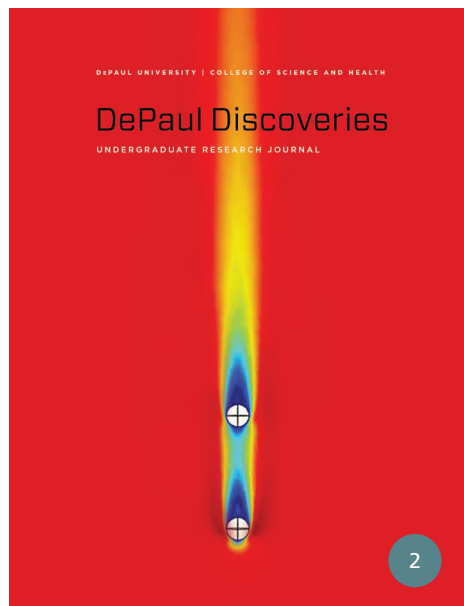
Respect is reciprocal. In order to earn respect from others, you must show respect in the way you act, behave and live your life.

Actualize Your Mission

You can actualize your personal mission in a variety of settings—do not be self-limiting.

Be Resilient

Develop an understanding of your distinct and often unconscious pattern for dealing with adversity, and build capacity for managing chaos and adversity. Become resilient.

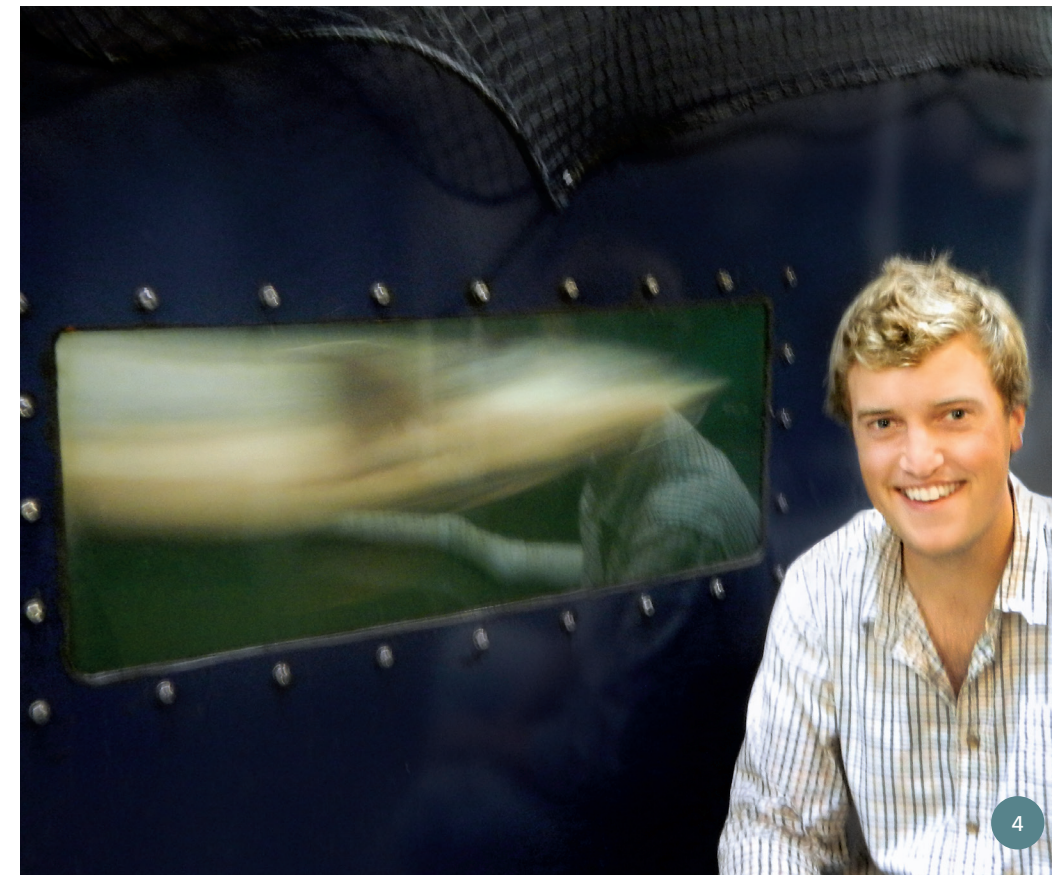


Lab notes

1 CSH recently welcomed Craig Klugman, PhD, as professor and chair of the Department of Health Sciences. Klugman is a bioethicist and medical anthropologist who earned his doctorate in medical humanities from the University of Texas Medical Branch in Galveston. In his research, Klugman focuses primarily on ethical issues in public health, as well as end-of-life ethics and ethics education. He is the author of more than 100 publications and has presented his work internationally. At DePaul, Klugman looks forward to working with students, continuing his bioethics research and developing a top-notch pre-health program that addresses the needs of the next generation of healthcare professionals.



2 The college debuted the inaugural issue of DePaul Discoveries, an undergraduate research journal, during the spring quarter. At nearly 300 pages, the two-volume journal collects student research papers on topics ranging from depression in youth with asthma, to green synthesis of a silicon tethered molecule, to a fractal analysis of the universe and much more. Read the latest issue of DePaul Magazine at depaulmagazine.com to learn more about DePaul Discoveries and the college's emphasis on primary research at the undergraduate level.



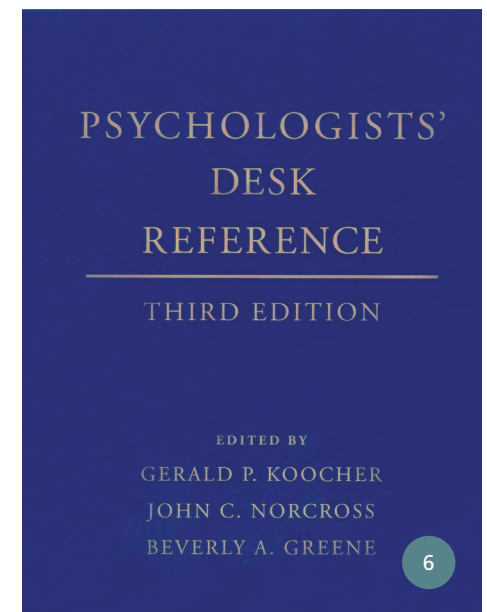
3 Undergraduate student Kathryn Rico received an honorable mention from the Council on Undergraduate Research's Posters on the Hill competition. For her project, Rico tested and evaluated the sediment of a northeastern Illinois wetland. More than 800 applications were submitted; Rico's honorable mention signifies that her project was among the top 10 percent of submissions.

4 Biology graduate student Ciaran Shaughnessy received a Journal of Experimental Biology Traveling Fellowship of £1,500 (approximately \$2,300) from the Journal of Experimental Biology and the Company of Biologists. Shaughnessy will be researching the effects of aquatic hypercarbia on salinity acclimation in the white sturgeon.



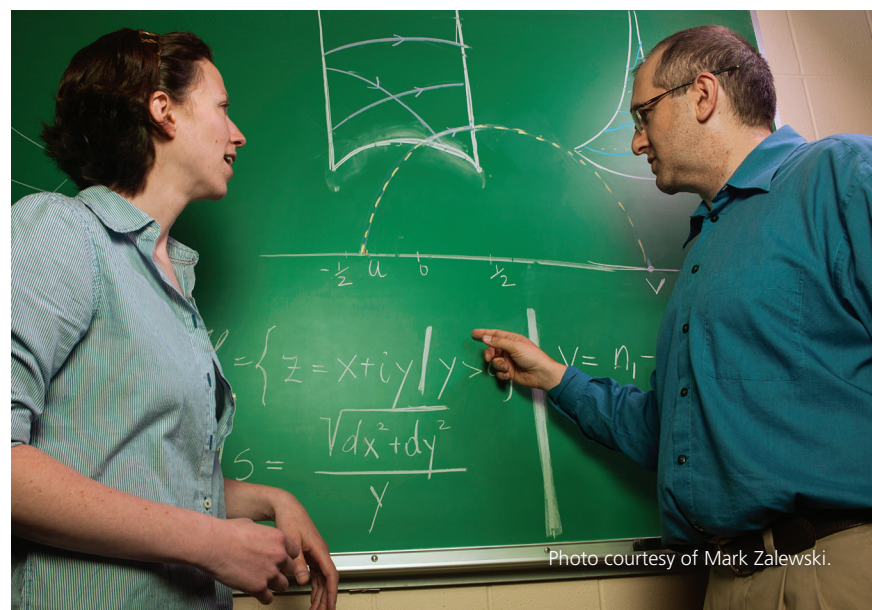
5 Biology graduate student Elsa Anderson received a \$1,000 grant from the Illinois Ornithological Society for her proposed study of the habitat characteristics of red-headed woodpeckers in Cook County.

6 The third edition of the Psychologists' Desk Reference, co-edited by CSH Dean Gerald Koocher, PhD, was published in September. This fully revised and expanded edition includes new chapters and updates from leading practitioners in the field. Diagnostic codes, practice guidelines, treatment principles and report checklists are among the issues covered in the 840-page reference, along with detailed insight into psychotherapy, biology and pharmacotherapy, self-help resources, ethical and legal issues, forensic practice, financial and insurance matters, and prevention and consultation.



Simons Foundation selects two CSH professors for grant awards

Bridget Tenner and Ilie Ugarcovici, associate professors in the Department of Mathematical Sciences, each received five-year Collaboration Grants for Mathematicians from the Simons Foundation. These prestigious and competitive awards provide \$7,000 annually to support collaborative research. While Ugarcovici's main focus is dynamical systems—processes that change with time—his abstract research concerns the movement of particles across a curved surface. "I intend to use the award to attend several conferences and to invite potential collaborators to DePaul for short research visits," Ugarcovici says. Tenner, whose area of expertise is combinatorics—the study of discrete structures—plans to use her grant funds similarly. "The Simons Foundation understands that [collaboration] is how mathematics works," she says. "Collaboration is desirable. It's not frowned upon if you have a paper with four authors."



Ugarcovici notes that he's worked on recent projects with colleagues from Penn State, Georgia Tech, Northeastern Illinois, the University of Colorado and the University of Chile. "Interacting with peers and sharing insights is essential to our work," he asserts. "This grant provides excellent opportunities to enhance these interactions, with only beneficial consequences."

DePaul's SACNAS chapter receives national award

In September, the National Chapter Committee of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) recognized DePaul's chapter as the 2013 Undergraduate Chapter of the Year. While SACNAS welcomes students from any background, the society places a particular emphasis on supporting Latino/a and Native American college students and professionals in their efforts to attain advanced degrees, careers and positions of leadership in science.

After reviewing DePaul's annual chapter report, the National Chapter Committee noted that the efforts of the club "are exemplary of the types of accomplishments and activities ... in line with the SACNAS mission, vision, goals and values." DePaul's specific chapter objectives for the 2012-13 academic year included enhanced opportunities for member engagement, the creation of a peer mentoring program and new community outreach initiatives.

The award was conferred at the 2013 SACNAS National Conference in San Antonio. Twenty undergraduates from the college participated in the October conference, and



about half of the students presented their research. "All the major universities, medical schools and government research laboratories attend the conference to recruit students," says Jesús Pando, associate professor, chair of the Department of Physics and academic advisor for DePaul's SACNAS chapter. "Many of our members have taken advantage of these opportunities to land internships and summer research opportunities."



"It was a weight off my shoulders."

As a double major in chemistry and mathematics, senior Noelle Falk doesn't have much free time. When she's not studying for an upcoming test or conducting lab experiments, this Chicagoland native can often be found working eight-hour shifts at Jewel-Osco. "I work every weekend, so I don't actually have a day off," Falk says matter-of-factly. "That's just my life. But if I put in the work now, it will all be worth it."

Falk is enthusiastic when discussing her coursework. "I really enjoyed calculus," she remarks. "And my favorite lab was an in-depth, analytical look at chemistry." This passion has not gone unnoticed. Last year, Falk received both the Sprovieri Family Memorial Endowed Scholarship in Chemistry and the Rev. Charles F. Shelby Endowed Scholarship in Physics. "In addition to working, I've been taking out loans," Falk says. The awards came just in time, because Falk's loans wouldn't have covered her full tuition bill for the spring quarter. "It was a weight off my shoulders to get these scholarships," she affirms.

Falk isn't alone in her financial need. More than two-thirds of DePaul's students require assistance in the form of scholarships, work-study, loans and financial aid. As DePaul's historic Many Dreams, One Mission Campaign nears completion, the university seeks additional alumni support in an effort to meet the remaining 10 percent of a \$100 million scholarship goal.

Additionally, the university recently introduced All for DePaul, an alumni participation challenge. All for DePaul is a collective effort to achieve 9,000 alumni donors this fiscal year. Gifts of any size count toward the communal goal because 9,000 alumni donors can make a real impact. "What donors are doing for students is awesome," shares Falk. "When donors give back, it helps us to see that we're working toward something important."

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Continue DePaul's commitment to being accessible to all students by helping fund need-based scholarships.

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College of Science and Health

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For more information on the Campaign,
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