Chapter Renewal BMES Student Chapter University of Illinois at Urbana-Champaign

Faculty Advisor Information

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Ten Core Student Members Information

Name	Chapter Position	Email Address
Grace Huberty	President	huberty4@illinois.edu
Iksha Handa	Vice President	ihanda2@illinois.edu
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Garrett McPheron	Technical Director	gdm3@illinois.edu
Amartya Dave	Outreach Chair	adave24@illinois.edu
Emily Murray	Social Chair	emurray5@illinois.edu
Lucy Nash	Director of Recruitment lnash4@illinois.ed	
Amy Lee	General Member alee241@illinois.e	

Student Chapter/Department Website Link

https://www.bmes-uiuc.com/

Semester Recap Video

https://drive.google.com/file/d/10lkkCynouA8SYrEKEcWesyqvgmW6zK8-/view?usp=sharing

New Membership or Renewal?	Email	Name	University	Graduation Year	Gender	Ethnicity
Renewal (extension for following year)	lnash4@ illinois.edu	Lucia Nash	University of Illinois at Urbana- Champaign	2024	Female	White

One Student's Information for Free Membership

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



Chapter Development Report Biomedical Engineering Society, UIUC Chapter May 2021-May 2022

Primary Author

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CDR Summation:

This Chapter Development Report of the Biomedical Engineering Society at the University of Illinois at Urbana-Champaign depicts the structure and activities of our student chapter for the 2021-2022 academic year. Our chapter was able to provide numerous opportunities for our members to network with industry professionals through multiple corporate presentations and career development seminars at a total of 8 meetings. This year we have adapted our programming to function largely on a hybrid platform, allowing students to participate in our activities depending on their comfort level and to allow us to host speakers from across the country. We have continued our professional mentoring program, pairing recent alumni with current students based on career path interest. We pivoted our outreach program to include "take and make" videos, embracing the limited in-person contact we had with young students this year. We were finally able to safely bring back many of our traditional social events as well as create many new events as well. These events gave our members a relaxed setting to develop lasting friendships. Our technical offerings such as Engineering Open House design teams and skill workshops were transitioned back in-person to offer an increase of intellectual enrichment and inspiration for our members. Some of the key future directions of the UIUC BMES chapter focus on membership growth and retention of students from diverse areas of study, creating valuable mentorship networks, and expanding technical opportunities. We also anticipate continuing to regain momentum as pandemic-related precautions ease even further in the new school year, allowing member participation and recruitment to greatly increase. These changes will allow the UIUC BMES chapter to continue to flourish here at the University of Illinois.



COLLEGE OF ENGINEERING Department of Bioengineering 1270 Digital Computer Laboratory, MC-278 1304 W. Springfield Ave. Urbana, IL 61801

May 25th, 2022

Dear Biomedical Engineering Society,

We are pleased to submit this report on behalf of the Biomedical Engineering Society chapter at the University of Illinois at Urbana-Champaign.

Our chapter has continued to grow in membership and in impact with activities. In the past year, membership in BMES included students across many engineering and STEM majors, as well as 12 nationally registered members. The society hosted 8 general meetings with industry speakers and professional development opportunities, as well as a plethora of options for social gatherings, such as a barn dance, picnics, and coffee chats, 5 technical workshops with training in data visualization, Arduinos, and CAD, and outreach opportunities such as Genome Day, Bioengineer Your Impact, and Relay for Life. Most of our events occurred in a hybrid format to accommodate the comfort levels and safety of all students.

While the chapter is very successful, we have plans to continue to improve. One item we need to improve is to increase our presence on Instagram and LinkedIn. The secretary will work with other members of the executive board to enhance social media presence. Additionally, we want to improve mentoring opportunities in both social mentoring and professional mentoring. A new executive position, the Director of Recruitment, was added this year to increase recruitment of freshmen and students in other majors as well as facilitate the social mentor program. We plan to foster a much stronger relationship with the freshman class at the very beginning of the fall semester, and start the program soon after school begins when most students have yet to find a mentoring relationship. We anticipate that this role will continue to grow and expand to improve recruitment and retention. We also plan to hold more interactive events and team-building challenges to keep members engaged and meeting together throughout the year. Our industrial relations director piloted more professional development activities this year including LinkedIn, resume, and elevator pitch reviews and workshops and will continue to enhance these activities by better engaging professionals and alumni as mentors to students.

We are very proud of our accomplishments and are looking forward to another great year.

Sincerely,

Jaylor Wills

Taylor Wills Outgoing President

Trace Huberty

Grace Huberty Incoming President

Jennife Shoe

Jenny Amos, PhD Faculty Advisor, UIUC BMES

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I. Administrative Report

Abstract: The UIUC BMES chapter is composed of nine officers. Officers were elected at the end of the spring 2021 semester and served for the entirety of the 2021-2022 academic year. As outlined in our chapter bylaws, each officer is responsible for a specific set of duties as well as taking on a variety of other tasks throughout the school year. The UIUC BMES executive board meets on a weekly basis to organize events and opportunities for our members. Most event planning and chapter decisions are made during the executive board meetings and therefore these are integral to the success of our chapter. A weekly newsletter of upcoming events and important updates is compiled and sent out by the secretary to keep our members informed. Our chapter also hosts general meetings to provide updates on chapter business to our members. Professional speakers are invited to present at our general meetings. This past year, the technical director, outreach chair, and secretary led the technical committee, outreach committee, and media committee, respectively. Our membership consisted of 136 paid UIUC BMES members.

Executive Officers 2021-2022

President: Taylor Wills (tjwills2@illinois.edu)

The president is responsible for supervising the chapter's affairs and activities, presiding over all meetings, and delegating tasks to other officers.

Vice President: Grace Huberty (huberty4@illinois.edu)

The vice president is responsible for organizing the trip to the BMES Annual Meeting and establishing events to help students learn about future education and research opportunities.

Treasurer: Lucy Nash (lnash4@illinois.edu)

The treasurer is responsible for maintaining a detailed record of the chapter's financial transactions, drafting a yearly budget, submitting budget requests, and collecting membership dues in order to maintain a list of paid members.

Secretary: Amartya Dave (adave24@illinois.edu)

The secretary is responsible for sending out a weekly email newsletter, tracking attendance at all events, taking notes at all BMES meetings, logging all events for future years, leading the media committee, and managing our website <u>https://www.bmes-uiuc.com/</u>.

Industrial Relations Director: Iksha Handa (ihanda2@illinois.edu)

The industrial relations director is responsible for organizing general meetings consisting of industrial networking events and professional workshops, as well as the professional mentorship program.

Technical Director: Drashti Sikligar (dsikli2@illinois.edu)

The technical director is the head of the technical committee and is responsible for overseeing all Engineering Open House projects, design teams, and setting up technical peer-led workshops.

Outreach Chair: Emily Murray (emurray5@illinois.edu)

The outreach chair is responsible for coordinating service and volunteering events as well as managing the outreach committee.

Social Chair: Sonja Gurbani (sgurba2@illinois.edu)

The social chair is responsible for planning and executing social events for our members as well as organizing the social mentor program and heading the social committee.

Director of Recruitment: Lourdes Garcia (lourdes3@illinois.edu)

The director of recruitment is responsible for the recruitment and retention of membership by managing welcome events such as the Fall Picnic, Ice Cream Social, and Quad Day, social mentor programs, and end of the year banquet and award ceremony.

Membership

The Department of Bioengineering at the University of Illinois at Urbana-Champaign is composed of approximately 310 undergraduate students. A majority of our 136 paid members are bioengineering undergraduates, but we also have members from other disciplines, including but not limited to computer science, biology, materials science engineering, engineering mechanics, and electrical engineering. We take great pride in being an interdisciplinary organization, and make sure to reflect that in curating interdisciplinary events for our members. Additionally, we have 10 registered national members.

General Meetings	Date	Description	Attendance
Introductory General Meeting	8/26/21	Introduction to BMES, with a presentation from PSYONIC	82
General Meeting #2	8/30/21	Presentation by Procter and Gamble (P&G) Co-hosted with UIUC's American Chemical Society	35
General Meeting #3	9/7/21	Presentation by Veeva	15
General Meeting #4	9/22/21	Presentation by Epic	19
General Meeting #5	9/28/21	Presentation by Kraft Heinz	18
General Meeting #6	11/3/21	Presentation by Bristol Myers Squibb	11

Meetings

General Meeting #7	2/9/22	Presentation by leaders of UIUC Bioengineering Master's Programs	24
General Meeting #8	4/6/22	Panel of Medical Students	20
Executive Meetings			
Executive Meeting #1	5/2/21	Transitioning logistics (new board)	8
Executive Meeting #2	8/21/21	Year goals + expectations	8
Executive Meeting #3	8/29/21	Quad day recap, event planning for the Fall semester	7
Executive Meeting #4	9/5/21	SORF funding application planning, outreach event planning, social event planning, council of presidents meeting update	7
Executive Meeting #5	9/12/21	National conference planning	7
Executive Meeting #6	9/19/21	GM planning, budget submissions, outreach event planning, EOH kickoff meeting recap	8
Executive Meeting #7	9/26/21	Department funding submission, ongoing event planning	8
Executive Meeting #8	10/3/21	Event planning (outreach, social, tech)	8
Executive Meeting #9	10/10/21	National Conference recap, ongoing event planning, EOH team member application launch	8
Executive Meeting #10	10/17/21	EOH timeline, Fall picnic planning, merch design	7
Executive Meeting #11	10/24/21	Budget discussion, ongoing event planning	7

Executive Meeting #12	10/31/21	Reimbursement discussions, Mentor program launch, event planning	7
Executive Meeting #13	11/7/21	Budgeting idea discussion, EOH pitches, event planning	7
Executive Meeting #14	11/14/21	EC awards (society of the month), ongoing event planning	7
Executive Meeting #15	11/28/21	Ongoing event planning + event recaps	8
Executive Meeting #16	12/5/21	Semester Recaps + Event wrapup	6
Executive Meeting #17	1/16/22	Semester goals, merch handouts, updated budgeting goals, outreach + social event planning	7
Executive Meeting #18	1/23/22	Med school panel planning, banquet planning, IR event planning	8
Executive Meeting #19	1/30/22	Professional Development workshop planning, Mentor program planning, Outreach event planning	6
Executive Meeting #20	2/6/22	Graduation cord planning, EC funding plan, BYI and social event planning	8
Executive Meeting #21	2/13/22	M.Eng and Masters event planning, BYI planning, Social and Tech event planning	7
Executive Meeting #23	2/20/22	GM planning, IR event planning, BYI planning	6
Executive Meeting #24	2/27/22	GM, social event planning, Tech workshop planning	7
Executive Meeting #25	3/6/22	Banquet planning, social event	6

		planning	
Executive Meeting #26	3/20/22	IR event, BYI, EOH planning	8
Executive Meeting #27	3/27/22	Election planning, Med School Panel, BMES hype video, IR event planning, EOH logistics	7
Executive Meeting #28	4/3/22	Election timeline, social event planning, GM planning, banquet logistics	7
Executive Meeting #29	4/10/22	Final election planning, social event execution	8
Executive Meeting #30	4/17/22	Election results and logistics	8
Executive Meeting #31	4/24/22	Transition meetings for new exec	15

Acronyms used above in Meeting Descriptions

Acronym	Meaning
BYI	Bioengineer Your Impact- outreach event hosted every winter for high schoolers
EC	Engineering Council- funding available for engineering clubs through the college
ЕОН	Engineering Open House- college wide demonstrations of engineering projects
GM	General Meeting- internal club meeting
IR	Industrial Relations
SORF	Student Organization Resource Fee- funding available for student organizations
UIUC	University of Illinois Urbana-Champaign

II. Treasury Report

Abstract: The UIUC BMES Chapter has three accounts available for financial transactions. The BIOE account is only used in the case of a corporate or departmental donation. The Registered Student Organization (RSO) and Credit Union accounts are used by the treasurer to handle reimbursements and deposits. We are currently trying to lower a surplus in our accounts, which is why we have a negative net income for this academic year. The primary form of income for our chapter is membership dues. We surpassed our goal for membership dues this year and as such were able to host bigger and more frequent events for our members. This year we also took full advantage of funding from UIUC's Engineering Council (EC), which has provided funding to support some of our larger events throughout the year, as well as allowed us to provide a higher reimbursement for our members who attended the national conference. The main expenses for our chapter come in the form of general meetings and social events. In the future, we hope to find potential forms of sponsorships to cover the expenses for events and to continue partnering up with other societies on our campus to split the cost of events. Because our campus lifted many COVID-19 restrictions this year, we were able to host more events that are traditional to our chapter of BMES, such as a fall picnic, Bioengineer Your Impact, and a spring banquet.

Account	Balance	Description
BIOE	-	Must receive approval from the BIOE department to withdraw from the account.
RSO	\$1896.19	Turn in voucher forms to the RSO office for reimbursements; deposit money at Henry Administration Building.
Credit Union - Savings	\$767.66	Must have at least \$5 at all times.
Credit Union – Checking	\$5474.65	Uses checks; mainly used for small-scale reimbursements.
Total	\$8138.50	

Financial Summary

Balance Sheet

Income

Category	Amount	Description
Dues	\$2040	Chapter Dues are \$15; 136 paid UIUC BMES members
Corporate Sponsorship	-	No corporate sponsors this year
Other	\$4214.62	Engineering Council funding, National BMES funding
Total Income	\$6254.62	

Expenses

Category	Amount	Description
Meetings	\$3931.38	General Meeting expenses, Career Development session expenses, Banquet, BMES Conference funding
Social Events	\$1221.08	Includes picnics, intramurals, etc.
Outreach Events	\$495.35	Middle school visits, Bioengineer Your Impact, etc.
Technical Development	\$1556.71	Engineering Open House, workshops, design competitions, media, etc.
Total Expenses	\$7204.52	

Totals

Total Income	\$6254.62
Total Expenses	\$7204.52
Net Income	-\$949.90

III. Chapter Activities

Abstract: BMES UIUC offers its members a plethora of activities including social, technical, professional, and outreach opportunities. We are a highly active and supportive chapter with events happening weekly and mentoring opportunities available with upperclassmen and alumni. We seek to foster a spirit of innovation and excitement surrounding the biomedical sciences that is inclusive and multidisciplinary. We want to provide an environment in which our members can have fun, grow, and inspire others. In this report we have included the recorded statistics on event attendance and expenses. To aid in brevity, all cost breakdowns are listed in the Treasury section.

A. Social Activities

Abstract: The UIUC BMES chapter organizes a large number of social events for our members throughout the year. Our chapter takes great pride in offering our members a variety of events that allow members to form long-lasting connections and friendships. This year, we offered events such as game nights, happy hours, craft tutorials, coffee chats, and study breaks. Members look forward to these events, and we will continue to offer them in the future. Many of our social events are well attended and provide a great opportunity for our members to develop friendships within our community. We hope to add more social events and improve current events such that attendance is increased in the coming year and the chapter is able to regain members lost during the pandemic. Our goal is for our members to develop long-lasting friendships and feel a sense of community within our chapter. This year, we were able to successfully transition all of our social events back to in-person ones.

Fall Picnic

To welcome everyone back to the new school year, we organized a Fall Picnic, which included barbecuing and painting pumpkins. New and old members were able to meet up with each other and bring back a memento from the event.

Fall Picnic	10/23/2021	25 undergraduates
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BMES Members at the Fall Picnic



Pumpkin painted at the Fall Picnic

Coffee Chat with Professors

We held eight coffee chats this year with several professors in and connected to our Bioengineering department to give members a chance to interact with our professors in a casual setting. These coffee chats were all able to take place in-person. Members were able to ask questions related to the professors' work and research life as well as outside of these topics.

Coffee Chat with Dr. Amos (Bioengineering Teaching Professor)	9/18/2021	10 undergraduates
Coffee Chat with Dr. Cvetkovic (Bioengineering Assistant Teaching Professor)	9/23/2021	5 undergraduates
Coffee Chat with Dr. Golecki (Bioengineering Assistant Teaching Professor)	10/27/2021	8 undergraduates

Coffee Chat with Dr. Sirk and Dr. Gaj (Bioengineering Assistant Teaching Professors)	11/2/2021	10 undergraduates
Coffee Chat with Dr. Smith (Bioengineering Associate Head of Undergraduate Programs)	2/8/2021	6 undergraduates
Coffee Chat with Dr. Leal (Material Science and Engineering Associate Teaching Professor)	4/7/2022	7 undergraduates
Coffee Chat with Dr. Espinosa-Marzal (Civil and Environmental Engineering Teaching Professor)	4/25/2022	8 undergraduates
Coffee Chat with Dr. Jensen and Dr. Jensen (Bioengineering Assistant Teaching Professor)	4/28/2022	35 undergraduates

Barn Dance with Materials Advantage

BMES co-hosted a Barn Dance with a Materials Science and Engineering organization on campus. Members of both organizations were able to interact with each other and enjoy a night of dancing off-campus as a way to de-stress from midterms.

Barn Dance	10/1/2021	150 undergraduates
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Happy Hours

BMES members were invited to join a happy hour with Material Advantage, a Material Science and Engineering student organization. We additionally hosted one for only BMES members. Members played games and picked up appetizers from a local pub. This event gave BMES members a chance to interact with other engineering students they may not normally interact with as well as help the society become more connected with other organizations.

March Happy Hour with Materials Advantage	3/25/2022	5 undergraduates
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April Happy Hour	4/22/2022	10 undergraduates
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BMES Members at the March Happy Hour

Reading Day Events

As a way to relax before finals, BMES members were invited to attend our Reading Day Events, consisting of enjoying food and watching a movie as well as playing board games or painting on canvases. We were very pleased with the turn out for both of these events as attendance was much higher than recent years.

Fall Reading Day Event	12/9/2021	30 undergraduates
Spring Reading Day Event	5/11/2022	25 undergraduates



Students watching a movie at the Spring Reading Day Event

Craft Workshops

As a way to destress before midterms, members were invited to participate in a Bob Ross painting night event and a Chalk Art event with supplies provided. For the Bob Ross event, a video tutorial was played during the painting event and members followed along. For the chalk event, members met outside of the Bioengineering department's building and drew on the sidewalks. These events were held in-person, and snacks were offered.

Bob Ross Painting Night	2/28/2021	15 undergraduates
Everitt Chalk Art	4/1/2022	6 undergraduates

BMES End of the Year Banquet

The BMES End of the Year Banquet is the final social event of the year where the organization honors and highlights members and their accomplishments. This is the first end of year banquet that the club has been able to host in three years, so we were very pleased to be celebrating together. This year the banquet was held on April 23rd, 2022 in the Illini Union. University catering provided the brunch food for the event. The event was hosted by the Director of Recruitment and the Treasurer. During the event, we were able to highlight the accomplishments of each executive member and their committees, tease the new BMES hype video, award the volunteer of the year award and senior chords, and introduce the new BMES Executive Board. Seniors were given graduation cords for superior involvement and bettering the club as a member. This idea was borrowed from the University of Maryland BMES student chapter after they shared this idea at the BMES Annual Meeting Student Society panel. Professor Andrew Smith and Professor Karin Jensen were both in attendance, and Professor

Andrew Smith and Professor Karin Jensen were both in attendance, and Professor Andrew Smith was our guest speaker. Over 25 members were in attendance.



'22-'23 BMES Exec Board Introduced at BMES Banquet



'21-'22 Executive Board Honored at BMES Banquet



Involved Seniors who were awarded chords at BMES Banquet

B. Inter-chapter Activities

Abstract: We participated in the second annual BMES Battle of the Brains event hosted by the Ohio State University. We had the pleasure of meeting and exchanging ideas with many collegiate BMES chapters at the Annual Meeting this year, and we hope to reach out and meet members from other chapters to improve our inter-chapter related activities.

C. Outreach Events

Abstract: Our BMES chapter is very involved in the general Champaign-Urbana community and on campus through our commitment to service. This year, we held 2 fundraisers that raised money for the American Cancer Society and donated the money through UIUC's Relay for Life, a day-long, campus-wide event that is dedicated to raising funds for cancer research. Our chapter also held the sixth annual Bioengineer Your Impact Event, a day aimed at inspiring and educating high schoolers about the field of bioengineering and its impact on society. This year, we had eight students who attended and participated in design challenge activities, science experiments, and actively listened to presentations from a professor of bioengineering and medical school, as well as an industry speaker. We also volunteered in our local community, partaking in several events such as making cards for senior citizens and donating blood at the University of Illinois Blood Drive. Additionally, we adapted our traditional middle-school visits to an online format in which we created deliverable STEM activity kits and corresponding instructional videos. Locally, we hosted a STEM event for teens at the Champaign Public Library and taught young kids about biology at Genome Day. The volunteering team continued, and members were able to track their volunteering hours. Next year, we hope to increase our volunteer participation, host more regular in-person events, and expand our events.

STEM Events for Youth

Because of multiple shifts from virtual to in-person events this academic year, we had to adapt to local guidelines and find creative ways to reach out to youth in our community. Volunteers participated in Genome Day, an event hosted by the University of Illinois Institute for Genomic Biology that teaches young children about biology concepts through several activities. Furthermore, the partnership with the Institute for Genomic Biology was continued, and BMES members volunteered at a pond study day at Porter Pond, running a hands-on science station for kids. We also created take-and-make kits for middle schoolers, including a kit for making paper prosthetic hands, and recorded an instructional video corresponding to the contents of the kit. Later on in the academic year, BMES members were able to work with younger students directly by tutoring at high schools in Urbana District 4, as well as going to the Champaign Public Library and hosting a DIY slime event.



Left: Volunteers at Genome Day. Right: Screenshot of take and make video to make homemade prosthetic hands. A kit of supplies accompanied the video.

Genome Day	9/25/2021	6 undergraduate volunteers
Porter Pond	10/21/2021	1 undergraduate volunteer
Take n' Make Kits	2/16/2022 and 2/23/2022	10 undergraduate volunteers, reaching a class of 30 5th graders
High School Tutoring	3/27/2022 - 5/13/2022	5 undergraduates
CPL Slime Workshop	4/21/2022	2 undergraduates, reaching 25 middle schoolers

Campus-Wide Events

With the return of our members to the University of Illinois campus, we wanted our volunteers to get involved in accessible service events. In addition, one of our goals was to collaborate with another student organization on an outreach event. In the fall, we volunteered at the Society of Women Engineers' "Empowering Students in Engineering" virtual event, where a member presented information about our chapter of BMES and some of the projects that were worked on to high schoolers interested in engineering. On top of this, volunteers participated in Illini Lights Out, an event where student organizations turn off all of the lights in campus buildings in order to conserve energy and make an environmental impact. With our contribution, the initiative helped the University of Illinois prevent 16.98 tons of CO2 from entering the atmosphere.

Empowering Students in Engineering	10/2/2021	1 undergraduate
Illini Lights Out	11/12/2021	4 undergraduates

Reaching Outside of Champaign-Urbana

Creating a positive impact not just in our community, but outside of our community as well, is an action that our chapter prioritizes. This year, we hosted two fundraisers that raised money for the American Cancer Society through the Relay for Life event, which raises funds for cancer research. Members also joined the BMES Relay for Life team and raised their own money. Additionally, volunteers donated blood at the University of Illinois Blood Drive, and wrote letters to senior citizens in nursing homes.

Mia Za's Fundraiser	9/11/2021 and 11/14/2021	Over 20 donors
Blood Drive	1/18/2022, 1/20/2022, 1/21/2022	5 donors
Relay for Life	4/9/2022	3 team members
Letters for Seniors	4/23/2022	2 undergraduates

Bioengineer Your Impact

Bioengineer Your Impact is a day-long event dedicated to exposing high school students to the field of biomedical engineering through science activities and presentations. Dr. Olivia Coiado, professor of bioengineering and professor at the Carle Illinois College of Medicine, spoke about the intersection of engineering and medicine and provided information about the curriculum. Dr. Coiado also hosted a case study activity in which students were presented with a simulated patient and thought of engineering approaches to diagnose and treat the patient. Dr. Aadeel Akhtar, CEO of prosthetic start-up company PSYONIC, presented about his company and their contribution to the biotech industry. Three activities were completed, including an engineering-design challenge, extracting DNA from strawberries, and designing paper prosthetic hands with various materials. Lastly, a student panel of current BMES members provided valuable insight into college-life, gave general academic advice, and answered any student and parent questions that arose.

Bioengineer Your Impact	3/26/2022	 11 undergraduate volunteers, 8 high school students

Outreach Committee

The Outreach Committee is responsible for assisting the Outreach Chair by recruiting volunteers and organizing service events. The Outreach Committee, with the oversight of the Outreach Director, plans the volunteering events. This year, the committee was divided into three subcommittees: Youth Committee, Campus Committee, and Community Committee, each with delegated responsibilities. The Volunteer Coordinator, another crucial member of the Outreach Committee, advertised volunteering events through several platforms and recorded volunteer hours. The Volunteer Coordinator also led the Volunteering Team, a group of dedicated volunteers, providing them with extra updates about upcoming events.

D. Mentoring Activities

Abstract: The UIUC BMES chapter offers various mentoring activities for our students. The opportunities are designed to allow interaction between underclassmen students and upperclassmen in a meaningful setting. For the sixth year in a row, students could participate in a revamped mentoring program. The program paired several upperclassmen and multiple underclassmen together. Throughout the program, the underclassmen received advice about classes, careers, and the bioengineering field while also developing a long-lasting friendship with the upperclassman. In addition to the social mentorship program, a new professional mentorship program that was initiated by the Industrial Relations Director in the 2019-2020 school year was continued. This program distinguished itself from the social mentor program by focusing more on professional and soft-skill development. The program was a great addition to the chapter's mentorship offerings and has continued to be successful. Finally, a new addition of a Discord server was implemented this year to help students connect with one another virtually, whether it be for coursework-related advice or for social networking.

Social Mentoring Program

Upperclassmen that volunteered for the program were paired up with multiple freshmen or sophomores who opted to join the program. Mentors and mentees were asked to meet at least once a month on their own and were invited to events organized by the Director of Recruitment and Social Chair.

Mentors and Mentees were sent prompts on a monthly basis to drive fruitful conversations on topics such as student life, managing stress/burnout, summer plans, time management etc. Mentor/Mentee pairs were made using information on major, field concentration, previous work, and future interests. Mentors enjoyed being able to pass on advice to underclassmen and likewise mentees greatly enjoyed having upperclassmen to go to with questions. The relationships

fostered over the past few months will hopefully continue even as our seniors graduate, and will inspire our current mentee's to rejoin the program as mentors.

Professional Mentoring Program

In addition to the social mentoring program, a professional mentoring program was started in Fall 2019. Interested undergraduates were paired with graduated BMES alumni based on post-graduation path including medical school, graduate school, or industry jobs. The goals of this program were numerous. For one thing, it is important for undergraduates to develop and practice professional soft skills and to become comfortable with networking. This can be valuable for future interviews, applications, and job hunting. Mentees were advised to receive advice on their resume, LinkedIn, and elevator pitch. Additionally, the program aimed to give students a resource to ask honest questions that they cannot ask recruiters. Finally, the program fosters a stronger relationship between BMES and its alumni network.

Participants were encouraged to meet or call with their mentors three times throughout the fall to learn about career opportunities and get advice for the future. One participant was able to leverage her connection to explore a future career in consulting. Another participant got valuable advice for how to manage pre-med classes while studying a rigorous engineering curriculum. Many students gave feedback that they found their relationships to be valuable in exploring future career opportunities.

In its third year, the program successfully paired 20 undergraduates with 18 graduated BMES alumni during the fall. In the spring, 8 undergraduates were paired with 13 graduated BMES alumni. After the fall semester, the mentors felt there was too much pressure on the mentors to reach out to the mentees which took time from their schedules. In the spring, a monthly newsletter was implemented with topics to encourage mentees to reach out more. In the future, the program will have incentives for each meeting to increase engagement.

E. Industry and Professional Development Activities

Abstract: The industry and professional development activities offered by the UIUC BMES chapter focus on preparing our members for careers in industry or graduate school and providing our members networking opportunities. The industrial relations director and assistant industrial relations chair worked hard to organize multiple career development seminars. In the fall, the chapter organized several corporate presentations from startups to large bioengineering-related companies. The chapter also implemented the above mentioned professional mentorship program and provided new career resources to students during the recruiting season. In the spring, several additional company-sponsored GMs were held along with professional workshops. The focus this year was to create new relationships with top companies and continue to foster existing

relationships, as well as to improve the above mentioned professional mentor program through a hybrid format. Professional development workshops and resources were expanded this year to connect students to former UIUC BMES members who have pursued career paths of similar interests, as well as supply students with materials to research and prepare for post-secondary educational opportunities. Given all the programs and opportunities created this year, the chapter is incredibly excited to expand and improve upon these in the coming year.

Corporate Presentations

Representatives from multiple companies presented during general meetings. These presentations covered possible careers for members in the specific company as well as career paths for bioengineers in general. This year, the chapter focused on having companies that members were highly interested in and were not necessarily local since we implemented a hybrid approach. With student events being in person midway through fall semester, we implemented a hybrid "watch party" style where recruiters were on Zoom, displayed on a projector and our members were in person. We were able to maintain attendance throughout the semester and engagement by offering dinner that was sometimes corporate sponsored. We also concentrated on offering more opportunities with diverse companies to target the five tracks within our bioengineering curriculum (cell and tissue, therapeutics, biomechanics, imaging and sensing, and computational), as well as to cover the major industries that bioengineers typically find jobs in. These industries include medical devices, pharmaceuticals, prosthetics, and healthcare support. We also had a larger focus on networking events for full time positions.

This year, 5 of the corporate presentations included University of Illinois BMES alumni. The alumni were able to offer insight into their transition into the workplace and the level of preparedness they felt after receiving a very similar education. In addition, we had 4 new companies come speak that were not local to the midwest area which was largely due to the fact that we had a hybrid option which eliminates cost of travel for companies to join us. We hope to continue our relationship with these companies and expand our network.

As company policies became less restrictive in the spring semester, we had two in person recruiter events. We brought back the tour of the local Abbott Laboratories offices in Research Park which was last conducted in 2018. We also implemented mock interviews and coffee chats with P&G which provided a more intimate networking session. These events increased member engagement and we will expand upon these in the future.

Psyonic is a start-up out of UIUC that is developing low-cost, myo-electric prosthetics with sensory feedback. The founder and CEO, Aadeel Ahktar, gave an inspiring talk on his company's history and future plans while giving interactive demonstrations using their latest prototypes. Procter & Gamble, Veeva, Genentech, Epic, Kraft Heinz, Oak Street Health, Bristol Myers

Squibb, Kraft Heinz and Abbott Laboratories gave company overviews as well as presentations on internship and full-time openings. Many of these companies are industry leaders, thereby giving our members opportunities to network and distinguish themselves for career opportunities. Between this year and previous years, BMES members have received full-time jobs and internships from all of the companies listed.



Hybrid GM with food sponsored by Epic



Tour of Abbott Laboratories offices at UIUC's Research Park

Meeting Type	Date	Description	Attendance
Introductory General Meeting	8/26/21	Introduction to BMES, with a presentation from PSYONIC	82
General Meeting #2	8/30/21	Presentation by Procter and Gamble Co-hosted with UIUC's American Chemical Society	35
General Meeting #3	9/7/21	Presentation by Veeva	15
Info Session	9/14/21	Presentation by Genentech	4
General Meeting #4	9/22/21	Presentation by Epic	19
General Meeting #5	9/28/21	Presentation by Kraft Heinz	18
Info Session	10/13/21	Presentation by Oak Street Health	4
General Meeting #6	11/3/21	Presentation by Bristol Myers Squibb	11
Mock Interviews	4/5/22	Mock Interviews and Workshop with P&G Co-hosted with UIUC's American Chemical Society	3
Info Session	4/19/22	Tour and Networking with Abbott	8

Career Resources

An addition to professional resources created in 2019-2020 was the implementation of a Career Fair Cheat Sheet and a Freshman Survival Guide. The Career Fair Cheat Sheet listed companies attending the career fair, their industry, and what day they would attend to help orient BMES members to the overwhelming event. It was updated accordingly for each unique career fair. The Freshman Survival Guide contained basic professional notes and advice for those new to the job seeking process. Both of these documents were modified to adapt them to the virtual and hybrid environments. The new documents included how the technology for the virtual career fair worked, advice for messaging recruiters through the career fair platform, and how to more effectively leverage LinkedIn.

Career Development Workshops

Working with Engineering Career Services as well as some of our alumni of BMES, we hosted career development events this past year. For each of these events, we were able to either bring in speakers from the College of Engineering or companies to share insight on how to navigate preparing for post-secondary education or new jobs. These events covered how to prepare for medical or graduate school/industry as well as what admissions/recruiters are looking for. For the industry sessions, we went over interview and resume tips for the students to implement during the spring engineering career fair. In addition to the College of Engineering resources, we had an event with an independent recruiter which included helpful tips on LinkedIn use in a virtual world, negotiation and interviews. It provided a helpful recruiter's perspective which is usually not given. Also, we had University of Illinois alumni representatives from Eli Lilly and Proctor and Gamble, companies who are industry leaders, give interview and resume tips as well.

Date	Description	Attendance
9/1/2021	Resume Workshop with Engineering Career Services	5 people
9/27/2021	Undergraduate Research Involvement Information Session	25 people
2/2/2022	Professional Development Workshop by Michael Kaplan	11 people
3/3/2022	"Is Grad School Right for You?" Workshop	4 people
3/8/2022	Professional Development Workshop by Eli Lilly	7 people

During these events, resources and discount codes for Kaplan products were distributed to members via our website and weekly newsletter.

Post-Secondary Education Information Sessions

This year we introduced some new events and kept some old favorites to give our members the opportunity to learn about post-secondary education opportunities such as graduate and medical school. This was an amazing opportunity for our members to learn more about what they want to pursue after graduation in addition to opportunities offered at our own university.

Meeting	Date	Description	Attendance
Grad School Information Night	11/17/2021	UIUC graduate bioengineering students gave advice to undergraduates.	11
MechE M. Eng. Information Session	12/1/2021	Co-hosted with ASME, heard from directors of the Mechanical Engineering M. Eng. Program.	3
BioE Master's Information Session (GM #7)	2/9/2022	Presentation by leaders of UIUC Bioengineering Master's Programs	24
Medical School Panel (GM #8)	4/6/2022	Panel of current medical students and BMES at UIUC alumni	20

LinkedIn Group

The LinkedIn Group was created last year. Currently, there are 156 members. This year, we focused on adding our seniors to the LinkedIn group to increase our alumni network. This group also aided in recruiting 3 additional alumni mentors for the professional mentor program who had not acted as mentors in the program's first year. In addition, two companies came to speak by reaching out to BMES alumni. We also started posting BMES events so alumni could keep up with the club such as the BMES Annual Meeting. The LinkedIn group provides another opportunity for current members and alumni to network and find career opportunities. It was especially helpful this year due to the reduced job opportunities for students caused by the pandemic. The LinkedIn group will only continue to grow and provide lasting benefits for its members.

Congratulations to the UIUC BMES chapter for winning the Commendable Student Chapter Program at the National BMES Conference! Good job to everyone who presented their research and thank you to everyone for supporting us! **#bmes2021**



Example of a LinkedIn post made in the group.

Engineering in Healthcare: Industry and Research Symposium (EHIRS)

As part of our professional development efforts, several of our members attended Ohio State University's EHIRS from February 18-19, 2022. The event was held virtually this year, but members were still able to network with companies in industry, learn from speakers, and even present research. We also helped to plan and participated in the second annual Battle of the Brains, a trivia competition with other student chapters of BMES, which was a fun way to meet other students. We hope to increase our presence at EHIRS next year and attend in-person in Columbus, OH.

F. Other Initiatives and Activities

Abstract: The UIUC BMES chapter is active in numerous campus wide activities. Relay for Life and Engineering Open House are two events that members of our chapter take very seriously. Relay for Life is a fundraiser for the American Cancer Society, which was virtual last year, but returned in-person this year. Engineering Open House (EOH) is an annual project fair for the College of Engineering at the University of Illinois. EOH was virtual last year due to the pandemic, but it returned fully in person this year. Unfortunately, both of these events happened

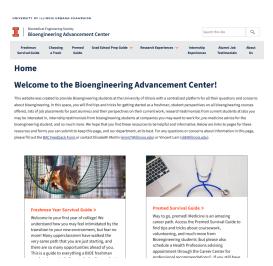
on the same weekend this year. Our society presented 10 projects at EOH this year. The UIUC BMES chapter will continue to be heavily involved in both Relay for Life and Engineering Open House. We additionally created the Bioengineering Student Advancement Committee this year to build a website for advice for younger members about classes, work life balance, testimonials, etc.

Relay for Life

Relay for Life is a fundraising event that supports the American Cancer Society. In the past, BMES members have raised over \$1,000 through multiple events throughout the semester. Relay for Life was during EOH this year, but our BMES chapter was still able to fundraise at restaurant fundraisers, with registration for the event, and through donations. Although Relay for Life was during a busy weekend, we are happy our members were still able to participate and look forward to hopefully participating more next year.

Bioengineering Student Advancement Committee

Recognizing the need for a centralized space that BioE students can go to for advice from fellow students and alumni, the Technical Director jumpstarted the Bioengineering Student Advancement Committee (BSAC) in the spring semester of 2020. The purpose of this committee is to build a Wiki forum that would provide Bioengineering students with a one stop shop for all their questions and concerns about bioengineering. In this space, students can find tips and tricks for getting started as a freshman, student perspectives on all bioengineering courses offered, lists of job placements for past alumnus and their perspectives on their current work, research testimonials from current students, internship testimonials from bioengineering students at companies, and pre medicine advice for the common pre-med engineer. This year, the Technical Director and the committee worked with the department to populate the current website with articles and information on various topics, such as undergraduate research, pre-professional advice, and many other topics. The website was moved to a more professional publish.illinois.edu website. The committee has grown to include 8 members, mostly upperclassmen. Currently, the committee's main focus is polishing the website in order to make it presentable and easy to use while double-checking that all information posted is accurate.



The current BAC website homepage leads to various articles.

Engineering Open House

Engineering Open House (EOH) is an annual student-run engineering fair spanning the College of Engineering that draws over 25,000 people to campus for a weekend in March. Hundreds of student teams and thousands of students across the College work on 250+ projects of interest in the months leading up to the event; these projects are then showcased in a manner appropriate for engaging visitors of all ages and experiences. As an outreach opportunity allowing students to explore topics that interest them and share their passion for engineering with thousands of members of the public, EOH forms the backbone of UIUC BMES's Technical Projects division. After going virtual for the past two years due to COVID-19, EOH was held in its 100th iteration in person this year.

There were 10 projects with 47 total members, which is about 5/6ths of last year's participation. However, this year we had members from many different majors, including Biology, Computer Engineering, and Enterprise Systems Engineering, making our reach span across 9 majors this year. Typically, in person events would be held in the beginning of the year in order to start projects, but with the uncertainty around returning to school, many events were hindered by COVID restrictions. 31 participants, or about 66%, were underclassmen, while 16 participants were upperclassmen, staying steady from last year. Every team was able to have an upperclassman involved in order to facilitate mentorship within the projects, as upperclassmen will be more experienced with technical and logistical challenges. This year was unique in that only seniors would have remembered what an in person EOH was like, and juniors would have been involved with the projects there are two multi-year Design Teams, one from 2020 and one new team this year. Design Teams develop innovative solutions to real-world bioengineering issues, taking on more technically challenging and product-focused ventures.

A list of all the projects and a short description is provided below:

Project Name	Description	Members
3D scaffolding and fabrication	Want to learn more about engineering through art? Come and find out how common nail art techniques are related to 3D biofabrication, a crucial approach used in tissue engineering.	5
Bed-Bound Exercise Equipment	Innovative way to keep bed-bound patients active during hospitalization or at-home bedrest.	3
3D printed hand	For our exhibit, we are designing a full scale, moving, 3D printable prosthetic hand using OnShape and Arduino.	5
Producing and Delivering Insulin	This exhibit will cover how insulin is currently pharmaceutically produced and delivered, as well as ways that this process can be innovated.	4
Raynaud's Disease glove	Raynaud's Syndrome causes decreased blood flow to the fingers when they get cold and affects over 200,000 Americans every year. We designed a glove to help combat this.	6
Anatomical 3D printing	Using modeling software to create anatomically accurate 3D models to better visualize diseases and how these can be used both in medical procedures and education.	5
Sustainable IV Bag	Exhibit will include the ability to make a DIY IV bag, which will be a representation of the researched biodegradable method of choice. The background of the exhibit will contain the research into the biodegradable IV bag on a posterboard to be explained by team members during EOH.	5
Soft Robotic Hand	Using extended reality (XR) technology to control a soft robotic hand and arm in physical space.	7
ASL Translator	Using machine learning, this camera app will be able to translate your signing in American Sign Language into English in real-time!	4
DNA Extraction	DNA extraction, come discover the story behind your physical attributes and see how strawberries hold the key.	3



Various BMES EOH projects presenting. Photos by Evan Ko.

Project brainstorming and preparation began this past September, with team leaders receiving plenty of guidance in team management, project direction, resources, and more from our chapter's Technical Director and team of student EOH Advisers. All projects were developed from scratch by their respective teams, allowing members to delve into topics they found interesting and build their exhibit by gradually moving through the design process.

The Technical Director also organized a Workshop Committee to develop workshops teaching members valuable technical skills (e.g. MATLAB, Arduino), connect them to valuable resources, and train them in public speaking and presentation to large groups of people. All workshops were recorded on Zoom to ensure that remote attendance was possible and that workshops would be recorded to be put on the BAC Website for easy access in the future. All COVID-19 safety guidelines were followed in in-person workshops.

Workshop Title	Date	Attendance
LinkedIn and Resume Workshop	9/1/21	5 attendees
Data Visualization Workshop	10/20/21	14 attendees
WECE Arduino Workshop	11/15/21	35 attendees
Computer Aided Design Workshop	3/1/22	7 attendees
WECE Intro to Hardware Workshop	4/30/22	15 attendees

In addition to workshops, the Workshop Committee also led a year-long build project with 5 members. The aim of the project was to approach a technical build from every track in the Bioengineering curriculum to help members become more experienced in technical knowledge they might not otherwise get due to track limitations, as well as become more well rounded in overall technical prototyping skills. This year, the project was to build a pulse oximeter. Students met with the Workshop Directors to discuss the biological science behind how the oximeter

worked, assemble hardware, and then program each component. The Workshop Directors laid an excellent foundation for the coming years, planning each meeting thoroughly, building an Arduino library for ease of use by the students, and showing a wide depth of knowledge in various fields. The various meeting topics are shown below. All COVID-19 safety guidelines were followed at every meeting.

Meeting Topic	Date
How a pulse oximeter works, the biology behind blood oxygenation level, and how these devices are used.	11/1/21
What hardware will be used to build the pulse oximeter and how it works.	12/4/21
How the microcontroller attached to the hardware will be used and how it will be programmed.	3/5/22
How to program in the microcontroller language and tie the project together.	4/2/22
Build Meeting	4/11/22
Build Meeting	4/24/22
Build Meeting	4/28/22

IV. BMES Annual Meeting

Abstract: Eight undergraduate UIUC BMES members attended the 2021 BMES Annual Meeting. Three attending members were from the executive board, the President, Vice President, and Industrial Relations Director. Three of our members presented during the poster sessions, and many also participated in networking activities at the meeting. Our members also connected with students in other chapters, allowing us to share ideas and ask questions to facilitate the development of all chapters, especially at the student chapter panel. Furthermore, the presentations and poster sessions allowed our members to gain and share insight on current biomedical research, industrial expansions, and graduate school opportunities. In the future, our

chapter would like to increase our presence at the conference. We would especially like to increase the number of students from our chapter who present research. This year, our chapter secured funding from campus resources and the national BMES organization to cover approximately 40% of the travel and lodging expenses, and we hope to gain even more funding next year to send more members to the annual meeting.

Attendance

The following undergraduate students attended and participated in the 2021 BMES Annual Meeting as representatives of the UIUC BMES chapter:

Name	
Iksha Handa	
Grace Huberty	
Amy Lee	
Phil Liang	
Luke Nelson	
Brendan O'Rourke	
Thomas Tran	
Taylor Wills	

Technical Track

Our attendees represent a diverse group of undergraduate researchers, each representing a unique field of biomedical research. Listed below are titles of each presentation or poster.

Name	Presentation or Poster Title
Amy Lee	Disruption of Muc5b Expression Leads to Chaotic Mucus Flow
Phil Liang and Thomas Tran	Improving Interactivity in the Virtual Environment - A Soft Robotic Hand Utilizing Computer Vision and Pneumatics



Above are a few photos of our members at the 2021 Annual BMES Meeting.

V. Future Directions

Abstract: The UIUC BMES chapter has several goals for the coming year that will continue to help grow our chapter and better serve our members and the biomedical engineering community. Future directions for our chapter include continuing to increase attendance and member retention across our event offerings, improving new member comfort, increasing the field of study diversity, and providing more opportunities to members in volunteering, technical programs, and mentorship.

Membership Growth and Retention

Our chapter plans to continue to work to increase member participation. Our Director of Recruitment will continue to plan recruitment events to kick off the year and stay in constant contact with younger members to encourage their presence. We also intend to increase communication between the executive board and chapter members to ensure that we are constantly improving and cultivating events that our members are interested in. This will be achieved through more formal methods, such as surveys, as well as informal and casual conversations with members, which will also allow us to get to know members better. We hope that learning about our membership and tailoring our events accordingly will in turn increase attendance and member participation in our chapter.

Mentorship

As members become more comfortable meeting in-person, we hope to expand our mentorship programs to involve more students. Connections between underclassmen and upperclassmen provide valuable opportunities for advice, growth, and future networking. We hope to increase participation in and commitment to this mentorship program by offering more events and activities for mentors and mentees specifically, and we plan to encourage mentors and mentees to attend our general meetings and other events together. We also would like to expand our professional mentorship program to include professionals with less common career paths and connect more students with professionals in their chosen field, such as industry, medical school, or graduate school.

New Member Comfort

The executive board realizes how crucial new member involvement is to the future success of our organization. We also recognize how difficult the transition from high school to college is and how difficult joining new clubs can be. To ease this transition, the executive board is planning to have an event for new members at the beginning of the fall semester in which we will explain in depth how the club operates, what member expectations, responsibilities, and time commitments are for activities that we offer, and explain many of the commonly used acronyms. It is our hope that by explaining many of the frequent sources of confusion early on, new members will feel more welcome and excited about the opportunities within our club. We also plan to have more programming at the beginning of the year for first-year students only, allowing them to meet other students in their year who are sharing their experiences at a new school. This will also give the executive board an opportunity to connect with the younger members, encourage their involvement, and allow the board to become more approachable in the future.

Field of Study Diversity

A vast majority of the members within our club are Bioengineering students. Although expected, we recognize that there are many other students in other fields with an interest in Biomedical Engineering such as biology, chemistry, mechanical engineering, industrial engineering, material science and engineering, nuclear engineering, electrical engineering, and more. In the workforce, biomed companies are highly diverse environments, and we would like to better reflect that in our organization. The Director of Recruitment will additionally be responsible for increasing BMES membership outside of the Bioengineering department. This will be accomplished through campus events such as Quad Day (student organization fair) and advertising our club in lectures and newsletters through other departments outside of Bioengineering.

Fostering Community and Expanding Opportunities

As it becomes safer to meet in-person, our chapter currently plans to meet more in-person while still offering a hybrid option for those who feel more comfortable meeting virtually. Our goal is to have one social event per week throughout the year to create a sense of community, whether that is a casual hangout or an activity like ice-skating. In addition to social events, we plan to increase the amount of outreach events and technical opportunities from last year. As more organizations in the surrounding communities of Champaign and Urbana begin to open and welcome volunteers again, we hope to significantly increase our outreach programs. We also hope to offer more technical opportunities and workshops to our members since projects can be completed in-person now.