

MATERIAL ADVANTAGE CHAPTER OF EXCELLENCE APPLICATION



PREPARED BY SHIVAM TAILOR
UNIVERSITY OF ILLINOIS CHAPTER 2022-23

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EXECUTIVE BOARD



2022 – 2023 Executive Board

Top Row (Left to Right): Nicole Bremner (EOH Director), Sanea Malik (EOH Project Lead), Alex Lussier (EOH Project Lead), Cole Benvau (EOH Project Lead & Social Chair '23), Katrina Arsky (EOH Project Lead), Katie Roche (Service Chair)

Bottom Row (Left to Right): Krisha Sampat (Freshman Representative), Abby Sreden (Secretary), Ray Tsai (Treasurer), Shivam Tailor (President), Kayla Huang (Vice President), Meera Karthi (Social Chair '22), Regina Raemsch (Freshman Representative)

Not Pictured: Henry Beaulieu (EOH Project Lead), Jac Copeland (Social Chair '23)

CHAPTER OVERVIEW

Material Advantage (MA) is a professional society for students in Materials Science and Engineering. The University of Illinois (UIUC) Chapter is a student organization for undergraduates in Materials Science and Engineering (MatSE) at the University of Illinois Urbana – Champaign. Our goals are three-fold:

1. Keep the student body informed of the opportunities available within the field of Materials Science.
2. Serve as liaisons between the student body and faculty to ensure student voices are being heard and to facilitate collaboration.
3. Build a supportive community that promotes the growth of friendships and connections within the MatSE program, between other student organizations, and within the larger community.

As the second largest and second highest ranked undergraduate MatSE program in the country, ensuring all students remain up-to-date on recent developments in the field and coordinating between students, faculty, and alumni requires the utmost dedication from our executive board officers. Our board is comprised of 15 enthusiastic MatSE undergraduates in traditional MA roles (president, vice president, treasurer, secretary), chair roles (social, professional, service), and specialized roles (EOH director, EOH project leads, and freshman representatives) aiming to host UIUC specific events. We work closely with our sister organization and honor society, Keramos, to provide the highest quality of hands-on activities and professional events. The diversity and size of our board allows us to undertake numerous events throughout the year and create an organization that effectively promotes the goals of our chapter. This document serves to summarize how the Illinois Material Advantage Chapter has satisfied and exceeded the Excellence Criteria and deserves to be considered for the 2022-2023 Material Advantage Chapter of Excellence Award.

EVENTS CALENDAR

June	July	August
		Executive Board Bonding
September	October	November
E-Night Career Fair Readiness Workshop Pizza with Freshmen Introductory Class Chevron Resume Review Chevron Information Session Smore's Social Reverse Career Fair Welcome Back Picnic Mentorship Kickoff + Events Freshman Exam 1 Review Professor Lunch Executive Board Bonding Blue Origin Meet and Greet	Destination Technology Mentorship Events Ice Skating Social Attend MS&T Participate in Mug Drop Student Competition Chapter Officers Meeting Freshman Representative Elections MatSE Undergraduate Committee Elections Freshman Exam 2 Review Women in MatSE Charcuterie and Movie Social Curtis Apple Orchard Social	Women in MatSE Professor Lunch Mentorship Events Women in MatSE Painting Social MA Fundraiser at Mia Za's Friendsgiving Social Freshman Exam 3 Review Anika Therapeutics Tech Talk LinkedIn Workshop [Thanksgiving Break] Argonne National Labs Info Night
December	January	February
Holiday Party Freshman Final Exam Review [Winter Break]	[Winter Break] Ice Skating Social Society of Hispanic Professional Engineers Collaboration Meeting	Cocoa-Valent Bonding Social Valentine's Day Social Dinner with the Deans Board Games Social Engineers Week (E-week) Ice Skating Social Natrion Site Visit Boeing Meet and Greet Professor Lunch
March	April	May
Freshman Social [Spring Break] Engineering Open House (EOH) Blood Drive	Engineering Open House MA Elections Boeing Meet and Greet Tie Dying Social Chevron Etiquette Dinner Caterpillar Site Visit and Networking Mom's Weekend Social Quad Day Social	Pie an Exec Member Fundraiser Deans Coffee Chat

Reoccurring Event	Frequency
Happy Hour Socials	Weekly (25 total)
Executive Board Meetings	Biweekly (11 total)
General Meetings	Monthly (7 total)
Conference Planning Meetings	3 meetings/semester
Department Feedback Meetings	2 meetings/semester

CHAPTER MANAGEMENT

Executive Board Positions

Position	Responsibilities
President	Oversee all MA events; liaison between the MatSE department, student body, and alumni; lead all executive board and general meetings; work with Vice President and Treasurer to organize all conference logistics; chair the MatSE Undergraduate Advisory Committee; support executive board in performing their responsibilities
Vice President	Assistant to the President; organize and lead mentorship program during fall semester; coordinate Cotton Candy booth for Engineering Open House; help plan all conference travel; support executive board in performing their responsibilities
Treasurer	Handle all chapter funds and purchases; collect dues; help plan all conference travel; help write and pursue grant proposals; organize fundraisers; oversee reimbursements
Secretary/ Webmaster	Send out monthly newsletter; maintains websites and social media accounts; reserves university rooms for chapter events; work with department Communications Coordinator
Professional Chair	Lead career development events; create relations with industry representatives; point of contact for recruiters
Social Chair	Lead all social events; organize Women in MatSE events
Service Chair	Lead all service events; pursue new opportunities to work more closely with surrounding community
EOH Director	Plan, organize, and lead Engineering Open House; assist introductory MSE course teaching assistants; secure department funding for EOH
EOH Project Leads (5)	Plan and execute EOH demos; available to answer questions about MatSE course curriculum at UIUC
Freshman Representatives (2)	Interface with freshman class; organize introductory MSE course exam review sessions; assist in planning recruiting events; assist board members as needed

Our chapter is proud to have hosted 144 events and meetings this year. Below are logistical details that allow our organization to manage and coordinate the large quantity of exceptional events.

Elections

Our chapter elections took place at the April General Meeting, with Freshman Representative and special elections taking place at the October General Meeting. Candidates are allowed to run for up to three positions and submit a bio slide for each. Presidential candidates speak for three minutes while non-presidential candidates speak for one and a half minutes. The general audience is then given a two minute Q&A session for each candidate. Once all candidates speak, the general audience may discuss the pros and cons of each candidate. This is called the proing period. Afterwards, voting is cast using a Google Form. The form is restricted to one vote per Material Advantage member to ensure security in the election. A 'No Confidence' option is included. To

increase the efficiency of our elections this year, the Q&A portion and proing period were skipped and a simple ‘yay’ or ‘nay’ vote was cast for uncontested positions. Candidates with the largest percentage(s) of votes are elected. Once a candidate wins a position, they are no longer allowed to receive votes for the other positions they had previously been running for. This process continued until all board member roles were filled.

Transitions

In May, current executive board members and future board members attended the final executive board meeting of the year. This allows the future board to understand the planning process of the organization. Each current board member prepared a transition document detailing their duties, event ideas, and suggestions for the following year, which they shared with their incoming successor. Transition documents are collected in an archive folder for future board members.

Executive Board

The executive board meets biweekly to discuss upcoming events. These meetings serve as a chance for board members to seek advice, have their questions answered, and request assistance from other board members. Executive bonding was incorporated this year to encourage friendships within the board. Over the summer, the board participated in icebreakers virtually. During the school year, the board grabbed dinner together. We noticed these events allow incoming board members to ease into their positions.

Finances

The Treasurer holds responsibility for all chapter finances. Our chapter holds a registered student organization account, which is used to store university-provided finances and buy food, apparel, and other necessities. Our largest expenses are the MS&T and TMS conferences in the fall and spring semesters, respectively. We share our finances with our faculty advisor and department to allow for more transparency between the chapter and department. Money collected from fundraisers are directly deposited into the account.

Chapter Record Keeping and Reporting

Chapter records have been stored in a shared Google Drive folder for the past six years. Subfolders containing meeting minutes, event ideas, photos from events, contact info, general meeting slides, conference planning logistics, and transition documents allow for executive board members to access any necessary information. Financial records are kept in a separate Google Drive, available only to the Treasurer and the President. At the end of each year, the past board’s folders are archived for easy access in the coming years.

Recruitment

There are a multitude of events aimed at increasing membership with the chapter organization (as detailed in the Programming section). After our initial wave of recruiting, all food at events and meetings becomes available only to paid members. Membership is also incentivized through monthly t-shirt raffles. Last year, the Fall Membership Challenge increased membership which is still seen in the organization. A Google Sheets document is used to keep track of paid members and is updated when a new member pays and emails his/her confirmation to our Treasurer.

Publicity

The Secretary is responsible for sending out monthly email updates to all members. Our chapter also informs members of upcoming events through our Instagram page and Slack. We find this is a great way to publicize information in the most organized way possible. Slack is an effective source of communication because groups and announcements are organized into channels. For example, a smaller channel for the executive board is used for board-related messages, and professional events are announced to all members in the ‘#professional’ channel. The MatSE department’s server is especially useful for contacting members since the department can reach MatSE students who may not be on our email list, including graduate students. Additionally, our chapter worked with the MatSE Communication Coordinator to spread awareness of Material Advantage and student experiences on the department website. We are in the process of creating a new website and creating a TikTok account that we hope will reach a wider audience.

Diversity

Our chapter focuses on diversity in many aspects, including race, gender, and age. We pride ourselves on assisting all MatSE students. Our members are split amongst freshmen, sophomores, juniors, and seniors (including some graduate students). Furthermore, although the major is 30% women, our membership is 50% women. Lastly, we elect a Diversity Representative every year in October to organize DEI events.

PROGRAMMING

MS&T 2022

Thirteen students from our chapter traveled to Pittsburg, PA to attend MS&T 2022 – the largest number of members we’ve ever taken! We networked with fellow students, members of academia, and industry representatives as well as attended lectures on a variety of topics. Two of our members - Katrina Arsky (EOH Project Lead) and Kira Martin (Keramos Vice President) – competed in the Undergraduate Speaking Contest, with Kira placing second! We also submitted a mug for the Mug Drop competition, placing second! Furthermore, our President, Vice President, Treasurer, and Secretary attended the Chapter Officers Workshop. This was a great opportunity to meet leaders of other chapters, discuss best practices, and look for ways to improve the Illinois Chapter.



TMS 2023

Five students from our chapter, including three underclassmen, traveled to San Diego, CA to attend TMS 2023. The conference provided members with an opportunity to attend lectures, network, and compete in the Materials Bowl. Two of our members –Abby Sreden (Material Advantage Secretary) and Kira Martin (Keramos Vice President) – presented a blade they had been working on all semester. The conference was a great success, and we plan to sponsor more students to TMS 2024!

Fundraisers

Our chapter hosted three fundraisers in conjunction with the Illinois Keramos Chapter this year, which is a great opportunity to work with our sister organization. We hosted a fundraiser at local restaurant Mia Za’s in the center of campus. Students showed a flier at the register before paying and Mia Za’s donated 20% of the proceeds from their meal back to our organization. In total, we raised \$132. This fundraiser was used to fund our smaller social events. Additionally, our President and Vice President participated in Keramos Pie an Exec Member fundraiser. Our largest fundraiser was the EOH Cotton Candy booth, which collected cash and Venmo donations at the country’s largest STEM fair. In the span of two days, we raised \$1583.98. This event is our largest source of fundraising by far and used to sponsor most of our events.

Reverse Career Fair

The reverse career fair is an event hosted by the college where student organizations network with companies interested in partnership. Our President and Vice President put together a booth and presentation and spoke to company representatives about our chapter and the events we host. Company representatives from Milwaukee Tools, Ascent, and John Deere (to name a few) were interested in our organization because we are one of two organizations on campus that work with material science students. Next year, we plan to bring our professional chair to establish a connection with these companies.



Engineering Open House (EOH)

The largest STEM fair in the country, Engineering Open House (EOH), is hosted at the Grainger College of Engineering at UIUC. Student organizations and engineering departments from all over the college participate. Material Advantage is so involved in event that six board positions are EOH specific. Each year, our EOH Director works with the freshman class in the spring through MSE 183, a continuation of MSE 182,

where freshmen get course credit for constructing a project demonstrating material science concepts. Students worked on their projects the entire school year to get ready for EOH. Our EOH Project Leads planned and coordinated four booths to go along with the thirteen freshman and one Keramos exhibit. These projects are entirely student-led and rely on the knowledge and creativity of students to find engaging ways to communicate science topics to a general audience. Material Advantage also hosts a Cotton Candy booth. This is one of our largest fundraisers of the year, resulting in upwards of \$1500 each year to help sponsor students to attend conferences and fund our programming. In total, Material Advantage made up 8% of EOH exhibits. We had over 80 members participate in EOH projects this year.

E-Night

Our first recruiting event of the year was E-Night, an event organized by the college to showcase all engineering student organizations available at UIUC. All incoming freshmen attend E-Night, so it is especially important for us to organize a booth to showcase our organization to increase membership. This year we updated our poster to highlight the professional, social, and service events our chapter organizes and the tight-knit community we foster. E-Night is a great opportunity to add interested students to our mailing list, encourage them to join our mentorship program, and let them know about our first general meeting of the year. Over 80 students expressed interest in our chapter at E-Night.



Introductory MSE Class Visit

Three weeks into the school year, the Material Advantage executive board visits MSE 182, the introductory course required for all MatSE freshman. Visiting MSE 182 allows us to formally introduce our organization and board members to the incoming class and let them know about our mentorship program, which pairs new students with upperclassman in MatSE to offer guidance on course schedules, how to prepare for exams, and to offer a point of contact within the MatSE community. This visit is important for any students that were unable to attend E-Night.

Additionally, we announced the details of the Freshman Representative elections so that all freshmen could ask questions about the role and decide if they are interested in running.

Department Feedback Sessions

At the end of each semester, Material Advantage hosts a feedback session for undergraduate students to voice any criticism, praise, or suggestions about classes in the MSE department. We also use an online form so students who cannot attend the feedback session still have the chance to share their thoughts. This year, the MatSE Undergraduate Advisory Committee – chaired by the Material Advantage President – led the sessions and consolidated the feedback to present to the department heads and lead advisors. We are proud to say these insightful meetings bring change in the classes we take. For example, the thermodynamics class was notoriously difficult for students, but critiques raised in the feedback sessions encouraged the professor of the course to change the course structure to be more manageable. We value this connection between our organization and the MatSE department.

Dinner with the Deans

In the spring, our President, Vice President, and one of our Freshman Representatives attended Dinner with the Deans. The event is hosted by the college to facilitate open and transparent communication between the student body and faculty. Our attendees spoke with a few prominent figures in the college, including Harley Johnson, the Associate Dean of Research.

Dean Coffee Chat

Associate Dean of Undergraduate Programs Jonathan Makela sat down with members of the MatSE Undergraduate Advisory Committee over donuts and coffee. The goal of the meeting was to seek advice from a prominent figure at the college. Topics ranged from recruitment to increasing funding for student-specific spaces. The meeting was a success, and our committee had some course proposals for the MatSE department that were brought up afterwards.

General Meetings

Our chapter hosts monthly general meetings with Keramos for a total of seven throughout the academic year. During these meetings, each member of the board goes through announcements about membership, logistics, or upcoming events. Our general meetings get the most attendance out of all our events. Our first general meeting had 72 attendees! This year, to increase attendance, we incorporate a t-shirt raffle where one lucky member takes home a Material Advantage t-shirt. After each general meeting, an activity is held. Our most popular activities included a concentration panel, LinkedIn workshop, and career fair prep workshop (more information can be found under Career Development).

Introductory MSE Class Exam Reviews

Freshman in MSE 182, the introductory MatSE class, prepared for their quizzes and final with prepared practice questions and could ask questions about concepts to their Freshman Representatives or upperclassmen. For each review session, we had around 40 people attend and actively participate. To put this in perspective, there are 72 students total in MSE 182. These events were primarily hosted by our Freshman Representatives and serve as an opportunity to build a community amongst the underclassmen.

CAREER DEVELOPMENT



Chevron Etiquette Dinner

The Chevron Etiquette Dinner was one of our most highly anticipated events of the spring semester. We partnered the Society of Hispanic Professional Engineers (SHPE) UIUC chapter to bring back the etiquette dinner after a four-year hiatus, which was sponsored by Chevron. Chevron flew two recruiters to campus to network with our members over an elaborate two-hour meal. An etiquette coach shared insights on the rules of propriety at business meals. Over 20 Material Advantage members attended the event and learned a great deal about professional etiquette in a dining setting. This event solidified our relationship with Chevron, SHPE, and the etiquette coach – all were eager to organize a similar event next year!

Chevron Resume Review/Information Session

Chevron is our chapter's largest corporate sponsor, which is why we organized multiple events to allow our members to meet the Chevron recruiting team. During the recruiting cycle, four recruiters sat down with our members to critique their resumes. Each of our members got 10-15 minutes of one-on-one time with a Chevron employee to beef up their resume for the upcoming fall career fair. The event was supposed to last an hour, but because we had a higher turnout than expected (over 40 attendees), the event was extended by another half-an-hour. Afterwards, we organized an hour-long general information session. This was a great opportunity for members to learn about what kind of internship and full-time job opportunities are available at Chevron. Material Advantage alumni Talen Sehgal shared the work he's completed since joining the company. Our Service Chair, Katie Roche, and Keramos Vice President, Kira Martin, also spoke about their summer internship experiences at the company. Chevron graciously bought pizza for all those in attendance, and there was an opportunity to speak with the recruiters individually towards the end of the event. We had around 25 students attend, and we look forward to continuing our partnership with Chevron!

CAT Site Visit

Caterpillar invited our chapter to visit their headquarters in Peoria, IL for a site tour and dinner. After a quick overview of how CAT processes their tractor treads, 19 members were given a walking tour of a portion of the plant. They were excited to see for themselves the metal processing techniques happening right in front of them and got their questions answered by a CAT employee who is involved in a rotational program at the company. Afterwards, CAT sponsored a catered dinner where our members sat with eight CAT employees and used their etiquette dinner knowledge to network. The dinner was



immediately followed by a technical talk by UIUC professor Jean-Charles Stinville. Professor Stinville spoke for 40 minutes about his research incorporating computational methods into materials characterization for metals. We built strong relationships with CAT and are excited to visit their headquarters again soon!

[Anika Therapeutics Technical Talk](#)

Our chapter hosted a technical talk with the President and CEO of Anika Therapeutics, Cheryl R. Blanchard, Ph.D.. Dr. Blanchard holds a B.S. in Ceramics Engineering and Mathematics from Alfred University, as well as a M.S. and Ph.D. in Materials Science and Engineering from the University of Texas in Austin. She completed her post-doctoral training in biomaterials, tissue engineering, regenerative medicine, and biofilms at the University of Texas Health Science Center in San Antonio, Texas. The talk focused on her path from the start of her career as a research scientist working on top-secret projects for the United States military to her current role leading a Top 100 ranked Women-Lead Massachusetts Business. This event had a large attendance, especially for a virtual event. Thirty-three Material Advantage members attended, showing our eagerness to hear from Dr. Blanchard. One of our members even landed an internship at Anika Therapeutics after the event!

[Blue Origin Meet and Greet](#)

At the height of recruiting season, Blue Origin reached out to our chapter to organize a 30-minute meet and greet. Four UIUC alumni from the company's recruiting team - including an alum who obtained a MatSE minor - attended to discuss exciting projects and initiatives in aerospace as well as their open roles. They also extended scholarship opportunities and technical mentorship. Our seven attending members got free swag and enjoyed a quick networking session with the aerospace giant.

[Boeing Meet and Greet \(x2\)](#)

During the spring semester, Boeing gave an exclusive presentation on their groundbreaking products and exciting internship opportunities. Our chapter was especially excited to sit down with Boeing because they have the largest intern program in the country. Two employees met with us – a lead recruiter and a senior electrical engineer. Our conversations ranged from incorporating composites in their plane wings to safety protocols to ethics in engineering. The first meet and greet went so well that Boeing scheduled a second meeting with our chapter two months later and is considering getting involved with senior design in the MatSE department!

[Natrion Laboratory Visit](#)

Natrion is a growing start-up company located near UIUC focused on manufacturing a solid-state lithium-ion battery technology. Twelve members of our chapter visited their laboratory where they networked with members of the Natrion team. We saw material characterization and synthesis in action. For example, we observed how their solid-state electrolyte material – LISIC – was prepared. The company CEO treated our members to a catered dinner and encouraged one-on-one conversations. Resumes were collected and two of our attending members accepted an internship offer with the company afterwards. Natrion's CEO was delighted with the turnout and eager to work with Material Advantage for their next recruiting cycle.

Argonne National Laboratory Talk

Our chapter collaborated with Argonne National Laboratory's (ANL) Student Ambassador Program to host a hybrid outreach event on campus. The information session was primarily organized by a student ambassador who was a previous intern at Argonne and an active member of Material Advantage. The event was split into three sections: a quick overview of the application process for summer internships given by the University Student Programs Coordinator at Argonne and the Student Ambassador, a scientific presentation from a research mentor at Argonne focusing on work done by interns the previous summer, and an open Q&A. Over 20 members attended and several members successfully complete an internship application.

Post-General Meeting Workshops/Panels

After each general meeting, we host an activity/event. In the fall semester, we hosted a LinkedIn workshop, a career fair prep workshop, and a concentration panel. The LinkedIn workshop aimed to boost the professionalism of our members' online presence. We discussed formatting, which experiences are valuable to include, and how to describe professional experiences. The career fair preparation workshop was hosted days before the fall career fair at the University of Illinois. Topics ranged from professional attire to conversing with recruiters to follow-up emails. These two workshops allowed our members to put their best self forward during recruiting season. The concentration panel was aimed toward underclassmen. We understand choosing a concentration in material science is intimidating, so we hosted a six-student panel. Students talked about the concentrations of polymers, ceramics, computational materials, electronic materials, metals, and biomaterials. Panelists talked about classes they've taken, why they're interested in the concentration, and what they want to do with their concentration. Over 25 members attended and had plenty of great questions for our panelists.

Professor Lunches

Professor lunches are a chance for students to get to know professors in a casual setting. During the event, food is catered in by the MatSE department and a dialogue begins between the attendees and professor. While the conversation typically begins with a description of their career trajectory, the conversation steers towards research related topics. As to not overwhelm the professor, we limited seats to 15 students which we filled at each event. We even hosted a Women in MatSE professor lunch with Professor Marie Agathe Champagne. Professor lunches serve as an opportunity for our members to receive advice, build deep relationships with professors, and understand a little bit more about campus research.

Future Professional Goals

We hosted 15 professional events this year and established/strengthened relationship with industry leaders. In keeping with our goals, we are continuously striving to better serve our members by connecting them with opportunities in the field of materials science. Next year, we plan to expand our reach by hosting events with more companies. We received interest from Texas Instruments, Kohler, and Ascent to host information sessions during the next recruiting cycle. Furthermore, we decided to add a second professional chair position to the executive board next year for two reasons – 1) the workload for one chair is overwhelming given the number of professional events our chapter hosts, and 2) we want to represent both academia and industry. Our student body is split between pursuing graduate school and pursuing industry, so we will elect an Industry-Specific and Research-Specific Professional Chair next year to cater to all our members' needs.

SERVICE

Destination Technology

This year, we hosted two events with Destination Technology. Destination Technology organizes interactive events for students K-8 in the areas of STEM. The first event occurred in the fall when a group of Material Advantage members travelled to a middle school in Peoria, IL to teach science principles with a focus on physics. Our members used their physics knowledge to teach students concepts such as friction. One demo involved bringing two books together by overlapping pages one at a time and challenging students to pull them apart. The second event occurred in the spring when our Service Chair led a field trip with 30 students from Mahomet Elementary School at Engineering Open House. The students were shown over 100 booths throughout the day demonstrating materials science and engineering phenomena. Our members guided them through the event and shared their insight. Because of this experience, we built strong relationships with teachers and faculty at local middle schools, and inspired young students to consider engineering at the University of Illinois when they start thinking about college.

Blood Drive

Material Advantage teamed up with the American Red Cross to host a blood drive. Each blood donation has the potential to save three lives and gets tested for COVID-19 antibodies. MA members volunteered to run the event, which included checking the donors in, taking their temperatures, and ensuring they met requirements to donate blood. The event helped local hospitals as they received a supply of blood used for blood transfusions and surgeries. The event also helped inform those who donated blood whether they had the presence of COVID-19 antibodies or not.

EOH Cotton Candy Booth

During Engineering Open House, Material Advantage hosts a cotton candy booth. As one of the most popular exhibits, this booth is a crowd favorite and grabs the attention of students and families. Material Advantage members volunteer at the booth to make cotton candy for the fair goes and explain the processing method of cotton candy. The crowd was always shocked to hear that cotton candy is a fiber glass! Over 3,000 attendees visited the exhibit which introduced materials science to many young students. While donations are collected for the chapter, the cotton candy is free for everyone and creates an enjoyable atmosphere at the country's largest STEM fair.



Mahomet Lincoln Trail Elementary STEM Night

In November, two of our EOH Project Leads travelled to Mahomet Elementary School to teach young students about shape memory materials. Nearly 150 K-8 students showed up to the event, along with parents and teachers. The children were mesmerized with the demonstration of nitinol bending out of shape, then “magically” returning to original form when dipped in hot water. The parents were even more impressed and asked many high-level questions that created great discussions. This event gave our organization exposure to local families.



Middletown Prairie Elementary School STEM Night

Like the Mahomet Lincoln Trail Elementary STEM Night, our EOH Director and an EOH Project Lead attended the Prairie Town Elementary STEM Night in February. They constructed an exhibit called “Destruction Using Liquid Nitrogen” which demonstrated the effects that polymers have at extremely low temperatures. Some of the objects used were marshmallows, gummy worms, mini bouncy balls, and rubber bands which demonstrated cross-linking. The objects were submerged in liquid nitrogen for a period of time before they hit the glass transition state. The students were entranced with the destruction involved and exposed to material science concepts.

SOCIAL ACTIVITIES

Mentorship Program

Our mentorship program grows every year, with this year setting a record of 90 students registering. Incoming students were placed in pods of two upperclassman and two freshmen (sometimes three freshmen to account for the overflow) to give them contacts in MatSE and to provide a resource to help them navigate the transition into life at the University of Illinois. This program is one of our most effective methods to get freshmen interested and involved in our organization. It provides weekly activities to appeal to all kinds of students' interests and allows underclassmen to meet upperclassmen. Events included trivia, capture the flag, a scavenger hunt, coffee dates, apple picking, laser tag, board games, study sessions, Friendsgiving, and a holiday party. Members were encouraged to participate with gift card prizes for the three groups that met with most. This year, we incorporated spoon assassins into the program. Spoon assassins is a continuously running game where each week a pod is assigned another pod to 'spoon' – tap with a spoon utensil – before another pod 'spoons' them. The activity was played everywhere at all hours with a few safe zones and kept our members engaged with the program!



Happy Hours

Every Friday at 5 pm, Material Advantage hosts an event at Murphy's Pub during happy hour and buys half-priced Irish Nachos for all attendees! We make sure that as many board members as possible attend so that we are easily accessible to our chapter members and the MatSE students in general. It's a great opportunity for students to relax at the end of the week and meet other friends in the major. We usually have 15+ students attend and sometimes upwards of 25! This is a way to bring members together and promote friendship within the organization. This brought students together and allowed for younger students to make friends and gain insight from the older students. We would consider happy hours our most beloved and longest tradition.

Executive Board Bonding

We believe it is important for our board to know each other well to work cohesively together. A bonded board is a better board. This year, we emphasized executive board bonding with two events. The first event occurred virtually over the summer. The board gathered on Zoom, were given fun facts about each board member, and had to match them up with the right person. This event served as an initial bonding activity and a chance for us all to share our excitement for the upcoming year. The second event happened in September when the board went to Portillo's and grabbed dinner. Material Advantage paid the bill.



E-week

E-week is a week-long competition between teams of engineering students at Illinois to celebrate National Engineers Week. This year the theme of the week was Greek Mythology and eight of our members participated. We competed in a total of 23 events, including tug of war, a mile run, bowling, obstacle courses, trivia, water pong, bags, karaoke, and a three-legged race. Our President even participated in Pie a President, which gave the team more points. Students enjoyed competing against teams from other student organization, and at the

end of the week, they were invited to a formal. Our team was committed and won first place in the competition! E-week was a grueling, yet great experience for everyone involved and is an event that we plan on competing in next year.

Executive Board Bonding

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S'mores Nights

One of our early events was a S'mores night where members made a fire, built s'mores, and shared stories with each other. This event allowed underclassmen to meet upperclassmen in a cozy, outdoor environment. With over 25 attendees, this event was a hit!

Women in MatSE Social Events

Throughout the year, we held a couple of different Women in MatSE events to bring together the women in our major and allow them to connect with each other, so they don't feel like they're always in a male dominated field. Some events included a painting event, and charcuterie and movie night. Our members really enjoyed getting to know each other and talk about their experiences in MatSE. This is a type of event that we will continue to hold throughout the years because engineering is male dominated and we want the women in our major to always feel comfortable and know they have a support group. Moving forward, we plan to expand these types of events to include more groups of students that share a common hobby, cultural background, and/or concentration.

Ice Skating Events

We hosted three ice skating events this year at the university skating rink. The university hosts open skate hours which our chapter utilized to bring a different type of social event to our members. With 12 members in attendance the first time around, we hosted the event two more times afterwards – including one with the MatSE graduate group - Materials Research Society.

Cocoa-Valent Bonding

Before the holiday season, we hosted a hot chocolate social which we dubbed Cocoa-Valent Bonding. We made hot chocolate and listened to music during the two-hour event. Attendance reached 12 members. This event was easy and inexpensive to organize.

Tie Dye

One of our EOH Project Leads designed a shirt to sell to our chapter riddled with MatSE puns disguised as musical artists names (ex. Cerammica is a spin on Metallica). Over 30 members ordered the shirt, demonstrating the popularity of the design. The shirt was intentionally white so our members could customize their order with tie dye. We hosted a tie die event on the quad and the shirts turned out great for everyone!

Holiday Party

Every year we host a holiday party for our members to take a break from studying, hang out with friends, get some gifts, and make cookies. We hosted a spin on the Christmas activity white elephant – trash white elephant. Everyone attending found a cheap gift lying around their apartment/dorm, wrapped it up, and brought it to the party. Then everyone went around in a circle, randomly picking from the gift pile to show the gift they chose. The point of trash white elephant is ease and convenience. The event was a great success with over 35 members participating!



Valentine's Day Party

For Valentine's Day, we threw a party filled with candy, secret notes, and fun. Members were provided with crafting supplies so they could make their own mailbox for valentine's notes. Students also passed around fun notes to other students and were given candy. Members had a great time with each other and enjoyed getting to be creative with their crafting.

Mafia and Game Day

In the spring semester, our chapter hosted a game day to encourage students to take a break from midterm studying. We rented a university room and brought Mario Kart, cards, and various board games. This event was especially popular with our underclassmen and had 11 attendees.

Freshman Social

Our Freshman Representatives hosted a social event for the freshman class of MatSE students. They listened to music, played card games, and shared snacks. This goal of this event was to further bond the class after the exam review sessions the previous semester. It is essential to foster relationships in freshman year because the underclassmen share the same classes, so events like these bring them together to find their commonalities.

25 May 2023

To the MA Chapter of Excellence Award Selection Committee:

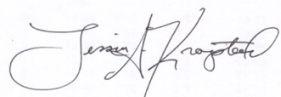
It is my pleasure to write a letter of support on behalf of the University of Illinois Material Advantage Chapter. The Chapter plays a central role in the culture of our undergraduate program at the University of Illinois, Urbana-Champaign—providing opportunities for personal and professional growth of our students and our department and engendering a unique sense of community and support. In my eighth year as the faculty advisor for this chapter, I am repeatedly amazed by the organization and degree of involvement that these undergraduates have taken upon themselves to improve their own undergraduate experiences, to prepare themselves and their peers for professional roles and to improve the department for those who follow them. I believe that the preceding pages document their level of creativity, dedication, diversity and success without need of additional accolades, but I am happy to elaborate. I would like to highlight a few areas of impressive growth and sustained commitment to excellence this year.

Personally, I am very excited by the growth in the career development programming this year. The number of career-centric activities not only exceeded the number of such events during COVID-impacted years, but has outpaced every other year that I have overseen the Chapter's activities. The extent of this growth is further evident by the planned addition of a new board position, splitting the traditional professional chair into an Industry-Specific and Research-Specific chair. The size of the MA Executive Board is large by design and allows the students to program for all of their objectives without overwhelming any one student. The choice to create this new professional chair reflects the quality of and continued demand for career development activities, both from the undergraduates and external recruiters. I am especially encouraged that they have chosen to emphasize both industry and academic career paths. This will allow for more tailored programming for students interested in graduate school and undergraduate research experiences, while simultaneously expanding industry-centered events, including additional site visits which were a huge hit with students this year! I can also attest those industrial partners, such as Caterpillar, have been equally enthusiastic about these interactions. I anticipate that these will have secondary impacts on the department in the future ranging from new senior design partnerships to scholarships.

As someone who loves outreach, I'm tempted to write another paragraph about all of the service activities that the chapter undertook this past year including demonstrations to our freshmen, but also to middle schoolers and high schoolers from across Illinois. However, in terms of the overall impact on the departmental culture, I think it's more important to emphasize the quality and value of this Chapter's social activities. I probably meet with a hundred prospective undergraduate students over the course of a given year and in every single one of those meetings I point to MA as evidence of the welcoming, supportive, and collegial environment in our department. Whether it's their mentorship program, now in its fifth year, the dedicated events for women in MatSE, or pun-heavy t-shirt tie-dye parties, there is an event for almost everyone and plenty of opportunity to develop the relationships that provide critical support during their time at Illinois and beyond. Many of these events change from year to year—with the possible exception of Happy Hour, based on current fads and the interests of our students, but they all have the same result: positive experiences and meaningful relationships.

I am very proud to be associated with our Materials Advantage chapter as I believe they make a vital impact on our department and will continue to do so with unwavering support from our department.

Sincerely,



Jessica A. Krogstad
Associate Professor & Materials Advantage Faculty Advisor