



Excellence • Scholarship • Tradition

Missouri Chapter of Keramos

2020 Annual Report



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I. Chapter Advisor Executive Summary

Strange, strange times. I have been involved in Keramos for a very long time and I have been a chapter advisor for a very long time. Each year that new leadership is elected, I look forward to watching where the crew takes the chapter and how they will influence the other Keramos chapters. It is an enjoyable thing to observe.

This year's executive board was an interesting mixture of personalities; combining to become the strongest and most passionate executive board I have encountered in my time as advisor. They led our strong department, completing the things described in this report, but it is that which is not in this report that was most telling to me. This group of young leaders sat at the table with the highest of the university administration and boldly (and at times painfully) addressed some of the most difficult issues facing any institution. With poise and strength they provided the student perspective that is so often missing at the table. They were a credit to themselves, to the chapter and to the Keramos fraternity as a whole. I was humbled by their strength as I would not have been able to do such a thing when I was an undergraduate student.

That issue alone would have made me remember this crew as the best I had ever encountered. As I read their report and recalled the year, they accomplished a great deal; consistent with the last few. This was actually another incredible thing as being sent off campus could have ended their Keramos commitment and no one would have blamed them, especially not me. Instead, the second thing that makes them the best executive board I have encountered is the way they stepped up as a team and took that adversity on. I can't begin to count the number of Keramos Exec *Zoom* invitations I received from Nicole. Each time (and I attended most but not all) the team not only addressed continuing activities by modifying them to be "distance" compatible, they discussed ways to help other students navigate these strange times. Lastly, they were very careful to identify a very good executive board for next year. Again this issue could have been forgotten or left to chance as elections had to be done remotely.

Strange times indeed. Some step up and excel while others step back and wait. This group is the former and I am so very proud of who they are and what they accomplished.

Jeffrey D. Smith

II. Annual Plan for Upcoming Year

It is an honor to be elected to be the president of the Missouri Chapter of Keramos for the upcoming year. Coming from being the current National Student Representative and the Historian for the local chapter. After seeing all of the workings at both the national and local levels, I had a passion to continue to develop the organization as best I can and to try to bring some new initiatives to the table. I am looking to boost active involvement, keep alumni involved in the happenings of the organization, and to look where keramos can do more for the department.

To incentivize active involvement, I plan on working to create a plan to increase active involvement that includes decreased prices on merchandise, extra opportunities for more active members, and overall incentivize activity in the organization. The goal of this is to have members not just to join to be a part of Keramos, but also to contribute their own individual insight and impact on Keramos during their undergraduate membership. Regardless of the health situation, I plan on giving opportunities to stay in contact with each other and to stay close as a chapter. We currently have a discord platform for people to socialize on but I would like to see it be utilized during in-person classes as well.

With our alumni base growing each year we are always looking for ways to connect our members past and present. Last year, Keramos began to release a newsletter to alumni and it was well received. I am looking to expand on this and hold a student and young professional networking event. The idea behind it is that there is an initial connection between the student and alumni in industry to make it easier for students to initiate conversation about the industry and anything else.

Finally, I would like to further Keramos' involvement in the department through providing recruitment opportunities for high schoolers and other prospective students. The growth of the department is very important to us and I would like to promote Keramos playing a larger role in it. We pride ourselves in taking in exemplary students and I think advertising the individuals in the organization could show our department very well.

III. List of Officers for Upcoming Year

Name: Anthony Luebbert* Office: President Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Name: Megan Lenox* Office: Vice President Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]
Name: Amber Meyer Office: Secretary Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Name: Catherine Colletti Office: Treasurer Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]
Name: Deja-Shea Williams Office: Herald Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Name: Sydney Boland Office: Historian Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]
Name: Ashleigh Abbott Office: Nominations Chair Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]	Advisor: Dr. Jeff Smith Address: [REDACTED] Phone Number: [REDACTED] E-mail Address: [REDACTED]

*Delegates for 2020 Convocation

IV. List of Active Members

<u>November 21st, 2019 Initiates</u>		
Basler, Grace	Hilmas, Krista	Shellabarger, Stephen
Blatt, Nathan	Miller, Garrett	Smerek, Kyle
Burkett, Mitchell	Pommerenke, Hans	Williams, Deja
Doll, Alexandria ²	Reicher, William	Wyand, Robert
Gould, Brady	Sayre, Elizabeth	
<u>April 4th, 2020 Initiates</u>		
Dunsford, Kyle ²		
<u>Undergraduate Members</u>		
Abbott, Ashleigh	Grier, Sophie	Read, Aaron
Anselmo, Nicholas ²	Grieshaber, Doran ¹	Reynolds, Alissa ²
Asbury, Meredith	Hawickhorst, Caroline ¹	Ricketts, Bailey ²
Barr, Adam ²	Hopper, Danielle	Ryckman, Cambria ²
Bax, Alyssa	Johnson, Caelen	Sabata, Clare
Boland, Sydney	Johnston, Julia	Schneider, Anna
Buscher, Kathryn ²	Kaczmarek, Anna	Schneider, Teresa ²
Butler, Hannah ¹	Keil, Haley ²	Schottel, Jaden
Buznego, Alana	Khayat, Michael	Schuman, Jared
Cahoon, Mary-Ann ¹	Lenox, Megan	Smith, Steven
Chadbourne, Connor ²	Lewis, Theodore	Stacy, Jacob
Childers, Alaina	Luebbert, Anthony	Stone, Miranda ²
Christian, Jordan	Malpocker, Sophia	Sutalski, Elliot

Colletti, Catherine	Markowitz, Daniel	Theriac, John ²
Dachroeden, Grant	Martin, Hannah	Thomasson, Caitlin
Decker, Michael	Mefford, Elissa ²	Thompson, Lawrence ²
Duncan, Katie	Meyer, Amber	Timme, Nicholas ²
Eaves, Hannah ¹	Mrotek, Jay	Vishy, Matthew
Edic-Gordey, Nathan ²	Nulsen, Nicole ²	Weiseman, Mikaela ²
Fosdyck, Robert ¹	O'Neill, Erin ²	Weyrauch, Noah
Gordon, Joseph	Phinney, Cole	Wiles, Brooke
Graber, Allison	Prothman, Ben	
<u>Graduate Members</u>		
Brune, Paul	Murchie, Alec	Volz, Steven
Cook, Rachel	Richards, Tyler	Wittmaier, Connor
Blatt, Rebekah	Scott, Jonathan	
Jarmann, Jecce	Scott, Margaret	
Jarvis, Leiren	Shoaib, Noor	
Lapeyre, Jonathan	Spratt, Myranda	
Martin, Austin	Stanfield, Austin	
<u>Faculty</u>		
Dr. Laura Bartlett	Dr. Wayne Huebner	Dr. Mark Schlesinger
Dr. Richard Brow	Dr. Aditya Kumar	Dr. Bob Schwartz
Dr. Anthony Convertine	Dr. David Lipke	Dr. Jeff Smith
Dr. Fatih Dogan	Dr. Scott Miller	Dr. Jeremy Watts
Dr. Bill Fahrenholtz	Dr. Joe Newkirk	Dr. Kelley Wilkerson

Dr. Greg Hilmas	Dr. Ron O'Malley	
<u>Emeritus Faculty</u>		
Dr. Harlan Anderson	Dr. Darrel Ownby	Dr. Dave Van Aken
Dr. Delbert Day	Dr. Mary Reidmeyer	Dr. Von Richards
<u>Honorary Members</u>		
1947 – John C. Hostetter	1986 – Chandra Ray	2005 – Ted Day
1948 – Frederick Norton	1987 – Mohamed Rahaman	2006 – Ron Kosher
1950 – Paul Smith	1988 – Lokeswarappa Dharani	2007 – Eric Bohannan
1953 – Charles Smith	1989 – James Stoffer	2008 – Matt O’Keefe
1961 – William James	1990 – Daniel Armstrong	2009 – Ted Ruppert
1970 – John Arthur	1991 – Larry Heying	2010 – Sam Stang
1970 – John Holt	1992 – Richard Hagni	2012 – Cindy Schwartz
1971 – Harlan Smith	1994 – Daniel Stutts	2013 – S. Jill Glass
1973 – Hector McDonald	1996 – Bill Hibler	2014 – Jaci Huebner
1975 – Leroy Hart	1997 – Kent Peaslee	2015 – Mike Carson
1977 – Manfred Wuttig	1998 – Eric Schramm	2016 – Glen H. Kirby
1978 – Paul Cash	1999 – Ken Goretta	2017 – Kathleen Shugart
1980 – Edward Epstein	2000 – Terry Tiegs	2017 – Mrityunjay Singh
1981 – John Bartel	2001 – William Dawson	2018 - Gary Penell
1983 – Melvin Churovich	2002 – Carl Moody	2019 - John Story
1984 – Don Sparlin	2003 – Scott Miller	2020 - Sylvia Johnson
1985 – John Dial	2004 – Chris Ramsey	

¹Members Graduating Fall 2019

New Members

The Keramos chapter at Missouri S&T selected fifteen bright students to initiate in the fall semester. Among these students were one graduate student and a metallurgy student. Initiation was held on November 21st, 2019. A group of students was set to be initiated in the spring on April 9th, however, due to the coronavirus outbreak the students will complete their remaining requirements and be initiated in the fall. One student was initiated via Zoom meeting on April 4th due to a scheduling conflict during the fall initiation date.

The initiation process was similar to that in years past, and is meant to foster relationships in the MSE department between peers and professors. Initiates began by submitting an application that allowed the executive board to gauge their interest in joining Keramos. Our chapter continued utilizing an electronic application process to facilitate reaching more students and reviewing applications easier.

In order to be initiated, students were required to attend the Missouri S&T career fair, MSE etiquette dinner, and a lunch and learn to promote professional development. Attending a Miner Job for Major Cash (MJMC) is also required which fosters relationships with peers and professors. Lastly, a ceramic Keramos plaque must be made and an initiation test must be passed to demonstrate knowledge of the organization.

Attending the etiquette dinner just before the career fair is a great way to network with students, professors, and potential employers. During this event students learn etiquette for a professional dining session as well as other general etiquette tips.

It has been a requirement for initiates to attend the career fair during their initiation semester for several years now. This is the best opportunity to meet with potential employers and hand out their resumes. In addition to the etiquette dinner, initiates were given several opportunities through Keramos to prepare for the career fair. Several initiates obtain internships or co-ops from the career fair every semester, and it is a great way to practice professional skills.

The plaque making process is a great way for initiates to get to know one another, and show off their artistic abilities. After rolling out and smoothing mid-fire stoneware clay, the



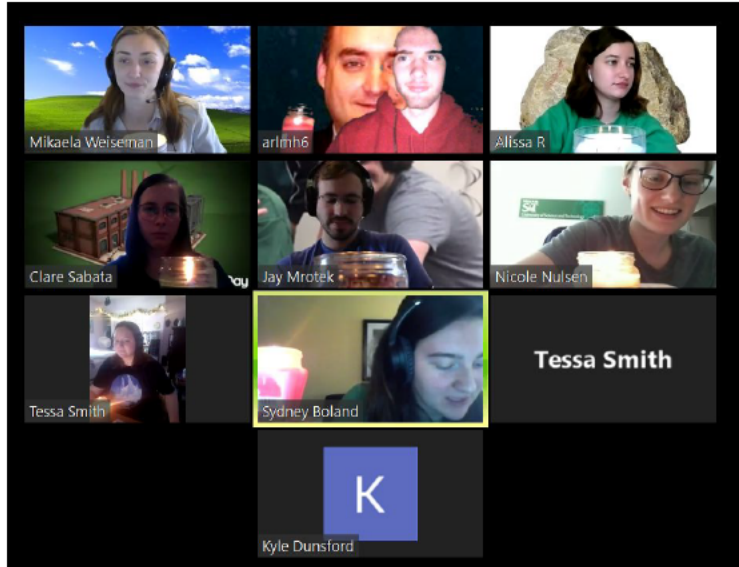
plaque shape is cut out using an outline. The excess clay body is used to cut out stars and a moon which are placed on the plaque outline. “Keramos” is then carefully carved above the moon. After drying the plaques were bisque fired by the herald then subsequently glazed with blue and gold glazes by the initiates. Making the plaque requires knowledge in traditional ceramics along with patience and precision to produce a quality product.

The tradition of faculty selecting a best plaque continued which fostered some friendly competition between initiates. Overall, initiates that took their time in making and glazing the plaque as well as asking several questions turned out with the best plaques.

Taking the pledge quiz is the final requirement to complete prior to initiation. When initiates are notified that they have been selected they are given information on the history of Keramos. This includes the national history of the organization as well as information about the Missouri S&T chapter. This information as well as general materials science knowledge and information about our MSE department. All of our initiates successfully passed the pledge quiz in order to be initiated.

After completing all of the requirements, initiates were inducted into the chapter through our initiation ceremony. Current student members along with professors dressed in their graduation regalia aided in welcoming the new members. After our fall initiation we held a dinner at our alumni house to honor the initiates as well as send off our graduating seniors for the fall semester. The picture shown below is from the fall 2019 initiation. As mentioned, the executive board held a Zoom meeting initiation in order to initiate one initiate that was unable to attend the fall initiation.





V. Graduating Members

Fall 2019 Graduates

<p>Hannah Butler Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Caroline Hawickhorst Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Mary-Ann Cahoon Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Rob Fosdyck Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Hannah Eaves Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Doran Grieshaber Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>

Spring 2020 Graduates

<p>Nicholas Anselmo Address: [REDACTED]</p>	<p>Erin O'Neill Address: [REDACTED]</p>
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<p>Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Adam Barr Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Bailey Ricketts Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Kathryn Buscher Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Alissa Reynolds Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Alana Buznego Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Cambria Ryckman Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Connor Chadbourne Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Teresa Schneider Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Kyle Dunsford Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>Miranda Stone Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Haley Keil Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>	<p>John Theriac Address: [REDACTED] [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]</p>
<p>Ellie Lunte Address: [REDACTED]</p>	<p>Lawrence Thompson Address: [REDACTED]</p>

Phone: [REDACTED] E-mail: [REDACTED]	Phone: [REDACTED] E-mail: [REDACTED]
Elissa Mefford Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]	Nicholas Timme Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]
Nicole Nulsen Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]	Mikaela Weiseman Address: [REDACTED] Phone: [REDACTED] E-mail: [REDACTED]

VI. Missouri Chapter Honorary Keramos Nominations



The Missouri Chapter of Keramos 2019-2020 school year honorary member nomination went to Dr. Sylvia Johnson. Dr. Sylvia Johnson has recently retired as the NASA Chief Materials Technologist of Thermal Protection Materials and Entry Systems branch, a position she held from 2000 to 2009.

Keramos would like to honor Dr. Sylvia Johnson for her dedication to advancing ceramic materials. Dr. Johnson has published over 50 papers, edited two books, and holds 6 patents. She received the 2011 James I. Mueller Award from the American Ceramic Society. She served

as the vice president of the American Ceramic Society in 1997, was on the National Materials

Advisory Board from 1997 to 2002 and is now a National Associate of the National Research Council.

Dr. Johnson excels in teaching, as well as inspiring others to learn about ceramics and material science. She is an inspiring role model for women who strive to pursue career paths in ceramics as well as all STEM careers, she was even featured in “Women in Ceramics” and “Women of NASA.” Dr. Sylvia Johnson’s dedication to Ceramics and the teaching of others is why the Missouri Chapter of Keramos decided to nominate her as the honorary member of Keramos.

VII. Treasurer’s Report

The Missouri Chapter of Keramos obtained a total of \$5,434.00 and spent a total of \$3,382.72 over the course of the 2019-2020 school year. The \$5,434.00 was gained through a combination of fundraising events, seminar and item sales, and CGIF proposal funding. The \$3,012.89 was spent on the CGIF project and department events such as socials and initiation. This year, the chapter introduced the use of a Keramos Venmo account. This allowed for ease of member payment. The following three tables contain the annual expenditure report for the Missouri Chapter for the bank account, cash bag, and Venmo account.

Bank Account

Date	Debit	Credit	Balance	Description
5/17/2019			\$1504.63	Beginning Balance
9/11/2019	-\$60.74		\$1443.89	Lunch and Learn
9/19/2019	-\$45.54		\$1398.35	Lunch and Learn
9/30/2019	-\$538.10		\$860.25	Polo Order
10/2/2019		\$350.00	\$1210.25	MJMC
10/2/2019		\$200.00	\$1410.25	Money Bag Deposit
10/9/2019	-\$20.81		\$1389.44	Check Order
10/18/2019		\$400.00	\$1789.44	Travel Reimbursement
10/18/2019		\$390.00	\$2179.44	MJMC
10/18/2019		\$1500.00	\$3679.44	CGIF
10/31/2019	-\$19.38		\$3660.06	Lunch and Learn
11/18/2019	-\$107.37		\$3552.69	Skeros Madness
11/18/2019	-\$114.32		\$3438.37	Keros and MA Tailgate
11/21/2019		\$300.00	\$3738.37	MJMC

2/28/2020	-\$164.26		\$3574.11	Keramos Initiation/Senior Sendoff
4/5/2020	-\$1269.80		\$2304.21	Stickers/Miller Indices Shirts

Cash Bag				
Date	Debit	Credit	Balance	Description
5/17/2019			\$260.00	Beginning Balance
9/24/2019		\$256.00	\$516.00	Polo Sale
10/2/2019	-\$200.00		\$316.00	Money Bag Deposit
12/5/2019		\$110.00	\$426.00	Dues
2/14/2020		\$336.00	\$762.00	Miller Indices Shirts

Venmo Account				
Date	Debit	Credit	Balance	Description

9/1/2019			\$0.00	Beginning Balance
9/24/2019		\$322.00	\$322.00	Sale of Polos
9/24/2019		\$45.00	\$367.00	Sale of Old Polos
10/18/2019		\$230.00	\$597.00	Member Dues
10/18/2019		\$55.00	\$652.00	Etiquette Dinner Deposits
10/22/2019	-\$55.00		\$597.00	Etiquette Dinner Deposit Returns
10/24/2019	-\$400.00		\$197.00	Travel Reimbursement Returns
10/31/2019	-\$26.82		\$170.18	Etiquette Dinner Speaker Gift
11/5/2019		\$40.00	\$210.18	Post Initiation Dinner
11/17/2019	-\$138.28		\$131.90	Snackamos Study Social
12/2/2019		\$15.00	\$146.90	Keramos Chords
12/5/2019	-\$38.01		\$108.89	Lunch and Learn
2/14/2020		\$588.00	\$696.89	Miller Indices Shirts

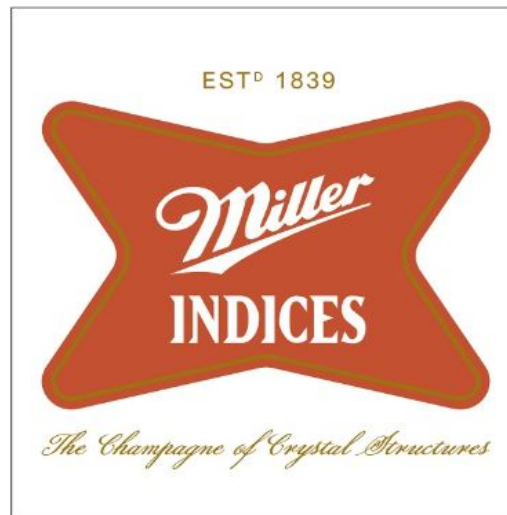
3/4/2020	-\$10.00		\$656.89	Best Plaque Award (Member's Dues Return)
3/4/2020	-\$42.29		\$644.60	Lunch and Learn
3/9/2020		\$132.00	\$776.60	Pats' Sweatshirt Backs
3/18/2020	-\$132.00		\$644.60	Pats' Sweatshirt Backs Return
4/7/2020		\$165.00	\$809.60	Stickers Sales

VIII. Chapter Activities

A. Fundraising

Item Sales

Keramos had another successful year of merchandise and item sales with some exciting new additions. The club held weekly "Seminar Sales" every Thursday before Seminar, and both old and new items were sold at these events. Leftover inventory such as the blue and yellow Keramos polos were sold. In the fall, a new polo design was very successful. In the spring, a new t-shirt was printed with "Miller Indices", a parody of Miller High Life and was very popular within the department and with the professors, all of the extras ordered sold quickly. The executive board designed some stickers for sale as well. The stickers arrived shortly after students were sent home from campus but are still being sold and mailed to students' homes for an additional fee and will continue to be sold next year. Keramos also created the design for and organized the printing of the back of the St. Patrick's Material Science Department sweatshirt, which had to pertain to the theme of "Roaring Twenties." Keramos did not profit off of this design but it is a common way the club gives back to and assists the department every year.



Miner Jobs for Major Cash

Starting in the fall of 2014, the Missouri Chapter began a program entitled “Miner Jobs for Major Cash” (MJMC), in which student members of the chapter would perform a service project for a faculty member in the department. In exchange for help the faculty member would donate to the chapter. Last year, the executive board made attending a MJMC a part of the Initiation requirements. This gives our new members time to bond with their pledge class, feel connected to the organization, and help the organization gain funds. Tasks in this year's MJMC included organizing firewood, building dog kennels, and general yard work. The attendees raised a total of \$1040 for our Keramos Chapter. The department faculty also enjoy hosting the students for these events with many faculty members providing food and good conversation for the members that help out.



B. Educational Outreach

Our objective was to showcase the wide variety of materials and applications that make up the field of ceramics and to inspire students from all ages to pursue an education in ceramic engineering and material science. The Missouri Chapter of Keramos worked diligently throughout the year to provide aid and opportunity for educational outreach activities.

Demo Trainings

The Materials Science and Engineering department at Missouri S&T has a long history of involving students who are interested in joining the department. In order to keep this tradition going, Keramos members helped train new students on how to perform our materials science demonstrations. These demos cover topics such as glass, grain boundaries, fiberglass insulation, atomic structures, metallic materials, solid oxide fuel cells, and other technical ceramics. Keramos members held one demo training session per semester for a total of two sessions this year to train ten MSE students on how to perform our demos for all age ranges. The majority of those who received demo training this year are now initiated members of Keramos and can now help our department uphold our legacy of providing prospective students a real glimpse into what materials engineers do. The others have gotten to witness what Keramos is all about firsthand and our hope is to galvanize these students to continue spreading the word about ceramics and material science and inspire them to join Keramos in the future.

Open Houses

Missouri S&T regularly hosts open house events for high school students considering

attending Missouri S&T. As part of the open house the MSE department hosts departmental visits for students that are interested in materials science. During these open houses there are two ways to interact with prospective students: through our outreach table which allows prospective students to converse with current MSE students and see an overview of materials science, and through the materials science demos performed in our undergraduate labs. A large amount of Keramos members have worked our outreach table throughout the year. These members share their personal accounts to give families an overview of ceramic and metallurgical engineering, department activities, campus life in general as well as answering any questions they might have. This is appreciated by both the prospective students and their families because they are getting a firsthand account of what it is like to be a student both at S&T and in the department. With respect to the materials science demos, our Keramos members worked hard to show how diverse materials engineering can be. It can be estimated that about 60 families attended our demos this year and that Keramos members helped spark interest in upcoming materials engineering students by demonstrating things like how to break tempered glass, how anti-scald shower heads work, as well as many other fascinating applications.



SWE Lock-Ins

Every semester, our Missouri S&T chapter of the Society for Women Engineers hosts a lock-in for female high school upperclassmen to learn more about Missouri S&T to get a feel of what college life can be like. This past year the Missouri Chapter of Keramos members have helped inspire these young students by not only giving our materials science demos in the lab, but also assisting in giving demonstrations in our foundry and hot glass shop. In the foundry, one of our Keramos members helped educate high school students on how foundries work and participated in a demonstration on how metal is poured. In our hot glass shop, several Keramos members gave a brief history of glass blowing and also showed the students how glass blowing works. The Keramos members allowed the students to get involved by letting them pick the next piece of glass they would make.



STL Science Center Engineering Week

February 22nd Keramos members traveled to St. Louis to participate in the Science Center's Engineering Week. There, they combined with at least ten of Missouri S&T's Design teams, as well as other colleges and professional organizations to teach the general public about engineering. Our Keramos members got to teach young kids as well as adults about pulling glass fibers, how atoms are packed, and why tempering aluminum nails is important. Keramos members brought the cotton candy machine back this year and it was a huge hit. We debuted our cotton candy fiberglass demo last year at the Science Center and it was a big hit again this year. Keramos members made cotton candy for over 100 people while explaining how cotton candy is made and how that relates to fiberglass production. This cotton candy machine helped us attract many families to our table which helped Keramos members enlighten hundreds about ceramic engineering. More information about this event, as well as a picture of Missouri S&T students teaching a young child about engineering can be seen at the link below.

<https://www.slsc.org/event/scifest-engineering-expo/>

After School Science Program at Dixon Elementary

The Missouri Chapter of Keramos was asked back to Dixon Elementary School's after school science program. On March 13th Keramos members volunteered to teach kids about the manufacturing of fiberglass using our cotton candy demo. By utilizing our cotton candy machine to simulate fiberglass insulation production we were able to teach the kids about the fiberglass that keeps their homes insulated. We also melted hard candies on a hot plate and pulled hard candy "glass" fibers and told them why people would want to pull glass fibers as well as why they cool so quickly. We had been asked to put on another after school science program later in April but this was cancelled due to COVID-19. We had planned on demonstrating atomic

arrangement and bonds through a series of interactive exercises where the children act as atoms.



Tan-Tar-A 2020 Interface Conference

The Interface Conference provides K-12 science and math teachers an opportunity to continue their professional development while also making connections with colleges, textbook publishers, and other relevant entities which provide teaching resources. Dr. Kelley Wilkerson of Missouri S&T reached out to the student leaders of the Material Science Engineering department asking for help performing demos and representing our university at this conference. Keramos members answered the call and brought all travel ready demos to the conference to teach conference attendees about material science and how material science could be tailored to all ages. Keramos and the University gave away dozens of mini material science demo kits which included directions to several small, easy demos such as the shape memory effect in nitinol wire. From this conference Keramos members were able to help gather contact information from many interested teachers which have been compiled into a department contact list which Keramos plans to use to schedule outreach events with new schools in order to spread knowledge about material science and engineering to a wider audience.

Virtual Outreach

The chapter decided to hold virtual outreach sessions via Zoom for middle school and high school students because we were no longer able to travel and give demos in the spring semester. This talk covered an overview of the materials science department and applications for ceramic materials. Our executive board worked in conjunction with a professor to plan and execute two sessions in order to give prospective students an introduction to materials science.

CGIF Demos at NSTA Conference

The Ceramic and Glass Industry Foundation (CGIF) promotes learning about materials science through their materials science classroom kits. CGIF has been attending the National Science Teachers Association (NSTA) conference for the past couple of years and showing teachers how these kits work. This year the conference is being held in St. Louis, so one of our student members and one of our faculty members have volunteered to help CGIF at the conference in mid April. There, the two will explain some of the science behind the demos in the kit, and even show how some of the demos work. These Keramos members will also be working alongside various members of industry and other students to help encourage teachers to promote materials science in their classrooms.

C. Professional Development

Etiquette Dinners

Each academic year Keramos hosts two etiquette dinners. The purpose of the etiquette dinner is to mimic a formal dining interview and teach how to conduct oneself in this type of situation. Through our sponsors, students are also able to socialize and learn from industry professionals and professors. Both fall and spring etiquette dinners took place at Just A Taste, a local restaurant and wine bar located in St. James, MO. The fall dinner was hosted by Dr. Kelley Wilkerson and the spring dinner was hosted by Dr. Michael Moats. The host is there to guide the students through a presentation of proper etiquette, to offer tips, and of course to add some humor to the event.

The fall etiquette dinner had 77 attendees total. It was sponsored by Nucor who graciously gave \$4000 and brought plenty of door prizes including travel drinking containers. Five representatives from Nucor - Erin O'Neill, Frank Whitaker, Steven Henderson, Gary Pennell, and Judy Haynes - also attended the dinner. Just A Taste prepared a delicious braised beef or prosciutto wrapped chicken as a meat option and chickpea pasta as a vegetarian option, both with delicious sides.

In the spring, Keramos and American Foundry Society (AFS) planned a dinner with 75 attendees and Nucor as the sponsor for the dinner; they graciously agreed for the third year and gave \$4000 in total. Nucor also gave branded travel mugs out for all attendees to take home with them as well as other special door prizes again. We would like to especially thank Travis McCarthy, Kim Dyhouse, and Cameron Smith from Nucor for attending.

Lunch and Learns

One of the long-standing traditions within the department is the Keramos Lunch & Learn. Topics for these talks usually revolve around professional development or education, from industry experts talking about their career to students talking about their co-op experiences. Our chapter provides food and reserves a room for the typical 15-30 students that attend.

In September, we had five students present on their co-op experience, and a practice run for our MS&T student speaker. These events had 17 and 20 students attend respectively. Following the career fair in September we held a lunch and learn to cover resources to get internships, co-ops, and full time jobs. There was also an event in which Owens-Illinois two representatives gave an overview of the company and the glass container manufacturing process. Then in November, we had a talk by Dr. Denise Baker from the S&T Psychology department. This event covered her human factors course and how it would be pertinent to ceramic majors.

In the spring semester we had several lunch and learns planned. Unfortunately, we were only able to hold one event presented by one student on their co-op experiences at GE Aviation. Our lunch and learns covering an overview of computer modeling and aided design, academic advising to aid students in selecting elective classes, and a course on improving Excel skills will be given next semester.

Keramocktails and Snackamos

This year we created a new professional development event in which we promoted studying in groups to help others better understand the material. This was a bi-weekly event held in our building common area. Students were invited to enjoy snacks and mocktails while studying and working on homework. Several executive board members attended in order to help younger students with homework. Through holding these events in the fall semester it was noted that attendance was much higher during test weeks.

Mock Interviews

In order to better prepare the members from the Missouri S&T chapter of Keramos for interviews after the career fair, mock interviews were set up with departmental professors the week before both the spring and fall career fair. A list of behavioral questions and basic interview outline was provided by the executive board. Many professors donated their time and technical knowledge to help prepare for both behavioral and technical interviews with future employers.

Resume Reviews

Two weeks before the career fair, our Keramos Chapter helped to hold resume reviews for members. Members were asked to upload their resumes on a google form where they were reviewed and given critiques by the executive board. This helped many members to refine their resumes for greater success at the career fair.

Professional Photos

This year our chapter offered a new professional development service to students by taking professional headshots of members. Students signed up for short time slots and dressed in professional dress to receive a photo to use for their LinkedIn profile picture or for other

professional reasons.

Graduate School Round Table

This year our chapter reinstated a tradition at our school of holding a graduate school round table. This event allows upperclassmen to speak openly to graduate students and professors about the process and experience of graduate school. Students and professors of varying schools and backgrounds attended to give their perspectives in order to help students prepare to make these important decisions in the coming future. Around 15 students attended, while two professors and five graduate students came to share advice and answer questions.

Graduating with Honors

This is an honor given to the outstanding members of Keramos. Graduating seniors are able to wear blue and gold honor cords at graduation and seniors who receive the graduating with honors distinction also get to wear a Keramos gold pin. Seniors fill out an application and write about the following criteria and how they went above and beyond: departmental activity, professional development, research, and other campus involvement. Any E-Board members who are not graduating evaluate the responses and choose the top candidates as compared to the rest of their class.

Ker-a-bear Mentorship Program

Last year, the Missouri S&T chapter of Keramos instituted a new mentorship program for the initiates of each semester. This program was continued this year with initiates and willing actives were given a list of mentors and mentees respectively, and gave their top preferences. The E-Board evaluated the responses and matched the mentors and mentees appropriately. A presentation was given during a general meeting to announce the pairings. Different activities were given to the mentors over the course of the pledging process to encourage a more personalized plan for professional development within the group of initiates. Many of the pairs from the Fall still keep in contact with each other, and the program has received very good reviews from those who participated.

D. Networking Events

Calendar

A Google calendar was created showcasing all the events, meetings, professional development, and service opportunities that went on throughout the year. The calendar also provided information on events that were going on in the department to help keep Keramos members not only active in the organization, but also within the Materials Science department on our campus. This calendar proved to be a great resource for increasing involvement among members and

within the department.

Skeramos MAdness

The Missouri chapter decided to continue the Skeramos tradition for the third year in a row on Halloween night. However, this time, the event was co-hosted with Materials Advantage (MA). Members bonded through the thrill of a local haunted maze, and then relaxed at a member's house to paint mini pumpkins and watch a scary movie while enjoying snacks. This event was attended by 20 members. It was a great opportunity for the initiates to get to know older students within Keramos and for Keramos and MA members to interact.



Keramos and MA Tailgate

The university invited campus organizations to reserve a spot at Missouri S&T Miners' football game for a tailgate. Keramos and Material Advantage (MA) reserved a spot at the tailgate together and provided food for the members. The Keramos members were able to interact with MA and other organizations while supporting the Miners' football team. This was a

popular event with about 15 Keramos members attending.

Cross Casting Social

This year Keramos and the American Foundry Society (AFS) hosted a cross casting social. The members of Keramos were taught how to pack sand molds and pour molten metal while the AFS members were taught how to slip cast and glaze pieces. In total there were about ten Keramos members and about ten AFS members who participated. The Keramos members got the opportunity to pour steel mugs while AFS members got the opportunity to slip cast pieces from tribal masks to large steins. This took place over the span of two meetings. During the first meeting, molds were created and packed with the help of AFS, and ceramic pieces were cast with the help of Keramos. During the second meeting, metal was poured with the help of AFS, and the ceramic pieces were glazed with the help of Keramos.



Ke-RAVE-mos

Missouri S&T is well known for the annual best ever St Pat's celebration. Organizations often organize a gathering during St. Pat's in order to increase friendship within the organization. Keramos hosted their own social event this year on March 14th. Keramos members were invited over to a member's house to celebrate St. Pat's with barbeque food, music, and games. About 15 members were in attendance, and although it was publicized as a rave for marketing purposes, it ended up as just a fun, small kickback. Keramos made great use of the social nature of St. Pats to bring its members closer together and create bonds that will tie members together beyond their college years.



MSE Department Discord

Following the announcement that classes would be held remotely for the rest of the spring semester in March, the executive board wanted to provide a way for students to still engage with one another in a manner similar to congregating in the McNutt commons. We decided to put together a department Discord which students can log on and talk to one another or ask questions on homework. This allows students to have a sense of belonging in this time of online classes and uncertainty.

E. Services to the Community

Gifts for Community Children

Members of Keramos came together to gather presents for children in the community whose families would not be able to afford Christmas presents. Six members donated thirty-two gifts and these gifts were donated to local families before Christmas.

St. Patrick's School Science Fair

On February 6th, the Missouri S&T chapter of Keramos helped out at the St. Patrick's School Science Fair. This event is held once and year and students from fifth to eighth grade put together poster presentations on a scientific experiment that was conducted by themselves during the previous months. Keramos members donated time to help judge these posters and interact with students on the projects they were recently involved in. Each student was asked a series of questions to help see how well they understood their project. Based on score sheets filled out by Keramos volunteers, winners were decided from each grade level. The help our members provide in judging helps to drastically reduce the time the teachers at St. Patrick's School have to take to accurately grade and judge each project from the four classes.



Spring Banquet

The 2020 Spring Banquet had been canceled due to the COVID-19 outbreak, which had caused the campus to close and move to online only instruction for the remainder of the semester. Despite being unable to have the Spring Banquet, the Missouri chapter made sure that Outstanding Students and Outstanding Faculty were still voted upon and awards were sent out remotely.

F. Alumni Engagement

Alumni Lunches

This year, Keramos held a lunch with an alumni member. This gave students a more personal connection to the industry speakers, and it gave them an opportunity to look at some of the great outcomes for previous Missouri S&T students. In the Fall, the alumni lunch was given by Ryan Wilkerson, who works as a Materials Engineer at NASA's Marshall Space Flight Center. His talk revolved around his career history and how it isn't always a clear path to the end goal. In addition to speaking with students at lunch Ryan also gave a seminar talk on nuclear thermal propulsion.

Alumni Keragram

This year, Keramos decided to start a newsletter for alumni to keep them involved and up to date on happenings at Missouri S&T. The newsletter's objective was to address conference experiences, faculty and department news, the future plans of Keramos, and a student and alumni spotlight to highlight what individuals in our area are up to outside of Keramos. We are looking

to continue this in the future as it received positive feedback from the alumni.

Missouri S&T Kera-Gram



S&T goes to Portland

Missouri S&T went to this years MS&T conference from September 28th to October 2nd in Portland, OR this year. With ___ in attendance S&T sent the most students out of any school. In student competitions: the team of Alissa Reynolds and Nicholas Timme won the mug drop competition with drop distance of 450cm, our speaker Bailey Rickets recieved second place for her talk on the reuse of glass cullet, Cam Berkley recieved third place with his throwing ability in the disk golf competition, domesday recieved 3rd place, and Keramos recieved diamond chapter award and most outstanding chapter.

Left: Alissa and the winning mug Alice
Right: Members of Keramos Exec with new wall art



Dr. O'Malley Named President of AIST



A big congratulations to our own Dr Ronald O'Malley who was named president of the Association of Iron and Steel Technology for the following year. Regarding his experience in AIST, he said "I have been an active member of AIST since its inception and served in many volunteer roles over the years on several technical committees, in roles such as conference planning, technical training, publications, awards, committee chair and board member. I was approached by the board to consider entering the executive board rotation shortly after I joined Missouri S&T, which is a 5 year appointment that rotates into the presidential position." Dr O'Malley is most excited to travel the globe talking with steelmakers about both AIST and the exciting research happening here in Rolla, MO.

What's to come?

Tis the season for halloween fun and as always Keramos will be holding our annual Skeramos event. We are going to a haunted maze followed by pumpkin carving and a scary movie. On the professional side of things, Keramos is planning on taking headshots and beginning a program called Keramocktails and Snackamos where students are encouraged to spend some time studying together in the McNutt Commons with food and drinks. We will see all of you next month! Enjoy the Keraspooks season.



Left: Our secretary, Clare Sabeta, with her rabbit Honeybun getting into the Halloween Spirit.



Student & Alumni Spotlight

Each month we will be focusing on one student and one alum to share about their experiences.



My name is Nicole, I am a (super) senior in Ceramic Engineering and am the 2019-2020 Keramos Missouri chapter president. I was also the 2018-2019 Keramos VP am a Zeta Tau Alpha Alumnae, am past Material Advantage outreach chair, and am a PRO (Preview, Registration, and Orientation) Leader. Some of my best memories from being in Keramos are with the 2018-2019 and 2019-2020 E-boards, Dr Smith and other students on the board have your back through anything and have shown so much love and support towards me and each other. After college, I will be getting married in Colorado in July 2020 and have accepted a job with Pratt & Whitney in East Hartford, CT as a member of their materials rotational program. I also have two of the cutest cats on the planet named Lucie and Feta. Some of my hobbies include fitness, hiking, sewing/crafting, and perpetually planning my next tattoo.

This month's alumni is Olivia Rodell, graduated May 2019. Here are some of her words: "I want to start this off by saying in case you're wondering Dr Hilmas only 15004 days until I hit retirement age. I currently work at Radiac Abrasives as a Vitrified Development Engineer. My position falls within the R&D department, a place I never thought I would call home. Most of my work is on projects incorporating new materials into our process, improvement upon current products, and helping to solve issues that cause scrap. I was Herald for Keramos, Outreach chair for MA, and struck fear in many of those reading this right now as their TA for both mud lab and glass lab. I have a lot of fond memories from my time in the MSE department. I spent many, many hours lurking the halls of McNutt working, studying, and goofing around in the commons. I also spent a large handful of hours on Friday nights grading lab notebooks and reports at an undisclosed off-campus location with my fellow mud lab TAs and the occasional professors who would drop by."

G. Convocation and Conferences

MS&T 2019

MS&T 2019 was held in Portland, OR in the fall. Missouri S&T sent 36 undergraduate students, several of them Keramos members. Missouri S&T students competed in the Student Speaking Competition, the Mug Drop, and Disc Golf competitions. Bailey Ricketts advanced to the finals and ended up taking second place overall in the Student Speaking competition with a talk on post consumer recycling of glass cullet. Several students submitted mugs for both the mug drop and aesthetic mug competitions. Alissa Reynolds took first place in the Mug Drop Competition with an over 300 cm drop. Her mug, “Alice”, survived the record breaking drop, denting the floor where she fell. Missouri S&T had two entries into the Disc Golf Competition. Cameron Burky took third place.





Keramos Convocation

Convocation this year began with an open forum led by the national student representative and Missouri Chapter member Kathryn Buscher. Missouri Chapter member and Historian, Tony Luebbert, was elected to be the next student rep. National bylaw changes regarding the transportation of the Outstanding Chapter award plaque and the national requirements for admission into Keramos were discussed. From there, the meeting moved into individual chapter presentations. Convocation ended with the distribution of national awards. The Missouri Chapter was pleased to accept both the Diamond Award and the James I. Mueller Outstanding Chapter Award. Next year, the Missouri Chapter plans on sending several representatives from our new executive board.



Glass Problems

Several members of the Missouri Chapter of Keramos attended the 80th Annual Conference on Glass Problems in Columbus, OH. This conference was a great opportunity for the students, as it is the professional convergence of glass manufacturers and the vendors they use. During nightly hospitality suites, students were assigned a mentor in industry who personally introduced them to vendors. Aside from the expositions, the conference also included a series of technical presentations that outlined the challenges faced by glass manufacturers in the current market.

The students were also given the opportunity to tour an Owens Corning fiberglass plant and see firsthand the production of pipe insulation, as well as loose fiber insulation. This was a great way to demonstrate the day-to-day issues faced by engineers in the glass industry. Overall, the conference was an excellent way to immerse students in the realm of the glass production industry and give them an insight on their future careers.

American Ceramic Society RCD

The Missouri Chapter of Keramos had planned to send several students to the RCD conference in St. Louis early this spring, but the conference was unfortunately cancelled due to the COVID-19 outbreak.

42nd Annual USACA Conference on Composites, Materials, and Structures

Five members of the Missouri Chapter were chosen as student pages for the USACA conference in Cocoa Beach, FL. The pages were tasked with monitoring the conference and protecting ITAR restricted data through working shifts as audio-visual monitors, door monitors,

and check in workers. Through the conference, students were able to attend talks and network with employers and pages from other schools.

H. External Chapter Communications

Executive Board Meeting with Clemson Professor

In the spring semester, the executive board of the S&T chapter had a lunch meeting with Dr. Bordia of Clemson University to talk about the workings and activities of the Missouri chapter as Clemson is thinking of reviving their chapter. The Executive Board provided Dr. Bordia with event ideas, strategies and general chapter operation tips, and also learned about their MSE department through meeting students and faculty and through a campus tour. We hope to see the Clemson chapter grow themselves and grow with them in the future.

National Student Representative

The Keramos National Student Representative is elected every year during the student portion of the Keramos Convocation. The National Student Representative is in charge of organizing the student portion of national conference calls, being a liaison between the student chapters and the National Board, and communicating the best practices of Keramos to the national chapters.

At the Keramos Convocation at the 2018 MS&T conference in Columbus, a member of the Missouri chapter, Kathryn Buscher, was elected as the next National Student Representative for the 2018-2019 school year. She participated in national conference calls and continued communicating with the chapter presidents across the nation. At the 2019 MS&T conference in Portland another member of our chapter was elected to the position, Tony Luebbert.. He has changed the Keramos bylaws to open up membership to a wider swath of students. We wish him luck for the remainder of his term.

Cross-Chapter Netflix Party

On April 24th, 2020, the Colorado School of Mines chapter hosted a virtual movie watching party using the Netflix Party extension for chrome. The movie of choice was Spider-Man: Into the Spider-Verse. There was a chat bar on the side of the movie where members engaged in some good conversation while enjoying the film. The showing started at 7:00 PM MST (or 8:00 PM CST for us!) and members from various schools attended.

IX. Keragram Article

The Missouri Chapter of Keramos has kept busy by bettering the organization and taking a very active role in preparing our student members for life in industry and grad school. Top priorities were to bring undergraduate members closer through both social and professional development events. Together with everyone, we had a great year of commoridry and growth as a chapter.

We started an alumni newsletter that went out to keep them informed of all the new happenings both within our chapter and in the department as well. This was received very well and caused some alumni to reach out to us and ask questions and offer themselves to be interviewed for future editions. This is going to be used to connect the next generation of ceramists to our alumni for years to come. Long term, we would like this to be always something to let our members know they always have a spot within our organization.

This year we tried to focus on student involvement at each level. We managed to create merchandise and events that were tailored to spark conversations and friendships between members who previously had not talked before because of grade or other reasons. We took student feedback and allotted time weekly to bring snacks and refreshments to the department common area for people to meet and do homework. This allowed for tutoring and group learning and received positive feedback.

Keeping with the theme of togetherness, we were sure to not lack on the social instances. We were able to get together multiple times and put on our annual events of Skeramos and Ke-RAVE-mos which have gained popularity and has become a staple in social traditions among the members. Along with these events, we were able to partner with other material groups and host a movie night and float trip in the works for the summer.

X. Executive Summary

Before the year got cut short due to the spread of COVID-19, we would call this a year of new ideas and unity. We tried to push for new ideas and the trial of new things. We were not satisfied with doing something (or not doing something) because “that’s just how it’s been done before.” We tried a new study session event in the fall (Keramocktails and Snackamos) that had decent attendance, but had many students hearing about it and asking for more sessions in the spring. We had many big and new things in the works, like our Materials Bowl sponsored by

CGIF and hosting our spring banquet in a new location. We also tested out a new time for general meetings and a new system of sending out emails and meeting alerts to members, both of which were big hits! The executive board started developing a meaningful rewards system to get members excited about getting involved and to reward those that go above and beyond. We believe that we really got Keramos out there and tried our best to host something for everyone to enjoy.

As always, our chapter worked to emphasize the professional aspects of our Fraternity. Before our biannual career fair, our chapter organized mock interviews and resume reviews. This opportunity for our members was coupled with our Lunch and Learn program and etiquette dinners. The Lunch and Learn presentations were from employers that work closely with our department and hire from our major. Our chapter hopes these experiences will give members a better idea of what kind of work is out there and how they can better be prepared when the time comes for them to apply for a job, internship, or co-op.

Another aspect that we are glad to have reinstated this past year were Alumni Keragrams. Our alumni are invaluable sources of knowledge and information that could greatly benefit our undergraduate members as well.

The 2019-2020 year was a wild ride, but the Missouri Chapter of Keramos will always come out stronger than before. We got picked up by a whirlwind of uncertainty and were asked to brave the storm until things were figured out. Even though we were scattered across the state and thrust into a semester of confusion, we persevered through and continue to be there for each other as an executive board as well as there for each of our members. We are evolving as a chapter for the better and we cannot wait to see what the future holds. We hope that we can continue to strive to be a chapter of hardworking and bright members that are always looking for ways to grow and improve.