

Spreading the Spirit of Mar

Your College of Engineering students are given the opportunity to participate in unique hands-on – and often life-changing – activities as part of their undergraduate experience.

From villages in Central America, to race tracks across the Midwest, to federal laboratories in Washington DC, your students continue to demonstrate our legacy across the country and the world.

Here are four stories – from among hundreds more – that exemplify what it means to be Marquette.



Dominique George makes a repair in Nicaragua.

Dominique George

“If we were here even just a week longer.”

Dominique George, a senior in biomedical engineering, had just given up her summer vacation to make a difference in a challenged community in Nicaragua.

She would have gladly given up even more. “It is hard to leave,” she wrote in her journal at the time. “I know we could do a lot more.”

Dominique was a recent

participant in Marquette’s campuswide Health, Environment, and Infrastructure Program. She said it offered her a way to combine her interest in engineering with her concern for others.

After crash courses in Spanish, Latin American culture, and medical device maintenance – all in addition to her school requirements – she left to volunteer in a village hospital.

What she found was sadly startling – cardiac monitors run on batteries that had no battery charger, feeding pumps without tubes, donated equipment with no operating manuals, even something as simple as an ECG printer without a paper holder.

She figured out, on her own, how things worked and taught staff their operation. For broken equipment, she did what she could using parts from other devices or solved problems through innovations. And, in her own way, she made a lasting impact.

What did she take away, personally, that will last a lifetime?

“How much more access we have to information and help than these people do. How much they want to learn,” said Dominique. “I have only scratched the surface of everything here.

“And,” she finished, referring to her world back in the United States, “how much I don’t need all this *stuff*. I mean, do we really need all the clothes? These huge food portions? We need to find a balance in our lives. I’m changed on that forever.”



Jason Taghikhani, Rookie of the Year on a pre-NASCAR racing circuit.

Jason Taghikhani

Jason Taghikhani stood confidently under the outdoor passageway under the Olin Building, looking very much like any other engineering senior that had successfully reached the backstretch of their mechanical engineering experience.

With one head-snapping difference.

Instead of books under his arm, Jason held a racing helmet. And, oh yes, the race car next to him – a late-model Chevrolet dressed racing colors and logos, boldly proclaiming along its rear panel “Marquette University College of Engineering.”

Your College decided to sponsor Jason in the spirit of doing whatever it can to bring unique hands-on experience to its students.

“All my pit crew are Marquette engineers or students,” said Jason. “One is a graduate student on campus studying automotive engines. Another recently joined Modine Manufacturing, which is a leading engine components supplier. So while we’re all having success on the track, the bigger picture here is that this experience primes us for success after Marquette.”

As a student, Jason views racing as a unique lab-on-wheels.

“In the classroom you learn about different materials and models, you learn all the equations surrounding them, but you don’t actually apply them to anything but math problems. Driving this car, our team gets the opportunity to apply these equations to win a race, to be ahead of the competition.”

Enough to be named Rookie of the Year on a premiere pre-NASCAR racing circuit – third in points among 116 drivers.

“The way the team has attacked problems has changed over the course of our years here at Marquette. We’ve all grown tremendously because of it.”

quette ... Hands On

Erin

Promersberger

The program was started nearly ten years ago – a three-way partnership between the Biomedical Engineering Department, the University's Les Aspin Center for Government, and the United States Food and Drug Administration (FDA).

It provides biomedical students the opportunity to intern at the FDA on projects concerning implantable devices, diagnostic equipment, and biotechnology and pharmaceutical research. More than 90 students have participated, including senior Erin Promersberger.

"When I found out about the Les Aspin Program my freshman year, the possibility of researching with the FDA seemed unfathomable," said Erin. "The summer after my sophomore year, it became a realistic possibility, so I decided to try it out."

Erin was tasked with determining the safety of a chemical residue left on devices following a type of sterilization.

"At the end of the program, I was asked to participate in a poster fair, presenting my information to employees of the Office of Science and Technology, as well as to my fellow interns and anyone else who decided to pass through the area. By the time the OST Director reached my poster, my confidence was high, and I felt that I clearly explained to him everything I knew. He seemed genuinely impressed, and I was honored.

"In my moment of glory, a new spectator approached me. I began my perfected presentation but was politely interrupted halfway through the first sentence. 'I'm sorry,' she began, 'but I don't understand anything you just said. I'm a secretary here, and am not familiar with the technical terms. Could you please reword it?'"

Erin was caught off guard, and she started again, thinking of how she would have wanted it presented to herself just two months prior.

"Following my modified presentation, she thanked me and informed me that mine was the only presentation she understood. It was then that I realized how much I had learned."



Marquette's Les Aspin students.

Patrick McNamara

COE students typically go on one of Marquette's voluntary engineering treks to Guatemala to build something, to put the theory learned in the classroom to use.

More often than not, they return with a whole new perception about the power of engineering – and the importance of service.

Dan Zitomer, an Associate Professor in the Civil and Environmental Engineering Department, heads up the College's International Service Learning Program, which builds infrastructure in developing nations ranging from bridges to solar-powered water pumps on a voluntary basis.

"Essentially we're using engineering skills of design and construction to build infrastructure that helps people in need," said Zitomer. "We're trying to provide an educational experience for the students rooted in the mission of Marquette University."

Pat McNamara, a civil and environmental engineering senior, used his Christmas break and own bank account to join a team of Marquette students building a bridge to span a river that local villagers could only safely cross three months out of the year. McNamara said the project "showed students how powerful engineering is. Everyone thinks of it as what you are going to do where you are right now – about the companies that you will work for when we are done (at school).

"But there is an even bigger need for (engineering) out in developing countries. There's a lot of work we can do.

"We take two weeks off to help build a bridge and now for the rest of their lives (these people) have access to health care, to education, to markets. This can change lives forever."

Zitomer believes the experience opens the eyes of students that engineering is not just a profession, but a vocation. McNamara got the message.

"We learned we can make as difference," he said, "if we choose." •



Marquette students help build a bridge in Guatemala.