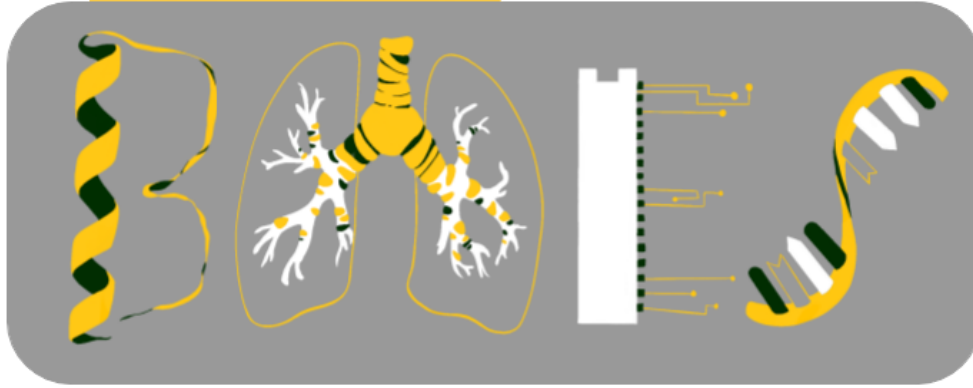


Leigh



Chapter Development Report

Presented by the Leigh High School Biomedical Engineering Society

June 2019 - June 2020

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Executive Summary:

The Leigh High School chapter of the Biomedical Engineering Society serves to increase student accessibility to bioengineering at the high school level and allows students to go beyond what is offered in their science and math curricula through early-career development events. Every week, Leigh BMES met weekly for a 30-minute period whereas any additional activities were held outside of school hours. Chapter members engaged in the chapter's social, weekly, inter-chapter, outreach, and industry-related activities. This year, we were challenged to act quickly when in-person events were canceled, which we were successfully able to do with our chapter connections. On top of catering to chapter members, Leigh BMES also planned school-wide events open to all Leigh students, as well as outreach events at local elementary schools, helping us advocate for science and engineering careers on a larger scale. Moreover, our chapter held several inter-chapter activities and was able to coordinate video calls and guest speaker events with UC Berkeley, San Jose State University, and Stanford. We are proud to present all that our chapter has accomplished in its first year as part of BMES.

May 31, 2020

Dear National BMES:

During its first year as a high school chapter of the Biomedical Engineering Society, Leigh BMES strove to inspire interest in biomedical engineering by promoting educational, social, and professional development opportunities for students at the high school level. Through educational opportunities, students were able to increase their dedication to bioengineering beyond the basic high school science and math curricula.

From our first meeting, which introduced 24 interested students to the club and the field of biomedical engineering, to the numerous lunch-time meetings we held where we shared the various sub-branches of bioengineering, including space travel, hearing loss, and tissue engineering, Leigh BMES catered to various areas of interest within the field and provided club members with the opportunity to explore where their may interests lay. Not only were students able to hear and discuss recent developments in the biomedical field, they were also able to partake in investigations through microscope explorations, micropipetting activities, and build challenges.

As part of BMES, our chapter did not take its relationships for granted. Beginning in the summer of 2019, officers began reaching out to other, local BMES chapters. Over the course of the academic year, we then executed various inter-chapter activities, including a series on the various bioengineering concentrations with UC Berkeley, a video call with the chapter co-president at Stanford, and a school-wide panel with San Jose State University.

Leigh BMES not only provided opportunities for members of the chapter, but also to other Leigh High School students and students at local elementary and middle schools. By participating in three school club fairs, Leigh BMES shared its mission and let students try out bioinformatics activities for themselves. We also planned to host two school-wide events, a panel with San Jose State University and Tech Symposium featuring representatives from Facebook, but were only able to execute one. In addition, Leigh BMES sent student volunteers to a nearby elementary school to host STEM-related afterschool programs.

This year, Leigh BMES's goals were to establish a stable foundation that would support the chapter's future years and to coordinate events with nearby chapters to learn from their practices. We also established a committee system, which would help our next administration accomplish their visions based on the areas of improvement observed from this year. A major obstacle that Leigh BMES faced this year was having to quickly adapt its plans to changes in the school year, which it was able to accomplish with effective communication between officers and potential guest speakers. In the coming 2020-2021 academic year, Leigh BMES aims to increase its presence on campus and in its community, by strengthening relations with local elementary and middle schools, and by broadening its fundraising efforts, especially with the help of the new committee system. With new connections and opportunities for students, Leigh BMES aims to widen its impact, and looks forward to overcoming any obstacles that it may face along the way.

Sincerely,

Selin Kocalar
Student Chapter President
sskocalar@gmail.com

Mrs. Jessica Prouty
Faculty Advisor, Leigh BMES
jprouty@cuhsd.org

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I. Administrative Report

The 2019-2020 school year was the first year for a BMES chapter at Leigh High School. As such, the chapter was run by five executive officers, who helped to establish and expand the club, and organize regular events for the club members. In preparation for future years, the five officers then introduced a committee system, consisting of an Academic, Corporate & Fundraising, and Outreach Committee. These committees will help to provide extra support when it comes to organizing relevant lesson plans and events, planning fundraisers to raise money for the club's activities, and organizing outreach events at local elementary and middle schools. In general, the Leigh BMES chapter meets every Friday during a 30-minute lunch period; on the first Monday of every month, the executive and committee members meet during the lunch period to discuss upcoming plans and activities.

IA. Executive Board Positions and Committees

President, Selin Kocalar (sskocalar@gmail.com)

As the chief executive director of the organization, she is in charge of overseeing all chapter operations, corresponding with other chapters of BMES as well as local elementary and middle schools, presiding over all meetings, and managing the overall direction of the chapter.

Co-Vice Presidents, Smita Ektare (smita.ektare@gmail.com) and Yomn Hammad (yomn.hammad@gmail.com)

They are responsible for facilitating communication between the officers, ensuring that all officers, committee members, and general members are aware of when meetings are held and their purpose, thus ensuring overall engagement; they also advertise for events and activities by hanging up flyers and by sending online messages.

Secretary, Casey Lin (caseyilin@gmail.com)

She keeps an agenda of what should be covered during general member, committee, and officer meetings, records meeting minutes, and takes care of club paperwork to be turned in to the school leadership department.

Treasurer, Kiera Ching (kieraching@gmail.com)

She manages club funds and the budget; organizes fundraisers to raise money for membership fees, events, and activities; and allocates how much of the club funds can be spent during each activity.

Academic Committee

Works with officers to organize relevant lesson plans for weekly club meetings, and helps organize workshops and events to encourage students to learn biology, engineering, and other science-related skills, both in- and outside of the classroom.

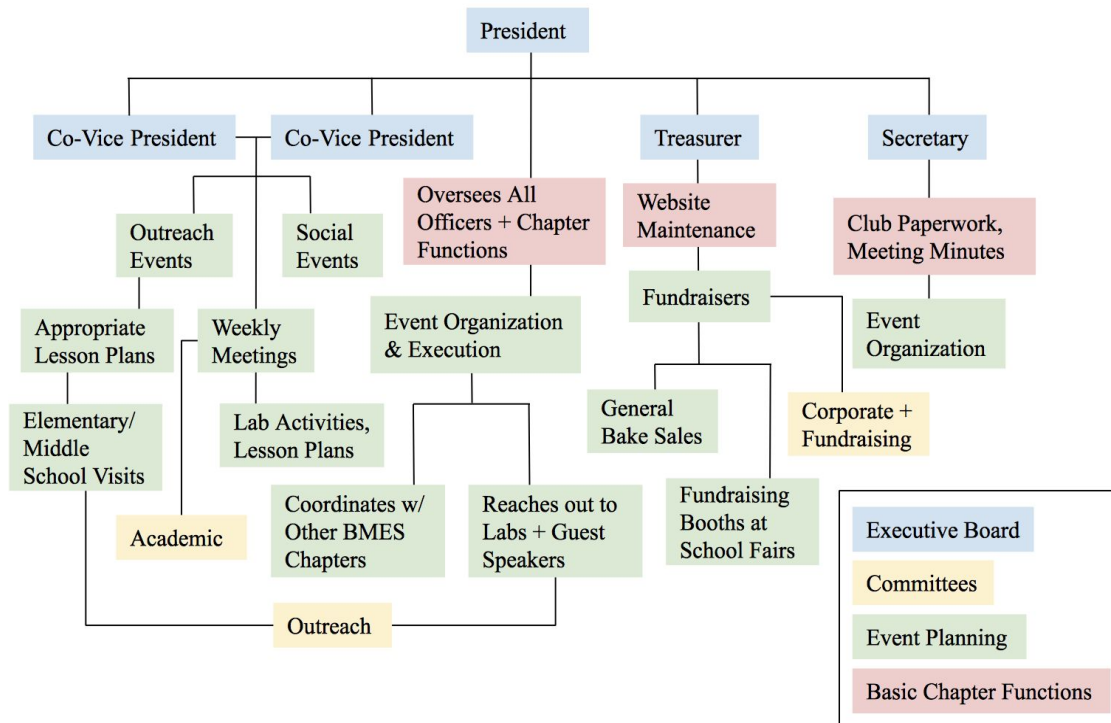
Corporate and Fundraising Committee

Works closely with the chapter Treasurer to plan fundraisers and request booths at club fairs in order to raise money for club activities; helps to publicize fundraisers.

Outreach Committee

Helps to reach out to other labs for lab tours and guest speakers; works with local elementary and middle schools to arrange events and helps to create appropriate lesson plans.

IB. Management Tree of Officer Responsibilities



IC. Membership

Academic Year	Chapter Members	National Members	Fraction of Students in BMES
2019-2020	32	5	15.6%

ID. Executive and General Body Meetings

Date	Attendance	Fraction of Total Membership	Meeting Type
Oct. 7th, 2019	5	15.6%	Executive Board Meeting
Nov. 4th, 2019	5	15.6%	Executive Board Meeting
Dec. 2nd, 2019	5	15.6%	Executive Board Meeting
Jan. 6th, 2020	5	15.6%	Executive Board Meeting
Feb. 3rd, 2020	5	15.6%	Executive Board Meeting
Mar. 2nd, 2020	5	15.6%	Executive Board Meeting

Apr. 13th, 2020	5	15.6%	Executive Board Meeting
May 25th, 2020	5	15.6%	Executive Board Meeting

The Leigh BMES chapter hosted General Body Meetings each week, where general members were updated on the upcoming activities and events. The specifics of the General Member Weekly Meetings are outlined as part of the Club Activities (Section III).

IE. Sample of Executive Board Meeting Notes:

<p style="text-align: center;">Meeting Agenda</p> <ol style="list-style-type: none"> 1. Updates 2. Upcoming club meetings <ol style="list-style-type: none"> a. Supplies to prepare/purchase 3. Lunch-time events <ol style="list-style-type: none"> a. Flyers + advertising b. Gym layout 4. Field trips <ol style="list-style-type: none"> a. Lab tour with JBEI 5. Stanford BMES <ol style="list-style-type: none"> a. Lab tour b. Stanford Splash <p style="text-align: center;">Meeting Notes Monday, March 2nd, at 12:00PM</p> <ol style="list-style-type: none"> 1. Updates <ol style="list-style-type: none"> a. Kiera: <ol style="list-style-type: none"> i. Website all updated <ol style="list-style-type: none"> 1. Needs picture from genes in space mtg → Smita sent ii. Multicultural Fair in late March? <ol style="list-style-type: none"> 1. Mr. Roe suggested "Women in STEM" 2. Potential items to sell: ice cream, churros, popcorn, doughnuts b. Casey: <ol style="list-style-type: none"> i. → If doing Multicultural Fair, forms found on Leigh website <ol style="list-style-type: none"> 1. Needs Mrs. Prouty's signature ii. Club renewal forms <ol style="list-style-type: none"> 1. All signed, just need to turn in to leadership room iii. Leigh Club Senate News <ol style="list-style-type: none"> 1. Got username and password to Leigh HS website; can create Leigh BMES tab under "clubs" section <ol style="list-style-type: none"> a. → Kiera 2. Mural for clubs to submit description/sketch to Mrs. Barlow 3. Relay for Life Cambrian <ol style="list-style-type: none"> a. Is this something we're interested in? <ol style="list-style-type: none"> b. Potential fundraising: GoFundMe, bake sale, sell something handmade c. Smita: <ol style="list-style-type: none"> i. Dad has contact to a researcher ii. Designed Tech Symposium flyer <ol style="list-style-type: none"> 1. Go to Mr. Roe for ASB approval; 25 copies to stamp 2. Date to hang up: Monday, Mar 9th, 15 mins before 0 period 3. Who: Smita, Yomn, Selin d. Yomn: 	<ol style="list-style-type: none"> i. Math club collaboration <ol style="list-style-type: none"> 1. Didn't get a chance to ask yet, will ask this week 2. Potential PI Day competition <ol style="list-style-type: none"> a. Prize ideas: gift card, small trophy (Affordable Treasures) b. No school March 14th → Friday 13th? Monday 16th? e. Selin: <ol style="list-style-type: none"> i. Talked with Mrs. Prouty about month's club meetings <ol style="list-style-type: none"> 1. All Fridays secure, except for 20th <ol style="list-style-type: none"> a. Cancel 20th, instead 19th for Tech Symposium ii. Idea: T-shirt design competition <ol style="list-style-type: none"> 1. Can have specific design guidelines (i.e. Leigh logo, "BMES," etc.), 1 month to design? 2. Potential prize ideas: gift card, free shirt that winner designed iii. 3/6 mtg → 20-minute build challenge <ol style="list-style-type: none"> 1. Worked w/ Kiera, items purchased, should arrive on Wed 2. Upcoming Club Meetings: <ol style="list-style-type: none"> a. 3/6 → 20-minute design challenge (hydraulic elevator build) b. 3/13 → 20-minute design challenge finish + test elevators c. 3/19 (Thurs) → Tech Symposium in gym; open to all d. 3/27 → UC Berkeley BioE concentrations video call? <ol style="list-style-type: none"> 1. If not: Mrs. Prouty-led meiosis calculations lab 3. Lunch-time events <ol style="list-style-type: none"> a. Tech Symposium <ol style="list-style-type: none"> i. Need to email visitors how to get to front office (get visitor pass) and then to gym → Yomn will do this ii. Gym layout <ol style="list-style-type: none"> 1. Five tables, microphone, projector TV 2. Five stations: animations walk-through, face tracking station, AR headset try-on, Facebook women in STEM video, AI in medicine station 3. Leave class at 11:30 to set up? 4. Casey will bring BMES board + arrow 4. Field trips <ol style="list-style-type: none"> a. JBEI lab tour! <ol style="list-style-type: none"> i. Need to get permission slips signed → pass out during on 3/6 mtg, turn in during next two weeks 5. Stanford BMES <ol style="list-style-type: none"> a. Potential Heller lab tour <ol style="list-style-type: none"> i. Email this week about dates + times → Selin will do ii. Transportation → Casey's and Yomn's parents can carpool b. Stanford Splash <ol style="list-style-type: none"> i. Emailed SS coordinator about getting high schoolers involved; awaiting response
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II. Treasury Report

The 2019-2020 school year was the club's first functioning year, so we started off with a balance of \$200.00 in our account. We intended to utilize this budget to fund club field trips, events, materials, and T-shirts for our members. Although our high school was not able to provide monetary support to our club, we were able to draw funding through a bake sale fundraiser, later in the year. After the coronavirus lockdown was put in effect, all subsequent meetings did not incur any costs, because they were all conducted remotely. Even before that, though, by keeping our costs low throughout the year, the club did not have to spend much of the balance earned.

IIA. Financial Summary

Overview of the balance sheet

Balance Summary	Fall Semester 2019	Spring Semester 2020
Starting Balance	\$200.00	\$276.85
Debit	\$153.00	\$00.00
Credit	\$76.15	\$13.50
Ending Balance	\$276.85	\$263.35

General Details

- We had one fundraising event towards the beginning of the year that produced a net profit of \$146.50 (Bake Sale, detailed in Activities section III)
- Most of the costs were because of the SJSU BMES Panel + Raffle, which was \$30.50 (40.05% of the Credit section)
- In the fall semester, we spent 21.57% of the amount we had in the club's funds (\$353.00)
- In the spring semester, we spent 4.88% of the \$276.85 carried over from last semester

IIB. Chapter Balance Sheet

Our transaction sheet for the 2019-2020 school year.

date	transaction method	location (if applicable)	reason/purpose	debit	credit	total
n/a	balance	n/a	initial amounts at the start of the year	\$200		\$200
9/13/19	cash	Mountain View	bakesale to raise money	\$153.00	-\$6.50	\$346.50
10/25/19	credit card	Target, Hillsdale	initial materials for projects		-\$16.00	\$330.50
11/1/19	credit card	Target, Hillsdale	extra construction paper		-\$4.50	\$326.00
11/1/19	credit card	Barnes & Nobles on Almaden Expressway	prizes for raffle at the end of the panel, as well as gifts for the panel members		-\$30.50	\$295.50
12/13/19	cash	Leigh High School	snacks and napkins/plates for celebratory party of the end of the fall semester		-\$18.65	\$276.85
2/11/20	cash	Target, Hillsdale	candy for the clubfair and potential members		-\$3.50	\$273.35
3/6/20	credit card	Michaels	popsicle sticks		-\$5.00	\$268.35
4/26/20	cash	Starbucks	starbucks gift card for winner of our club contest		-\$5.00	\$263.35

Details

- The transaction method was to document what form the money was allotted or earned in
- Location was to record where the transaction took place & total was updated after each entry

III. Chapter Activities

During the 2019-2020 school year, our chapter strove to provide members with the opportunity to learn about prospective pathways for future education and industry work, as well as the opportunity to partake in the field of biomedical engineering themselves through hands-on activities. This year, we engaged in video calls and in-person guest speaker panels with local BMES chapters, including the chapters at San Jose State University, UC Berkeley, and Stanford. Through these events, members could openly ask questions regarding education beyond high school to students closer to their age and could hear about various research projects that undergraduate students partake in. We also arranged for various events through which members could learn about industry work and engineering, including a Tech Symposium and a collaboration with the Joint Bioenergy Institute. Some of these events were open to all Leigh High School students, not just Leigh BMES members, which really helped us widen our impact. In addition, we especially emphasized learning by doing, as we had several events where members could use lab gear to observe specimens and learn about the science behind various phenomena. Through all of these events, Leigh BMES was able to grow significantly in size and increase accessibility to education in biomedical engineering, science, technology, engineering, and math (STEM) to a multitude of students across the Leigh High School campus.

IIIA. Social and Other Activities

Leigh BMES held weekly lunch-time meetings typically for BMES members; some of these meetings were focused on educational activities whereas others were focused on social events. Our first meeting brought in 24 students, where we introduced the club, the officers, and ended with a hands-on bioinformatics activity. Over the several lunch-time meetings, we talked about research topics, including lab techniques, the science behind the flu, veterinary studies, microscope investigations, and even space travel. Every meeting, club members got a chance to learn about different aspects of the bioengineering field through given mini lectures, group build activities, and challenges. Such activities helped strengthen student involvement in biomedical engineering and “STEM” fields, helping to diversify the population of students interested in pursuing such careers. In addition, each meeting focused on different sub-fields in the field of biomedical engineering, which really helped to cater to various student interests. While these events helped to strengthen the bonds between members of the Leigh BMES chapters, we also hosted events that were explicitly social activities, such as a bake sale with live bassoon music, our annual winter party, an SAT prep session, and a T-shirt design competition.

Introductory Club Meeting:

During our first meeting, Leigh BMES shared a mini lecture on what the field of biomedical engineering/bioengineering is. We also had a quick follow-along bioinformatics activity, where students worked together to solve a bioinformatics problem on MEGA using the phylogeny tree feature. Lastly, we introduced the officers, showed our Leigh BMES website, and shared a bit about what our club will look like this year, in terms of what type of activities we will host and when we will meet.

Date	Audience	Attendance	Cost
8/27/19	Leigh BMES	24	\$0.00

Leigh BMES Bake Sale:

Leigh BMES sold items baked by club members on a busy street in Mountain View, while featuring live bassoon music. We coordinated with a restaurant that one of the officers knew the owner of and were able to set up a table and stand right nearby. Some of the items that we sold were homemade chocolate chip cookies, cupcakes, and lemon cakes. Members of the club signed up to bring food, and could also sign up to play live music at the bake sale.

Date	Audience	Attendance	Cost	Net Earnings
9/13/19	Castro Valley, Mountain View	5 Leigh BMES students	\$6.50	\$146.50

Introduction to Lab Research:

Students learned about lab techniques as well as several commonly-used lab protocols, giving them better insight into a major aspect of biomedical engineering: lab research. Students learned about PCR, DNA extraction, gel electrophoresis, and how to engineer plasmids using Gibson Assembly, and were then able to try micropipetting for themselves with both regular and multichannel micropipettes. Students distributed food-dyed water using micropipettes onto parafilm, and then mixed various colors together.



Date	Audience	Attendance	Cost
9/27/19	Leigh BMES	26	\$0.00

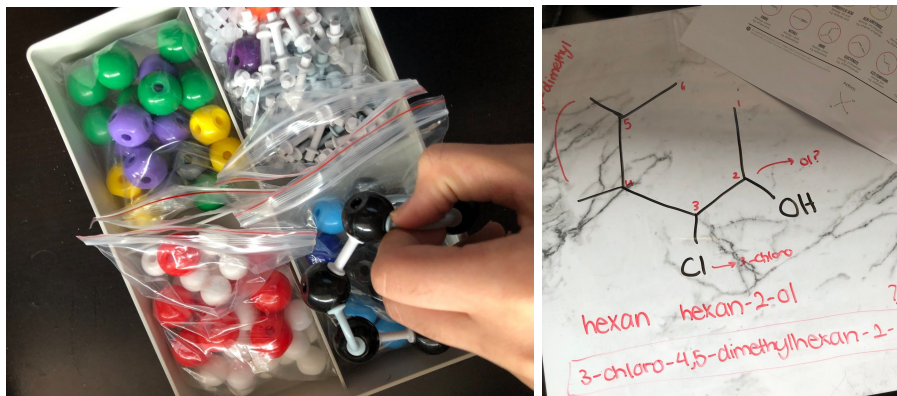
The Science Behind the Flu Season:

In order to share the science behind why the flu season exists, how the flu affects its host, and how various treatment options work, Leigh BMES hosted a meeting on the topic, right as the flu season started. After a mini lecture, students were given a paper to quickly skim over, which then led to a discussion. The discussion was highly engaging for the students, and the types of questions asked included, “Why does the flu season exist during the months that it does?”

Date	Audience	Attendance	Cost
10/11/19	Leigh BMES	23	\$0.00

Intro to Orgo:

Leigh BMES hosted a meeting introducing students to the field of organic chemistry, which is crucial for pre-med and other research fields, including bioengineering. Students learned about nomenclature and reactivity using a modeling kit.



Date	Audience	Attendance	Cost
11/22/19	Leigh BMES	18	\$0.00

Application of Biomedical Engineering on Veterinary Studies:

By popular request and in order to cater to various interests in the field of biomedical engineering, Leigh BMES hosted a meeting on what the role of veterinary engineers is in terms of working environment, animal welfare, zoonotic disease transmission, and environmental research. We included discussion questions throughout the mini lecture and shared current advances in the field.

Date	Audience	Attendance	Cost
12/6/19	Leigh BMES	24	\$0.00

Winter Party!:

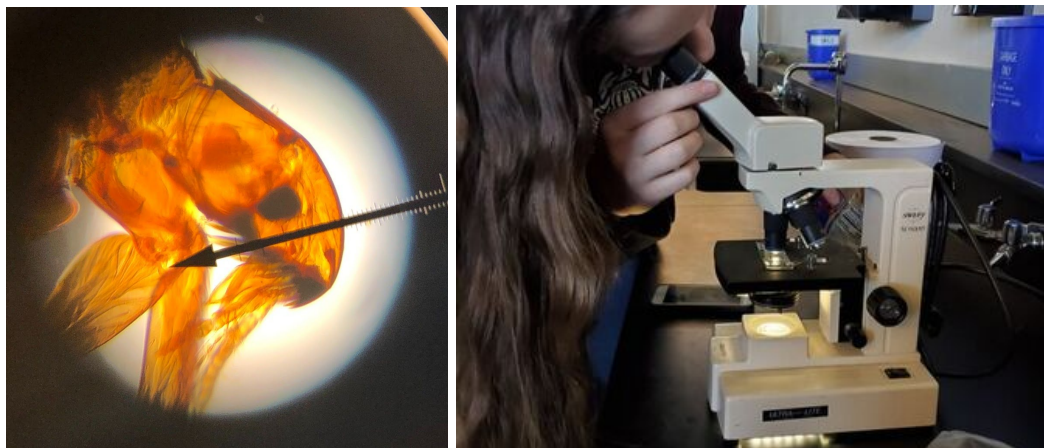
On our last meeting before Winter Break, Leigh BMES hosted a Winter Party where students could chat and snack on the delights supplied by the club officers. Meanwhile, students listened to a short presentation on competitions that they could participate in over winter break, or other upcoming ways that they could engage in bioengineering.



Date	Audience	Attendance	Cost
12/13/19	Leigh BMES	20	\$18.65

Microscope Investigation Lab:

Leigh BMES hosted a lab led by our club advisor that featured a hands-on microscope activity. Our club advisor went over how slides are prepared and how more powerful microscopes work, as well as how smaller, classroom-sized ones work. Students were able to image their own hair, blood samples, onion roots, and fleas.



Date	Audience	Attendance	Cost
1/17/20	Leigh BMES	21	\$0.00

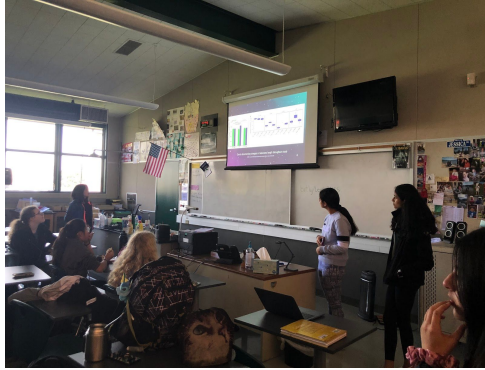
SAT Study Session:

Leigh BMES students got together after school to take a practice SAT test together, in preparation for the upcoming SAT dates. Taking it with other chapter members that the attendees were close with really helped to alleviate the stress.

Date	Audience	Attendance	Cost
2/12/20	Leigh BMES	8	\$0.00

Impacts of Space Travel on the Human Body:

Leigh BMES hosted a meeting where students could analyze the findings of the NASA twins study for themselves. For example, students were given that telomerase lengths had increased after exposure to microgravity, but then they had to analyze what that meant in terms of an astronaut's lifetime. Students also viewed microscope slides and looked at the various components of bone to better understand the molecular mechanisms behind osteoporosis.



Date	Audience	Attendance	Cost
2/28/20	Leigh BMES	21	\$0.00

20-Minute Hydraulic Elevator Build Challenge:

Students were challenged to build a hydraulics-powered elevator using a constrained array of supplies, which included popsicle sticks, string, thin plastic tubing, and syringes. The challenge was to lift an object on their elevator at least 6 inches off the table, which around half of the teams were able to accomplish.



Date	Audience	Attendance	Cost
3/6/20	Leigh BMES	19	\$5.00

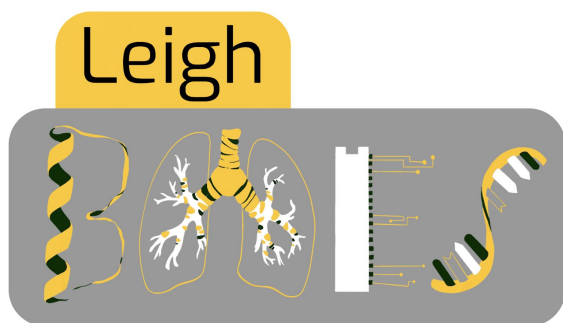
Leigh BMES Booth at Multicultural Fair: CANCELED

Leigh BMES had coordinated to sell Popcornopolis popcorn at the school-wide Multicultural Fair, which would help it raise more funds for the year. The Multicultural Fair would have featured performances from various culture-advocating clubs on campus and as students watched, they would have been able to snack on popcorn.

Date	Audience	Attendance	Cost
3/18/20	All Leigh High School students	N/A	N/A

T-Shirt Design Competition:

Leigh BMES hosted an online T-shirt design competition, where students had 4 weeks to design and submit an application. After all applications had been received, students voted on the submissions and the winning design won a \$20 Starbucks gift card.



Date	Audience	Submissions	Cost
3/26/20 - 4/26/20	Leigh BMES	4	\$20.00

IIIB. Inter-Chapter Activities

As a high school chapter, Leigh BMES heavily emphasized external growth by using the connections that it had through BMES to work with nearby university and college students. Officers began reaching out to other BMES chapters over the summer of 2019 and continued their efforts during the academic year. Members of the club were able to get a better understanding of industry and academia from someone who was one step ahead of them in the process, which provided an important perspective for those considering research or medical career pathways. Events in coordination with other chapters, such as the guest speaker series with Cal BMES on the various bioengineering concentrations at UC Berkeley or the video call with the Stanford BMES president, had a great turnout, which led us to organizing even more inter-chapter activities. One of our larger events was with SJSU BMES, where we worked together to host a school-wide panel and raffle. On top of guest speakers and panels, we also planned in-person interactive events, such as working with Stanford BMES to set up a class at Stanford Splash, although we had to cancel this plan.

SJSU BMES Orientation Reception:

Leigh BMES students got to meet the San Jose State University BMES chapter in person at their BMES Orientation Reception, which introduced incoming bioengineering majors to the department. The Leigh student volunteers helped set up the snack table by carrying in and arranging food in the orientation room. After the orientation slideshow, the Leigh students chatted with the SJSU BMES students and asked about their experiences in bioengineering. They also got to meet and talk with the SJSU bioengineering department faculty members and chairs, for around an hour in total.

Date	Audience	Attendance	Cost
8/15/19	Leigh BMES (Event was for incoming SJSU BioE majors)	1 Leigh BMES student	\$0.00

SJSU BMES Panel + Raffle:

Three SJSU BMES guest speakers came to Leigh High School during the lunch period, where they talked to students about college life, bioengineering, and research careers. This was a school-wide event that was open to everyone, not just Leigh BMES members, and was hosted in the school gym. In addition, there was a raffle that gave away Leigh BMES stickers and pen sets to three winners.



Date	Audience	Attendance	Cost
11/1/19	All Leigh High School students	~35	\$30.50

Cal BMES Bioengineering Concentrations Series:

Leigh BMES met with Cal BMES on two occasions to learn about the various concentrations of bioengineering at UC Berkeley. The first meeting featured the Biomedical Devices concentration, whereas the second meeting was conducted through Zoom and focused on the Cellular and Tissue Engineering concentration. Both were extremely interactive for students and gave them an opportunity to ask any questions they had about college without feeling intimidated, which led to great overall student engagement.



Date	Audience	Attendance	Concentration	Cost
11/14/19	Leigh BMES	18	Biomedical Devices	\$0.00
4/16/20	Leigh BMES	10	Cellular + Tissue Engineering	\$0.00

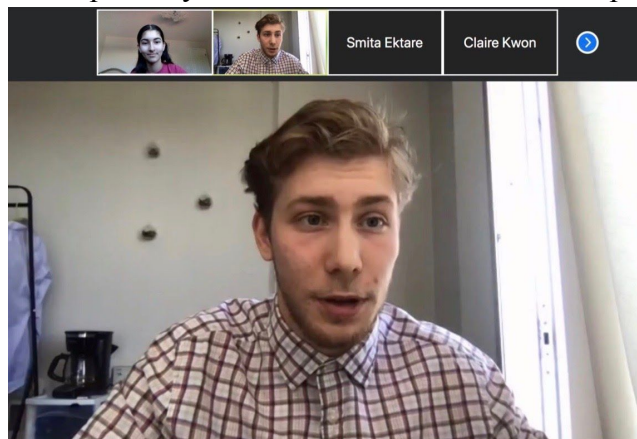
Stanford Spring Splash: CANCELED

Leigh BMES had coordinated with Stanford BMES to teach a class at Stanford Splash. The two chapters worked together to design the class content and the lab activities. During the day of the event, other high schoolers and students would have taken the course, while the Leigh BMES students would act as teacher aids; however, Spring Splash was canceled.

Date	Audience	Attendance	Cost
4/11/20	Students participating in Stanford Splash (Stanford + Leigh BMES students involved in planning course)	N/A	N/A

Video Call with Stanford BMES President:

Since Leigh BMES was unable to execute an in-person lab tour with Stanford BMES, we instead put on a Zoom video call with the chapter president. During this meeting, we discussed research career pathways and the reflections that the chapter president had as a graduating senior.



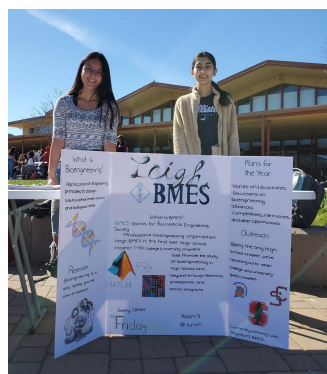
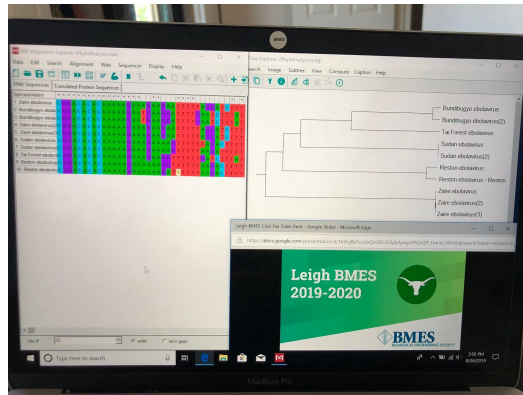
Date	Audience	Attendance	Cost
4/23/20	Leigh BMES	11	\$0.00

IIIC. Outreach Activities

Leigh BMES organized STEM outreach programs for other Leigh High School students, feeder middle school students, and elementary school students. We participated in all of our school's club fairs, where other students could try out a bioinformatics activity, take some free snacks, and sign up to join our club. These greatly helped us increase our club size and gave other students the chance to explore engineering and bioengineering, in preparation for deciding which high school clubs they'd eventually join. In addition, we visited Ponderosa Elementary School every week for a month, where we held 2-hour science and engineering afterschool programs. These were a major success and had a great show-up of a diverse group of students. Lastly, we went to the Children's Discovery Museum twice as a group and volunteered to help out in science and art exhibits for almost 9 hours total.

School-Wide Club Fairs:

Leigh BMES participated in several school-wide club fairs, where it could advertise its weekly meetings as well as partake in STEM outreach initiatives aimed toward other students, with hands-on activities. At our booths, Leigh BMES had its club poster, a sign-up sheet, free food, and a bioinformatics activity, where students could create a phylogeny tree on MEGA to see where a certain strain of the Ebola virus originated from.



Date	Audience	Sign-ups	Club Fair Type	Cost
8/27/19	Leigh High School	35	Leigh Annual Club Fair	\$8.24
11/21/19	Incoming freshman (4 different feeder middle schools present)	N/A	Eighth Grade Club Fair	\$3.50
2/11/20	Leigh High School	11	WASC Visit Club Fair	\$3.50

Ponderosa Outreach:

For a series of four weeks, volunteers from Leigh BMES went over to Ponderosa Elementary School, where they held 2-hour, weekly STEM sessions. The students participated in science and engineering activities and could also ask the high schoolers any questions that they had about school or STEM. Some of the activities included extracting strawberry DNA, using candy to model DNA, and using Snap Circuits to construct a circuit that accomplishes a specific task.

Date	Audience	Leigh BMES volunteers	Cost

10/25/19	Ponderosa Elementary School	4	\$16.00
11/1/19	Ponderosa Elementary School	4	\$4.50
11/8/19	Ponderosa Elementary School	4	\$0.00
11/15/19	Ponderosa Elementary School	4	\$0.00

Children’s Discovery Museum Group Volunteering:

A group of Leigh BMES students signed up and went to the Children’s Discovery Museum, where they volunteered as a group. Students worked different shifts and rotated between them, as they interacted with children to complete art projects in the different art studios, make dolls out of cornhusks, and read with children in the outdoors exhibit. Students volunteered for 4.25 hours in total each time that they attended.



Date	Audience	Leigh BMES volunteers	Cost
11/28/19	Visitors at Children’s Discovery Museum	7	\$0.00
2/22/20	Visitors at Children’s Discovery Museum	8	\$0.00

IIID. Industry and Professional Development Activities

This year, Leigh BMES focused on providing members with the opportunities they need to expose themselves to biomedical engineering through industry-related events with biotech representatives. Students learned about the differences between industry and academia, and were also prepared to learn about biotech jobs in person through lab tours and workplace tours. Regrettably, these plans were canceled because of the lockdown. Moreover, our chapter planned to hold a school-wide Tech Symposium during our lunch period where booths were arranged for students to experiment with various technologies, including the Facebook VR headset, although this too, had to be canceled. In response, Leigh BMES was able to quickly organize video calls with companies such as the Joint Bioenergy Institute, where it learned about agricultural engineering and its connection to the biotech field.

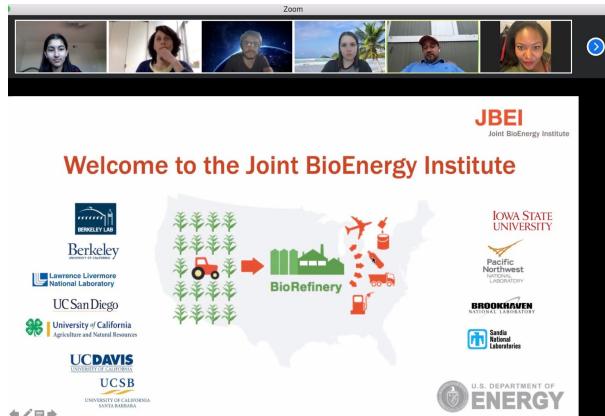
Tech Symposium: CANCELED

Leigh BMES had coordinated with another club on campus, Students Against Destructive Decisions, to host an at-lunch Tech Symposium open to all Leigh High School students. The two clubs worked together to arrange various booths with representatives from various tech companies in the Bay Area, including Facebook and AbboMax. The Tech Symposium would have featured Facebook AR/VR headsets for students to try out and various booths featuring virtual reality, 3D printing, and computational medicine exhibits. This event would have given students the opportunity to immerse themselves in the field of engineering and STEM, and would have encouraged them to potentially consider it as a career occupation.

Date	Audience	Attendance	Cost
3/13/20	All Leigh High School students	N/A	N/A

Video Call with the Joint Bioenergy Institute:

Since many of our in-person events could not be executed, Leigh BMES acted quickly and arranged a video call with the Joint Bioenergy Institute for members to learn about industry and research, specifically in the field of agricultural engineering. During this call, several members of the research institute took Leigh BMES members through a virtual tour of the research facility and explained their specific educational routes, work positions, and plans for the future.



Date	Audience	Attendance	Cost
5/4/20	Leigh BMES	10	\$0.00

IV. National BMES Meeting

Leigh High School students first heard about BMES while talking to an undergraduate about their experiences at the Annual BMES Conference. Some students had already learned about biomedical engineering through past experiences, and others had already set their goals on pursuing the field. After doing a bit more research on the organization that was called BMES, Leigh High School soon established their own chapter.

Our chapter formed to increase students' involvement and dedication to the field of biomedical engineering at the high school level. Although we had hoped to volunteer at the 2019 National Meeting, we were unable to due to how far away the conference was and the corresponding travel costs. In preparation for future years' meetings, Leigh BMES sought out to expand its fundraising initiatives, which also led to the establishment of the Corporate and Fundraising Committee. However, many of these efforts were soon disrupted with the closure of schools.

This year, we are setting our goals on attending and volunteering at the National BMES Meeting—which is also in a convenient location in terms of travel—in order to better accomplish what we set out to do by establishing our chapter. Instead of just performing science class experiments with known results, the members of Leigh BMES want to learn about the novel research currently being done at the edge of the field and want to get insight into what academia and industry are actually like. This is why Leigh BMES has emphasized outreach to other BMES chapters so much, why members started a 20-day challenge over the summer to read a paper a day from the *Annals of Biomedical Engineering* journal, and why we registered to attend the SJSU Biomedical Devices Conference, which was canceled. Leigh BMES strives to raise the funds to attend the 2020 National Meeting, even if it is online, to learn about the current developments in biomedical engineering that it cannot learn about in school and share it with the rest of the chapter members.

V. Future Directions

Our vision for Leigh BMES for the 2020-2021 academic year is to grow our presence in our school and community and increase our fundraising efforts in order to afford those initiatives. We aim to grow our presence in our school and community by broadening our outreach initiatives, including more regularly visiting local middle and elementary schools and establishing annual school-wide events as traditions, and we aim to expand our fundraising initiatives with the help of the Committee System.

VA. Visions of the 2019-2020 Board

As Leigh BMES began in the 2019-2020 school year, the vision for the 2019-2020 centered around establishing a stable and strong BMES chapter at Leigh, where the club could last into the future years with an organized executive board, and each member would have his or her allocated tasks to accomplish throughout each year. This year, we have done this by expanding the member base and setting up a committee system, in addition to the five officer positions we had in place from the start. Our officers learned that efficient communication is key to brainstorming ideas, organizing plans, and executing events successfully, which led us to selecting a platform where current officers and incoming ones could easily communicate and pass on advice.

Also in accordance with our visions, one of our main goals for the 2019-2020 academic year was to connect with other BMES chapters and industry professionals, to give members insight on academia and industry opportunities in bioengineering and STEM, while also giving chapter officers a chance to learn about other chapters' practices. We connected with other BMES chapters, including the chapters at UC Berkeley, San Jose State University, and Stanford, to observe how they function and learned about their structure, which helped us draw parallels to launch a successful chapter of our own. For instance, while working with Stanford's chapter to plan a Spring Splash course, we followed along and got insight into how their planning and event execution process typically goes.

Finally, the Leigh BMES board of 2019-2020 sought to connect with bioengineering industry and academia professionals in order to strengthen our knowledge of bioengineering and share these experiences with fellow club members. These experiences improved our sense of how to advocate for bioengineering and other fields in STEM within our own community, while providing members with academic and professional-development opportunities.

VB. New Initiatives for and Visions of the 2020-2021 Board

In 2020-2021, the Leigh BMES administration aims to increase its presence in the school and community, develop more fundraising initiatives to better support its activities, and continue to uphold the visions of the previous board. To increase its presence in our school community, Leigh BMES would like to provide its members with more regular volunteering opportunities or field trips, where members can visit local elementary and middle schools and share with other students the fields of science, engineering, and bioengineering, or visit more professional settings to glimpse some of the facets of the occupation. This past year, we executed a few outreach events like these, and they turned out to be a success as the younger students highly enjoyed having older students to look up to and learn from. We would like to grow and strengthen our relationships with other schools, and coordinate with them to host more after-school STEM programs or field trips in the future. The Outreach Committee will help to execute this vision.

Moreover, we would like to grow our presence at our school, by continuing to host school-wide events and by turning some of our past events into traditions that the Leigh BMES can be known for. This past year, we tossed around the idea of hosting a school-wide STEM night, but before we could put much thought into this initiative, our school closed. In the coming year, we hope to execute this plan and if all goes well, turn it into a regular, annual event. The Academic Committee would help the officers execute this goal.

Another aim for the 2020-2021 Leigh BMES administration is to increase fundraising efforts, so that we aren't so limited by our budget when planning events. Although we had a few final fundraising events lined up for the end of the 2019-2020 school year, they were unfortunately called off. Next year's administration will focus on expanding the club budget by hosting a benefit concert featuring musical performances by chapter members, organizing food stands at school fairs, planning bake sales, and establishing stronger relations with the school banker. The Corporate and Fundraising Committee will help execute this vision.

Lastly, Leigh BMES would like to uphold and continue to promote the visions of the 2019-2020 academic year. We will continue to emphasize the importance of having a dedicated board that can smoothly communicate with one another. Board and committee meetings will be held regularly and all members will be informed of upcoming events in a timely manner. In addition, Leigh BMES will continue to embrace its connections to other BMES chapters, which have helped us gain insight into where areas needing improvement exist and what best practices look like, while also providing members with engaging activities. By using these goals to guide our chapter's future, we hope to provide students with valuable opportunities in the field of biomedical engineering and enable them to make the best out of those experiences.