

## Highlights of SWE:

- Networking with other women in science and engineering fields
- Opportunity to help encourage science and engineering initiative in younger girls through community service
- Connect, share experiences, and get advice from female upper-classmen in Pratt
- Have fun!

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# SWE Newsletter

November 2008

## President's Welcome

Dear Pratt Community,

Welcome to another great year with SWE here at Duke. We have had a busy fall so far and are currently working to plan our upcoming events and community service projects. SWE at Duke has grown immensely over the last few years, and we are privileged to have such a talented Executive Board and membership. We are looking forward to the upcoming National Conference in Baltimore, MD and our participation in TechnoQuest, a day of science learning for Girl Scout troops in the area. We will also be hosting E-Socials for the Pratt Community, and have several upcoming guest speakers to look forward to. Please feel free to contact me ([mlm23@duke.edu](mailto:mlm23@duke.edu)) with ideas, suggestions, how to get involved with SWE here at Duke. We'd love to hear from you!

Best,

Mhoire Murphy,

President, Duke SWE

[mlm23@duke.edu](mailto:mlm23@duke.edu)

## Community Service

Last year, our SWE chapter sponsored and led an entire workshop for the annual FEMMES (Females Excelling More in Mathematics, Engineering, and Science) event on the Duke campus. The goal of FEMMES is to provide a fun, exciting day that will encourage young girls to take an interest in math, science and engineering. Female professors and students led the conference and its activities introducing the participants to successful women do excel in science, math, and engineering fields.

Over 300 middle-school aged girls interested in science, math and engineering came to our community service event to learn more about these subjects, conduct experiments, and investigate real-life problems. We ran three workshops: Physics Fun, Marsh-

mallow Madness, and Goo Chemistry. In the Physics Fun classroom, we froze a fresh banana and flower in liquid nitrogen, and then



we shattered them into pieces to experiment with states of matter. We also used a bicycle wheel and rotating pedestal to demonstrate the concept of angular momentum. For Marshmallow Madness, the girls used marshmallows and toothpicks to explore the field of architectural engineering by trying to make the tallest and sturdiest structure from these materials.

Through this activity, the participants were introduced to various geometric shapes that served as architectural strengthening techniques. The objective was to develop a simple understanding of geometric height and strength optimization. Points were awarded for each component, and prizes were given to the high-scorers. Lastly, we had the Goo

Chemistry lab, where the girls made 'goo' from cornstarch and water; we then discussed the differences in its states of matter, and how these can be altered by physical conditions. It was a really fun day for the participants as well as the 20 SWE volunteers!

Our chapter was also involved in TechnoQuest, an event similar to FEMMES, where we hosted our own physics workshop for 100 girl scouts. We also designed, planned, and executed our first annual Science is SWEet event, where our chapter hosted two girl-scout troops and created science and engineering activities for them. We will be participating again this year, too, so come join us!

- Mary Ellen Koran (Pratt '09)



## Helping Honduras

This summer was incredible in so many ways! The experience that had the most profound effect on me was traveling to Honduras on an Engineers Without Borders site assessment trip with a team of other Duke students and faculty. We surveyed a site and looked into the feasibility of building a permanent medical clinic in Honduras next summer as part of a DukeEngage experience.

Interacting with the community was definitely the highlight of the

trip. I listened to Honduran children sing songs they learned in Primary School, and I was touched by their playful spirit and curiosity about our technical equipment. I confidently spoke Spanish with local Hondurans about supply costs for building materials and about health issues afflicting the community. One of the most memorable moments of the trip was selecting Spanish books and school supplies at a local market, delivering these supplies to the leaders of the rural community of Las Mercedes and seeing their faces light up with true gratitude. I discovered my desire to help struggling communities in

Honduras and elsewhere, and as a result I have shifted some of my academic interests more towards global health.

Although it was difficult to witness the poor living conditions and healthcare access reality for most Hondurans, it was inspiring to know that Duke students will be able to make a difference in the community this summer with the EWB Honduran Health Clinic project. I am currently a mentor for this group and working on my own project to implement a health education program for children in another impoverished Honduran village.

- Anna Brown (Pratt '11)

## Mr./ Miss Pratt Competition

SWE hosts the annual Mr. / Miss Pratt Competition where engineering students compete for the title of Mr. or Miss Pratt. Full of fun and games, 10 participants, 5 girls and 5 guys, showed off their catwalking skills. With a white lab coat and lab goggles in hand, they strutted down a makeshift runway in their own personal style. In the next chal-

lenge, the contestants displayed their engineering team building skills. Contestants paired up to build tall and sturdy towers out of toothpicks and marshmallows. After displaying their engineering prowess, contestants could be seen in bright orange biohazard bags, sack racing down the walkway outside Twinnie's. It was a close race as the

contestants hopped towards the finish line. Throughout the competition, Dean Katsouleas, Dean Franzoni, and Dr. G, the three judges, could be seen allotting points to each contestant. In the end, the judges concluded our afternoon of fun by naming Mr. and Miss Pratt of the day.

- Christal Chow (Pratt '09)



## Hospital Fieldwork in Uganda

I participated in a fieldwork project in conjunction with the Mulago-Duke Neurosurgical Team, through the Duke Global Health Institute. My project involved staying for approximately six weeks in the city of Kampala. I worked at the Mulago Hospital, the only public hospital in Uganda. During the extent of my project, I evaluated

the state of the medical equipment at the hospital, organized a list of functioning and non-functioning equipment, performed troubleshooting, and helped repair the devices and completed troubleshooting to minimize error. My experience was incredibly fascinating as it introduced me to the obstacles

and rewards of the medical profession. In addition, I gained a greater understanding of the cultural complexity one faces when living in a foreign country, in sub-Saharan Africa and elsewhere. I am now much more aware of the true application of engineering throughout the world.

- Tamara Louie (Pratt '11)

## Engineering World Health Summer Institute



This summer I had the opportunity to work as a volunteer engineer in Central America as part of the Engineering World Health Summer Institute. EWH has its headquarters at the Pratt School of Engineering at Duke, and the Summer Institute has grown to include the CUREs (Competition for Underserved and Resource-poor Economies). I spent the first four weeks of the program in San Jose, Costa Rica, where I lived with local families and had daily Spanish language classes. Technical lectures and labs

were scheduled in the afternoons to explore many of the troubleshooting skills and soldering techniques that I would need for my work in the hospitals. I discovered and learned about many of the medical devices that I later encountered and repaired in the hospitals. After that month, half of the students in the group traveled to Honduras, and half went to Nicaragua, where we were assigned to hospitals in teams of two. I was at the Hospital Velez Paiz in Managua, capital of Nicaragua. Velez Paiz was one of only two public mother's and children's hospitals in Managua. It was very crowded, as patients could no longer occupy the second and third floors due

to structural damage from an earthquake. We worked with the head electrical technician to repair infant warmers, a centrifuge, an x-ray machine, phototherapy devices, oxygen hoods, and nebulizers during our stay. We also interviewed the nurses and doctors to find out more about the medical equipment they most needed, and the challenges that they faced because of lack of parts and resources. I was able to improve my Spanish, learn a great amount from working with the technicians, and help get many devices back in working order in the wards of the hospitals!

- Kathleen Murphy (Pratt '09)

## SWE Regional Conference

I never knew there were so many details to pay attention to during an interview: the strength of a handshake, the color of your suit, knowledge of your skills, amount of eye contact, and even the frequency of times you speak the interviewer's name all contribute, in some way, to the impression you leave your inter-

viewer with. If all is done well, congratulations and the job is yours. I took these valuable tips with me after a powerful seminar given at the 2008 SWE Regional Conference in Miami, FL. Though I have already forgotten the presenter's name and her occupation, I will always remember the confidence and poise she held



throughout that hour, her booming voice commanding me to lead the next generation of women who aren't afraid to conquer their dreams.

- Meng Kang (Pratt '11)

Please visit the EWH website at [www.ewh.org](http://www.ewh.org) if you would like to learn more about the organization, and email Kathleen at [kmm9@duke.edu](mailto:kmm9@duke.edu) if you would like to hear more about her experiences with EWH or are interested in hearing more about her experiences with the Summer Institute!

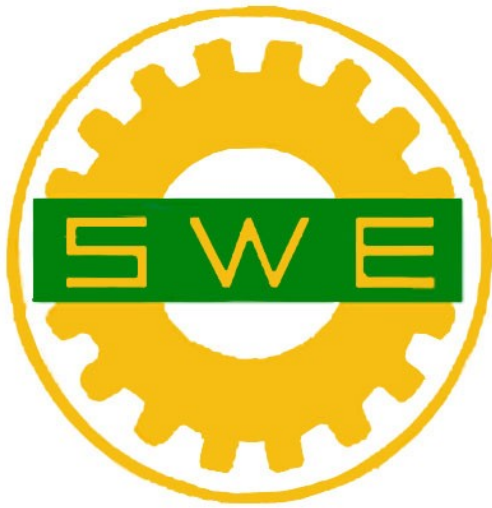
## Food for Thought

This past April, SWE hosted its annual "Food for Thought" luncheon for its members and the female deans, faculty, and special guests of the Pratt School of Engineering. It was an afternoon of fun, informal conversation over a nice lunch catered by Foster's Market. Our members had the opportu-

nity to get to know their professors and Deans outside of the classroom, and we discussed everything from current research opportunities, to graduate school options, to the work-life balance. Overall, it was an informative and fun afternoon, and we all enjoyed it tremendously.

- Mhoire Murphy (Pratt '09)





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The Society of Women Engineers at Duke is a professional society for women pursuing engineering. Our chapter is part of the national organization, which has 300 collegiate sections and 100 professional chapters. We strive to make the most of our engineering experiences here at Duke by attending national and regional SWE conferences, establishing relations with companies interested in recruiting our members, participating in community service events, and supporting one another in our academic endeavors.

**For more information about our events** contact Mhoire Murphy at [mlm23@duke.edu](mailto:mlm23@duke.edu)

**Interested in joining?** Contact Alaina Pleatman at [alaina.pleatman@duke.edu](mailto:alaina.pleatman@duke.edu)

## Stryker Co-op

This past summer I worked as a Co-op in the Advanced Manufacturing Engineering group at Stryker Instruments in Kalamazoo, MI. Stryker is one of the leading medical device companies in the world. Stryker Instruments is one division of the Stryker Corporation. Other divisions include Stryker Orthopaedics, Endoscopy, Navigation, Medical, Craniomaxillofacial, and Spine, to name a few. Stryker Instruments' products mostly focus on surgical instruments used during orthopedic surgery such as drills, saws, personal protection, and devices for mixing bone cement.

What made my experience so memorable was due to the fact Stryker gave its interns hands-on projects have a substantial impact on the company. I was in charge of creating Adhesive Technical Reports for five different adhesives that are used in assembly of products on the manufacturing floor. I was given the responsibility of locating technical

information about each of the adhesives, designing the tests that would be done on the adhesives, preparing samples for testing and even performing some of the actual tests. To accomplish all of these tasks, I was paired up with full-time engineers in the company to work with and bounce ideas off of. Once the testing was completed, I had to use statistics to prove that the adhesives were capable of withstanding the foreseeable wear and tear on the products as they are used in an operating room. Additionally, I was given the responsibility of validating an oven that is used in one of the development labs for curing adhesives. This involved running the oven through various temperature settings to make sure that the oven heated evenly.

All of my different projects helped me to gain a better understanding of medical device company's quality system. The validation and testing tasks that I performed are very similar to those performed in most medical device manufacturing facilities because of the strict guidelines set forth by the FDA. These skills I acquired will be extremely useful in

the future. I highly recommend looking into getting an internship or working full time at Stryker. Many of the employees there started working when they were undergrads and have stayed since. I also talked to many engineers that came to Stryker from other companies, and they all told me that the work environment at Stryker is better than anywhere that they have worked before. I had a great experience at Stryker. I learned so much and I also got an idea of what it would be like to work full-time as an engineer. Feel free to contact me if you have any questions!

- Alaina Pleatman (Pratt '10)

