

Associated Students of Biomedical Engineering

Biomedical Engineering Society, USC Chapter

2025 Renewal Document

A. Faculty Advisor's Information

- a. Name: [REDACTED]
- b. Email Address: [REDACTED]

B. Ten Core Student Members Information

Name	Chapter Position	Email
[REDACTED]	BMES Liaison	[REDACTED]
[REDACTED]	Vice President	[REDACTED]
[REDACTED]	Community Chair	[REDACTED]
[REDACTED]	Viterbi Liaison	[REDACTED]
[REDACTED]	President	[REDACTED]
[REDACTED]	Secretary	[REDACTED]
[REDACTED]	Mentorship Chair	[REDACTED]
[REDACTED]	Social Chair	[REDACTED]
[REDACTED]	Makeathon Jr Committee	[REDACTED]
[REDACTED]	Makeathon Committee	[REDACTED]

C. Student Chapter Website Link: <https://www.asbmeusc.com/>

D. One Free Student Membership Information

New Membership or Renewal	Name	Email	Company/Institution/University	Graduation Year	2025-26 Chapter Position
Renewal	[REDACTED]	[REDACTED]	USC	2026	President

Associated Students of Biomedical Engineering at the University of Southern California



2024-2025 Chapter Development Report



The Associated Students of Biomedical Engineering (ASBME) at USC is an entirely student-led organization with a core purpose of providing enrichment opportunities to all BME students. Our organization maintains a balance between **skill refinement, mentoring, community involvement, professional networking, and social events**, in order to provide a diverse selection representative of the BME field. The 2024-25 academic year has given us the opportunity to launch new initiatives designed to complement existing programs within ASBME. Our biggest effort has been developing a new **Technical Workshop Series** to provide hard skills to students that build off of knowledge obtained in curriculum. These (bi)monthly workshops include topics such as CAD and circuit design, and culminate in real-world, hands-on projects. Most notably, in our flagship event, the **Make-A-Thon**, over 100 participants worked to design a functional medical device in under 48 hours. Students were able to apply skills from the technical workshops to achieve this goal, as well as interact with ASBME and industry workers to gain valuable feedback and guidance. We expanded the capacity for members to support the community through **Make-A-Thon Jr.** – our newest event, focused on advancing the abilities of underrepresented high schoolers, where 15 of our students mentored 36 high schoolers, passing on the fundamentals of what they learned in their BME studies. These initiatives – and more contained in this report – aim to support our members' growth and development and create a generational impact across the BME community.

Co-Authors: [REDACTED]

Primary Email: asbme.president@gmail.com

Secondary Email: [REDACTED]

714.624.1833 | 808.228.5574

Chapter Advisor

March 31, 2025

Dear BMES Student Chapter Award Committee Members,

It is my pleasure to share with you here the accomplishments of the Associated Students of Biomedical Engineering (ASBME) at USC, for which I serve as the faculty advisor. Over the past year, I have seen this organization develop greatly beyond their foundation, which was already very strong. ASBME is dedicated to improving the experience of all USC BME students. Towards this mission, they have expanded opportunities to promote collaboration with the department, with leaders in the biomedical industry, and with our local Los Angeles community.

ASBME's biggest step towards this goal has been the launch of their new Technical Workshop series to help students learn to translate biomedical principles into applicable skills. A common point of feedback from students is a desire to learn more about real-world engineering projects that are introduced in classes. I am excited to report that these technical workshops have been a great success, solidifying essential tools in the skillsets of our undergraduate population. From CAD to electronics, many high-yield topics were covered, including a workshop series on data science to keep pace with the rapid growth of artificial intelligence and machine learning.

A manifestation of these workshops came during their annual "Make-A-Thon," a weekend-long competition where students built a functional medical device prototype. The complexity of the solutions proposed were indeed representative of the knowledge gained over the past year. Additional mentorship from industry professionals further honed these skills and transformed these students into career-ready engineers. I look forward to the expansion of this program, and its continued translation to the outreach event "Make-A-Thon Jr." for local high school students.

ASBME also expanded beyond skills-building through various networking opportunities. At the annual BIOMED Research Symposium, students presented posters showcasing their current research and spoke to research faculty, including myself, about our labs. In the Coffee Chat and lab tours series, students spoke with professors in even smaller groups about their day-to-day workflow. Targeting labs that were actively seeking students greatly improved match success rates. For industry positions, the Fall Networking Night and company-specific information sessions featured over 10 major BME companies, including Medtronic, Edwards, and Gilead.

Throughout the year, ASBME has made great progress and grown immensely. However, as more annual events are added, there is a need to focus on improving the Executive Board structure through the addition of Internal and External Vice president positions. Hopefully, this will facilitate a scaling up of club events and membership, while allowing continued collaboration.

ASBME has truly worked diligently to support the BME student body at USC, ensuring that they are well-equipped with skills and connections to pursue a variety of career paths. Our department is proud to support such an essential organization, and I have great admiration of all that they have accomplished in the following report. Thank you for your consideration.

Sincerely,



Table of Contents

05 **Administrative Report**

11 **Treasury Report**

14 **Chapter Activities**

15 Social or Other Activities

18 Inter-Chapter Activities

19 Outreach Activities

26 Mentoring Activities

28 Industry and Professional Development Activities

36 Societal Impact Activities

39 **National BMES Meeting**

41 **Future Directions**

Administrative Report

To support consistency and quality for our over 100 members, ASBME is led by a 17-member Executive Board, with each member responsible for a specific realm of events and tasks, some involving further sub-committees as necessary. The Executive Board meets on a weekly basis to communicate planning progress, as well as to deliver action items where overlap of responsibilities may occur or additional assistance may be needed. The minutes of each meeting are recorded within the meeting's agenda and stored in the comprehensive Google Drive, which also includes a master calendar spreadsheet containing every major and minor event. Any important announcements from board members are communicated via our weekly emailed newsletter, and then again in person at our weekly meetings.

To promote openness and transparency, ASBME hosts two annual open Executive Board meetings, primarily aimed at individuals seeking to serve a term on the board. We also hold an annual constitutional review meeting in the spring to keep the core of the organization up to date with the people around it.

Additionally, members of the Executive Board utilize transition documents to record helpful notes during their term in order to guide the incoming board members. These documents are handed down in one-on-one transitional meetings at the end of the year, and are supported by additional documents from the position in the drive, which spans over **10 years of information** to draw from.

146 Student Members | 16 National Members

ASBME Board Responsibilities

Position	Name	Responsibilities
President		Oversees all chapter events and board members
Vice President		Oversees financial details, and outreach and industry events
Secretary		Oversees chapter communication
Treasurer		Oversees chapter funding and account management
BMES Liaison		Oversees attendance to the BMES conference and inter-chapter events
Clinical Chair		Oversees annual Health Fair and regular medical events
Community Chair		Oversees Project in a Box and Make-A-Thon Jr.
Corporate Chair		Oversees relations with industry contacts and networking events
Freshmen/Transfer Representatives		Acts as liaison for freshmen and transfer members
Membership Chair		Oversees chapter membership and activity
Mentorship Chair		Oversees mentor-pair activities and alumni relations
Public Relations Chair		Oversees media accounts and merchandise design
Research Chair		Oversees professor relations and lab-based events
Social Chair		Oversees social events within the department and school
Viterbi Liaison		Oversees technical workshops and department contacts

Executive Board 2024-2025



Lauren Tomita
President
Senior



Jaron Kawamura
Vice President
Junior



Caitlin Sheetz
Secretary
Senior



Avery Gonzales
Treasurer
Senior



Alessandro Tasso
Corporate Chair
Senior



Dominic De La Torre
Community Chair
Sophomore



Lauren Pickard
Social Chair
Senior



Sara Wittig
Mentorship Chair
Senior



Claire Schulze
Mentorship Chair
Sophomore



Cedric Bagwell
Mentorship Chair
Freshman



Maya Andres
Membership Chair
Sophomore



Nicholas Dorgan
BMES Liaison
Sophomore



Audrey Lau
Viterbi Liaison
Junior



Catherine Hartman
PR Chair
Sophomore



Alara Berkmen
Research Chair
Junior



Mia Montiel
Clinical Chair
Senior



Amelie Tangtam
Freshman Rep
Freshman

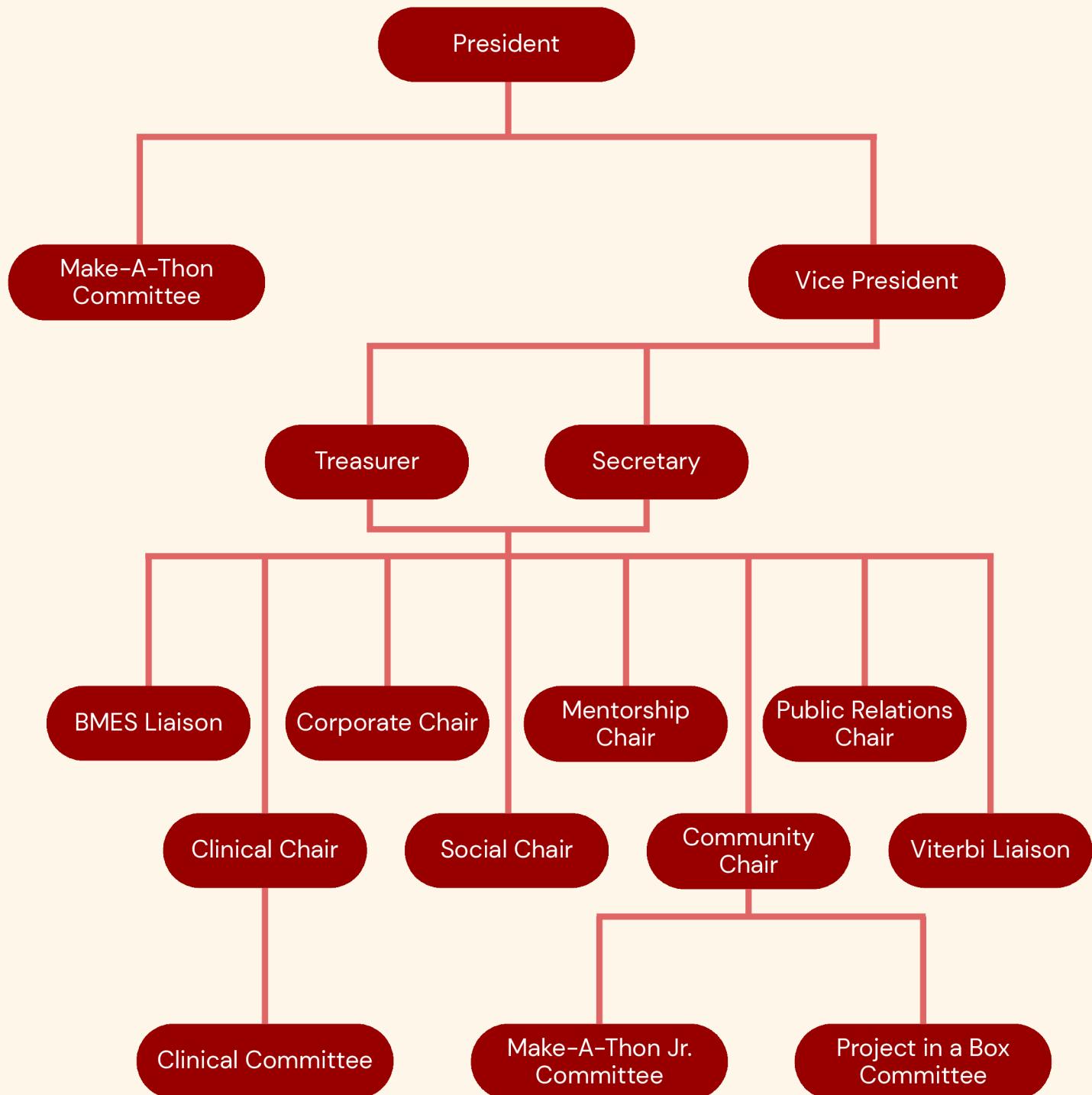


Natalia Vilela
Freshman Rep
Freshman



Vedika Kothari
Transfer Rep
Sophomore

ASBME Board Management Overview



USC ASBME Meetings

General Meetings

At the start of each semester, ASBME hosts our GM O meeting, which is a 'welcome' general meeting where we discuss the club's activity and ways to get involved. Though all of our meetings are open to all general members, these two meetings specifically are meant as an introduction to our organization, and is accessible to anyone who is interested in what we have to offer.

GM O.1 (Fall)

Date: 9.10.2024 **Attendance:** 52

This was ASBME's first event of the year where we introduced our organization and the various events we host. The ASBME Eboard discussed the programs including corporate networking sessions, research dinners, socials, community outreach initiatives, mentoring events, and our new technical workshop series! This was an opportunity for us to meet the new members, as well as play a Jeopardy game on USC facts. Students met fellow ASBME members and were introduced to our amazing organization.

GM O.2 (Spring)

Date: 1.21.2025 **Attendance:** 50

At our half-way welcome event, we kickoff the spring semester by introducing prospective new members to ASBME. Our president goes through a presentation of the various activities we participate in and how they can get involved. The major events include Make-A-Thon, Make-A-Thon Jr., and the Health Fair. At the end of GM, the students participated in an icebreaker game called Molecules. In this game, students would arrange into groups and get to know each other more by finding something they all had in common. These ranged from favorite pets to favorite classes and even hometowns.

Make-A-Thon Committee Meetings

The Make-A-Thon is our annual flagship design competition. Though it takes place over the course of just 36 hours, it requires months of planning to ensure that it runs as smoothly as possible. Because of this, the President creates and runs the Make-A-Thon Committee, comprised of both Executive Board members and those who are just passionate in helping our organization out.

The committee is further broken down into sub-divisions, with each team having their own specialty: Prototyping and Materials, Toolkit and Marketing, Mentorship and Technical, and Challenge and Logistical. These different groups represent a core aspect of the competition; all committee members also participated in tasks such as brainstorming and outreach.

At each weekly meeting, occurring every Wednesday, each sub-team would provide general updates on their progress, as well as ask the general committee for advice and feedback on different designs or plans they may have drafted the week prior. As the competition weekend approached, the committee meetings transitioned from planning to execution, such as by categorizing the materials in inventory or preparing the space for the competition.

Executive Board Meetings

The ASBME Executive Board Meetings occur on a weekly basis, directly after that week's general meeting or specialty event. This time scheme allows immediate feedback for that week's event and ensures consistent attendance and participation from the Executive Board. During these meetings, board members are able to provide updates and communicate action items for the coming week.

Additionally, ASBME hosts 2 "open" Eboard meetings throughout the year – one in the fall, and one in the spring. These meetings give the chance for general members to attend our meetings and see what the organization is like behind the curtain. Additional details regarding these meetings are contained in the Outreach section of this document.

For a typical executive board meeting, the general structure of the meeting's agenda is as follows:

Old Business

- Feedback/problems from previous events

New Business

- Coverage requests for upcoming events

General Reminders

- Urgent announcements for the entire board

Question of the Week

- Bonding activity for Executive Board

Position Speakout

- Updates, announcements, or topics of discussion per position

Treasury Report

ASBME maintains a balanced budget in order to sustain and expand its valuable services for its members. The board carefully plans the budget, seeks out grants and funding sources, and manages expenses, all of which is led by the Treasurer and assisted by the Vice President. The budget plan is constantly reviewed and adjusted based on current expenditures and income sources.

The main sources of funding come from chapter dues and sponsorship from the Alfred E. Mann Department of Biomedical Engineering, the Alfred Mann Institute at USC, and Genentech. Beyond this, ASBME has started hosting multiple fundraising events throughout the year, as well as supplementing funding sources via applications to USC's Undergraduate Student Government, Academic and Cultural Assembly, and Viterbi Funding Board, all of which grant funding to student organizations for individual events.

We seek to expand our corporate sponsorship portfolio in the future, and have prepared a document that includes our funding proposals and corporate contacts, waiting for administrative approval. This year we have already begun fostering relationships with large and small companies through corporate informational sessions and networking events.

We hope to grow this initiative by creating closer ties with these companies and any sponsorships they are able to provide. By using the sponsorships for larger scale events, university funding can be diverted to improve the quality of our serialized professional development meetings.

Chapter Expenses Breakdown

Overview of withdrawals and deposits by event category

Event Type:	Withdrawals:	Deposits:
Administrative		
Fundraisers		
Social		
Community Outreach		
Mentorship		
Industry and Professional Development		
Total		
		Net Change in Balance:

Overview of External Funding

Source:	Amount:
[USC] Viterbi Funding Board (VFB)	
[USC] Academic Cultural Assembly (ACA)	
[USC] BME Department	
[USC] Student Organization Support (SOS)	
[USC] Undergraduate Student Government (USG)	
Genentech	
Medtronic	
Total	

Fundraisers

Flea Market

Date: 10.17.2024 **Net Amount Raised:** \$223

We collected spare or undersized clothes from members of our Executive Board and hosted a pop-up market right off of USC's campus. Because we were right next to the gates, we caught much of the foot traffic of students walking to and from class. Proceeds from the event funded our Make-A-Thon Jr. for local high schoolers, and extra clothes were donated to the LA General Hospital and fire relief efforts after the event had concluded.



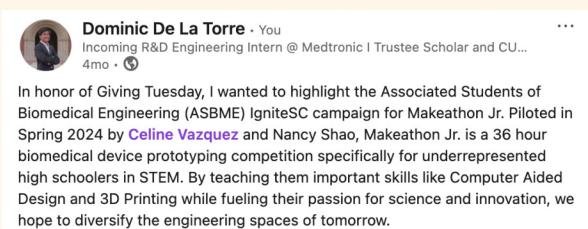
Ignite Campaign

Date: 12.1.2024-3.29.2025 **Net Amount Raised:** \$1,339

ASBME's first Ignite campaign sought to continue raising funds for our annual Make-A-Thon Jr. event. Because of the community aspect tied closely to the event, this Ignite campaign reached out wide across the Los Angeles community to seek donors who were willing to support our efforts.

To promote the fundraiser, we made promotional videos, flyers, and disseminated information across social media and school-based channels. Because of these funds, we were able to afford high quality materials and equipment for high schoolers to use during the competition, opening the gateway of STEM to the next generation.

We hope to continue and expand this fundraising effort in the future years, as we foresee that it will be a sustainable measure for keeping our outreach events alive and supporting the community that has done so much for us.



This year, I have the incredible honor of planning our second annual Makeathon Jr. However, to run another successful iteration of this competition, we need your help to cover prototyping materials, food, and venue costs for over 50 participants. If you are eager to help our efforts in setting up another Makeathon Jr., please navigate to our fundraising campaign link below! Thank you!

Consider donating today!
<https://lnkd.in/gp9AhX4v>

Pictured: Makeathon Logo, ASBME PIAB Initiative, ASBME 2024-2025 Executive Board



Total Amount Raised: \$1562

Chapter Activities



USC's BMES Chapter hosts a wide variety of **social, outreach, mentorship, professional, academic, and technical events** to provide our undergraduate students with every opportunity to fully explore the scope of biomedical engineering.

Our social events are effective at introducing students in a casual setting, forging relationships outside of the classroom between people who may have never interacted otherwise. Beyond beach days and boba runs, the Engineering Grand Ball is our largest social event of the year, **bringing 300 students from all engineering majors** under a single roof to celebrate our diverse community.

Our outreach events work to spread our knowledge and resources to underrepresented and underserved communities in South Los Angeles. Our primary outreach program, **Project-in-a-Box**, where we deliver hands-on weekly STEM lessons to local elementary schools, and our **Health Fair**, providing free diabetes screenings and blood pressure readings to dozens, also offers valuable service opportunities to our members.

Our **mentorship program** pairs upperclassmen with underclassmen and provides opportunities for each member to get to know each other and share their unique experiences. We offered individualized events for growth, Q&A panels for underclassmen, and an alumni mentorship program for advice on life-after-graduation.

Our professional events, including **Fall Networking Night** and **Corporate Information Sessions** give students the opportunity to interact and network with representatives from industry leaders, leading to direct internship offers at companies such as Medtronic and Abbott. Similarly, our academic events, lab tours, and coffee chats connect students with prospective labs to secure valuable research positions.

Our **newest Technical Workshops** act as a collection of knowledge, where students teach each other essential practical skills through a project-based learning system that has solidified the concepts of what makes a productive biomedical engineer.

It can be difficult and disorienting to enter this major unguided. The culmination of these events aims to support both new and veteran students by providing an outlet for building a social network, a professional network, an academic network, and by being just a place where one is able to do anything they put their mind to.

Social or Other Activities

The importance of social events cannot be understated in a major so heavily inundated with academic work and networking. While these are vital to a person's professional success, it is equally necessary to build a community to shape well-rounded individuals. Our many social events allowed ASBME members to meet other people within their major – people undergoing the same challenges as they are – and find a common ground for bonding and lasting friendship. For newer students especially, these social events were an introduction to places and people who will stick with them throughout their time at USC. These events always included a fun treat and activity, often concluding with a flow into natural conversation amongst all attendees.

We also encouraged interdepartmental interactions with other engineering majors by hosting larger scale events. We worked closely with AiCHE (the chemical engineering society), given the similarity of our majors, and lead the Engineering Grand Ball, which hosts peers from all majors. These experiences took members outside of the realm of BME into the larger world, offering interactions with people they will likely find themselves working alongside long term. It can be easy to get lost in the weeds of engineering, so by having these events, we encouraged our members to socialize with one another, as this ultimately makes us more effective engineers.

Interdisciplinary Events

ASBME prides ourselves in not only being a key organization for BME students, but also one that extends across engineering disciplines at USC and beyond. These events allow us to reach outside our comfort zone and build a long-lasting community for all our members.

Thanksgiving Dinner

Date: 11.21.2024 **Attendance:** 54 (35) **Cost:** \$694.28

Before heading to Thanksgiving Break, the Thanksgiving Dinner provided a social opportunity for all biomedical engineers to strengthen friendships among themselves, as well as with their fellow chemical engineers from AiCHE, enjoying some food and each other's company. This is our annual celebratory event that marks the nearby ending of the fall semester. Many chose to indulge in tacos and pumpkin pie, while some also chose to partake in Just Dance and karaoke hosted afterwards. Festive card making and fall decor also invited people into the Thanksgiving spirit. We are extremely grateful for this event's success.

Engineering Grand Ball

Date: 2.21.2025 **Attendance:** 300 (42) **Profit:** \$312.50

The 3rd Annual Engineering Ball was another huge success for ASBME and our other co-sponsoring organizations. For the third time, ASBME spearheaded this 300+ person, \$4,500 event by inviting and organizing the other organizations, handling the venue relations and payment, and managing the tasks of the committees such as decorations, DJ, karaoke, and refreshments. Overall, we successfully produced a wonderful and exciting night for all of our peers. Engineering students got to dress up, dance, eat, sing, and take pictures together, celebrating their accomplishments and camaraderie as engineers! We are so proud of the outcome of Ball, as we sold out of tickets, and everyone was evidently joyous throughout the night.

Undergraduate Socials

There is immense value in the connections our members make with each other, whether it be with someone from their class or someone three years apart from them. Socials such as these promote bonding and escape from the stressful lives being a BME major can entail.

Beach Day

Date: 9.14.2024 **Attendance:** 15 **Cost:** \$0

This event kicked off the year, saying a final goodbye to summer by soaking up the sun and playing in the waves! We headed out to Dockweiler beach for an afternoon of fun and relaxation. Members made new friends and connections as they lounged or played Spikeball in the sand. Beach snacks were provided, and swimming was encouraged! This event was an overall success as members got to meet new people in ASBME and build upon their community.

Spikeball + Arts & Crafts

Date: 10.2.2024, 10.16.2024 **Attendance:** 24, 19 **Cost:** \$0

This was a really fun event that gave members a break from midterm season! Members had the opportunity to chat and catch up, play Spikeball, throw frisbee, and pepper with volleyball. Things got pretty competitive as a mini tournament was formulated. Overall, members had a great time hanging out with each other! The event was so successful we decided to run it again for our members with the additional option to create painted rocks while talking about the week. This was a more intimate event for ASBME which really strengthened the bond between our members.

Sweet Treat Walk

Date: 11.19.2024 **Attendance:** 15 **Cost:** \$30

During exam season, ASBME decided to take a mental health break. We all walked together to Insomnia Cookies in the USC Village. We had so much fun sharing stories over cookies! This was a great event to help our major get closer together while de-stressing over a much-needed dessert.

Totebag Painting + Boba

Date: 1.28.2025 **Attendance:** 43 **Cost:** \$235

Leading into the spring semester, we wanted to give our members the chance to get to know other members better. We also wanted to give them a brain break since spring semester starts off harder than fall semester. The tote bag painting and boba night was a huge success. We gave our members free boba from Pot of Cha to drink while they got to paint their own tote bags. Conversations sparked, and people got to see a different, more creative side of their peers as everyone's creations developed. We were super impressed with everyone's creativity and artistic prowess and are so happy with the way the tote bags turned out. Now everyone has a little personalized memento that will always remind them of their friends in ASBME.



ASBME My Valentine

Date: 2.11.2025 Attendance: 40 Cost: \$0

The Dating Game has become a new yearly tradition of ASBME's in order to share the fun and festivities of Valentine's Day with our members! With the Social Chair as the Gameshow host, the President plays the Dating Game with 6 lucky contestants. Each contestant answered questions about themselves ranging from "what movie best represents you" to "what gift would you buy the president if you had \$100." Based on their answers, the President dwindles down the competition until there is one contestant left, the winner! This is a very fun, low-stakes, and humorous bonding event for our members as they get to learn more about each other and more about their President, fostering a more welcome environment in ASBME. Members enjoy Valentine's Day themed snacked as they watch the gameshow go down!

E-board Retreat

Date: 3.1.2025 Attendance: 14 Cost: \$0

The Executive Board Retreat was a great chance for our Eboard to get to know each other better and have fun outside of our regular meetings. Especially since two new Eboard members joined in the spring, this retreat was the perfect opportunity to make them feel more welcomed in the group. The retreat started with a very competitive scavenger hunt drive down from LA to SD. The three cars got to visit beautiful sight-seeing landmarks of San Diego and eat at popular San Diegan spots in order to earn points for their team. Once all the groups got down to SD, we checked into our Airbnb then got to the coast to watch the sunset at Sunset Cliffs. We went out to dinner at Buona Forchetta in Liberty Station, and headed back to the Airbnb for a night of games. Finally, the next morning, we explored Old Town San Diego before heading home. Overall, this short trip brought the Eboard closer together, strengthening our friendships and making us work better as a team.

Freshmen/Transfer Social

Date: 4.1.2025 Attendance: 36 Cost: \$20

Our freshmen and transfer students were invited to enjoy the perfect opportunity to decompress after their BME midterm on the Great Lawn at USC. While there, they were able to meet new people, get to know people they know a bit more, and overall strengthen the budding BME community. Many of the members participated in an intense game of Mafia, while others opted for a quick game of pickup football. This was definitely one of our most successful events yet, and everyone came out meeting someone new with a tight-knit group that we can't wait to see grow even closer together.

Wisdom Tree Hike

Date: 4.5.2025 Attendance: 13 Cost: \$0

Our annual Wisdom Tree hike invites our engineers to touch grass and enjoy the outdoors. The route is a popular hike in LA that took us to a scenic aerial view of the city, allowing us to spot landscapes like Universal Studios and the Griffith Observatory. We found that the true wisdom is the friends we made along the way, and the exhaustion from the hike led us all to a fun get-together at In-N-Out for lunch afterwards! It was a really valuable experience, and we hope that the tradition lasts for years to come.



Inter-Chapter Activities

USC is fortunate enough to be in a location where we are surrounded by other prestigious BMES chapters. Because of this proximity, we have been able to maintain a close connection with the neighboring schools in Southern California, and have been working diligently to plan an in-person event connecting all the chapters together. After our experiences at the BMES Meeting in Baltimore, many members of our chapter had interacted with members from other chapters, and expressed an interest to have at least one cross-collaborative gathering when we returned back home.

Since then, USC has been working in partnership with 9 other Californian BMES chapters in a series of bi-monthly zoom meetings and email chains to plan the BMES Bash, a large single-day networking opportunity, and an event that we intend to carry on in the future years. Beyond this, we have been in close collaboration with UCLA, given the short distance between our schools, in an attempt to plan an event between their winter and spring quarters. We believe that these opportunities to expand our sphere of interaction have the potential to really shape us as an organization, and are useful for building real-life connections that are impossible to find elsewhere.

USC x UCLA Griffith Trip

Date: 4.13.2025 **Attendance:** 23 (8) **Cost:** \$40
Collaborating Chapter: UCLA

We invited UCLA to join us for an event that was long in the works in our club. A trip to Griffith Observatory has been something we have attempted to plan for a long time, so we are glad that it has finally occurred, and even more so that we were given the chance to build new connections and make new friendships. Given our intense rivalry, it was nice stepping outside of our bubble to meet the other side of LA, with keychains handed out as peace offerings. We hope to collaborate more with our neighboring LA schools in the future, especially with the huge success that this event was.

BMES Bash (Upcoming)

Date: 4.27.2025 **Attendance:** TBD **Cost:** TBD
Collaborating Chapters: UCLA, UCSD, UCI, UCD, UC Berkely, Santa Clara, CSU Long Beach, Cal Poly SLO, SJSU

We are joining in collaboration with 9 other BME schools in California for one of the most ambitious inter-chapter meetups beyond the annual BMES Meeting. We are extremely excited for this valuable networking opportunity that we believe will provide priceless connections and memories for all of our members. The event is currently planned to take place at Cal Poly SLO with a packed day filled with a myriad of ice-breakers, correspondence, and overall good times. We hope it will be a bash to remember, and that this is the first of many to come.



Outreach Activities

ASBME's outreach efforts are guided by three core goals. First, we aim to recruit and engage new members through welcome fairs and meetings that introduce students to our mission and activities.

Our second outreach focus reaches beyond campus boundaries and follows the belief that every student deserves access to professional and academic development. Our largest community initiative, the Project in a Box (Piab) Committee, visits local elementary school classrooms, introducing children to biomedical engineering concepts and fostering an interest in STEM fields. Lessons are designed to be fun, hands-on, and replicable with common household items, reducing access barriers to participation. We recently expanded our outreach network to local high school students for our Make-A-Thon Jr., centered around a relatable theme of sports injury and active living.

Lastly, supporting a broader theme of healthy living, we engaged in blood donation drives and will provide free blood pressure and diabetes screenings to our local LA community alongside patient education, in collaboration with the Keck School of Medicine.

While providing a benefit to our community, these rich service opportunities also attract many of our members, even some on co-op, a testament to the fulfillment that these events provide.

Internal Involvement

USC has invited ASBME as an integral organization in multiple intraschool tabling and service events. The target audiences range from prospective high schoolers to college students of any major to even graduate students. This has given us the opportunity to broaden our outreach and exposure greatly.

RSO Tabling Fair

Date: 10.3.2024 **Attendance:** 40 (5) **Cost:** \$0

As a Registered Student Organization (RSO), we advertise our club to fellow students at this in-person fair. We answered questions, provided resources, and helped others realize how ASBME can help them advance their goals, personal and professional. Those interested signed up for our newsletter for future updates.

Viterbi EXPO

Date: 10.20.2024 **Attendance:** 45 (5) **Cost:** \$0

As high school seniors finalize their essays and resumes for college applications, we have the privilege of giving them a preview to all that Viterbi has to offer. With our banner, trinkets, and stickers, we spoke to hopeful students about their interests and how ASBME's vast scope will help them further their goals. From pre-meds to future pacemaker engineers, students and their parents had a casual opportunity to ask their burning questions about what it is like being a Viterbi student and how ASBME enhances that experience. Previous attendees who have since matriculated into Viterbi have expressed that ASBME's involvement in this tabling event led to essays that gained them acceptance and scholarships to the school.

Viterbi Get Connected Fair

Date: 2.3.2025 **Attendance:** 50 (18) **Cost:** \$0

At the Viterbi Get Connected Fair, ASBME shared information about our organization to fellow engineering students. We promoted our various activities including our Make-A-Thon, Heath Fair, and Make-A-Thon Jr. We showed previous devices made in the Make-A-Thon, encouraging young engineers to participate.

Open Eboard Meetings

Date: 9.17.2024, 3.25.2025 **Attendance:** 25, 26 **Cost:** \$0

Each year, ASBME hosts two executive board meetings that are open to all general members. At our first open meeting, the current board welcomes Freshman and Transfer students who are interested in applying for a leadership position to sit in on the executive operations. This helps them see how the board functions and where support may be provided to fellow board members; it also gives the board the opportunity to meet the applicants for the new positions. Additionally, returning general members are encouraged to come to observe and provide input for the club's direction in the coming year.

Our second open meeting is placed to encourage new members to apply for our executive board, with the applications going live shortly after. During this time, prospective Eboard members will get to see what a typical day in a leadership position looks like, including running meetings and discussing upcoming events. This was a great way for younger students to see what leadership roles may look like and for us to encourage them to pursue these positions.

Project in a Box (Piab)

Project in a Box is our most established and developed outreach program at ASBME. Every week, our members visit local elementary schools to teach complex STEM topics in an engaging and easy-to-understand manner. We bring the incredible opportunities BME has to offer to students who may not have previous exposure to STEM, and encourage these students to continue pursuing scientific discovery in both their careers and day-to-day life. This long-lasting partnership with the local schools has proved to be rewarding for all parties involved.

Its semi-weekly time frame gives a level of flexibility that allows students to participate whenever they are available. The typical visit involves 5-7 student teachers for 20-30 students, creating an intimate 4-to-1 teaching environment. The lessons are conducted at a local elementary school in different classrooms, and the complexity of the content is adjusted based on the grade of the class being taught, though the practical demonstrations and exercises are consistent for lessons with the same title. Every lesson has a hands-on component, allowing the students to really engage with the material.

Our most popular lesson has been the extraction of DNA from a strawberry – a new addition to this year's curriculum – since it illustrates a relatively complex topic with simple items one could find around their house. Additionally, to highlight underrepresented voices in science, we implemented a Marshmallow DNA project in honor of the achievements of female scientists like Rosalind Franklin. Both teachers and students alike have given high praise to our volunteer teachers for their execution of this lesson, so much so that additional classrooms at the school have requested it be taught.



Project in a Box Lesson Schedule

Lesson Title	Dates	Description
Skeletal/prosthetic hand with string and straws	9.27.2024 (5 th grade) 10.7.2024 (5 th grade) 1.24.2025 (3 rd grade)	Students learned about different bones in the hand and the motor control mechanisms involved in moving them, including why they begin to deteriorate over time. They were taught about prosthetic limb replacement and designed their own prosthetic hands using strings and straws, with a basic open/close function.
Heart anatomy and heart rate exercises	10.18.2024 (5 th grade) 11.4.2024 (5 th grade)	Students learned about the heart's structure and how the cardiovascular system maintains the flow of blood and oxygen throughout the body. They applied these concepts to their own heart by performing different exercises and calculating their heart rate.
Egg drop challenge and team building	11.18.2024 (5 th grade) 11.22.2024 (5 th grade) 3.13.2025 (3 rd grade)	In this classic competition, students learned about mechanical physics through free fall motion. Tasked with protecting their egg from a 2-story plunge, they used common materials such as cardboard and Styrofoam to create an encapsulation. After the results, the students learned how similar concepts could be applied to biological systems and protective medical equipment such as braces and supports for injuries.
Strawberry DNA Extraction	2.13.2025 (5 th grade) 2.21.2025 (5 th grade)	Students learned the basics of our genetic base code, DNA, and all the information it stores. They learned about different DNA extraction and utilization techniques such as PCR and electrophoresis. After, they performed a simplified version of these procedures using items found in a common kitchen to extract the plant DNA from a strawberry. The results were extremely successful, and each student was able to see the helical string of DNA macroscopically.
Marshmallow DNA x National Women's History Month	3.27.2025 (5 th grade) 4.11.2025 (5 th grade)	In honor of Rosalind Franklin's immense contributions to science and Women's History Month, students delved even deeper into the world of DNA. Building off of the previous lesson, students examined DNA at the molecular level, learning about base pairs, synthesis, and the central dogma. They then built models of DNA with mini marshmallows and red vines, using different colors to represent different base pair combinations.
Balloon Car	4.3.2025 (3 rd grade)	Students learned about Bernoulli's principle, propulsion, and fluid flow, which they used to construct balloon cars from cardboard. They then related these concepts to biomedical principles inside the body such as expanding on the bloodstream discussion from the heart anatomy lessons.
Lesson TBD	5.2.2025	TBD

Total Lesson Cost: \$102.37

Project in a Box Lesson Plan Example

Marshmallow DNA

Project in a Box

Introduction to DNA What is DNA?



What month is it?
National Women's History Month!

Introduction to DNA What are Amino Acids?

Who is Rosalind Franklin?

- Female British Chemist
- Was the first to discover the structure of DNA through X-Ray Crystallography
- Overshadowed by her male peers Watson and Crick



Introduction to DNA What is DNA?

What is DNA?

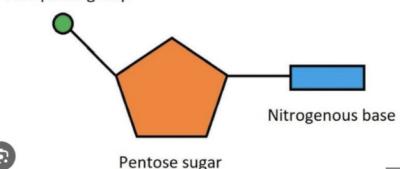
Deoxyribonucleic Acid
Contains all the information that makes us who we are!



Introduction to DNA What is The Structure of DNA?

What is The Structure of DNA?

Phosphate group

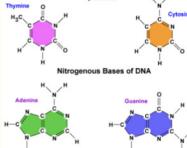


Nitrogenous base
Pentose sugar

Introduction to DNA What is The Structure of DNA?

What is The Structure of DNA?

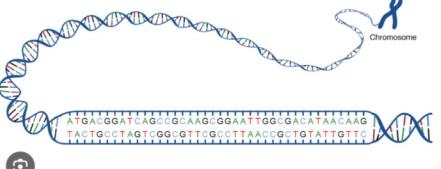
Base Pairing - AT GC



Thymine
Cytosine
Adenine
Guanine

Introduction to DNA What is The Structure of DNA?

What is The Structure of DNA?



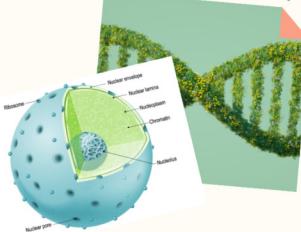
CHromosome

ATGAGGATTCAGTGCAGGGATTCGGGACATAACAG
TACCTGCGCTACTCGGGTTCGCGCTTAACCGCTGTAATTGTC

Introduction to DNA Where does DNA Live?

Where does DNA Live?

The nucleus of the cell!



Introduction to DNA What is The Central Dogma?

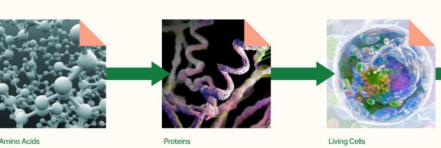
What is The Central Dogma?

DNA Primary Transcript RNA Intermediate/Secondary Transcript Protein Carries out function!



Introduction to DNA Amino Acids & Proteins

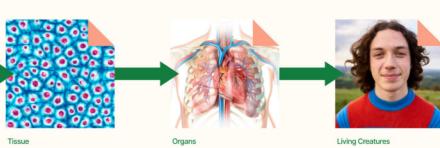
Amino Acids & Proteins



Amino Acids
Proteins
Living Cells

Introduction to DNA Amino Acids & Proteins

Amino Acids & Proteins



Tissue
Organs
Living Creatures

Introduction to DNA Next Lesson

Let's Build Some DNA

With Marshmallows and Licorice!

You can eat our experiment this time :)... but be careful of the toothpicks!!



Make-A-Thon Jr.

Date: 3.29-30.2025 **Attendance:** 36 high schoolers, 15 mentors **Cost:** \$5,957.09

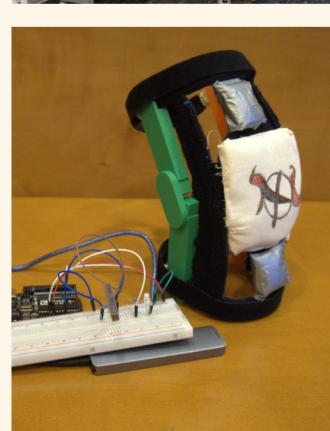
This event marks the second annual installment of this biomedical device prototyping team competition aimed specifically for underrepresented high schoolers in STEM. Students from around the Downtown LA area went through a friendly application process and then were selected to compete in this event. Outreach and involvement of local community members was of paramount priority for this event, so a diverse set of participants were selected from a wide variety of local high schools. Beyond this, materials and food costs of the event were sponsored by Medtronic and the Alfred E. Mann Department of Biomedical Engineering, both of which represent local populations in LA. Because of these sponsors, we were able to not only support this event with the necessary materials, but also support this club with the 3D printers that were donated to us for use during the weekend and for all future events.

On the first day, students were grouped into teams of 6 and were tasked to develop a biomedical/assistive device to help with prevention, monitoring, or rehabilitation of sports-acquired ACL injuries. To better equip them to tackle the problem at hand, the students were exposed to various technical platforms like Computer Aided Design, 3D Printing, and Arduino, each of these taught by current USC students. From there, they worked to build their functional medical prototype within the span of less than 48 hours.

Additionally, college students had the chance to step up as mentors to teams, guiding them throughout the entire weekend design process from ideation to fabrication. Mentors who had previously competed in the ASBME Make-A-Thon in the winter were already familiar with the challenge statement, and were able to provide tailored and developed advice to their teams. This was a lovely opportunity to offer high schoolers an experience that many of us wished were offered at our high schools.

To further promote local resources in the Downtown LA area, we invited Physical Therapists specializing in Orthopedics and Sports Medicine to deliver our keynote speech and reveal the challenge to the students. Since these physicians practice in Los Angeles, there was a close connection with the students, especially in imparting helpful life advice as they make the transition to college. Current BME students and USC alumni were also invited to speak about their experiences as minority students, and how different support networks have helped them to overcome their challenges and hardships.

The idea of Make-A-Thon Jr. was imagined last year as a means to give high schoolers the same opportunities that we as college students get to experience in our annual Make-A-Thon. This goal was far surpassed this year, as all of the devices created were truly a testament to the creativity and intelligence of the next generation of engineers. The judges were very pleased with the unique solutions proposed, and it is clear that all students walked away with enhanced skills – both technical and communicative – that will greatly support them as they enter the next step of their academic career.



Clinical Outreach

As a biomedical engineering organization, many of our members are interested in the clinical applications of biomedical engineering technologies and principles. We have thus expanded our outreach to healthcare and medical engagement initiatives. Such outreach involves assisting local hospitals with niche accessories and going out into the community to promote healthy living choices. Our connections with medical professionals and large student base have given us the means to achieve these objectives and more.

Abbott Blood Drive

Date: 11.21.2024 **Attendance:** 3 **Cost:** \$0

This blood drive was a part of Abbott's larger Big 10 competition to see which school could donate the most amount of blood. Blood drive trucks came to USC's campus throughout the semester to receive blood donations from willing participants, and ASBME worked hard to advertise the event after individuals from Abbott notified us about the competition. Though USC didn't win this year, we are still proud of our small impact to help save lives.

Beanies for Preemies

Date: 4.3.2025 **Attendance:** 15 **Cost:** \$0

Our members collaborated with various other biomedical engineering clubs to knit beanies for premature babies at the LA Hospital. This event acted as a refreshing break in the midst of midterms, while giving members the chance to participate in meaningful service to the community. Many of these babies do not have developed systems to produce enough blood flow to keep them warm, leading to conditions such as hypothermia being extremely likely. These specially tailored beanies – made on 3D printed looms – are a simple but efficient way to solve this unmet need in hospitals.

Blood Pressure Training with the Keck School of Medicine

Dates: 2.20.2025, 3.6.2025, 3.26.2025, 3.27.2025 **Attendance:** 5-10 **Cost:** \$0

To prepare for our annual Health Fair, we held a series of sessions which trained students on taking typical medical assessments that would be useful in a diagnostic diabetes assessment. The assessments involved taking blood pressure (manually), using a pulse oximeter, and performing the 'diabetic foot' test.

For one of the lessons, PA students from the USC Keck School of Medicine visited our campus to teach the skills directly from what they learned in school. This ensured that everyone was learning the most up-to-date method for each topic. The PA students were extremely helpful in providing guidance, useful tips, and insightful advice to many of our pre-medical students.

An additional session was also coupled with a cultural competency training, giving students important perspective in the medical field when taking care of patients. Overall, these skills will be very useful in whichever path they take in healthcare.



Suturing Workshop (Upcoming)

Date: 4.22.2025 Attendance: TBD Cost: TBD

In this hybrid event of Outreach and Professional Development, we will be teaching a hands-on suturing workshop to offer a glimpse into the techniques of clinical procedures and surgeries. This is a great way for attendees to practice dexterity and have fun with a hands-on activity, as well as gain an understanding of the skills required for many medical professionals.

In addition, we will give members the opportunity to practice their blood pressure technique one last time before using it in our upcoming health fair. We hope students will appreciate the hands-on heavy meeting that gives them a safe space to practice and grow in their capacity.

Annual Diabetes Health Fair (Upcoming)

Date: 4.26.2025 Attendance: TBD Cost: \$500

The Diabetes Awareness Health Fair is ASBME'S clinical volunteering initiative, in which undergraduate students will be assisting physicians and physician assistants in screening for diabetes among patients in the community surrounding USC. We have partnered with St. Agnes Catholic Church to host our screening, in which trained students take vital measurements (e.g., blood pressure, pulse oximetry) for a USC-licensed provider to interpret for the patient. During our 2024 health fair, we provided free diabetes screenings to over 75 attendees with the help of volunteer translators. To increase healthcare accessibility, we provided flyers in English and Spanish, educating the community on diabetes prevention and locations of free clinics.

This year, we had planned for the health fair to occur towards the end of March. However, due to unforeseen circumstances, the event will be postponed to the last weekend of April.

The format of the health fair would be very similar to the year prior, but with the addition of the diabetic foot test, as taught in the health fair training series. The emphasis of the fair is on taking blood pressure readings, so that students gain useful experience, and patients will potentially lead healthier lifestyles. Even with the setback, everyone is still diligently practicing their technique for when the event does occur, and we are excited to provide such an important service for our community!



Mentoring Activities

Our mentoring programs offered support for underclassmen adjusting to college life by upperclassmen who were once in their shoes. Both sides of this exchange derive value from the program. At the start of the school year, we carefully paired mentors and mentees based on shared interests, career pathways, and hobbies. We hosted a large reveal party, then individual pairs broke off to learn more about each other. Throughout the remainder of the year, we host regular events designed to promote bonding and frequently check in with pairs to ensure the maintenance of these fruitful relationships.

This year, we performed a second round of pair assignments in the spring, to accommodate transfer students and anyone who missed out in the fall! We hosted events such as pumpkin carvings and sugar cookie decorating to facilitate a relaxing environment for casual conversation. We have also adapted our mentorship model for alumni-student pairs. Our network of ASBME graduates consists of many successful people in industry, medicine, start-ups, and more. By helping our members access this network, we hope that they will become better equipped to pursue their desired engineering career path, and perpetuate the wisdom in their internal mentor pairing!

Mentorship Kickoff: Ice Cream Social

Date: 9.17.2024 Attendance: 21 Cost: \$30

This ice cream social and mentorship event gathered many people to meet one another and find potential mentorship pairs. It was also a great way for ASBME members to forge new friendships at the start of the year. The meeting began with a speed-interviewing icebreaker, followed by a quick introduction into the goals of the mentorship program. After that, we let everyone loose to be social and vibe. People had ice cream and some sweet conversations.

Mentorship Pair Reveal

Date: 10.3.2024 Attendance: 20 Cost: \$20

This event was held on the great lawn, where mentors and mentees had their first opportunity to connect. Attendees enjoyed a relaxing afternoon of bracelet-making, conversations, and laughter while getting to know one another. In addition, each attendee brought a snack that started with the first letter of their mentee/mentor's name for a unique and personalized experience!

Mentorship Pumpkin Carving

Date: 10.30.2024 Attendance: 11 Cost: \$50

Mentor and mentee pairings competed in a pumpkin carving competition at the Village Great Lawn. This was a fun event that gave both mentors and mentees a fun study break during exam season. Mentors and mentees were able to bond and practice their teamwork skills while getting creative with pumpkins. Snacks, music, and the festive atmosphere made the night even more memorable!

Gingerbread House Making

Date: 12.5.2024 **Attendance:** 10 **Cost:** \$50

Los Angeles may not have a White Christmas, but all was Merry and Bright! Mentor and mentee pairings competed in a gingerbread house making competition while watching Home Alone. This was a fun event that gave both mentors and mentees a fun study break during exam season. Mentors and mentees discussed plans for the holidays along with some of their favorite holiday memories. This was a great event to kickstart the holiday season with ASBME!

Cookie Decorating

Date: 3.5.2024 **Attendance:** 15 **Cost:** \$25

This event was a sweet success! New mentors and mentees had the opportunity to gather for a fun and festive evening. Attendees enjoyed decorating sugar cookies with colorful icing, sprinkles, and creative designs. Everyone had the chance to showcase their decorating skills while sharing laughs and great conversations. As we accommodated new mentor-mentee pairings for the new semester, this was a friendly environment for new introductions. The event provided a perfect opportunity to bond in a relaxed and cozy setting, surrounded by good company.

Game Night

Date: 3.5.2024 **Attendance:** 7 **Cost:** \$25

Our mentor-mentee pairs gathered on the Great Lawn to play a variety of board games such as Connect 4, Head Bandz, and cards. Everyone got to know each other a little better, and pairs competed against each other to see who could win the most games in this mini tournament.

Alumni Mentorship Program

Date: N/A **Attendance:** 8 (4) **Cost:** \$0

While many of our mentoring events provide underclassmen with mentorship, we also introduced a program to cater to the needs of upperclassmen, many of whom serve as mentors themselves. The Alumni Mentorship Program connected these students to USC BME graduates who are now professionals in medical device industry, clinical medicine, and consulting.

The alumni pool is extremely diverse and filled with some of the most talented and insightful people any resource has to offer, ranging from Harvard Medical students to leaders at top companies like Medtronic and Abbott. This initiative was created to encourage our members to utilize these connections in their own personal life and gain the experience of someone who has not-to-long-ago been where they were.

This program has been successful, with our students coming out with newfound goals and purposes within the BME field, inspired by their alumni mentors. Even the alumni have remarked that they are so excited to see everyone grow, and that they wish they had this while they were at USC. We hope these connections will persist and provide our members with value in the long term, and look forward to expanding this program!



Industry and Professional Development Activities

ASBME has significantly modified our professional development activities. We retained our enduring corporate event, Fall Networking Night, hosting **over 10 companies** and startups. Beyond this once-a-year offering, we launched a series of 'Corporate Info Sessions,' where recruiters from Abbott, Boston Scientific, Medtronic, Gilead, and Vantage Medtech represented their companies in smaller-scale gatherings, allowing for more intimate conversations and increased efficacy of the recruitment process.

Our new '**Technical Workshop**' series teaches and reinforces the fundamentals of high-demand engineering skills, and guides members on how to tailor their portfolios to appropriately complement their goals. In this 8-session series, we covered CAD, electronics, 3D printing, and Data Science principles, concluding with an orientation on free campus resources to encourage these skills to be practiced through future projects.

Finally, we realize that industry is not the goal for everyone. Hence, we introduced opportunities such as research symposia, medical/graduate school recruiter sessions, and diabetes test trainings to serve those seeking graduate pathways. We are confident that our professional development events effectively equip our students with skills for any field they choose.

Industry Events

The robust biomedical industry is always in search of promising talent to develop the next generation of diagnostics, treatments, and medical solutions. ASBME equips its members with the resources necessary to secure these roles and excel in them, offering networking opportunities, technical skills, and strong communication development.

Mock Networking Night

Date: 9.24.2024 **Attendance:** 50 **Cost:** \$0

This preview prepared attendees to make a lasting impression at the upcoming Fall Networking Night. We helped practice and perfect everyone's networking skills in a low-pressure environment with fellow students and upperclassmen, giving them the confidence to navigate professional interactions smoothly. Attendees received real-time feedback on elevator pitches and answers, helping them feel more prepared for the actual event. In addition, we gave a Corporate Cheat Sheet mini-presentation, where ASBME's Corporate Chair, gave the inside scoop on key companies everyone should know in the biomedical engineering industry. We discussed the most influential players, what they're looking for in candidates, and how to tailor networking efforts to stand out. This presentation provided valuable insights to help attendees approach potential employers with confidence.

13th Annual Fall Networking Night

Date: 9.27.2024 **Attendance:** 121 (92) **Cost:** \$1933.33

ASBME's Fall Networking Night is an annual event inviting recruiters from the biotech and biomedical device industries to interact with ASBME members and adjacent attendees (represented companies include Abbott, Medtronic, Edwards Lifesciences, Boston Scientific, Biomed Simulation, Amgen, Merit Medical, Gilead Sciences, AbbVie, DeciBio, and Takeda Pharmaceuticals). This event has historically led to successful relationships between students and industry mentors, internship offers, and full-time industry positions. ASBME's pillar of professional development is routinely fulfilled by this event.

This year, we had over 20 mentors from 10+ companies, some of which were even ASBME alumni! Students engaged in small group round robin discussions, where they rotated around different tables to speak to recruiters from companies that they were interested in, and learn more about companies they were unfamiliar with. These intimate sessions gave the chance to ask burning questions and make valuable connections with people with whom they may be working in 5 years' time!

After the group discussions, recruiters positioned themselves around the room and students were free to walk around to ask more private connections, exchange contacts, or talk with a recruiter they didn't get to see during the first round. This is the highlight of the event, since the students have the opportunity to have personal time with the recruiters that could significantly boost their chances in entering industry.



Corporate Info Sessions

This year, we started a new initiative to offer experiences similar to Fall Networking Night, but throughout the year! We wanted to give students more of the one-on-one conversations with recruiters, so we invited companies to come speak at our meetings about their work, which was followed by individual networking with the recruiters present. This has been one of our most positively received series, with students appreciating getting to go more in depth about what specific companies are doing in the BME field. All info sessions were completely sponsored by the companies that ran them.

Company	Date	Description
Medtronic Attendance: 40 (17) 	9.26.2024	This event doubled as a resume workshop with Medtronic, one of the world's leading medical technology companies. Attendees were given insight into what top-tier companies like Medtronic are looking for in candidates, how to highlight their skills and experiences effectively, and how to format your resume for maximum impact.
Boston Scientific Attendance: 30 (15) 	11.5.2024	Boston Scientific shared cutting-edge projects in interventional cardiology, neuromodulation, urology, and more. This session provided insights into career paths, internship programs, and further opportunities.
Gilead Sciences Attendance: 35 (18) 	3.11.2025	This event was for those passionate about biopharmaceuticals and cutting-edge drug development. Dr. Osuna from Gilead shared career opportunities in clinical research, manufacturing, and commercial strategy, in addition to general recruitment advice.
Vantage Medtech Attendance: 12 (11) 	4.10.2025	A smaller-scale company, Vantage Medtech, discussed their unique ability to solve niche problems in biomedical device production, scaling, and marketing. Three representatives from the company shared their cutting-edge projects and the nimble characteristics they look for in candidates for a company of their size



Technical Workshops

Previously, students expressed significant interest in engaging with the technical skills required to excel in industry. While they learned much of the theory in class, they felt as if they had no outlet to gain application of these concepts. To satisfy this demand, we implemented an 8-part 'Technical Workshop' Series, covering essential skills in engineering practice. All lessons were geared towards beginner- and intermediate-level students. The total cost of all technical workshops was \$120.

Workshop	Date	Description
Arduino: Pulse Oximeter Attendance: 29	10.1.2024	<p>This was the launch of the 'Technical Workshop' series to help students develop a foundation in their hard skills to prepare for internships, senior design courses, and personal projects.</p> <p>This first workshop teaches the basics of electronic hardware and programming, emphasizing its relevance to medical devices and other BME applications, through an Arduino pulse oximeter mini-project. This expands on the fundamentals of circuitry and Arduino use that all BME students are taught in their first introductory class.</p>
Arduino: Temperature Sensor Attendance: 26	10.8.2024	<p>This workshop was part of the series that teaches the basics of electronic hardware and programming, emphasizing its relevance to medical devices and other BME applications. Through a follow-up to our pilot Arduino pulse oximeter mini-project, students learn how to utilize a breadboard and add elements to a circuit to monitor body temperature. This was a bit more involved due to the elements which comprised the temperature sensor, so there was a strong emphasis on using the theory behind the circuit to support its practical use.</p>



Workshop	Date	Description
CAD: Stent Attendance: 21	10.29.2024	This was the second part of the 'Technical Workshop' series, teaching the basics of computer aided design (CAD) and emphasizing its relevance to medical devices and other BME applications. Through a pencil and rudimentary stent mini-project in Fusion 360, students learned CAD fundamentals: basic shapes, construction lines, smart-dimensioning, sketch relationships, Offset, fully defined sketches, feature commands (extrude, cut, fillet, chamfer), patterns, creating new planes, and Sweep.
CAD: Prosthetic Finger Attendance: 24	11.12.2024	This is the second workshop of the series that teaches computer aided design (CAD). Through a pipette tip box and rudimentary prosthetic finger mini-project in Fusion 360, students learn CAD fundamentals: Pattern, Revolve, Extrude, shapes, repeats, Fillet, joint limits, and assemblies. The final result was a simple block-based finger model that could bend at its joints.
CAD: Rotating Pill Crusher Attendance: 33	12.3.2024	In collaboration with USC's MEDesign club, attendees designed rotating pill crushers! Using the skills gained from the previous 2 CAD workshops, our experienced mentors guided everyone step-by-step using Autodesk Fusion 360 to create a useful at-home medical device as a culmination project.



Workshop	Date	Description
3D printing Attendance: 34	2.18.2025	This was the third part of the 'Technical Workshop' series, teaching the basics of fabrication. Through a workshop and product demonstration hosted with USC's 3D4E club, students learned 3D printing fundamentals: different methods of 3D printing (eg. FDM, SLA, SLS), materials, common considerations, slicing, and tolerancing. Members then had the opportunity to slice their own file and watch as it is printed on the 3D printers
Machine Shop Tour and Spaghetti Tower Attendance: 31	3.4.2025	This workshop was part of the series that taught the basics of fabrication, emphasizing its relevance to medical devices and other BME applications. Students received training to the Innovation Space, a maker space targeting biomedical engineering students at USC, to learn general safety policies and how to use common equipment/tools. After training, they then competed in teams in a fun Spaghetti Tower competition, with prizes for the winners.
Data Science: Breast Tumor Classifier Attendance: 42	3.25.2025	For our final technical workshop, we introduced students to basic data science techniques. Creating a logistic regression model to classify breast cancer tumors as pathogenic or benign, students were exposed to Python libraries such as NumPy, Pandas, and Sci-Kit Learn as well as techniques such as data exploration and gradient descent. From 28 input parameters, the models achieved a classification accuracy of 97%. Students were impressed by the accessibility of machine learning tools and expressed interest in learning more about data science and coding, especially as the field rapidly expands in its applicability to biomedical engineering.



Academic and Higher Education

Research and knowledge advancement lie at the heart of biomedical engineering, and ASBME strives to support the academic endeavors of our members. By providing these platforms, ASBME is helping to cultivate curious engineers grounded in evidence-based thinking.

BIOMED Research Symposium

Date: 9.13.2024 **Attendance:** 52 (48) **Cost:** \$2,075

The ASBME BIOMED Symposium is a premium opportunity for new students in BME to learn about ongoing research at USC. The event featured keynote speaker Dr. Megan McCain, a leader in our department who provided insight on her career and experience as a woman in STEM, as well as three professor features relating to computational modeling, CAR-T cell therapy, and immuno-oncology research, some of which came from USC's medical campus to promote their hospital research program. During the start of the event, nine student posters were presented, seven from undergraduates. Students were given a thirty-minute period after the speeches to network with professors over dinner, allowing them to build a personal connection with any professor whose work sparked their interest.

Lab Tours

Dates: 10.4.2024, 1.23.2025, 1.30.2025 **Attendance:** 6-8 **Cost:** \$0

In a 3-part series, we organized small-group lab tours hosted by student and post-doctoral researchers in a few biomedical engineering labs. In the Stem Cell Training Lab at the Keck School of Medicine, Dr. Menendez shared a peek of the microscopy facilities and newly cultured zebrafish embryos at the Broad Center for Regenerative Medicine. In the Wang Lab, a graduate student showcased premier cellular imaging and CAR-T engineering techniques in the cell engineering lab. Finally, an undergraduate researcher from the Zavaleta Lab showed unique molecular imaging techniques for cancer drugs and therapeutics. Multiple students leveraged these exposures to secure research opportunities of their own within these labs and elsewhere.

Research 101

Dates: 10.15.2024 **Attendance:** 27 **Cost:** \$0

Research 101 introduces underclassmen to research opportunities on campus and runs through a series of scenarios related to receiving their first research position. We discussed cold emailing, work as an undergrad, and how to build up your experience to effectively manage your time in lab. Many students were primarily curious about how to maximize the impact of their lab position on their future goals, so a segment of the presentation was dedicated to opportunities in research such as posters, conferences, and papers. An emphasis was put on having a realistic but optimistic mindset when entering research, as ASBME hopes to be not only a guide but also a resource for professional and personal development, enabling students to excel academically while also taking care of their mental and physical wellbeing.

Coffee Chats

Dates: 2.21.2025, TBD **Attendance:** 11 **Cost:** \$42

Our coffee chat series complements the lab tours, where students can sit with professors for small-group discussions about their work, day-to-day life, and anything other questions they may have. We had an hour-long chat with Dr. Christopoulos, a new neurosurgery-BME professor, in the fall, and students asked about getting involved in his rising lab. In the spring, we have a coffee chat scheduled with Dr. Valero-Cuevas, who is excited to share his fMRI and EMG research for neuromuscular control.

AMCAS Application Overview

Date: 10.22.2024 Attendance: 13 Cost: \$0

This event described the application timeline for a prospective MD student. The presentation included information about the MCAT, types of experiences (clinical, shadowing, research, volunteering, etc.), primary application, secondary application, and interview. This session gave underclassmen an idea of how to reflect on their current activities in order to make the application process easier later on. For upperclassmen, this event gave them logistical information regarding the application process so they could plan ahead for future cycles. Time was intentionally left at the end of the presentation for questions.

Research 102

Date: 2.4.2025 Attendance: 28 Cost: \$0

Expanding on topics discussed in Research 101, Research 102 discusses how to connect with PIs, where to find research positions, and what to do with the position once you have it! Research is important for all undergraduate BME students, whether they want to go into academia, medical school, or even industry. To further demonstrate this, we brought in a panel of current undergraduate researchers representing a diverse range of biomedical engineering labs, including computational biology, nanoparticles, and stem cell research. Additional discussions included sources of funding, crafting posters, and ways to earn a publication.

BME Emphasis Workshop

Date: 2.25.2025 Attendance: 49 Cost: \$162

In one of our most successful events, we hosted a workshop going through the different types of emphases students can pair with their BME degree at USC: mechanical, electrical, or molecular-cellular. These emphases provide different experiences in education, and it can sometimes be difficult for freshmen and sophomores to navigate the academic landscape.

We displayed the different classes and career paths each emphasis offers, and then had a panel with panelists representing each kind of emphasis to answer general questions about their experience within their emphasis, and any advice they may be able to provide to the younger generation. We even had a non-emphasis BME major talk about why it's also okay to not have an emphasis, instead taking a bit of everything and what the benefits of that might be.

Members really enjoyed the panel interaction dynamic and asked a lot of good questions while sipping on their boba. This was extremely successful, and is an event that will have to be reintroduced in the future.

Mayo Clinic Graduate Info Session

Date: 2.27.2025 Attendance: 12 Cost: \$0

A Mayo Clinic representative, Carlos Bravo, visited USC to present to ASBME various Mayo Clinic graduate programs. He gave information about the MD, PhD, and MD/PhD programs, explaining popular research foci, the curriculum breakdown for each program, and statistics on the class profile. At the end, he provided an opportunity for attendees to ask specific questions pertaining to the programs and admissions.

MCAT Workshop

Date: 4.8.2025 Attendance: 24 Cost: \$0

The journey to pursuing medical school is a trying one. In the MCAT Workshop, pre-medical students received tips, studying strategies, useful resources, and encouraging words of wisdom firsthand from an MCAT veteran. How far out should I study? What score should I aim for? What do I do when my score is not what I hoped for? These are all common questions that were answered in this session. The workshop also provided a communal safe space for pre-medical students to bond over common classes and 'the pre-med life,' sharing helpful suggestions to make the load a little lighter.

Societal Impact Activities

In South Los Angeles, ASBME is uniquely positioned to address biomedical challenges, specifically in promoting healthy and active living. Each year, we challenge our members to push their ingenuity in our flagship event, the Make-A-Thon. Over 48 hours, contestants ideated, modeled, and prototyped a working medical device aimed to assist the treatment and recovery from knee injuries. This event was the perfect opportunity to synergize their BME curriculum with skills gained from ASBME's new Technical Workshop series.

Mentors and judges were significantly impressed with many of the designs and teams' consideration for marketability. As these clinicians, engineering faculty, and professionals from Illumina and bio-consulting reside in Southern California, they resonated with the relevance of the challenge. One of the teams, focusing on a device supporting the active lifestyle of young athletes with a knee injury, discussed the potential future development of their product, aiming to compete in the annual BMES Medtronic Design Competition.

Further, we collaborated with the physical therapy program to fabricate a model of lumbar vertebrae. Together, these projects expanded ASBME's impact on the orthopedic space and in creating solutions for active lifestyles.

Engineered Projects of Impact

As Biomedical Engineers, instinct drives us to build. To support healthy living, a pressing health challenge in our local LA community, we employing nimble thinking to the issue of orthopedic knee injuries, which result from active living or movement in the midst of a sedentary lifestyle. These projects and the principles learned will allow for innovation and engineering a more active community.

Lumbar Spine Vertebra Model

Date: Ongoing, weekly check-ins **Attendance:** 6 (5) **Cost:** \$10

Dr. Joseph Derian, a physical therapist at the Keck School of Medicine and one of the judges at this year's Make-A-Thon, reached out to our organization to request oversized models of spinal vertebrae, relevant for visualizing debilitating and congenital conditions that limit patient mobility. This model will also assist with anatomy and biomechanical instruction within the USC Keck School of Medicine, as well as potentially having larger scale applications in terms of patient communication.

As we progressed in this project, we decided to take the model a step further by using a bone-like filament to make the 3D print appear more lifelike, as well as researching materials to simulate a shock absorbing disk that would normally be found separating vertebrae. This expansive project has allowed us to apply biomedical concepts to address a relevant medical problem that inhibits active movement and potentially change lives by guiding the future doctors as they themselves work to solve this problem.



10th Annual Make-A-Thon

Date: 1.31.2025–2.2.2025 Attendance: 114 (84) Cost: \$7504.48

In the Make-A-Thon competition, students are given an obstacle in the medical community and are challenged to develop a prototype device to address this problem in 48 hours in teams of 5-7. Students of all background and all skill levels participate. In fact, the competitors ranged from freshmen to seniors and represented a wide variety of majors, including business, biology, mechanical engineering, computer science, electrical engineering, industrial engineering, and biomedical engineering.

This year's challenge statement was "Develop a device to prevent, monitor, or treat the effects of chronic and acute knee injuries in athletes." As students worked to address the problem, they gained technical skills through workshops on Arduino, CAD, and 3D printing. They had the opportunity to present their solution to a panel of judges at the end of competition. We were fortunate to have judges from the USC Physical Therapy Department, USC Aerospace and Technical Engineering, and UCLA School of Medicine. Because the judges were real industry professionals, they knew which solutions would work, and why certain others would not, so that they could provide personalized feedback to each of the teams by drawing on their experience.

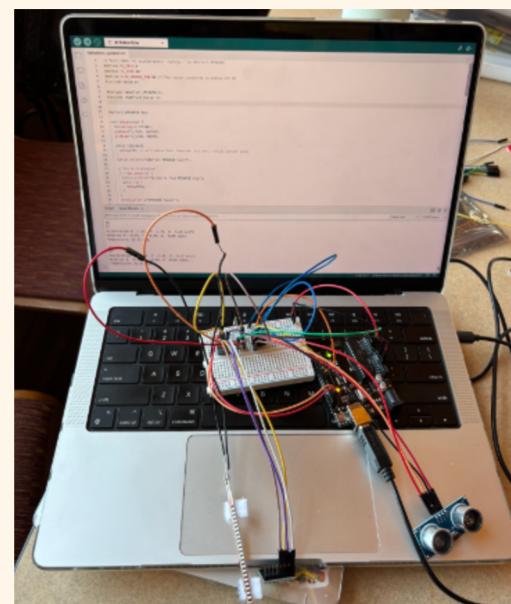
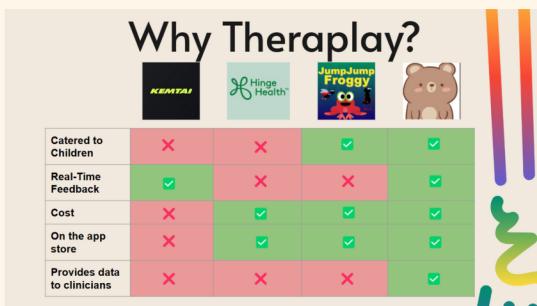
The judges were extremely impressed with this year's winner, Theraplay, noting that if their device was a developed and approved tool, they would likely be using it in their own practice:

"An app that transforms pediatric physical therapy into an interactive game-based app. A sleeve worn over the knee that uses a gyroscope, flex sensor, and ultrasonic transducer in order to measure knee motion. This connects to an app that monitors the patient's knee motion in order to provide data to the physical therapist, while also functioning as a game. As you do your physical therapy exercises you advance in the game, collecting cute avatars. We created the prototype for this device by using Arduino sensors, a repurposed shirt, and by coding a rudimentary app with a cute avatar Gacha feature that could measure your squats!"

- Theraplay

With the resounding success that these devices were, many teams spoke about developing them further, to gain greater experience in engineering through a patient-centric lens. This competition helped students learn in a fast-paced environment that brought out the best that our members have to offer.

We were overly excited to have 100+ people involved in our competition. It really speaks to how important finding these solutions are, and how much we can do even with such little time. With help from mentors, alumni, industry representatives, and the USC BME department, this event was a success and the best yet!



Make-A-Thon Teams

Team/Device	Descriptive Summary
KinetiClip	To minimize post-ACL tear reinjury risk through continuous, cost-effective monitoring of lower limb kinematics to inform physical therapy treatment decisions and recovery strategies, we developed a shoe clip to measure toe-out angle and gait symmetry
FutTekNi	To address foot-knee misalignment, patellar instability, and bow-legs, we developed a gender-neutral device featuring foot support, knee bracing, compression, and an alignment monitor to support athletes with chronic foot-knee misalignment
Clover	As range of movement is limited following severe knee injuries or knee surgery due to muscle atrophy, we developed a device to monitor and strengthen leg muscles following ACL and PCL injuries and surgeries. We prioritized usability, and a discreet, light-weight design
SOCKIT: Smart Orthotic for Competitive Knee Injury Tracking	Since many athletes reinjure their ACL and MCL upon returning to sport, we developed a real-time tracker of knee mechanics with instant patient feedback using a dual gyroscopic model
Kneedless to Say	To treat patellar tendonitis in high-activity athletes, we developed a Patellar Tendon Physical Therapy (PT ^A 2) regimen of isometrics and strength exercises paired with vibration therapy at the patellar site to aid recovery
Kn(ease)	Chronic and acute knee injuries limit mobility, cause pain, and delay return time. We created a knee brace with personalized compression settings to alleviate pain and swelling around the knee
GryoLive	Patients post-ACL reconstructive surgery are more likely to overextend their knees, increasing reinjury risk. We implemented a gyroscopic detection and a buzzer notification for more informative knee brace usage.
Theraplay	Most children do not abide by prescribed physical therapy stretching regimens. We created an app that turns PT into an interactive game, using sensors to ensure proper form and track exercise completion
SmartWalk	Limping is often caused by uneven heel and toe force after knee injuries. We created a monitoring system for the uninjured knee in active young athletes, measuring and comparing the force between the front and back of the foot to give accurate patient feedback.
ADAPT: Automatic, Dynamic, Adjustable, Pressure, Technology	Knee braces are often uncomfortable and bulky, so we developed a brace that increases mobility and treats the effects of patellofemoral pain syndromes in athletes
Neurostride	Since patients, especially women, are more likely to reinjure their ACL after an initial injury, we developed a knee joint fatigue monitor for young athletes recovering from a torn ACL to prevent overtraining-induced reinjury

National BMES Meeting

It was truly an honor to be able to represent our chapter at the National BMES meeting in Baltimore. This year, we had the opportunity to take 16 members from our organization, not including the many professors and graduate students that travelled independently. We pride ourself in travelling with a wide demographic from our organization, not exclusively limited to the Executive Board or to senior members, but to all those who have an interest in attending, and especially those who had cutting research they intended to present.

At the conference, 9 of our members had the opportunity to present their research in poster form, while 2 additional students had the honor of providing a lightning talk – a record number of presenters. Many of our students walked around the posters, listened in on panels and plenary sessions, and attended as many seminars and workshops as they could. We also had a large volunteering presence, with 14 members of our contingent assisting with the maintenance and upkeep of the meeting. Additionally, we were grateful for the opportunity to table at the undergraduate involvement area, and showcase our club off to everyone!

The most exciting part of the conference for our chapter was perhaps connecting with the leaders of other BMES chapters and hatching the plan to have a large get together later in the year, which is extremely close to fruition. Overall, our members were able to learn a lot from the conference and gain a significant level of insight to steer their current professional or academic course.

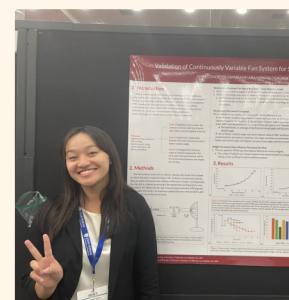
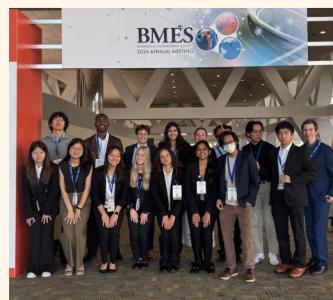
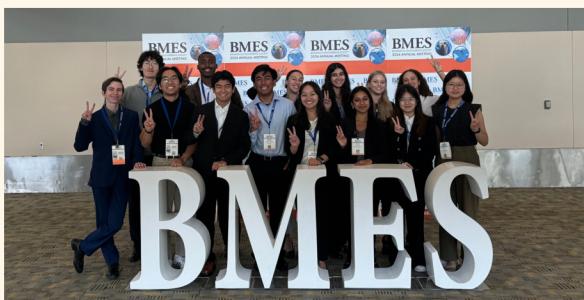
National BMES Meeting Awards and Presenters

Award Name	Year Awarded	Presenter(s)
Commendable Chapter	2023	Anthony Mouchawar and Lauren Tomita
Outstanding Mentoring Program	2022	Sabrina Sy

Goals for Attending Future Meetings

As we look forward to future participation, we have the following goals for the upcoming 2025 BMES Annual Meeting:

- Encourage more students to start planning for the Medtronic Design Competition earlier: Last year, our members found out about this opportunity near the deadline. We will achieve this by encouraging Make-A-Thon teams and independent researchers to start evolving medical products and ideas now, so that they are more likely to have a viable product by the time the deadline approaches.
- Maintain better organization as a group: It would be useful to keep track of each presentation that everyone attends. Due to timing conflicts, some people missed presentations they wanted to watch. If we strategize our attendance, we can better utilize the vast opportunities offered by the conference.
- Have an organized meeting between local BMES chapter leaders: The planning for the California BMES Bash has been relatively successful, but it has also been difficult to find times to meet due to conflicting schedules. Because the date of the event was set with relatively short notice, it prevented some chapters from attending. If a concrete plan is derived at the conference (where everyone is guaranteed to be present), it will make planning the event after the conference significantly easier.



Future Directions

As we close off the 2024–2025 school year, we are proud of how far our organization has come, and how much potential we have moving forward. Though we faced notable setbacks – from university-wide problems with organization registration to federal oversight complications – we have managed to achieve more than our organization ever has in years prior.

From our resoundingly successful Technical Workshop to new collaboration with nearby hospitals, we are taking great strides towards preparing our members for whatever the future may hold. We have fulfilled many of the milestone goals we had set the year prior, and are excited to continue to grow in the coming year.

As the incoming board begins to transition into their roles, outgoing members have started collaboration with respect to our future directions, and where we intend to prioritize our time, resources, and funding to make this organization shine.

The remainder of this section outlines these ideas and hopes to create a near-comprehensive overview of how our past successes will inform our future decisions.

Goals Achieved During the 2024-25 School Year

Our organization outlined 3 major goals in last year's CDR, as follows:

Community Impact

We have significantly expanded our engagement with our local South Los Angeles community through several events, focusing on education and supporting healthy living. Our Project-in-a-Box initiative featured **14 BME-centered lessons** serving classrooms of 20 students each, while our Make-A-Thon Jr. hosted students from **13 local high schools** creating solutions for sports and active injuries.

We furthered our focus on active lifestyle choices through preparations for our Health Fair, which has served over 75 with **Free Diabetes Screenings** and patient education, including **Spanish and Korean translation** services. In collaborations with USC's physical therapy department, we produced models of spinal discs to study injuries plaguing active lifestyles and beanies for **premature babies** who have difficulty retaining heat during their development.

Technical Skills Building

This year, we implemented an **eight-lesson Technical Workshop series**, introducing students to essential techniques in **CAD, 3D printing, Arduino, and Data Science**. It was very successful, drawing strong attendance and positive feedback.

The skills gained during these sessions were implemented in our **Make-A-Thon** event, in which all 11 teams utilized electronics or 3D printing, and even in Senior Design projects. Many workshop participants gave back as volunteers for **Make-A-Thon Jr.**, mentoring high school students with projects of their own.

Corporate Connections

As Med-Tech recruiting timelines shift earlier in the year, we pivoted our corporate networking from a single corporate dinner to company-specific **Corporate Information Sessions**. We arranged sessions with highly demanded companies: Abbott, Boston Scientific, Medtronic, and Gilead.

In a more personal environment, recruiters shared detailed highlights on their companies and available positions, and students had great success in receiving job offers following one-on-one networking. Supplemented with our resume reviews, interview workshops, and **Fall Networking Night**, our industry offerings to our members have been very effective.

Outline of Chapter Expectations for the 2025-26 Year

Keeping in mind our successes, the incoming board has collaborated to set the following 3 goals as the primary directives for our organization in the coming year:

Increase Research Engagement and Opportunities

We plan to expand our coffee chats and lab tour series, creating increased opportunities for students to get exposure to potential labs. While 'Research 101' meetings at the beginning of the semester help to orient underclassmen in finding research opportunities, we plan to create a toolkit to achieve the positions they are interested in.

Our BIOMED symposium in the fall will continue to offer students an opportunity to present their research, and we plan to invite more professors who are actively recruiting students. We hope that this will facilitate more success in pairing students with research opportunities that fit their interests.

Expand Technical Skills Building

We held our first year-long Technical Workshop series this past year, but we seek to delve deeper into teaching these essential engineering skills. We will restructure the workshop series to be directed towards a final product, providing a goal for increased engagement throughout the series.

Since our audience was primarily underclassmen, we will shape the lessons for an introductory audience. We plan to hold a showcase at the end of the year for students to present their progress in CAD, 3D printing, and electronics skills. These skills will prove invaluable in senior projects and future careers, and in a more immediate timeline, our Make-A-Thon competition in the spring.

Increase Clinical Impact and Opportunities

The popularity of our Health Fair and manual blood pressure trainings have demonstrated a high level of clinical interest among our membership. We plan to expand our clinician network to create opportunities for shadowing, mentorship, and collaborative projects.

Maintaining close relationships with clinicians will provide connections for keynote speakers and preceptors for our annual events. As biomedical engineers, we fully believe in the utility of clinical and patient exposure to round out our perspectives as we engineer solutions to healthcare challenges.

We look forward to new progress as a chapter this upcoming year!

Jaron Kawamura, President 2025-2026

Nicholas Dorgan, Internal Vice President 2025-2026

Dominic De La Torre, External Vice President 2025-2026

