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ENGINEERING AMBASSADORS

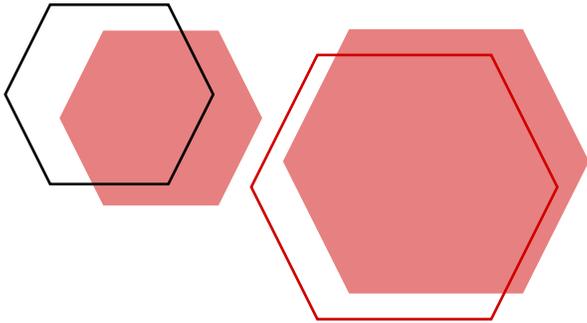
FALL 2019

Welcome to the Engineering Ambassadors Network! This semester, our ambassadors have impacted over 2,700 students, teaching them about science, math, engineering & much more. Over 350 hours total were spent giving presentations, running booths, and promoting engineering and the University of Nebraska College of Engineering.

EXECUTIVE UPDATE



Mikayla Rosenthal
Engineering Ambassador President
2019-2020



In our fifth year as an organization at the University of Nebraska, it is amazing to see the impact we have had on the community. Each year brings new challenges and new opportunities for growth among our members and the students we interact with. We currently have 26 members from many diverse backgrounds and engineering disciplines. It is **incredible** to see how the members this year use their energy, excitement, and passion for engineering to make every presentation and interaction with students a unique experience. They truly embody our foundation of breaking down stereotypes and changing the conversation schools and students are having when it comes to engineering.

This semester we welcomed 13 new ambassadors. They were trained by one of our own UNL EAN alums, Shelby Wiliby! We look forward to adding these presentations to our existing 25 other presentations. Myself, along with two other senior ambassadors, Jami Turnquist and Alex Sukup, attended a national workshop back in September. Jami and Alex served as mentors to new ambassadors from various schools across the nation while I attended a “Train the Trainer” workshop to be certified to train new ambassadors at future local workshops. We all gained a greater understanding of the impact EAN has nationally. We also got to catch up with two alumni, Capri and Kelly, who were also attending the Train the Trainer portion of the workshop in hopes of spreading EAN to their new universities.

This semester our ambassadors have networked with industry professionals, connected with students in the 5th grade through our STEMPal program, and shared tips and trick with one another for school visits based on personal experiences. We also held our second annual Carnival Fundraiser this semester. This year it got a lot of attention from the community and was even featured on the local news channel! Next semester we have plans to hold a banquet to celebrate our 5 years as an outreach program for the community.

In closing, in my three years as an Engineering Ambassador I have grown close with many of the members and watched everyone grow in not only their communication skills, but also their leadership and overall confidence. It truly is amazing to see the development of our ambassadors and the impact they continue to have on our community once they have graduated.



Pictured (left to right): Thor Johnson (Flint Hills Fairmont Process Engineer), Dr. Sally Wei (Ambassadors Director), Tom Fulton (Undergraduate Ambassador), Mikayla Rosenthal (Ambassadors President), Mason Gish (Undergraduate Ambassador), Sharon Zoucha (Sutton Guidance Counselor), David Cotton (Flint Hills Fairmont Plant Manager)

ALL ABOUT -THE SUTTON TRIP-

COLLABORATION IN ENGINEERING EDUCATION

On October 22nd, the Engineering Ambassadors took a trip to the public schools of Sutton, NE. The Ambassadors worked with members of the Flint Hills Resources ethanol plant from Fairmont, NE, to give presentations and activities centered on educating grades 7 through 12 on engineering topics. After the presentations, the team talked about their work experiences and what to expect in college. The team had a Q&A session following the presentations, reaching a total of 188 students.

Operating for over 60 years, Flint Hills Resources is an independent company and wholly owned subsidiary of Koch Industries. This year, the Nebraska Engineering Ambassadors Network gained Flint Hills Resources as a partner, assisting the Ambassadors in funding for the upcoming academic year. Representing Flint Hills, Fairmont plant manager David Cotton expounded on his experiences in the ethanol industry and his experiences in undergraduate education. With him was Thor Johnson, the chemical process engineer at Flint Hills. Mr. Johnson shared his career journey and answered questions alongside the team. Students were able to ask any questions regarding the team’s education experiences.

The first Ambassadors presentation of the visit was given to grades 7 through 9 and focused on the importance of wind turbines in developing sustainable forms of renewable energy. After the presentation, the students worked on designing and building their own wind turbines with cardstock, CD discs, and tape. The Ambassadors tested these designs with fans and flow meters, measuring the voltage generated when air from fans turned the students’ turbines. The second presentation was given to grades 9 through 12, explaining the science behind rocket propulsion and future applications. Students used cardstock, straws, and tape to design their own rockets, which were tested in Sutton’s performing arts center. The Sutton trip served as a great opportunity for collaboration between the Ambassadors and Flint Hills Resources to connect with students and pique their interests in STEM careers. The presentations and activities showed students that while a career in the field of STEM can be challenging, the journey can be rewarding.



FUNDRAISING UPDATE

EAN CARNIVAL

The Fundraising Committee has been busy this semester. On November 3rd, 2019, the Engineering Ambassadors hosted their second annual Engineering Carnival. This event offered 10 various booths, and students were able to put their engineering skills to the test by launching rockets, designing roller coasters, surviving an earthquake, and much more. For example, Ambassadors worked with students and their families to build wind turbines, play piano on bananas, and so much more. One of the activities required the ambassadors to bring as many textbooks as they could contribute and with classes like chemistry, calculus, physics, and more, this was not very difficult. These textbooks were used when children created bridges, and some ended up holding over 17 books! Children and parents alike commented on the fun they had and hope to see similar events in the future, and overall the event was a great way for the Engineering Ambassadors Network to become more known in the community. Many of the ambassadors agreed that this was an educational, fun time for all of the students and that they are excited to be a part of the carnival again next year.

Our chapter president, Mikayla Rosenthal, shared her experiences of the carnival with us. Mikayla “absolutely loved the carnival.” Most ambassadors were running activities; instead, she took photos of the event. This gave her the opportunity to talk to the children and parents and really hear their opinions on this event. She discovered that both the parents and children really enjoyed the event, and loved that it was a fun, interactive way to understand engineering. She also detailed her excitement regarding the tremendous growth of participation this event had in comparison to last year and is excited to see it grow even more next year. Another unique perspective she got to experience was actually seeing how much the kids looked up to the ambassadors. Overall, Mikayla had a great experience at the event and further shows the impact this event had.

“This carnival was a huge success”, stated Fundraising Committee Chair, Jami Turnquist. This measure of success can be seen in numerous ways. First, the local Channel 8 News stopped by and did a segment on this event due to its quality and community engagement. Their covering of the event can be found on their website and is titled “Youngsters learn about engineering from UNL majors.” Moreover, the carnival also raised over \$800, all while making K-12 students excited about engineering and related STEM fields. This more than tripled last year’s profits from the event, which will be used for outreach, team bonding, handouts, and more. With this event, the fundraising committee has been all in, they have not yet determined specific events for next semester; however, if it is anything like the carnival, we know it will be a huge success.

EAN NATIONAL CONFERENCE

WORCESTER, MASSACHUSETTS

What is the EAN National Conference?

The EAN national conference is an annual event which brings together Engineering Ambassadors, mentors, and alumni from different universities nationwide for training and networking.

What stuck out to you the most about your experience at the National EAN Conference?

Sally Wei (Advisor): From an advisor's perspective, it is always satisfying bringing current ambassadors and watching them interact with EAs from other schools. I love showing them that they are part of something much bigger than just our Nebraska organization. It is energizing to see so many university EAN groups all excited about a common cause.

Mikayla Rosenthal (President): What stuck out to me was the fact that we have so many different organizations throughout the country. We all might run them differently, but when it comes down to it, we all have the same goal, changing the conversation schools are having about engineering and STEM related careers. Going through the "Train the Trainer" portion of the conference, I saw that while trainers may have a different take on the training material, the messages and trainings are the same, which leads to a similar structure in presentations given. It was great being able to see that while we may not be impacting kids across the country, we are part of something greater that does have an impact on kids all over the US.

What was the biggest takeaway that you came back with to apply in our own group?

Sally Wei: Another university presented on the importance of training EAs on social justice issues, particularly with regard to the demographics of schools we visit. We need to be aware of our own privilege and be sensitive to the students we see.

Alex Sukup (Vice President – Lincoln): A big takeaway from the conference was seeing how other groups are organized. For example, one student at another school is responsible for the entire schedule of events for the year. This really helped their group's organization, and implementing things like that would be beneficial to our own group here in Nebraska.

What are the main advantages that you see from being connected to a nationwide initiative?

Sally Wei: The main advantages are the networking and support received from the national organization. When we were just getting started, the other advisors were very helpful and willing to share resources and experiences. We work together and learn from one another. Also, being a nationally recognized organization, potential employers recognize the value that Engineering Ambassadors bring to their workplace as interns and future employees. In addition, EAs are connected to a national network of other EAs who share common experiences. This will be particularly valuable to them when they graduate and enter the workforce.



EAN NATIONAL CONFERENCE

CONTINUED

Jami Turnquist (Treasurer): I see a lot of advantages to being connected nationally. Attending the conference allowed us to talk to other groups and see how their programs differ from ours. We were able to gain insight as to what works well and what doesn't work well, and to get new ideas to bring back and advance our network even more. It was also such an eye-opening experience to see how many ambassadors are out there, changing the conversation and spreading STEM education all over the United States, and even in Puerto Rico.

Which components of the national conference did you see as the most beneficial to you personally?

Sally Wei: Connecting and sharing best practices with other advisors.

In what direction do you see the Engineering Ambassadors national network moving as an organization?

Sally Wei: The national network is growing. There are currently over thirty universities nationwide in the network. It is really cool that we are all working toward the common vision of “Changing the Conversation” that the youth of our nation are having about engineering. The national network has also been continuing to research the impact of the program on ambassadors and best practices among the different programs. It is exciting!

INTERVIEW WITH MITCH RHOADES

FORMER AMBASSADOR 2016-2018



What did you study during your time at UNL and what do you do now?

I graduate next fall with my Bachelor of Science in Civil Engineering. I have been working through college at Building Crafts Inc. I have received a job offer that upon graduation can work there full time as a project engineer. We work on industrial contracting and engineering. We specialize in water treatment and wastewater treatment plants.

Why did you choose to become an engineer?

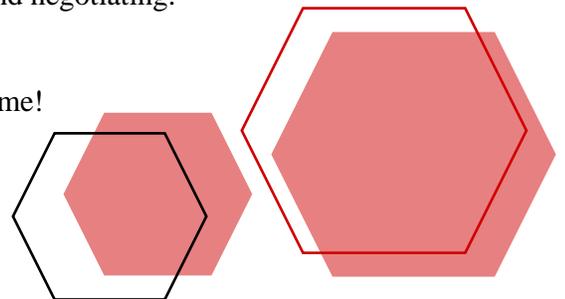
Engineering is a solid career choice and is something I'm interested in.

How has being an engineering ambassador prepared you for your future?

Engineering Ambassadors has prepared me for interviews and job negotiations. I am now more comfortable presenting and negotiating.

What is one fun fact about you?

I enjoy rock climbing in my spare time!



ASK THE AMBASSADORS

CURRENT AMBASSADORS 2019-2020



Josiah Kolar
Mechanical Engineering

How have younger students taught you through engineering ambassadors?

This is only my first year as an ambassador, and I've already learned a lot from the K-8th grade students I've presented to. What sticks out to me the most though, is that the simplest solution is often the most effective solution. Watching students work on their activity designs is so interesting because I tend to overthink problems. A group of students has come up with a better design than the one I had in my head at almost every event I've been to!



Alex Sukup
Mechanical Engineering

Why is it important to you to teach students about engineering at a young age?

I think it's important to teach students about engineering at a young age because many of them have never heard of engineers or don't know what they do. I always had a negative view of engineering because I thought engineers only did one thing. It is cool to see kids enjoying an activity and then telling them that it is something that an engineer might work on.



Jami Turnquist
Chemical Engineering

What is your favorite Engineering Ambassadors Event?

My favorite engineering ambassador's event is Introduce a Girl to Engineering Day. I have helped out with it a few times, and I love working directly with young girls to spark an interest in STEM. I wish I would have had this kind of opportunity when I was younger. The girls really appreciate the experience, and I love seeing the creativity they bring at such a young age.



Marissa Recker
Architectoral Engineering

What is your favorite presentation to give to students?

My favorite presentation to give to students is Rollercoasters. The kids are always excited to apply what they learn in the presentation when they build their own rollercoasters. There are many disciplines of engineers who collaborate to build rollercoasters, so we are able to explain many disciplines to the students.