



**University of Michigan- Dearborn**

# **Biomedical Engineering Society**



**2026 CHAPTER DEVELOPMENT  
REPORT**

# I. Renewal Document



## Faculty Advisors:

Caymen Novak cmnovak@umich.edu

Assistant Professor of Mechanical Engineering, College of Engineering and Computer Science, The University of Michigan-Dearborn

## Core Members:

No.	Name	Position	Email
1		President	
2		Vice President	
3		Treasurer	
4		Secretary	
5		Outreach Chair	
6		Professional Development Chair	
7		Core Member	
8		Core Member	
9		Core Member	
10		Core Member	

## Website:

<https://bmesumd.weebly.com/>

## Free Membership Student Information:

Membership	Name	Email	Graduation Year	Chapter Position
New				Social Media Chair

## Biomedical Engineering Society University of Michigan-Dearborn Chapter 2026 Chapter Development Report



### Corresponding Author

[REDACTED]  
President, Biomedical Engineering  
Society  
University of Michigan-Dearborn

### Faculty Advisor

[REDACTED]  
Assistant Professor, Bioengineering  
Program  
University of Michigan- Dearborn

During the 2025–2026 academic year, the University of Michigan-Dearborn BMES chapter strengthened its presence through meaningful growth in outreach, research engagement, and professional development. As of Winter 2026, the chapter reached 131 members, reflecting 37% growth from the previous year. Our chapter organized and participated in 13 outreach events that introduced K–12 students to biomedical engineering through hands-on, engaging activities. These efforts included a three-week Planaria Regeneration Series, which engaged more than 250 local middle school students, an elementary slingshot engineering outreach reaching over 80 fourth-grade students, DNA extraction activities with sixth-grade students, and Michigan Career Quest, where bioengineering at UM-Dearborn was showcased to more than 6,000 high school students across southeast Michigan. BMES also expanded research and professional opportunities by hosting the Fall 2025 STEM Research Symposium, where 24 student researchers presented original work, and by supporting 15 students who presented research at the 2025 BMES National Conference in San Diego. Through these efforts, our chapter fostered a collaborative, service-driven community while increasing the visibility of biomedical engineering on campus and throughout our broader community!



# III. Cover Letter



COLLEGE OF ENGINEERING & COMPUTER SCIENCE  
**MECHANICAL ENGINEERING**  
UNIVERSITY OF MICHIGAN-DEARBORN

4/12/2026

Dear Biomedical Engineering Society,

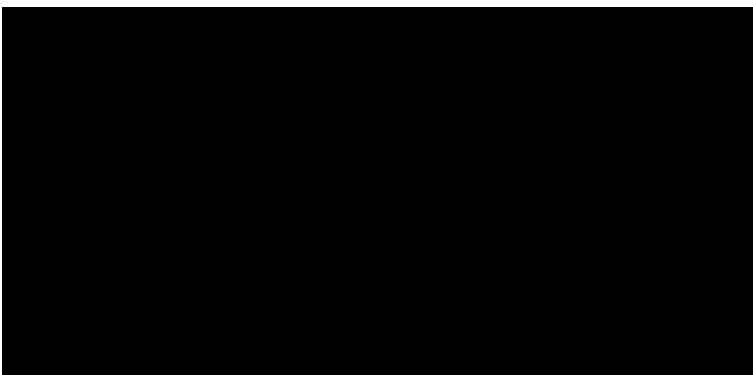
I am writing this letter in strong support of the renewal of our BMES student chapter at the University of Michigan–Dearborn. The BMES chapter was established as an undergraduate organization in 2011, and over the years it has provided students with valuable opportunities for recruitment, networking, research engagement, and participation in the annual BMES conference. Several members of the UM-Dearborn biomedical engineering advisory network were originally connected through chapter networking, and many former student members have gone on to pursue doctoral training at institutions such as the University of California Davis and the University of Texas at Austin. That history makes it especially exciting to see the momentum this current chapter has built.

This year, I have been especially proud of the leadership, initiative, and consistency shown by this group of students. Membership grew to 131 students, reflecting a 37% increase from the previous year. The chapter hosted the Fall 2025 STEM Research Symposium with 24 student presenters and supported 15 students presenting at the 2025 BMES Annual Meeting in San Diego. The chapter also made a strong impact through outreach, organizing and participating in 13 outreach events across elementary, middle, and high school levels. Highlights included the three-week Planaria Regeneration Series with more than 250 middle school students, “Slingshot into Engineering” with over 100 fourth-grade students, high school research outreach through the Michael Berry Career Center, and participation in Michigan Career Quest. The excitement from this year’s conference and programming is already carrying forward as students look ahead to next year’s BMES meeting in Orlando, Florida.

At the same time, there are several important areas where I believe the chapter can continue to grow. One is in building stronger and more consistent industry partnerships, particularly because biomedical-focused industry opportunities are more limited in our local area. Another is in expanding mentorship within the chapter, especially by creating stronger connections between underclassmen and upperclassmen. Continued growth in funding will also be important so that the chapter can support conference travel, outreach supplies, and student design or prototyping opportunities at a higher level. These are worthwhile next steps, and I believe this chapter has the motivation and leadership needed to pursue them successfully.

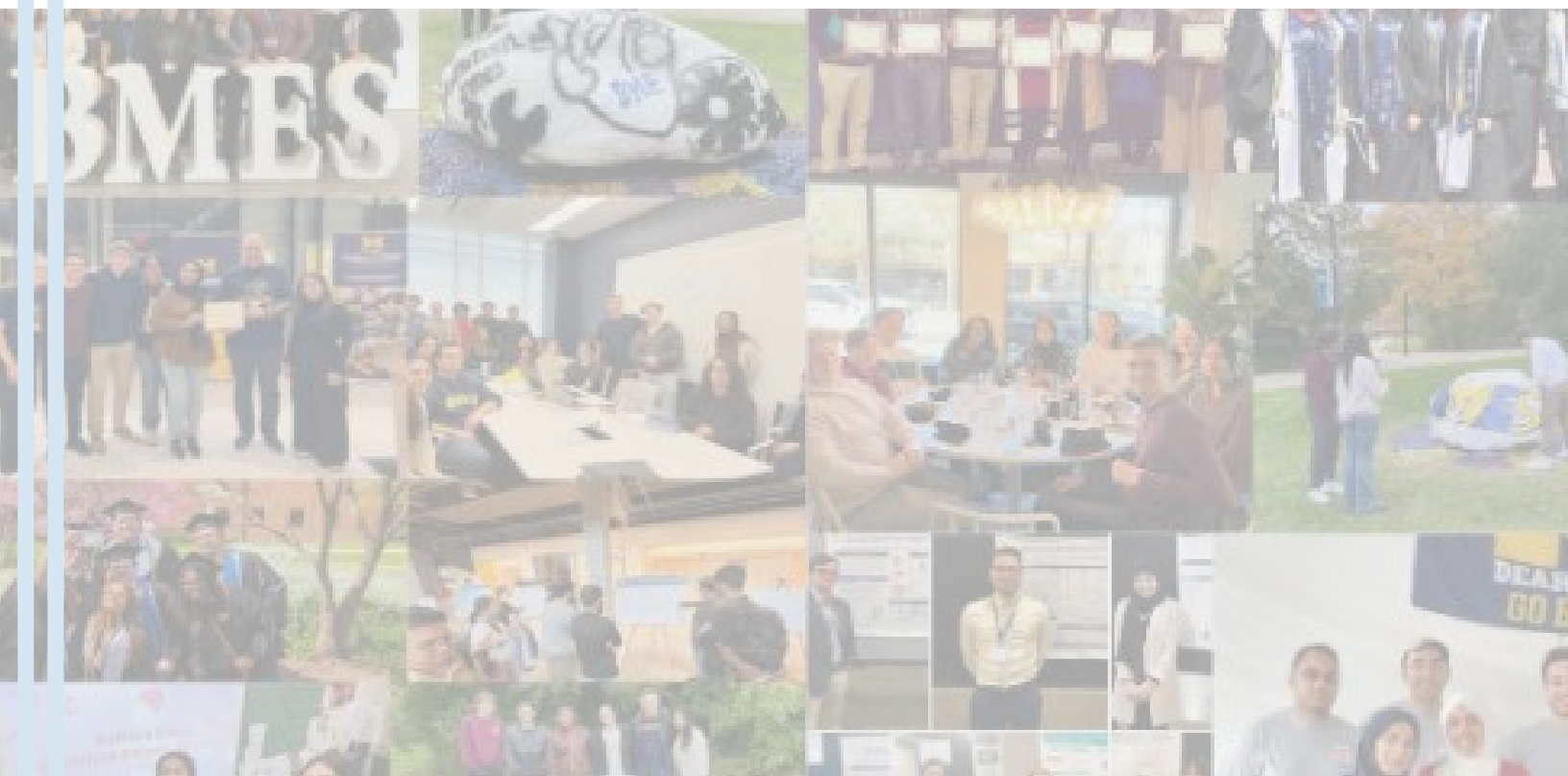
Overall, this chapter has created a strong and supportive community for students interested in biomedical engineering while representing the field in a meaningful way both on campus and in the broader community. I strongly recommend the renewal of the University of Michigan–Dearborn BMES student chapter and look forward to seeing what this group accomplishes next!

Sincerely,



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# V. Administrative Report

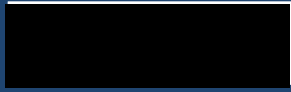
**V-A. Abstract** This year BMES consisted of approximately 131 members, with 28 active members according to our active membership requirements. The executive board consisted of 7 officers who worked together to oversee chapter operations, coordinate events, and maintain communication with members through email, shared drives, Discord, and WhatsApp. Regular officer meetings and increased chapter visibility through recruitment, outreach, social media, and programming contributed to stronger member participation throughout the year. Outlined below is a summary of chapter leadership, membership, and meetings that supported chapter operations.

## V-B. 2025-26 Chapter Officer Information

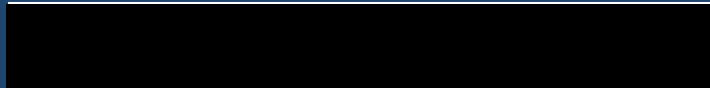
Name	Position	Responsibilities
[REDACTED]	President	Oversees chapter operations, leads meetings, coordinates with faculty and industry, and guides executive board decisions.
[REDACTED]	Vice President	Recruitment, assisting other officers with their responsibilities, and the communication between the general body and officers
[REDACTED]	Treasurer	Manages the chapter budget, financial records, funding efforts, and account activity.
[REDACTED]	Secretary	Records meeting minutes, manages communication, reserves rooms, and maintains membership records.
[REDACTED]	Outreach Chair	Plans community outreach events and promotes engineering and biomedical engineering education.
[REDACTED]	Professional Development Chair	Host events that involve outreach with the local community and maintain BMES involvement with cross-organization hosted activities on campus
[REDACTED]	Social Media Chair	Manages BMES social media, promotes events, creates content, and strengthens chapter visibility.

# 2025-2026 E-Board

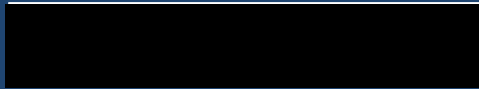
PRESIDENT



VICE PRESIDENT



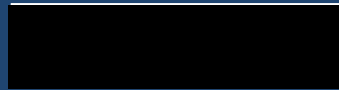
TREASURER



SECRETARY



OUTREACH CHAIR



PROFESSIONAL  
DEVELOPMENT CHAIR



SOCIAL MEDIA CHAIR



FACULTY ADVISOR

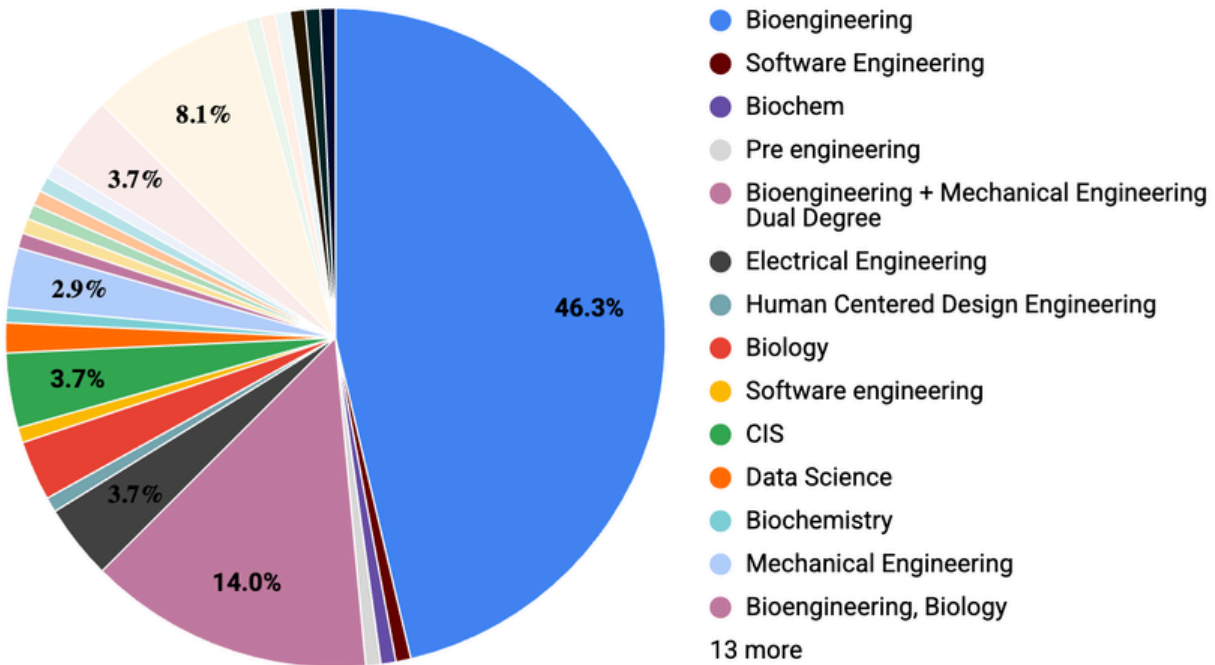


## V-C. Membership Breakdown

Membership Category	Number of Students
Total Chapter Membership	131
National BMES Student Members	15
Active Members*	28

\*Active members according to our chapters guidelines

### Who is BMES at UM-Dearborn?



Survey conducted on BMES members to gauge membership educational backgrounds. Approximately 75% of our members come from bioengineering or related field of study.



## V-D. Chapter Meeting Dates & Agendas:

### General Body Meetings

Date	Attendance	Meeting Agenda/Description
9/10/2025	12	Introduce the new e-board, welcome members, review what BMES does, and promote upcoming events including high school outreach, the study social, STEM Research Symposium, blood drive, and BMES Design Competition.
10/22/2025	10	Recap BMES Nationals, high school outreach, the STEM Research Symposium, and the med school info session; promote the Halloween social, blood drive, Shadow Day, study tables, guest speaker events, and lab demos.
11/19/2025	8	Recap the Halloween social, blood drive, Shadow Day, and Michigan Career Quest; promote Cocoa and Cram, the bake sale, holiday social, Planaria outreach, and upcoming spring activities.
12/8/2025	6	Finals-focused meeting with chapter updates, study support, and promotion of the bake sale, holiday social, and spring semester opportunities.
1/28/2026	6	Recap the Winter Bake Sale and study session; promote Planaria outreach, Slingshot into Engineering, Engineering Week, the spring blood drive, alumni and company talks, lab demos, and the BMES Design Competition.
3/12/2026	10	Discuss upcoming spring events, gather volunteers, promote the Stryker trip and Dr. Taraman talk, and share elections and senior sendoff updates.
4/21/2026	Upcoming	Share end-of-year updates, announce election results, recognize graduating seniors, and celebrate the year with a final ice cream social event.

## Executive Officer Meetings

Date	Meeting Agenda/Description
6/9/2025	Review the previous year's chapter performance, identify goals for 2025–2026, and discuss priorities for outreach, professional development, recruitment, funding, BMES Nationals, Go Blue Bash, and the Fall STEM Research Symposium.
7/25/2025	Continue planning for Go Blue Bash, finalize sponsorship and funding materials, discuss symposium judges and promotion, review budget needs, and assign action items for outreach, merchandise, and chapter visibility.
8/12/2025	Finalize early fall planning for BMES Nationals, Go Blue Bash, CECS Game Night, the STEM Research Symposium, funding requests, recruitment materials, and possible workshops, demonstrations, and fundraising efforts.
9/22/2025	Review fall recruitment efforts, finalize logistics for the STEM Research Symposium, confirm promotion and participant communication, prepare for BMES Nationals, and discuss upcoming general body meetings and fall programming.
10/17/2025	Plan October programming including the Med School Info Session, Halloween-themed GBM, pumpkin DNA extraction activity, outreach coordination, pitch event preparation, and follow-up on Nationals, blood drive planning, and future lab demonstrations.
11/20/2025	Discuss November chapter programming including the Red Cross Blood Drive, Michigan Career Quest, general body meeting updates, and begin planning December activities such as the study session, bake sale, holiday social, and member engagement events.
1/8/2026	Plan the winter semester by discussing Engineers Week, January GBM, class visits, biomechanics lab demonstrations, alumni and faculty professional events, Valentine's Day fundraising, and outreach opportunities with local schools.
1/30/2026	Finalize February programming including the student organization fair, Haigh Elementary outreach, the three-week Planaria outreach series, Candygram fundraising, alumni panel planning, blood drive promotion, and CDR preparation.
3/20/2026	Discuss end-of-year initiatives including the Stryker field trip, Dr. Taraman alumni spotlight, Red Cross blood drive, Girl Scouts TechXploration, elections, senior sendoff items, graduation cords and stoles, outreach grant opportunities, and the CDR.

# VI. Treasury Report

## Abstract:

This report consists of a breakdown of expenses and revenue from 07/01/25 to 4/03/26.

At the onset of the academic year, BMES had a budget of \$3,914.04, which was utilized to sponsor attendees for the conference, host the annual research symposium, and student org collaborations. A detailed breakdown of the expenses incurred can be found below. By the end of the year, our chapter had a remaining balance of \$1,353.93, indicating effective financial management throughout the year. BMES organized a fundraising bake sale and pitched for funding from the engineering department which has not been given to our organization yet, These achievements reflect the dedication and hard work of the members of BMES in advancing the goals and activities of the society.

REVENUE		
Source	Date	Amount
Beginning Balance from Previous Year (2024-2025)		
Agency Trsf In (offset 624390) for TSF CECS Game Night	10/06/2025	
Agency Trsf In (offset 624390) for TSF STEM Symposium	10/30/2025	
TSF OSL TO BIOMEDICAL SOC. Intrafund Transfer In	11/04/2025	
<b>TOTAL REVENUE</b>		

EXPENSES			
Source	Date	Amount	Event Category
Poster printing (Arun and Michael)	7/1/2025		Professional Development
Lea 2025 BMES Nationals Registration Fee	8/11/2025		Professional Development
kenny BMES Conference 2025 Registration	09/03/2025		Professional Development
Sena BMES Conference 2025 Registration	09/04/2025		Professional Development
Michael BMES Conference 2025 Registration	09/11/2025		Professional Development
Meghana BMES Conference 2025 Registration	09/17/2025		Professional Development
Catering Picasso (hosting) STEM Symposium	09/16/2025		Professional Development
BMES Poster printing and STEM Symposium	10/03/2025		Professional Development
UUE STEM RESEARCH SYMPOSIUM	10/16/2025		Professional Development
Lea (canva pro, kroger - stem sym gift, walmart - stem sym goodies, dollar tree)	09/29/2025		Professional Development
BMES Poster printing and STEM Symposium	11/03/2025		Professional Development
Refreshments for CECS Study Sesh	12/13/2025		Professional Development
Canva Pro for flyer/poster design	12/13/2025		Professional Development
Piscasso Catering for Ending Gala	03/05/2026		Professional Development
Picasso-Girl Scouts TechXploration Day	03/30/2026		Outreach
Poster Printing	04/03/2026		Professional Development
<b>TOTAL EXPENSES</b>			
<b>CURRENT BALANCE</b>			

# VII. Chapter Activities

## **Abstract of All Chapter Activities:**

During the 2025–2026 academic year, BMES at the University of Michigan–Dearborn hosted a wide range of activities centered on professional development, outreach, research engagement, and community building. The chapter began the year with recruitment and visibility efforts through involvement fairs, networking opportunities, and the Fall 2025 STEM Research Symposium, which featured 24 student presenters. BMES also supported 15 students presenting research at the 2025 BMES Annual Meeting in San Diego. Throughout the year, the chapter expanded its impact through hands-on outreach with elementary, middle, and high school students, including the Planaria Regeneration Series, Slingshot into Engineering, high school research outreach, and Michigan Career Quest. In addition, BMES organized professional talks, lab demos, blood drives, study support events, and fundraisers that strengthened student engagement and chapter visibility. Together, these activities helped create a chapter culture rooted in service, scholarship, leadership, and opportunity.

# VIII. Social or Other Activities

## **Abstract:**

During the 2025–2026 academic year, BMES hosted and participated in a variety of social and community-building activities designed to strengthen member connection and create a welcoming chapter environment. These events included the Engineering-Wide Game Night, study socials, Cocoa and Cram, the Winter Bake Sale, Vision Board Making, Valentine’s Day Candy Grams, and end-of-semester gatherings. Many of these activities were open to the broader engineering student community and gave members opportunities to connect in a casual setting outside of class. These events were especially valuable for helping newer students meet peers, build friendships, and feel more involved in the chapter. By balancing academic, professional, and social engagement, BMES was able to create a stronger sense of community and encourage continued member participation throughout the year.

# Engineering-Wide Game Night

**Date:** 9/5/2025

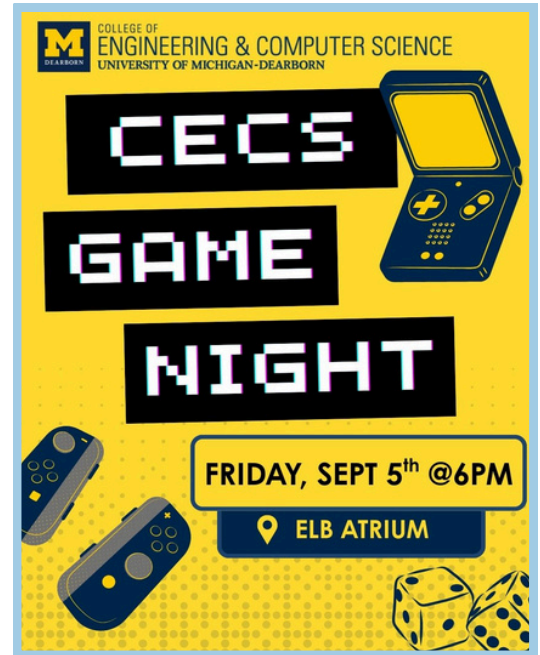
**Audience:** All engineering students

**Attendance:** 50+

**Cost:** \$100

**Description:** BMES collaborated with other engineering student organizations to host a game night with video games, board games, and pizza for students across CECS.

**Evaluation and Outcome:** This event helped students meet peers from different majors, build connections early in the semester, and increase chapter visibility.



# BMES Study Tables & BENG Advice

**Date:** 11/5/2025

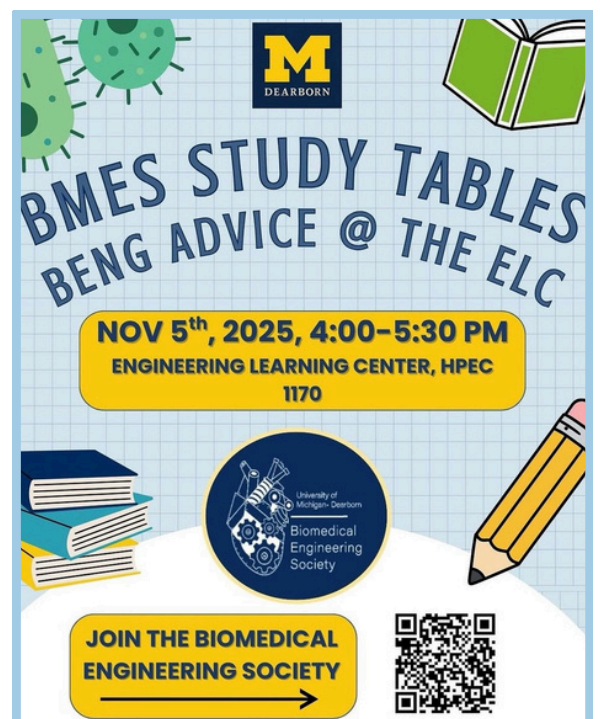
**Audience:** BMES members

**Attendance:** 7

**Cost:** \$0

**Description:** BMES hosted a study social in the Engineering Learning Center where students could work on assignments, ask questions about bioengineering classes/registration, and connect with peers.

**Evaluation and Outcome:** The event gave students a helpful space for class planning and peer support while strengthening community within the chapter.



## CECS Cocoa and Cram Study Session

**Date:** 12/8/2025

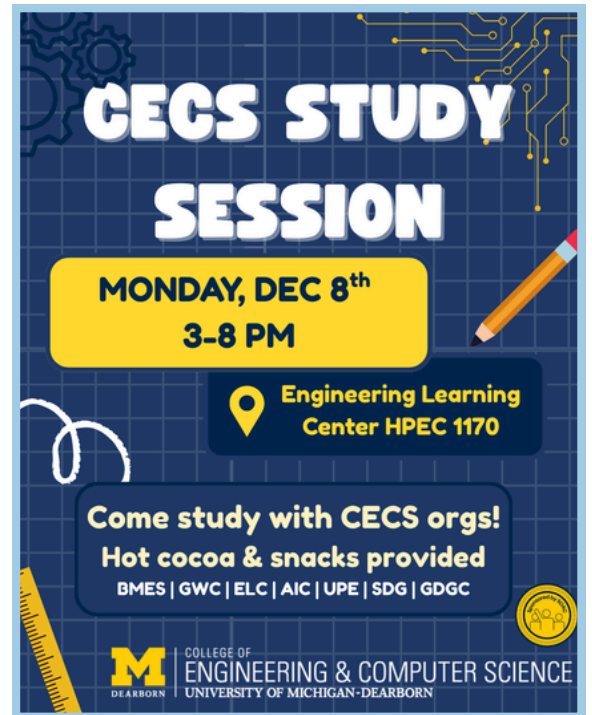
**Audience:** All engineering students

**Attendance:** 25+

**Cost:** \$56

**Description:** BMES participated in a pre-finals study session where students could study together while enjoying hot cocoa and snacks.

**Evaluation and Outcome:** This event supported students during finals season and created a relaxed environment for studying and social connection.



## Winter Bake Sale

**Date:** 12/10/2025

**Audience:** All Dearborn students

**Attendance:** 50+

**Cost:** \$0 \*Raised \$100\*

**Description:** BMES hosted a winter bake sale to raise funds while engaging with students in a busy campus location.

**Evaluation and Outcome:** The bake sale helped increase chapter visibility, encouraged member involvement, and successfully raised funds for future chapter activities.



# Vision Board Making

**Date:** 1/28/2026

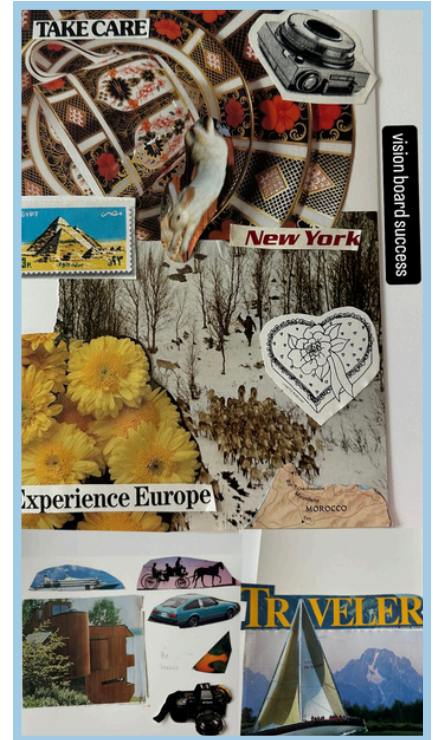
**Audience:** Any students Interested

**Attendance:** 20+

**Cost:** \$10 \*Thrifty magazines!

**Description:** BMES hosted a vision board activity where students created boards reflecting their academic, personal, and professional goals.

**Evaluation and Outcome:** This event gave members a creative way to connect with one another and reflect on their goals for the semester.



# Valentines Day Candy Grams

**Date:** 2/14/2026

**Audience:** Any interested student

**Attendance:** 6

**Cost:** \$0 \*Raised \$75!

**Description:** BMES organized a Valentine's Day Candy Gram fundraiser where students could purchase candy packages for friends and classmates.

**Evaluation and Outcome:** This fundraiser promoted chapter visibility, encouraged campus engagement, and raised money in a simple and fun way.



# IX. Outreach Activities

## Abstract:

This year, our chapter made it a goal to expand youth outreach programs by hosting events with several different age groups, all with the common goal of introducing them to the world of engineering and its applications in advancing human health. We were able to host several unique outreach events for elementary, middle, and high school students. It was important for us to be able to work with students of all age groups to educate them on the impact of biomedical engineering and how each and every one of them have the potential to become an engineer. BMES also participated in many orientation events for families and incoming students, and held information tables with interactive activities to introduce them to bioengineering. These outreach events allowed us to give back while staying true to BMES's mission in bridging communities to shape standards for biomedical engineering education.

## Go Blue Bash - Student Life Summer Involvement Fair

**Date:** 8/26/2025

**Audience:** Incoming freshman class

**Attendance:** 50+

**Cost:** \$0

**Description:** Introduce incoming class to BMES and how our chapter will help them in their college career.

**Evaluation and Outcome:** We had many interested students that signed up to be apart of our chapter and were happy to answer their questions regarding how bioengineering is applied to their degree.



# Engineering Student Life Fall Involvement Fair

**Date:** 9/5/2025

**Audience:** Incoming freshman engineering class

**Attendance:** 50+

**Cost:** \$0

**Description:** Introduce incoming class to BMES and how our chapter will help them in their college career, answered questions for students who were unsure about engineering.

**Evaluation and Outcome:** We had many interested students that signed up to be a part of our chapter and were happy to answer their questions regarding how bioengineering is applied to their degree.



## Research 101 High School Visit

**Date:** 9/16/2025

**Audience:** 11<sup>th</sup> and 12<sup>th</sup> grade high school students

**Attendance:** 50+

**Cost:** \$76

**Description:** The Michael Berry Career Center is a high school program designed to provide a challenging program for high-achieving, highly motivated students. The program offers a research class, where students design, conduct, and present an independent, year-long research project on a topic of their choice. The aim of this outreach event was to pair students with experienced college researchers to gain insight on their research project and how research could be applied to their college years. We shared what research looks like at UM-Dearborn, brainstormed project ideas with students for their semester research, and even got hands-on making hydrogels!

**Evaluation and Outcome:** Positive feedback from both students and staff, fostered mentorship between students to understand more about research in college.



# Fall Red Cross Blood Drive

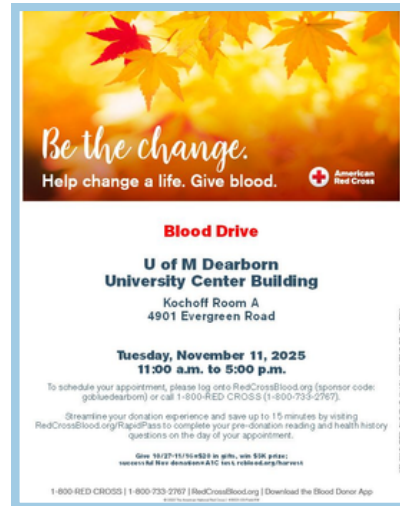
**Date:** 11/11/2025

**Audience:** Community members and all students

**Attendance:** 50+ **Cost:** \$0

**Description:** Teamed up with the Red Cross to organize a blood drive on campus, members register through red cross to donate blood. BMES members also signed up to volunteer at the registration table and canteen, to assist Red Cross members.

**Evaluation and Outcome:** This event was deemed successful by the Red Cross and we have many members of the community and university donate for a good cause.



# Shadow Day

**Date:** 11/4/2025

**Audience:** High School Students in Southeast Michigan

**Attendance:** 30

**Cost:** \$50 (Split with fellow student orgs)

**Description:** Provide an event for high school seniors to learn about different types of engineering majors as well as interact with current UMD students to learn about their engineering career from high school to college.

**Evaluation and Outcome:** Students found this event very insightful and learned a lot about our bioengineering program through these hands-on opportunities.



# Michigan Career Quest

**Date:** 11/17/2025

**Audience:** High School Students

**Attendance:** 6,000+

**Cost:** \$0 (department sponsored)

**Description:** MiCareerQuest offers Southeast Michigan middle and high school students the opportunity to learn about careers in our region's high-demand industries through interactive experiences with local employers.

**Evaluation and Outcome:** Our chapter got to promote Bioengineering and UM-Dearborn as a option to future college students!



## Student Life- Winter Involvement Fair

**Date:** 1/14/2026

**Audience:** Incoming freshman class enrolled in introductory engineering classes

**Attendance:** 30+

**Cost:** \$0

**Description:** Introduce incoming class to BMES and how our chapter will help them in their college career, answered questions for students who were unsure about engineering.

**Evaluation and Outcome:** We had many interested students that signed up to be apart of our chapter and were happy to answer their questions regarding how bioengineering is applied to their degree.



# Slingshot into Engineering

**Date:** 2/6/2026

**Audience:** 4th Grade Elementary School Classes

**Attendance:** 104 students with 17 BMES members

**Cost:** \$120

**Description:** Our chapter had the privilege of visiting all three 4th grade classes at a local elementary school. We introduced what engineering, its applications, and had them engineer/build cardboard tube slingshots while understanding concepts of potential and kinetic energy.

**Evaluation and Outcome:** The students loved this activity, and became creative with their slingshots through iterative design. Our members loved being able to work with the kids and see how creative they could be with their slingshots.



# Planaria Regeneration Series

**Date:** 2/13/2026, 2/20/2026, 2/27/2026

**Audience:** Stout Middle School 6<sup>th</sup> grade science classes

**Attendance:** 250 students with 18 BMES members

**Cost:** \$160

**Description:** Our BMES chapter organized a program where students can cut planarian worms, and watch them grow back with some basic analysis to showcase regenerative properties and its applications in regenerative medicine engineering. Planaria provides a hands-on learning experience that enables students to explore and comprehend these fundamental biological concepts. Stout Middle School is located in Dearborn, Michigan, and is a part of the Dearborn Public Schools District. The school continuously embeds curriculum centered around the students' future, with an emphasis on gaining a college education.

**Evaluation and Outcome:** It is through this initiative that we were able to provide an engaging STEM focused series, while giving students the space to explore potential careers in engineering.

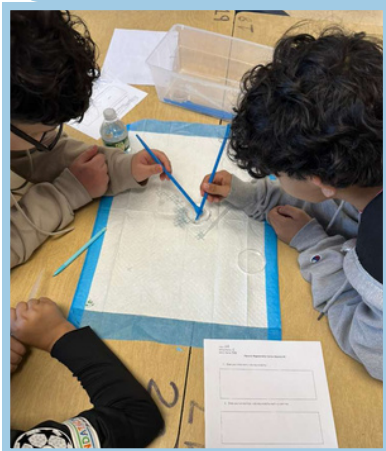
## Week 1: Introduction & Planaria Cutting

Objective:

- Introduce planaria, regeneration, and scientific observation.
- Safely cut planaria to begin the regeneration experiment.
- Label dishes and record initial observations (i.e., how many pieces, which part is which).



Students cutting their worms, writing observations & hypotheses



# Planaria Regeneration Series

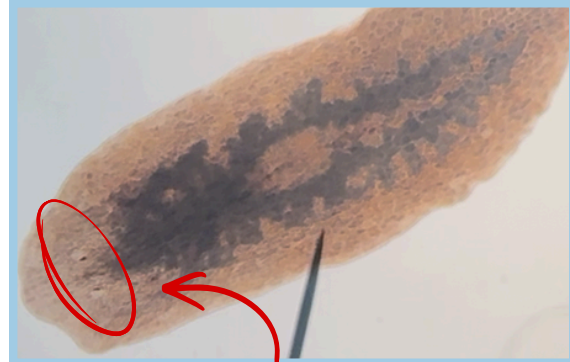
## Week 2: Observation of Regeneration Progress

Objective:

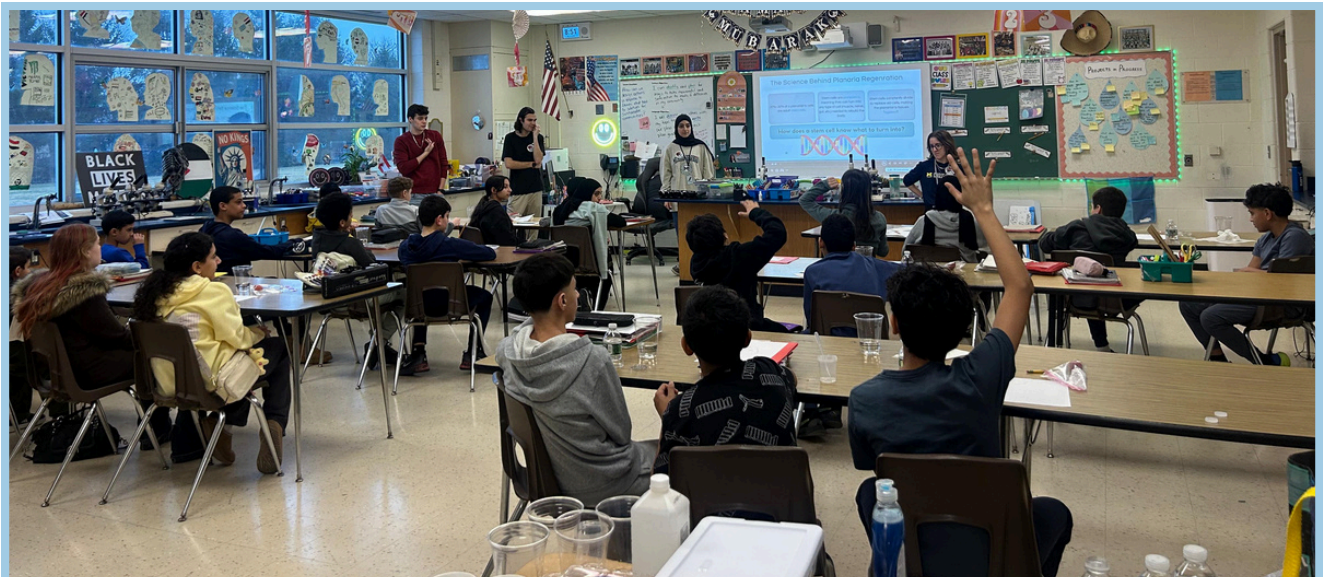
- Observe, record, and compare regeneration progress.
- Learn about how scientists study organisms in the lab by performing strawberry DNA extraction.



Strawberry DNA extraction!



Students observed the Planaria's eyes starting to regenerate!

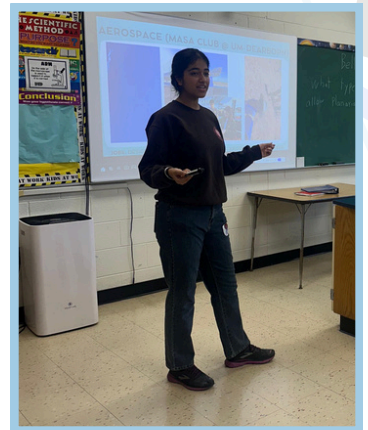
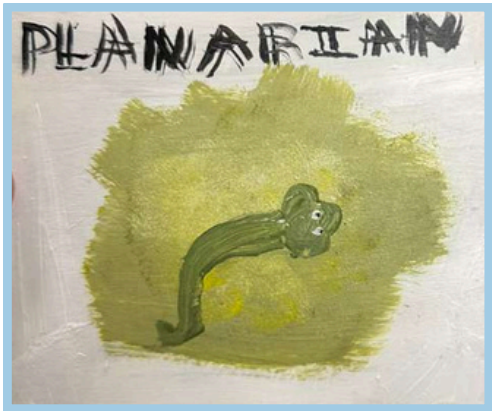
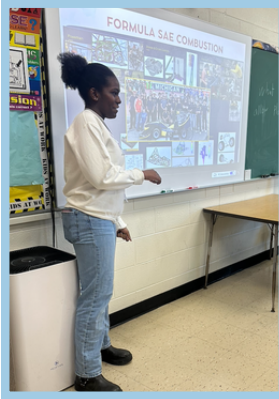
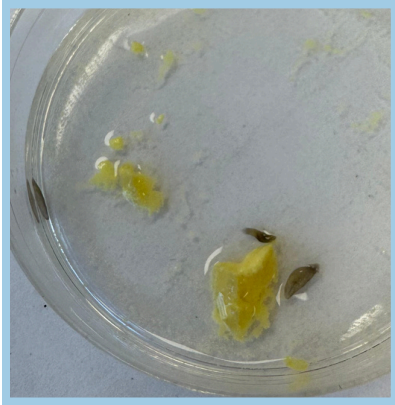


# Planaria Regeneration Series

## Week 3: Worm Feeding & Final Observations

Objective:

- Observe final regeneration outcomes.
- Feed planarian worms.
- Reflect on results, present findings, and explore implications.
- Learn more about engineering careers through student presentations.



# Planaria Regeneration Series

Below is a preview of slides that were presented to students and fostered curiosity throughout the series. At the end of the series, volunteers were also awarded with a certificate of appreciation for all of the work done!



Certificate of appreciation from Stout Middle School given to each volunteer.

The slides cover the following topics:

- Slide 1:** PLANARIA FLATWORM EXPLORATION - WEEK 1
- Slide 2:** College of Engineering at University of Michigan- Dearborn
- Slide 3:** What are Planaria?
- Slide 4:** What is Bioengineering?
- Slide 5:** Planaria Can Regenerate!
- Slide 6:** What do Planarians Need for Survival? (Freshwater, Protein, Oxygen)
- Slide 7:** Planaria Anatomy
- Slide 8:** Planarians are Important for Science (Regenerative Medicine)
- Slide 9:** A group will be in charge of your own planarian worm to observe the regeneration process!
- Slide 10:** TIME TO CUT YOUR WORMS!
- Slide 11:** Materials and Procedure
- Slide 12:** Lab Safety Rules (SAFETY FIRST)
- Slide 13:** Reflection Time! (How did you cut your worm? Which end will grow a head or tail? What were you able to see in the microscope? How do microscopes help scientists investigate organisms?)
- Slide 14:** Tasks for the Week (Continuously monitor your worms throughout the week, carefully changing the water every 2 to 3 days. Take note of what day blastema formation occurs.)
- Slide 15:** Schedule
- Slide 16:** SKILLS AN ENGINEER HAS (CRITICAL THINKING, ATTENTION TO DETAIL, TEAMWORK, COMPUTER DESIGN)

Curated slides presented to all students throughout the series.

### HOW CAN YOU BECOME AN ENGINEER?

17

### PLANARIA FLATWORM EXPLORATION

WEEK 2

18

### What did we do last week?

Did you observe your planaria throughout the week?

19

### Time to check on the planaria!

Use your microscopes and note your observations!

20

### Time to check on the planaria!

- Look back at your hypothesis from last week; were you right?
- How many worms do you have now?

21

### Science Behind Planaria Regeneration

How does a stem cell know what to turn into?

22

### Science Behind Planaria Regeneration

23

### Materials You'll Need

- Strawberry pieces or puree
- Dish soap
- Table salt
- Water
- Chilled rubbing alcohol (70-90%)
- Coffee filter
- Clear cup or tube
- Toothpick or straw

24

### Step 1: Mash the Strawberry

Instructions: Mash strawberry pieces in a cup.

Why? This breaks the tissue apart so the cells can be opened more easily.

25

### Step 2: Prepare the Lysis Solution

Instructions: Mix together 1/2 cup water, 1/2 tsp dish soap, 1/2 tsp table salt.

Why? The detergent breaks open cell membranes, salt stabilizes DNA and helps it clump later.

26

### Step 3: Mix the Strawberry + Lysis

Instructions: Combine strawberry puree + lysis solution.

Why? The DNA is now free inside the strawberry "soup".

27

### Step 4: Filter the Mixture

Instructions: Pour through a coffee filter into a new cup.

Why? This step removes debris, leaving the DNA-containing solution.

28

### Step 5: Add Alcohol

Instructions: Gently pour chilled rubbing alcohol down the side of the cup.

Why? Cold alcohol makes DNA visible (precipitates it).

29

### Step 6: Collect the DNA

Instructions: Use a toothpick to swirl and lift out the DNA strands.

Why? You can use it in a small vial of alcohol to store it!

30

### Recap: Why This Works

- Dish soap - breaks cell and nuclear membranes
- Salt - helps DNA clump together
- Cold alcohol - makes DNA visible (precipitates it)

This is the same procedure used to isolate biological DNA!

31

### Tasks for the Week

- Continuously monitor your worms throughout the week, carefully changing the water weekly 2 to 3 days.
- We will be feeding the worms next week!

32

### PLANARIA FLATWORM EXPLORATION

WEEK 3

33

### What did we do last week?

34

### Has your planaria grown?

Planarians use their stem cells to create...

35

### Planaria Anatomy

36

### Time to feed your worms!

- Place a piece of egg with your worm.
- Observe planaria's response to food.

37

### What did you observe?

TOUCH	SMELL	FOOD
When a planaria touches its head with a toothpick, it will change its direction and right response depends on needs.	Planaria immediately retreats and often recoils to fight the smell.	When a planaria touches its head with a piece of egg, it will change its direction and right response depends on needs.

38

### What are the similarities and differences between regenerative animals and human stem cells, and what can we learn by studying them?

39

### ENGINEERING PATHWAYS

40

### BIOMECHANICS

THE STORY OF HOW MECHANICAL PRINCIPLES AFFECT OUR HUMAN BODY

41

### BIOMECHANICS

JOB: CRASH TEST ENGINEER BIOMECHANIST, AIRCRAFT RECONSTRUCTION, PERFORMANCE ASSOCIATE, HELMET DESIGNER, EGGHOMER!

42

### SPACE (MASA CLUB @ UM DEARBORN)

43

### FORMULA SAE COMBUSTION

44

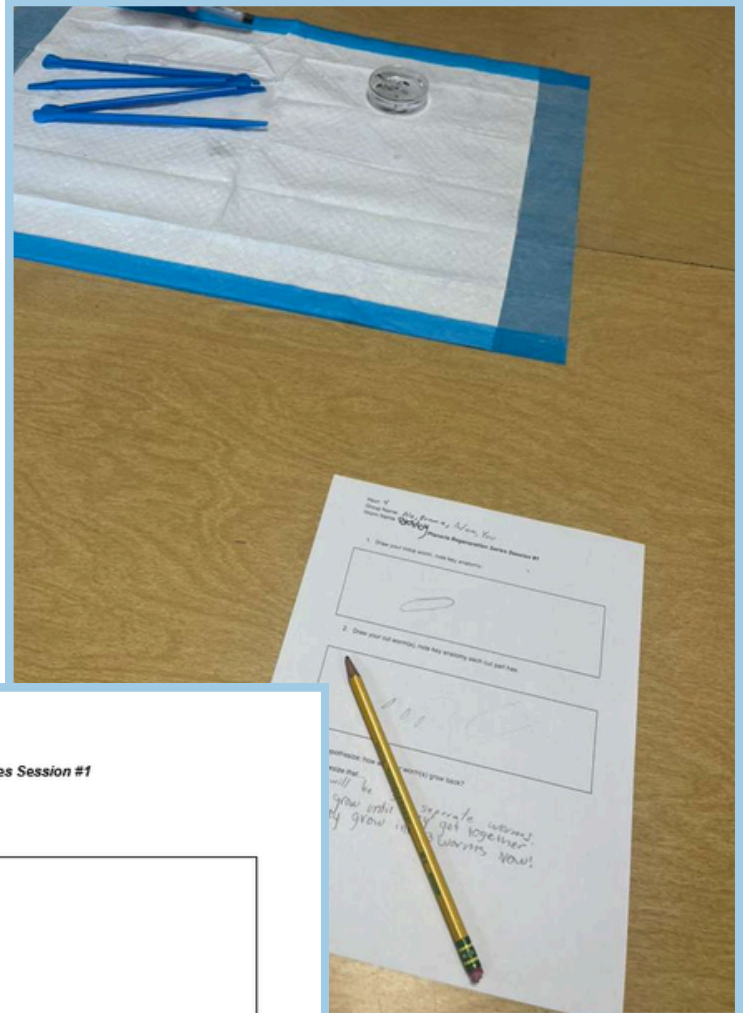
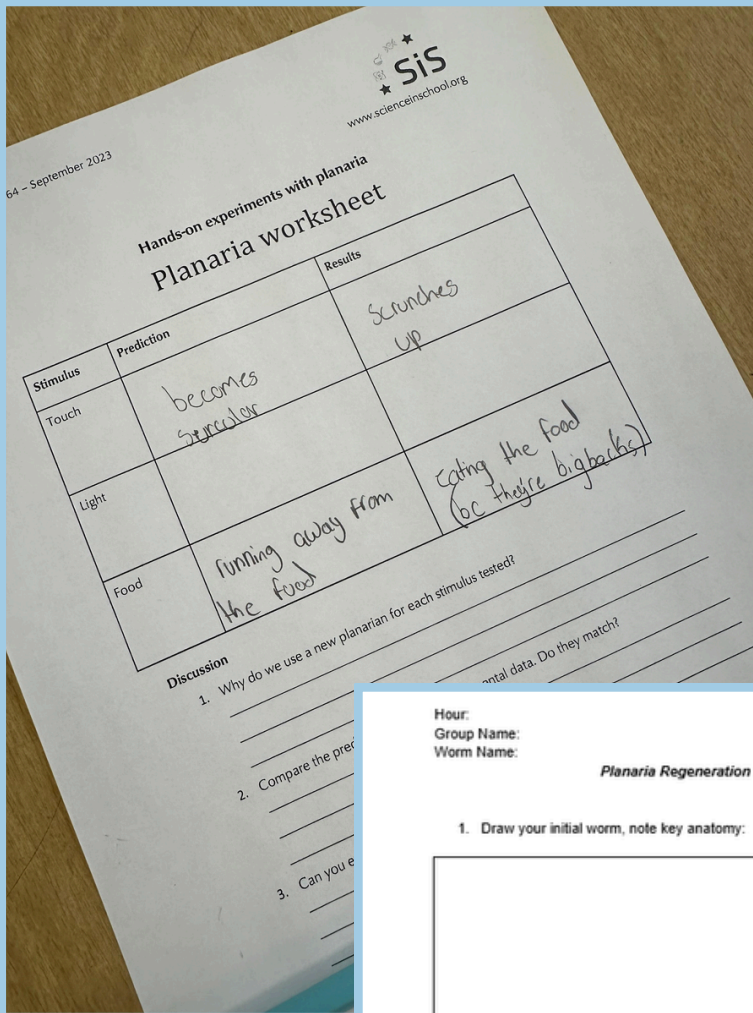
### FORMULA SAE COMBUSTION

### FORMULA SAE ELECTRIC

### MANUFACTURING AND 3D PRINTING

### WE HOPE YOU ENJOYED!

Are you interested in engineering?



Hour:  
Group Name:  
Worm Name:

**Planaria Regeneration Series Session #1**

1. Draw your initial worm, note key anatomy:

2. Draw your cut worm(s), note key anatomy each cut part has:

3. Hypothesize: how will your worm(s) grow back?  
We hypothesize that...

Curated worksheets given to students to fill out and keep track of their observations during the series.

# Engineering Week

**Date:** 2/16/2026 to 2/22/2026

**Audience:** All students

**Attendance:** 50+

**Cost:** \$150

**Description:** Engineering student orgs hosted a week full of interactive workshops, engaging activities and some competition! Students were able to attend workshops about several different areas of engineering and explore its impact on creating a better world. BMES hosted a reverse engineering workshop, and showed students of all engineering disciplines how biomedical engineering can be applied to their degree.

**Evaluation and Outcome:** This week was full of opportunities for students to explore and appreciate the intersections of engineering!



## Winter Red Cross Blood Drive

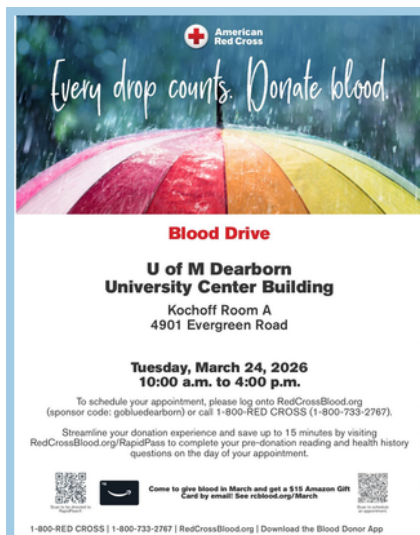
**Date:** 3/24/2026 **Audience:** Community members and all students

**Attendance:** 50+

**Cost:** \$0

**Description:** Teamed up with the Red Cross to organize a blood drive on campus, members register through red cross to donate blood. BMES members also signed up to volunteer at the registration table and canteen, to assist Red Cross members.

**Evaluation and Outcome:** This event was deemed successful by the Red Cross and we have many members of the community and university donate for a good cause.



# Girl Scouts TechXploration

**Date:** 3/28/2026

**Audience:** Local Girl Scouts chapter

**Attendance:** 14

**Cost:** \$150

**Description:** We invited our local Girl Scouts chapter to explore areas of science and technology at UM-Dearborn! Students were exposed to different types of engineering through design activities and scavenger hunts. BMES hosted a hydrogel workshop activity.

**Evaluation and Outcome:** The troop left feeling inspired and eager to learn more about science and engineering!



## UM-Dearborn Open House Research Session

**Date:** 4/11/2026

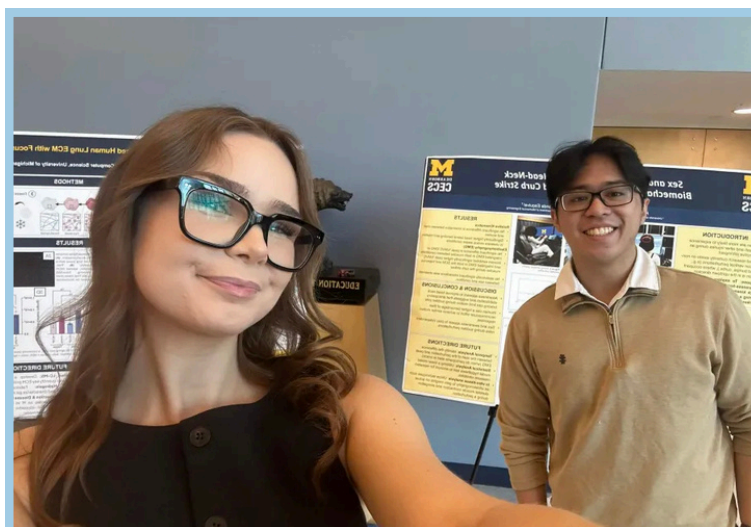
**Audience:** Admitted, prospective, and transfer UM Dearborn students

**Attendance:** 40+

**Cost:** \$0

**Description:** Introduce admitted students to BMES and how our chapter will help them in their college career, answered questions for students who were unsure about engineering.

**Evaluation and Outcome:** We had many interested students and were happy to answer their questions regarding how bioengineering is applied to their degree.



# X. Professional Development Activities

## Abstract:

To enhance professional and academic development opportunities for bioengineering students at UM-Dearborn, BMES organized and facilitated events that bridge research, industry exposure, and academic pathways. These activities aimed to provide students with platforms to present research, explore interdisciplinary collaboration, and gain insight into advanced career trajectories. Through collaborative efforts with multiple student organizations and academic departments, these events were designed to strengthen student engagement, communication skills, and awareness of future opportunities in biomedical engineering.

## STEM Research Symposium

**Date:** 09/29/2025

**Audience:** All students

**Attendance:** 70+

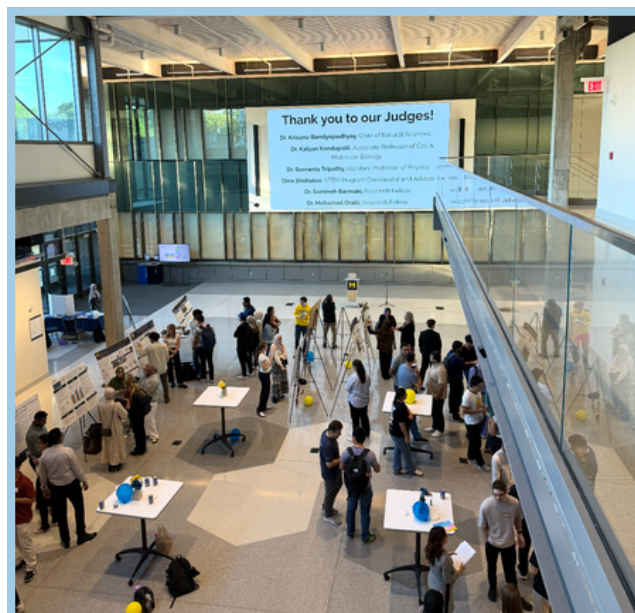
**Presenters:** 24

**Cost:** \$545

BMES organized a Fall 2025 STEM Research Symposium in collaboration with the Chemistry Club, and Biology Club. The event provided a platform for 24 undergraduate and graduate student researchers to present posters based on summer internships, academic projects, and independent research. The symposium featured four award categories to recognize excellence across different dimensions of research: (i) Best Undergraduate Poster (ii) Best Graduate Poster (iii) Best Interdisciplinary Project (iv) Crowd Favorite

### Evaluation and Outcome:

The event successfully fostered interdisciplinary engagement and provided students with an opportunity to develop and refine their scientific communication skills. Participants gained experience presenting research to diverse audiences, while attendees were exposed to a wide range of ongoing work within the engineering and science community. The introduction of live audience voting increased engagement and interaction. Overall, the symposium strengthened collaboration across departments and highlighted the importance of research dissemination at the undergraduate and graduate levels.



# Medical School Information Session

**Date:** 10/20/2025

**Audience:** Pre-med and bioengineering students

**Attendance:** 10

**Cost:** \$0

**Description:**

BMES hosted a virtual information session featuring representatives from the Carle Illinois College of Medicine, an engineering-based medical school integrating medicine and engineering principles into its curriculum.

The session included presentations from admissions representatives and current medical students, providing insights into:

- The structure of an engineering-integrated medical curriculum
- Application strategies and admissions expectations
- Career pathways combining medicine, innovation, and research
- Early clinical exposure and interdisciplinary training

Students were able to interact directly with speakers through a live Q&A session, allowing for personalized guidance and clarification on the medical school application process.

**Evaluation and Outcome:**

The session provided valuable exposure to non-traditional medical education pathways, particularly relevant for biomedical engineering students. Attendees gained a clearer understanding of how engineering skills can be applied in clinical and healthcare innovation settings. The interactive format encouraged engagement and allowed students to ask targeted questions about admissions and career planning. Overall, the event contributed to increased awareness of interdisciplinary career opportunities and supported students in making informed decisions about pursuing medical education.



# Pipetting 101 Workshop (Halloween Edition)

**Date:** 10/22/ 2025

**Audience:** All students (primarily early-stage lab learners)

**Attendance:** 14

**Cost:** Minimal (refreshments: cider and donuts)

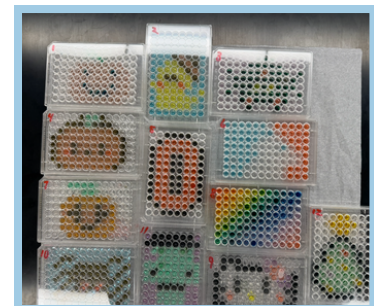
## Description:

BMES organized a hands-on Pipetting 101 Workshop designed to introduce students to fundamental laboratory skills, with a themed Halloween twist to encourage participation and engagement. The session began with instruction on proper pipetting techniques, including accuracy, precision, volume handling, and best practices for avoiding common experimental errors.

Following the instructional component, participants engaged in an interactive and creative pipetting competition, where they used colored solutions to create Halloween-themed designs in a 96-well plate. This activity reinforced technical skills in a low-pressure, engaging environment while promoting attention to detail and fine motor control.

## Evaluation and Outcome:

The event served as an effective introduction to laboratory practices while enhancing student engagement through a collaborative and enjoyable learning environment.



# Pumpkin DNA Extraction (Halloween Edition)

**Date:** 10/29/2025

**Audience:** All students (introductory level biology interest)

**Attendance:** 14

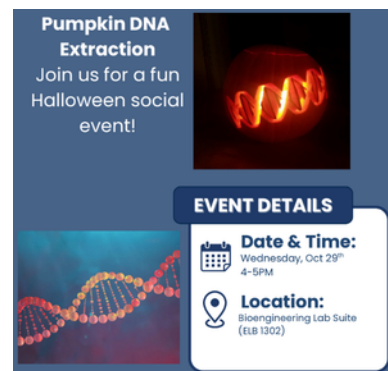
**Cost:** Minimal (refreshments: cider and donuts)

## Description:

BMES organized a hands-on Pumpkin DNA Extraction Workshop as a Halloween-themed educational event to introduce students to fundamental concepts in molecular biology. The session began with an overview of DNA structure, function, and its role in biological systems, followed by a guided demonstration of DNA extraction techniques using pumpkin tissue as the model system. Following the technical component, attendees participated in a creative pumpkin painting activity, fostering a relaxed and engaging environment.

## Evaluation and Outcome:

The workshop effectively combined foundational scientific learning with interactive and social elements. The incorporation of a themed, creative activity enhanced engagement and reduced barriers for students new to laboratory environments, contributing to both skill development and social cohesion.



# XII. National BMES Meeting

BMES was proud to support 15 undergraduate and graduate students who presented at the BMES Annual Meeting in San Diego. Through partial funding from chapter resources, these students represented UM-Dearborn by showcasing their research through poster presentations. Two students were also selected to present in the Drug Delivery Undergraduate Fire Talks, and our faculty advisor, Dr. Caymen Novak, served as a session chair, further highlighting UM-Dearborn's strong presence at the national meeting. Attending the conference gave students valuable exposure to current advances in bioengineering and opportunities to connect with researchers, professionals, and peers in the field. This experience strengthened research communication skills, expanded professional networks, and inspired greater chapter involvement in future national initiatives. The momentum from this year's meeting has already encouraged student interest in the next BMES Annual Meeting in Orlando, Florida, including participation in the student design competition and future prototype development.



# XII. Future Directions

## XII-A. Goals Achieved This Year

During the 2025–2026 academic year, BMES at the University of Michigan–Dearborn made meaningful progress in chapter growth, outreach, research engagement, and student professional development. One of the chapter’s biggest accomplishments this year was expanding its overall reach and visibility across campus and in the surrounding community. Membership grew to 131 students, reflecting a 37% increase from the previous year, showing that BMES continues to attract students who are interested in biomedical engineering, research, and service.

A particularly important goal achieved this year was the chapter’s expansion of outreach programming. BMES organized and participated in 13 outreach events serving elementary, middle, and high school students. These events allowed the chapter to introduce younger students to engineering and biomedical engineering through hands-on, engaging activities that made STEM feel approachable and exciting. Some of the strongest examples included the three-week Planaria Regeneration Series with over 250 middle school students, “Slingshot into Engineering” with more than 100 fourth-grade students, research outreach through the Michael Berry Career Center, and participation in Michigan Career Quest. These efforts strengthened the chapter’s role not only as a student organization, but as a meaningful community presence in the Dearborn area.

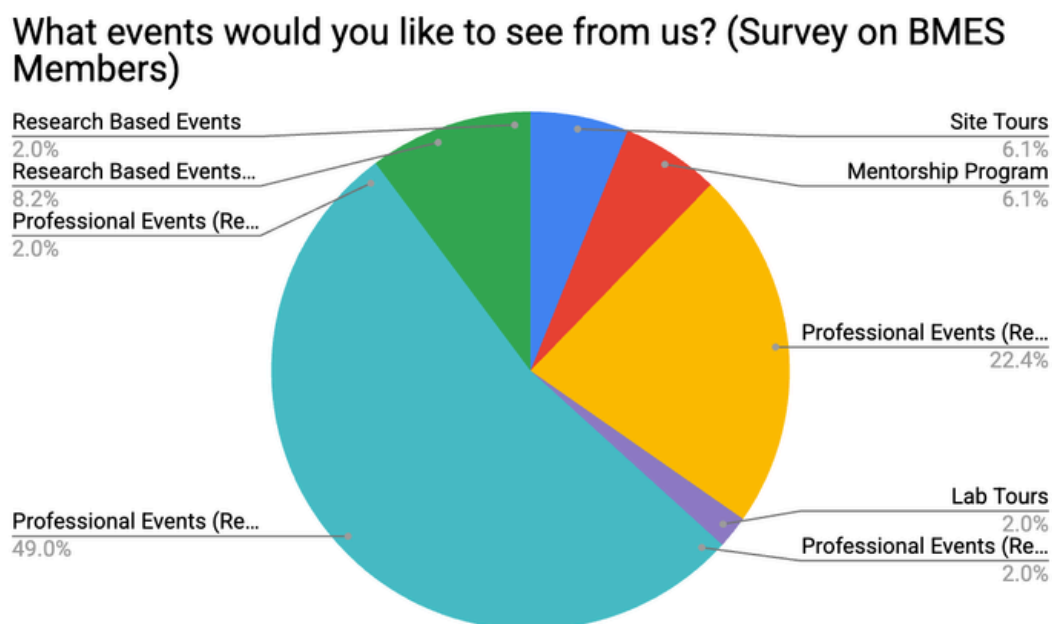
In addition to outreach, the chapter also strengthened undergraduate and graduate research engagement. BMES hosted the Fall 2025 STEM Research Symposium, which featured 24 student presenters and created an interdisciplinary space for students to share research and build communication skills. The chapter also supported 15 students presenting at the BMES Annual Meeting in San Diego, giving members national exposure and helping them see themselves as active contributors to the broader bioengineering field. Altogether, this year’s achievements reflect a chapter that has grown not only in size, but in impact, confidence, and visibility.



## XII-B. Next Year Goals and Leadership Strategy

For the 2026–2027 academic year, BMES at UM-Dearborn hopes to build on this year’s momentum by continuing to expand outreach while placing a stronger emphasis on professional development, mentorship, and industry connection. Based on member feedback and attendance trends, students are especially interested in career-focused events, alumni insight, lab tours, skill-building, and professional networking. These areas are especially important for our chapter because biomedical engineering opportunities can feel more limited in our local region, where industry is more heavily associated with automotive and traditional engineering fields than with biotech or medical device careers. BMES therefore hopes to help close that gap by creating more opportunities for students to explore what a bioengineering career can look like.

To support these goals, the chapter plans to continue reaching out to alumni, recruiters, faculty, and companies for professional talks, panels, and internship insight. BMES also hopes to strengthen mentorship within the chapter by creating stronger connections between underclassmen and upperclassmen. In addition, the chapter expanded its leadership structure this year by including a Social Media Chair, a role added to support the club’s continued growth through stronger communication, event promotion, and visibility. The chapter has also applied for an outreach grant and plans to develop more structured, hands-on workshops in areas such as cell culture and related bioengineering skills, with the goal of offering students certificates of completion. At the same time, BMES plans to continue building on its outreach success by returning to local schools, expanding STEM programming, and developing recurring partnerships. Continued fundraising and external support will remain important to help support outreach supplies, conference travel, professional development activities, and future participation in the next BMES Annual Meeting in Orlando.



Survey conducted at a spring BMES general body meeting to identify member priorities for 2026–2027 chapter programming.

