

Chapter Renewal Document

BMES Student Chapter University of Illinois at Urbana-Champaign

Faculty Advisor Information

Jennifer Amos, Ph. D.

Email Address: jamos@illinois.edu

Teaching Professor Department of Bioengineering

University of Illinois at Urbana-Champaign

Ten Core Student Members Information

Name	Chapter Position	Email Address
Megha Agrawal	President	meghaa3@illinois.edu
Brendan O'Rourke	Vice President	bj05@illinois.edu
Hannah Kapur	Treasurer	hikapur2@illinois.edu
Shreya Gustafson	Secretary	skg6@illinois.edu
Elyse Huang	Director of Recruitment	ehuan4@illinois.edu
Avni Varshney	Industrial Relations Director	avniv2@illinois.edu
Alexander Chang	Technical Director	ac111@illinois.edu
Emily Liu	Outreach Chair	emilywl2@illinois.edu
Reyanna Paul	Social Chair	paul34@illinois.edu
Roxana Haddadian	Diversity, Equity, and Inclusion Director	roxanaj2@illinois.edu

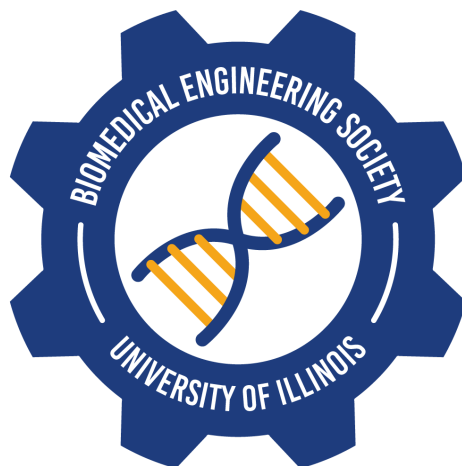
Student Chapter/Department Website Link

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

One Student's Information for Free Membership

New Membership or Renewal?	Email	Name	University	Graduation Year	Gender	Ethnicity
Renewal	meghaa3@illinois.edu	Megha Agrawal	University of Illinois at Urbana-Champaign	2025	Female	Asian

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



Chapter Development Report
Biomedical Engineering Society, UIUC Chapter
May 2023-May 2024

Primary Author

Lucy Nash
Outgoing Chapter President
BMES, UIUC Chapter
2023-2024
Phone: (708) 495-1128
E-mail: lnash4@illinois.edu

Secondary Author

Megha Agrawal
Incoming Chapter President
BMES, UIUC Chapter
2024-2025
Phone: 2172002286
E-mail:
meghaa3@illinois.edu

Chapter Advisor

Jennifer Amos, Ph. D.
Teaching Professor,
Department of
Bioengineering
University of Illinois at
Urbana-Champaign
Phone: (217) 333-4212
E-mail: jamos@illinois.edu

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 2023-2024 academic year. We have continued many of our development opportunities for members in the areas of career exploration, industry professional networking, mentoring, community outreach, technical projects and workshops, and social events. We also had a Diversity, Equity, and Inclusion Chair on our executive board for the first time this year, which allowed our members to think deeply about inclusion in STEM and celebrate international holidays. Some of the key future directions of the UIUC BMES chapter focus on membership growth and retention of students from diverse areas of study, expanding outreach opportunities, and creating valuable mentorship networks. 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 1, 2024

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.

The University of Illinois BMES chapter continues to expand our community impact with our activities, whether it is working with children in the Champaign-Urbana area or fostering connections among university students. This year, the University of Illinois at Urbana-Champaign (UIUC) BMES chapter expanded the diversity of majors of its members, including biology and several engineering disciplines. The society hosted 8 general meetings with industry speakers and several professional development opportunities; a plethora of options for social gatherings, such as a barn dance, semi-formal, picnics, and crafts; 5 technical workshops with training in MATLAB, Python, and Wetlab knowledge; and many outreach opportunities such as Genome Day and Bioengineer Your Impact. We were also pleased to launch our Diversity, Equity, and Inclusion position this academic year, providing our members with opportunities to learn about diversity through movies, open discussions, and holiday celebrations. The majority of our events were hosted in person, which allowed for connection and engagement among members.

While the UIUC BMES chapter had a very successful year, we have plans to continue to improve. We would also like to update our website and newsletter to make them more intuitive as well as increase promotion of our events on social media. Finally, we would like to continue to expand our social and professional mentoring programs. These programs have already grown a lot in the past year, and we hope that the strong mentor-mentee relationships built this year will continue in the future.

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

Sincerely,

Lucy Nash
Outgoing President

Megha Agrawal
Incoming President

Jenny Amos, PhD
Faculty Advisor, UIUC BMES

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I. Administrative Report

Abstract: The 2023-2024 UIUC BMES chapter executive board consists of ten officers. Officers were elected at the end of the Spring 2023 semester and nearly all officers served for the entirety of the 2023-2024 academic year, including the preceding summer. The Director of Recruitment willingly stepped down from their duties in the Spring 2024 semester for personal reasons. Per our chapter bylaws, each officer is responsible for a specific set of duties throughout the school year. The executive board meets weekly to organize events and opportunities for our members. Event planning and chapter decisions are made during the executive board meetings, making them integral to the success of our chapter. A weekly newsletter of upcoming events and important updates is sent out by the secretary after each meeting 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. The President appointed assistants to upkeep the duties of the Director of Recruitment. Our membership consisted of 91 paid UIUC BMES members.

Executive Officers 2023-2024

President: Lucy Nash (lnash4@illinois.edu)

The president is responsible for supervising the chapter's affairs and activities, representing the chapter to external students and organizations, and presiding over executive board meetings.

Vice President: Aidan Rogers (aidantr2@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: Hannah Kapur (hikapur2@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: Ashley Sung (asung8@illinois.edu)

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

Industrial Relations Director: Megha Agrawal (meghaa3@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: Abraham Alkhatib (aaa26@illinois.edu)

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

Outreach Chair: Emily Liu (emilywl2@illinois.edu)

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

Social Chair: Brendan O'Rourke (bj05@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: Madison Fanning (mf39@illinois.edu)/Lucy Nash (lnash4@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.

DEI Chair: Ainsley Hanner (ahanner2@illinois.edu)

The DEI chair is responsible for planning and executing events that highlight different cultural and

Membership

The Department of Bioengineering at the University of Illinois at Urbana-Champaign is composed of approximately 400 undergraduate students. A majority of our 91 paid members are bioengineering undergraduates, but we also have members from other disciplines, including but not limited to computer science, biology, undeclared engineering, materials science and engineering, 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.

Meetings

General Meetings	Date	Description	Attendance
General Meeting #1	8/23/23	Introduction to our chapter & presentation from Sequence Inc.	54
General Meeting #2	9/19/23	Presentation from AbbVie	34
General Meeting #3	9/27/23	Presentation by Veeva	15
General Meeting #4	10/18/23	Presentation by Genentech with UIUC BMES alum	12
General Meeting #5	11/2/23	Presentation by Psyonic with UIUC	22

		alum	
General Meeting #6	11/7/23	Presentation by Bristol Myers Squibb with UIUC BMES alum	17
General Meeting #7	2/6/24	Presentation by Sequence Inc.	17
General Meeting #8	3/6/24	Presentation by Ontogen Medtech with UIUC BMES alum	24
Executive Meetings			
Executive Meeting #1	4/25/23	Transitioning logistics (new board)	10
Executive Meeting #2	8/19/23	Expectations and board setup	8
Executive Meeting #3	8/27/23	Review of expectations, brainstorming semester ideas	10
Executive Meeting #4	9/3/23	DEI event planning, mentoring programs	10
Executive Meeting #5	9/10/23	BMES Annual Meeting planning and funding	9
Executive Meeting #6	9/17/23	Committee applications and selection	10
Executive Meeting #7	9/24/23	Social event planning, budget	8
Executive Meeting #8	10/1/23	Volunteering event planning, fall social event planning	9
Executive Meeting #9	10/8/23	Final Annual Meeting planning, career fair support	10
Executive Meeting #10	10/15/23	Annual Meeting recap, DEI event planning	8
Executive Meeting #11	10/22/23	Setting up inter-chapter relations, discussing other chapter events	10

Executive Meeting #12	10/29/23	Grad school workshops, tech planning, barn dance sales	10
Executive Meeting #13	11/5/23	Funding troubleshooting, EOH, Purdue BMES meeting debrief	10
Executive Meeting #14	11/12/23	Ongoing event planning	8
Executive Meeting #15	11/26/23	End of semester planning, EOH, mentorship program planning	6
Executive Meeting #16	1/14/24	Planning for Spring semester	7
Executive Meeting #17	1/21/24	Semester plans, Director of Recruitment expulsion vote, interim positions discussion	10
Executive Meeting #18	1/28/24	Interim position appointment, semester event planning	9
Executive Meeting #19	2/4/24	Room assignment troubleshooting, BYI and workshop planning	8
Executive Meeting #20	2/11/24	Professional development event planning, banquet planning	7
Executive Meeting #21	2/18/24	GM planning, BYI, barn dance and semi formal planning	8
Executive Meeting #22	2/25/24	Executive board applications open, continued large social event planning	8
Executive Meeting #23	3/3/24	Outreach event planning, EOH	9
Executive Meeting #24	3/17/24	BYI and elections planning, mom's weekend event	9
Executive Meeting #25	3/24/24	BYI finalizing, DEI event brainstorming	9

Executive Meeting #26	3/31/24	Executive board elections planning, EOH finalizing	8
Executive Meeting #27	4/7/24	Annual banquet planning, EOH debriefing	9
Executive Meeting #28	4/14/24	Final elections prep, annual banquet preparations	8
Executive Meeting #29	4/21/24	Preparing for new executive board, reading day event planning	9
Executive Meeting #30	4/28/24	Transitioning with new executive board, wrapping up the school year	9

Acronyms used above in Meeting Descriptions

Acronym	Meaning
BYI	Bioengineer Your Impact- outreach event hosted every spring for high schoolers
EOH	Engineering Open House- college-wide demonstrations of engineering projects
GM	General Meeting- internal club meeting

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) is used by the treasurer to handle large reimbursements, and the Credit Union Bank Account is used for everyday use and small reimbursements. We are currently trying to lower a surplus in our accounts, which is why we have a negative net income for this academic year. This negative cost was covered by the surplus of \$8079.00 at the start of the 2023-2024 school year. The primary form of income for our chapter is membership dues, which we surpassed our goal. This year we 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 company sponsorships to cover the expenses for events and to develop partnerships with other RSOs to further membership.

Financial Summary

Account	Current Balance	Description
BIOE	-	Must receive approval from the BIOE department to withdraw from the account.
RSO	\$3643.22	Turn in voucher forms to the RSO office for reimbursements; deposit money at the Henry Administration Building.
Credit Union - Savings	\$5	Must have at least \$5 at all times.
Credit Union - Checking	\$1945.00	Uses checks; mainly used for small-scale reimbursements.
Total	\$5588.22	

Balance Sheet

Income

Category	Amount	Description
Dues	\$1365.00	Chapter Dues are \$15; 91 paid UIUC BMES members
Corporate Sponsorship		No corporate sponsors
Other	\$4044.00	Engineering Council funding and SORF Funding
Total Income	\$5409.00	

Expenses

Category	Amount	Description
Meetings	\$4409.12	General Meeting expenses, Career Development

		session expenses, Banquet, BMES Conference funding
Social Events	\$1271.39	Includes picnics, intramurals, etc.
Outreach Events	\$750.09	Middle school visits, Bioengineer Your Impact, etc.
Technical Development	\$2686.75	Engineering Open House, workshops, Make-A-Thon 2024 participation, design competitions, media, etc.
Total Expenses	\$9117.35	

Totals

Total Income	\$5409.00
Total Expenses	\$9117.35
Net Income	-\$3708.35

III. Chapter Activities

Abstract: The UIUC BMES chapter offers our members a wide variety of activities including social, technical, professional, and outreach opportunities. We hold events at least weekly but typically two to three times per week. We are a highly supportive chapter that aims to help its members grow, so mentoring opportunities are available to 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 or Other Activities

Abstract: The UIUC BMES chapter has organized a large number of social, technical, and DEI events for our members throughout the year. This year, we offered events such as game nights, happy hours, craft tutorials, coffee chats, and study breaks. Many of our social events are well attended and provide a great opportunity for our members to develop friendships within our community. The UIUC BMES chapter also hosted several technical workshops and projects to give our members the opportunity to improve their technical skills, such as using MATLAB and

CAD. Additionally, we introduced our Diversity, Equity, and Inclusion (DEI) Chair position this year. We were excited to offer our members diverse opportunities to learn about other cultures and communities through movie nights, presentations, discussions, and crafts.

Kicking-off the School Year

To commence the fall semester, UIUC BMES hosted our annual fall picnic, which also doubled as a tailgate for the Illinois vs Florida Atlantic football game. We barbecued, played spikeball and volleyball, and painted canvases all while getting ready to cheer on the Illini Football team.

Fall Picnic/Football Tailgate	9/23/2023	25 undergraduates
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Fall-Themed Events

During our first semester, BMES held two fall-themed events: visiting the local Curtis Orchard, and carving/painting pumpkins. At the apple orchard, members picked apples, explored the pumpkin patch, and enjoyed fresh doughnuts and apple cider. Pumpkin carving and painting was also a popular event and allowed members of our chapter to showcase their creative side.

Curtis Apple Orchard	10/07/2023	15 undergraduates
Pumpkin Carving & Painting	10/28/2023	5 undergraduates



BMES Members at Curtis Apple Orchard

Barn Dance

BMES co-hosted a Barn Dance with several organizations on campus, such as Engineering Council, Society of Women in Engineering, and Tau Beta Pi. Members of all organizations were

able to interact with each other and enjoy a night of dancing off-campus as a way to de-stress from midterms.

Fall Barn Dance	11/10/2023	50 undergraduates
Spring Barn Dance	03/23/2024	50 undergraduates



BMES members at Barn Dance

Happy Hours

BMES members were invited to join a happy hour with the Society of Women Engineers (SWE) and Material Advantage, two engineering organizations on campus. We additionally hosted two 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.

September Happy Hour (1)	9/8/2023	10 undergraduates
September Happy Hour (2)	9/15/2023	5 undergraduates
October Happy Hour	10/6/2023	10 undergraduates
March Happy Hour	03/29/2024	10 undergraduates

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. Additionally, we had therapy dogs at both events. We were very pleased with the turnout for both of these events as attendance was much higher than in recent years.

Fall Reading Day Event	12/7/2023	60 undergraduates
Spring Reading Day Event	5/2/2024	50 undergraduates



UIUC BMES members at Spring Reading Day

Coffee Chats

To increase student-faculty relations, we hosted coffee chats with professors. These events allowed students to interact with their professors in an informal setting, and get to know them beyond the classroom setting.

Coffee Chat with Dr. Ansari	10/9/2023	25 undergraduates
Coffee Chat with Dr. Griebel	11/14/2023	15 undergraduates

Engineering Semi Formal

BMES was invited to the College of Engineering's semi-formal event to end the academic year.

Engineering Semi	04/06/2024	10 undergraduates
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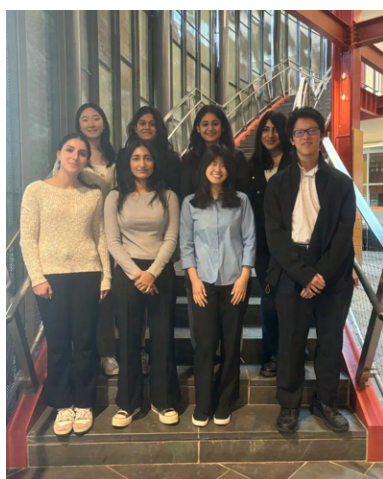
Games, Crafts, and More!

Over the academic year, our chapter planned events such as cookie decorating, movie nights, crafts, and trivia. These events were designed to allow members to take a break from their studies and decompress.

BMES Jeopardy	10/20/2023	20 undergraduates
Cookie Decorating	2/13/2024	10 undergraduates
Movie Night	11/16/2023	5 undergraduates
Valentine's Day Crafts	2/16/2024	5 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 year, we were happy to continue this tradition of our chapter by hosting the banquet on April 20, 2024, at the Siebel Center for Computer Science. We provided lunch and refreshments for our attendees. The event was hosted by the Director of Recruitment. During the event, we highlighted the accomplishments of each executive member and their committees, recapped the year in a slideshow, awarded the volunteer of the year award and senior chords, and introduced the new Executive Board. 5 seniors were given graduation cords for superior involvement and bettering the club as a member. Professors Holly Golecki and Ali Ansari were in attendance and gave talks to our members about their academic journeys and research. 30 members were in attendance.



'24-'25 BMES Executive Board (left) and '23-'24 BMES Executive Board (right) in attendance at the banquet.

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. The year marks the 102nd edition of EOH at UIUC.

This year, UIUC BMES had 10 teams with 42 total members. Members from several different majors across campus outside of Bioengineering participated, including Biology, Chemistry, Systems Engineering, Neural Engineering, and Computer Science. EOH planning began in early October. Across the board, there was a strong representation of young teams of freshman and sophomores, most being their first year-long personal project. Among the teams that competed, Operation Station, who 3D-printed organs and coded an AI algorithm to detect them, won first place for outstanding undergraduate research. We are very proud of their achievement, and to continue BMES' streak of awards at EOH.

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

Project Name	Description	Members
AlphaFold	The goal is to create an experiment with AI in order to find the shape of a protein based on a specific amino acid sequence or chain. The deep learning system will allow us to identify and perform predictions of protein structures. We want to identify protein components in order to link amino acids to activity in the body of an organism.	5
DNA Origami	An interactive exhibit where participants can learn about the structure of DNA and add a piece onto the final structure themselves! We will CAD a structure that is able to hold the origami pieces so it will still stand even if the origami is not super neat.	4

Diabetic Retinopathy Identification with Machine Learning	Explore how AI can automate diabetic retinopathy identification.	3
Sleep Cycle Classification Through ECG	Demonstrate how ECG can be used to analyze sleep cycles.	2
EMG-Controlled Prosthetic Hand	Construct a mechanical prosthetic hand with articulated joints that can be controlled by a wearable EEG device, similar to how projects in the past have controlled games with an EEG.	4
Medicinal Analysis of Natural Compounds	Creating an exhibit with profiles of five natural ingredients (Lion's Mane, ginger, garlic, ginseng, and chamomile) in traditional medicine, including pictures from microscopy to present their cellular structures. We will explain why certain ingredients are used to treat certain ailments and what components that are visible in their cellular structures make these ingredients good candidates for treating illnesses. We will also explain how some natural ingredients are used in medicines and how they are administered in the body and potentially theorize possible medications for some illnesses.	2
NeuroGame	Demonstrate the Brain Computer Interface (BCI) in a game-like fashion.	3
Operation Station	The goal is to create a computer vision model for carrying out a cyst removal from a synthetic skin model. This project aims to explore potential interests and build a working prototype for an automated surgical robot.	9

<p>Robotics Controlled Baritone & Saxophone</p>	<p>This upcoming EOH we're looking to bring back the saxophone prosthetic, but make it better. Big things to work on include making a PCB for the EMG and actually 3D printing the servo/saxophone scaffold.</p>	<p>6</p>
<p>Strawberry DNA Extraction</p>	<p>Teach kids about what DNA is, how to extract it from strawberries, and why it is important. Team members will learn the procedure and practice narrating the experiment at an age-appropriate level. Meant to be simple but super fun. Great project for first-year students.</p>	<p>4</p>



2024 EOH Teams

Technical Committee

Along with EOH, the other branch of Technical development in BMES is its technical workshops, which are run by the Workshop Committee. We hold workshops throughout the year to develop valuable technical skills (e.g. MATLAB, Python, Data visualization, Wetlab techniques), connect them to valuable resources, and train them in public speaking and presentation to large groups of people.

Workshops are listed below:

Workshop Title	Date	Attendance
Professional development and Career fair 101	9/10/23	5
Python Data Visualization	10/17/23	5
Introduction to MATLAB	02/08//24	20
Scientific communication - Research posters	03/21/24	9
Introduction to Wet Lab Techniques	4/17/24	7

Diversity, Equity, and Inclusion Events

DEI events and the DEI chair position were started this year to support members in engaging with additional cultures, identities, and much much more on the UIUC campus and in the surrounding area. This also helps to build a more inclusive culture within our chapter on campus. As an organization, we held several types of events, including craft nights related to holidays, movie nights, a discussion-based event series (entitled “Belonging in BMES”) to help educate members on topics related to DEI, and an outing to a DEI-related event in the surrounding community.

Event Title	Date	Attendance
DEI Town Hall	9/5/2023	10 undergraduates
CU Pridefest	9/30/2023	3 undergraduates

Belonging in BMES: Disability	10/23/2023	5 undergraduates
Hispanic Heritage Celebration (Movie Night)	11/1/2023	5 undergraduates
Diwali Celebration	11/14/2023	9 undergraduates
Movie Night: The Immortal Life of Henrietta Lacks	2/22/2024	1 undergraduate
Belonging in BMES: Inclusion in Research	2/28/2024	3 undergraduates
Ramadan Craft Night	4/8/2024	4 undergraduates
Identity Collages	4/25/2024	2 undergraduates

B. Inter-chapter Activities

Abstract: We once again 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 next year.

C. Outreach Activities

Abstract: The UIUC BMES chapter is very involved in the general Champaign-Urbana community and on campus through our commitment to service. This year, we organized and participated in a wide variety of events on and off campus with several aims: introducing younger students to STEM and biology, promoting the unique opportunities UIUC BioE provides, and contributing back to the community and other philanthropic causes. Our chapter also held its eighth annual Bioengineer Your Impact Event, a day aimed at inspiring and educating high schoolers about the field of bioengineering and its impact on society. Over the past few years, the BMES Volunteering Team has slowly phased out due to low turnout and scheduling difficulties– volunteer turnout at events has generally remained constant with or without the team. Next year, we hope to increase our volunteer turnout, find creative ways to volunteer within our community, and partner with more local organizations to increase impact.

STEM Events for Youth

Throughout the year, we had events specifically targeted towards introducing youth audiences to STEM. At the beginning of the year, we volunteered at Genome Day, which is an annual event hosted by UIUC’s Institute of Genomic Biology. This year, Genome Day took place on two

separate weekends. At both events, volunteers were stationed at different booths and conducted activities to teach young children, as well as other members of the local community, about biology. We hosted one event with the Champaign Public Library, where our volunteers led a microscopy-based puzzle activity. Next year, we plan to prioritize more events to form stronger connections in the community. This year also marked the start of a new partnership with Leal Elementary School. Student volunteers from BMES served as mentors to students at Leal in a month-long program and helped elementary students prepare projects for the school’s first science fair in several years. Volunteers met with their elementary student mentees weekly and helped present at the science fair. We hope to foster this connection in the coming years and continue to expand the program.



Volunteers at the IGB’s Genome Day

Genome Day	10/28/2023 & 11/04/2023	15 undergraduate volunteers total
Champaign Public Library Magnification Activity	10/25/2023	5 undergraduate volunteers
Leal Elementary School Mentorship Program	01/15/2024 – 03/07/2024	10 undergraduate volunteers

Campus-Wide Events

This year, BMES Outreach also participated in several large-scale events across the UIUC campus. At the start of the year, we volunteered at iHelp, which is a campus-wide day of service, generating around 4,500 hours of service each year. Our volunteers were specifically assigned to volunteer at Salt & Light, a local center dedicated to fighting poverty in the Champaign-Urbana community. We also participated in Illini Fest, a new event this year dedicated to bringing in hundreds of high schoolers and families to learn more about the Grainger College of Engineering. Our volunteers helped educate guests on the Bioengineering major, answered guests’ questions, and also led interactive activities related to the major with guests. Finally, we

collaborated with UIUC’s Society of Women Engineers in their new event, Empowering Students in Engineering, which was dedicated to bringing in high school students to learn about different engineering majors on campus. We worked with several other major-specific RSOs to host interactive games and seminars. Overall, we greatly expanded our connections with other organizations and administrative bodies on campus through participating in these large-scale campus events.



Student volunteers at Illini Fest



Student volunteers at iHelp

iHelp	09/30/2023	4 undergraduate volunteers
Illini Fest	10/14/2023	4 undergraduate volunteers
Empowering Students in Engineering	10/21/2023	2 undergraduate volunteers, 20 high school attendees

Reaching Outside of Champaign-Urbana

Our chapter also focuses on trying to expand our impact beyond just the Champaign-Urbana community. This year, we focused on fundraising for the American Cancer Society to contribute to their resources. We organized two fundraisers at popular eatery locations on campus and also tried to increase the social aspect of these fundraisers, and 20% of the proceeds were donated to ACS. In the future, we hope to diversify the events and causes we organize for this branch of events and also find new ways to get more student participation in these events.

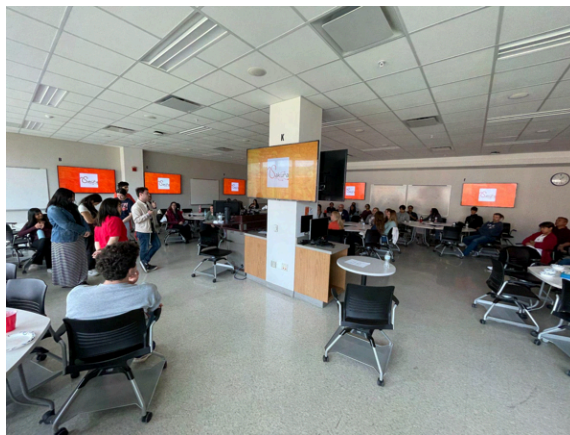
Mia Za's Fundraiser	12/4/2023	\$27 raised
Latea Lounge Fundraiser	2/29/2024	\$40 raised

Bioengineer Your Impact

Bioengineer Your Impact is a day-long event dedicated to teaching high school students about biomedical engineering, and what specifically the UIUC program has to offer. BYI consists of guest speakers, hands-on activities, and tours of our different facilities. This year, guest speakers consisted of Dr. Susan Leggett and Dr. Ali Ansari, both Teaching Assistant Professors in the Department of Bioengineering. Both presented their background and journeys in Bioengineering, as well as their current research. Our industry speaker this year was planned to be Priya Kumar, a current senior in the department. While she, unfortunately, had to back out due to a last-minute emergency, we were able to give a brief presentation on her start-up company, Sakura MedTech, which is working to develop efficient and ergonomic new technology for gynecological exams. Our hands-on activities this year focused on adapting content from actual BioE undergraduate courses offered at the school and ranged in concept from tissue engineering to biomaterials and surgical planning. We also collaborated with a lab to design an experiment for attendees. This year was the first year we organized a tour of the Carle Illinois College of Medicine Jump Simulation Center, which features different advanced technologies for immersive learning. In between our activities and talks, we provided lunch for attendees and had multiple rounds of Q&A from which attendees got to hear about student life, courses, work-life balance, and other related topics. This year's BYI had record attendance, almost tripling attendance from previous years, and attendees had very positive feedback. Our outreach efforts to different high schools in the state started much earlier in the year, and we also reached out to significantly more high schools than in the past. This year was also the first year we made a sign-up option specifically for students already admitted into UIUC who were interested in learning more about their admitted major or interested in transferring, and we had a significant portion of admitted students register. This year's BYI was a great success, and we hope to continue growing our reach in the upcoming years.



Student attendees and their guests touring the Jump Simulation Center



Student volunteers at our Bioengineer Your Impact, presenting at the student panel

Bioengineer Your Impact	3/30/2024	10 undergraduate volunteers, 27 high school students, 23 parents/guardians
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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 every volunteering event. This year, as it has been in the past, the committee was divided into three subcommittees: Youth Committee, Campus Committee, and Community Committee, each with delegated responsibilities. This year, an internal publicity chair position was also added in order to streamline the process and ensure we start advertisements for our events early enough.

D. Mentoring Activities

Abstract: The UIUC BMES chapter offers many mentoring activities for our students. The opportunities are designed to allow interaction between underclassmen students and upperclassmen in a meaningful setting. For the eighth year in a row, students could participate in a revamped social 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 long-lasting friendships with the upperclassmen. Additionally, our professional mentorship program connects undergraduate students with alumni in their desired career paths, including industry, graduate school, and medical school. This program has continued since the 2019-2020 academic year and allowed students to practice interviewing and review their resumes or learn overall career advice from successful alumni.

Social Mentoring Program

The UIUC BMES chapter refers to our social mentoring program as “BMES Buddies”. This program is a continuation of last year’s efforts that allow upperclassmen mentors to be paired with freshmen or sophomore mentees in an informal setting. Mentors and mentees were asked to meet at least once a month on their own and were invited to monthly events organized by the Director of Recruitment. Some events from this school year included record painting, fall-themed cookie decorating, and a winter-themed dinner. BMES Buddies 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 mentees to rejoin the program as mentors.

Professional Mentoring Program

The professional mentoring program was started in Fall 2019, meaning that this year was the fourth year of the program. This program allows BMES undergraduate students to get paired with BMES alumni to discuss future career opportunities, resumes, elevator pitches, and more. A Google Form was sent out to BMES general members and several BMES alumni in our database. The initial sign-up form had questions about interests, extracurriculars, and future plans which lets us pair up an undergraduate student with a professional pursuing a career path aligned with their interests. 7 mentors and 12 mentees signed up, with some mentors taking on two mentees. Feedback was positive, but a few mentees provided incorrect email addresses, causing communication issues. To improve, the program plans to implement quarterly surveys for feedback, structured monthly topics for discussion, and more reminders for mentees to engage

with mentors. This year faced a delayed start, so future plans aim to begin in August for better preparation and execution.

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 with 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 aforementioned 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 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

Throughout the year, our BMES chapter hosted presentations by various companies during general meetings, focusing on career prospects in bioengineering. We tailored our approach by including companies of high interest, not limited to local ones due to our hybrid format. Events were held in person with Zoom-based watch parties for remote recruiters, maintaining engagement with dinners often sponsored by companies. We diversified opportunities across bioengineering tracks like cell and tissue, therapeutics, and more, aligning with prevalent industry sectors such as medical devices and pharmaceuticals.

We featured University of Illinois BMES alumni sharing workplace insights and hosted new non-local companies, facilitated by our hybrid setup. We also had an entirely new company representative come to speak with us with which we had no prior connection. We hope to continue our relationship with these companies and expand our network. Psyonic and Ontogen Medtech detailed their journeys and products, while AbbVie, Veeva, Genentech, and others outlined job openings. These industry leaders provided networking avenues, resulting in members securing internships and full-time roles. Our goal is to sustain these partnerships, expanding our network for future opportunities.

Meeting Type	Date	Description	Attendance
General Meeting #1	8/23/23	Introduction to our chapter & presentation from Sequence Inc.	54
Resume Review	9/6/23	Resume Workshop with Engineering Career Services	14
General Meeting #2	9/19/23	Presentation from AbbVie	34
General Meeting #3	9/27/23	Presentation by Veeva	15
General Meeting #4	10/18/23	Presentation by Genentech with UIUC BMES alum	12
General Meeting #5	11/2/23	Presentation by Psyonic with UIUC alum	22
General Meeting #6	11/7/23	Presentation by Bristol Myers Squibb with UIUC BMES alum	17
General Meeting #7	2/6/24	Presentation by Sequence Inc.	17
Resume Review	2/8/24	Resume Workshop with Engineering Career Services	5
General Meeting #8	3/6/24	Presentation by Ontogen Medtech with UIUC BMES alum	24

Career Resources

Because the campus career fair is critical for many students to receive internship and full-time job offers, we once again shared 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 advice for messaging recruiters through the career fair platform, and how to more effectively leverage LinkedIn.

Career Development Workshops

Working with Engineering Career Services, the Office of Undergraduate Research, and the deans of the college, we hosted career development events this past year. For each of these events, we were able to bring in speakers from the College of Engineering to share insight on how to navigate preparing for post-secondary education or new jobs. These sessions gave members valuable tools to help prepare themselves for industry and further education. We also focused on helping members gain research experience on campus and in summer programs where they could develop technical skills, useful for both industry and academia.

Date	Description	Attendance
11/1/23	Grad School Application Workshop with Rice University Department of Bioengineering	4
11/15/23	REU Application Workshop with the Office of Undergraduate Research	11
2/29/24	Carle-Illinois College of Medicine Info Session	5
3/5/24	Cold Emailing Workshop with the Office of Undergraduate Research	3
3/20/24	Tour of the Institute for Genomic Biology	7
4/3/24	Carle-Illinois College of Medicine Student Panel	5

LinkedIn Group

The [LinkedIn Group](#) was created last year. Currently, there are 186 members. This year, we focused on adding our seniors to the LinkedIn group to increase our alumni network. The LinkedIn group provides another opportunity for current members and alumni to network and find career opportunities. The LinkedIn group will only continue to grow and provide lasting benefits for its members.

E. Societal Impact Activities

Abstract: The UIUC BMES chapter is incredibly excited to be hosting the 7th Medical Device Make-A-Thon with Oklahoma University, which was previously held by the University of Texas San Antonio. This 48-hour challenge is available to teams from multiple universities across the

country, providing undergraduates with the unique experience of designing and prototyping their own novel medical device.

The goal of the Medical Device Make-A-Thon is to support aspiring biomedical engineering students with a passion for medicine. This dynamic competition serves as a platform for students to apply classroom-acquired skills and acquire new proficiencies associated with medical device design. Furthermore, it provides an unparalleled opportunity for participants to connect with fellow students and industry professionals operating within the field. Through the competition, we aspire to guide each participant through the entire design process, from ideation to a potentially marketable device. Participants will acquire valuable skills such as investor pitching and navigating regulatory processes, all while expanding their professional network. Last year, this event hosted about 200 undergraduates. We cannot wait to report on the outcomes of this event in the next CDR.



UIUC BMES Members at the 2024 Make-A-Thon

IV. National BMES Meeting

Abstract: Five undergraduate UIUC BMES members attended the 2023 BMES Annual Meeting. Two attending members were from the executive board: the Technical Director and the Social Chair. One of our members presented during the poster sessions. 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. Furthermore, the presentations and poster sessions allowed our members to gain and share insight into 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 to cover approximately

80% 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 2023 BMES Annual Meeting as representatives of the UIUC BMES chapter:

Name
Brendan O'Rourke
Abraham Alkhatib
Walker Rickord
Arion Dey
Rene Mohammadi

Technical Track

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

Name	Presentation or Poster Title
Abraham Alkhatib	An Optimized Mobile AI Platform for Remote Cardiovascular Disease Detection and Risk Prediction: ECG-Air V3



Above are a few photos of our members at the 2023 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, incorporating more diversity, equity, and inclusion initiatives, improving new member comfort, increasing the field of study diversity, and providing more opportunities to members in volunteering, technical programs, and mentorship. Our goals for the upcoming years are outlined below, along with our strategies to achieve them.

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. The Director of Recruitment will additionally be tasked with visiting common underclassman classes to present on BMES and informally invite underclassmen to upcoming events. 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.

Diversity, Equity, and Inclusion (DEI) Expansion

Beginning this previous academic year, the UIUC BMES chapter has implemented a DEI Chair executive board position. Throughout the year, our new chair has shaped the position to hold events centered around media and crafts from other cultures, which have been well received by our members. Our goal for next year is to continue to solidify the expectations of this position and begin to implement events that can eventually become traditions for our chapter and its members. In the future, we would like to expand DEI events to go beyond cultural awareness to areas such as sexuality, gender, and more to continue to foster an inclusive environment in the UIUC BMES chapter. We would also like to invite speakers to share their stories with our members centered around diversity and inclusion in biomedical engineering to ensure that the matters that are discussed are coming directly from the individuals who are impacted.

Mentorship

We hope to expand upon our current professional and social mentorship programs to involve more students. We intend to maintain our “BMES Buddies” program to continue to foster connections between underclassmen and upperclassmen. These connections provide valuable opportunities for advice, growth, and future networking for all parties involved. 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 plan to maintain involvement in BMES Buddies year-round by hosting mentorship-specific events regularly. 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 fields, 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. We hope to increase membership outside of the Bioengineering department through campus events such as Quad Day (student organization fair) and advertising our club in lectures and newsletters through other departments outside of Bioengineering.