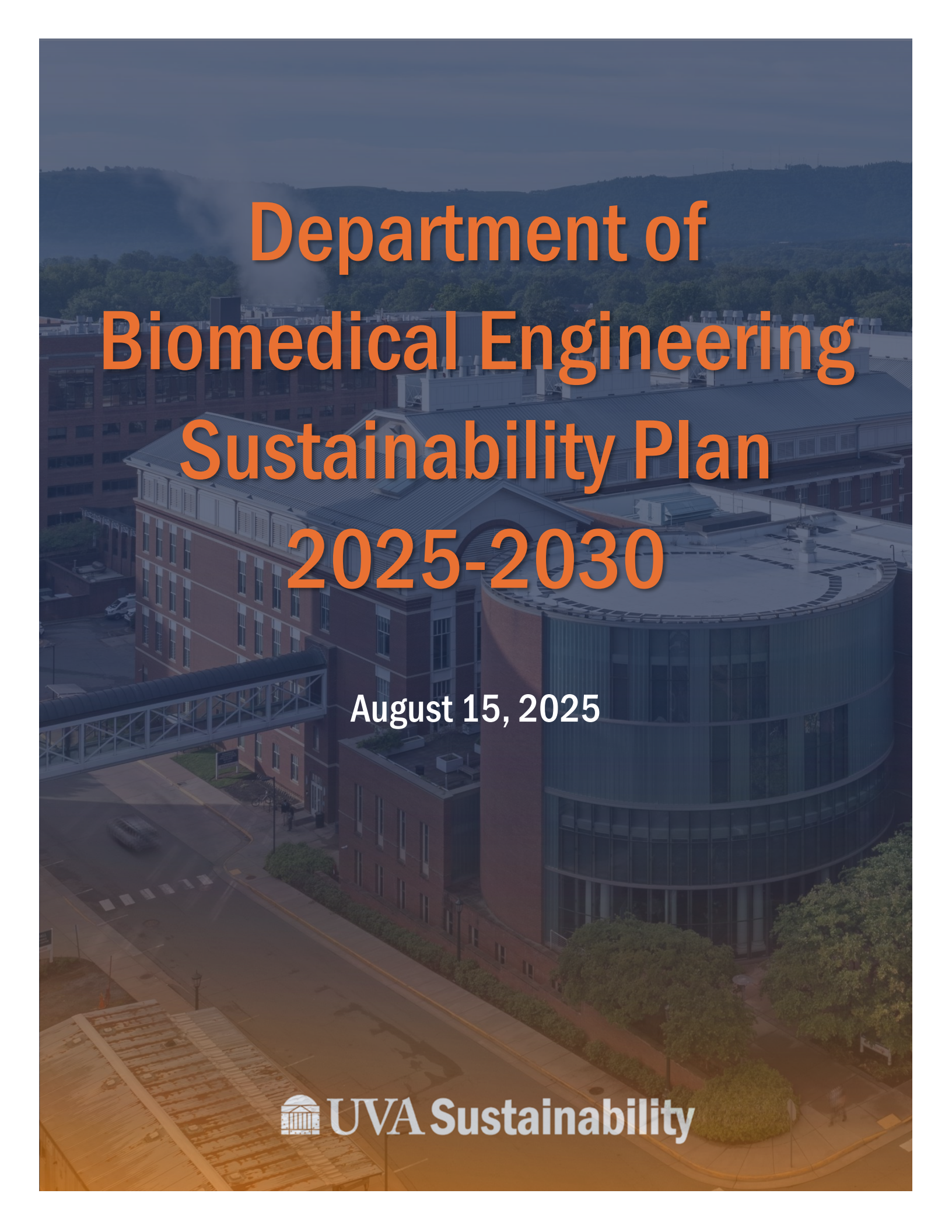


An aerial photograph of a university campus. In the foreground, there's a large, multi-story brick building with many windows. To its right is a modern, circular building with a glass facade. A pedestrian bridge connects the two buildings. In the background, there are green hills under a clear sky. The text is overlaid on the image in a large, orange, sans-serif font.

Department of Biomedical Engineering Sustainability Plan 2025-2030

August 15, 2025



UVA Sustainability

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Letter from Department Chair, Dr. Shayn Peirce-Cottler

Welcome to the Department of Biomedical Engineering's (BME's) first Sustainability Plan! Our Department, due to its unique position innovating and teaching at the intersection of Life Sciences, Engineering, and Medicine, has the opportunity to contribute meaningfully to advancing the University of Virginia's sustainability goals. This inaugural Sustainability Plan is grounded in BME's mission of transforming healthcare and medicine. Importantly, to achieve our goals we intend to maximize our existing capabilities and focus on students' sustainability leadership, educational development, and career preparation.

Sustainability challenges can be overwhelming given that there are many aspects outside of our control, even as they are important to track and improve upon. By centering our plan around areas where we have the greatest opportunity to change our behaviors as a group and as individuals, we will have a meaningful impact on the waste, water, and greenhouse gas emissions our activities generate. Where possible, we hope to exchange successes and lessons with our UVA colleagues in other Schools, as well as with BME departments elsewhere.

Each goal identified in this plan is supported by strategic actions in alignment with the UVA 2030 Sustainability Plan, as well as key performance indicators and internal targets relevant to BME's mission and priorities. We are also committed to aligning with University priorities and the 2030 Great and Good University Plan. Given that we serve our community through the following six areas, our sustainability goals will be implemented correspondingly:

- I. Research and Design
- II. Translational Innovations
- III. Outreach and Inclusivity
- IV. Teaching and Mentoring
- V. Faculty and University Excellence
- VI. Alumni Relations

I will report our progress annually, at a minimum. In the meantime, I encourage you to identify your area of sustainability interest and get involved!

Warm regards,



Shayn Peirce-Cottler, PhD

Distinguished Professor and Department Chair of Biomedical Engineering

Background

The Graduate Biomedical Engineering Society (GBMES) is a student-led organization that aims to offer academic, professional, and social support for graduate students within the BME department at UVA. GBMES also creates initiatives to support social and environmental change at the student, faculty, and departmental levels, including addressing the extensive energy, water, and waste required for scientific advancement. As biomedical researchers, scientists, and engineers, we have been pleased to help lead the conversation on our roles and responsibilities in combating climate change, which is negatively impacting the health of people across the globe. For a full description of the student leadership that led to the creation of this BME Department Sustainability Strategic Plan, please see the Appendix.

The plan will serve to focus student, faculty, and staff efforts to incorporate sustainability initiatives into standard operating procedures, such as grant writing, scientific ordering, lab equipment purchasing and use, scientific travel, event food purchasing, and more. In 2024, GBMES's efforts were recognized when we were a student category winner of the UVA Sustainability Leadership Award. GBMES leads by example, striving for excellence, and through this, we are hopeful that sustainability will be integrated into BME department activities and beyond.



1 The Abebayehu Lab celebrating their Green Labs Certification in March 2025

Authors: Tor Breza, Sam Crowl, and Noah Perry

Sustainability Plan

Buildings and Operations

Goal 1: Sustainable Labs

Align research practices in BME laboratories with the [UVA Green Labs Program](#), engaging lab occupants (students, researchers, and investigators) in co-creating strategies to reduce the environmental impact of laboratory research. For infrastructure-related Sustainable Labs projects, continue to coordinate with the Office for Sustainability (OFS) to ensure progress towards UVA's carbon neutrality goals.

Responsible leaders

Graduate Biomedical Engineering Society (GBMES) Sustainability Chair, BME Sustainability Committee Faculty Co-Chair, and OFS Green Labs Specialist

Strategic Actions

1. Recruit a Green Leader for each lab. This person would be responsible for maintaining the lab's [Green Lab Certification](#) and ensuring participation in the annual *International Freezer Challenge* and *Shut the Sash Competition*.
2. Ensure that Green Leaders and other key stakeholders in labs take the free [My Green Lab Ambassador Program training](#).
3. GBMES Sustainability reps will coordinate with Green Leaders to track and report on metrics, including:
 - Green Lab certification status (recertification every 3 years)
 - Participation in the annual *Shut the Sash Challenge*
 - Participation in the annual *International Freezer Challenge*
4. Achieve certification in remaining eligible BME labs by 2026 and aim to maintain certification across all BME labs.
5. Host an annual consortium for certified labs to learn and share best practices.

Goal 2: Waste

Minimize waste to landfill, hazardous waste, and negative environmental/social impacts associated with purchasing products for BME spaces, operations, education, and research.

Responsible leaders

BME Facilities Manager, Graduate Biomedical Engineering Society (GBMES) Sustainability Chair, and OFS Green Labs Specialist

Strategic Actions

1. Develop and regularly share a list of resources for department purchasers.
 - 1.1. Communicate [UVA policy](#) that all new capital equipment be [ENERGY STAR](#)-rated.
 - 1.2. Communicate additional recommendations that all IT equipment be [EPEAT](#) registered, and lab materials be [ACT](#)-certified when possible/applicable.
 - 1.3. Share other suggested resources: [My Green Lab Ambassador Training](#), [Guide to Stocking a Sustainable Lab](#), Green Purchaser training from OFS team members, [Sustainable Purchasing Leadership Council](#) case studies, guidance, webinars, and other resources.
2. Establish an inventory of department equipment available for sharing among labs.
 - 2.1. Consider collaborating with other neighboring departments (e.g., Pathology, Cardiovascular Research Center, etc.)
3. Formalize commitment to [Zero Waste Events](#) for all department functions.
 - 3.1. Communicate UVA's [Single-Use Plastic Requirements](#) (also [here](#)) to all staff, faculty, and student leaders who plan events.

Engagement

Goal 3: Training

Equip faculty, staff, and students in the UVA BME community with the tools and opportunities to engage actively with sustainability initiatives by integrating sustainability into onboarding and training opportunities.

Responsible leaders

OFS Green Labs Specialist and BME Sustainability Committee Office Staff Member



2 Dr. Chris Highley, faculty co-chair of the UVA Sustainability Committee

Strategic Actions

1. Develop BME resource(s) to be shared during training or onboarding that can highlight relevant sustainability resources.
 - 1.1. Consider creating video content that can be repurposed across multiple platforms.
 - 1.2. Consider integrating the following resources:
 - 1.2.1. Sustainable Lab Operations: Shutting the sash, freezer maintenance, Green Labs certification, resource sharing, procurement-related resources, and best practices around inventorying
 - 1.2.2. Transportation: Best practices for reducing transportation-related emissions, including promoting the use of virtual options when available/feasible and identifying resources (UTS, Charlottesville E-Bike Lending Library, carpooling)
 - 1.2.3. Engagement: How to engage with the Office for Sustainability and other sustainability advocates around Grounds (Environmental Institute, Committee on Sustainability Working Groups, UVA Health Sustainability Committee)
 - 1.2.4. Other Resources: Core facilities, MERCI Program, ReUse Store, ROSE Program, Zero Waste Events (see Goal 2.3), and [UVA Waste Directory](#)

Curriculum & Research

Goal 4: Curriculum Development

Be at the national forefront for innovative and student-centered new course offerings and associated co-curricular activities that integrate sustainability, environmental, and climate change challenges.

Responsible leaders

BME Undergraduate Program Director, BME Master of Engineering (ME) Program Director, and BME Graduate Program Director

Strategic Actions

1. Review goals of the next curriculum revamp and where sustainability might strengthen revised offerings (e.g., IDEAS lab, capstone opportunities, or collaborating with sustainability-focused groups for ME projects).
 - 1.1. Investigate sustainability course requirement for undergraduates that highlights the role of biomedical engineers in achieving the [U.N. Sustainable Development Goals \(SDGs\)](#), including #3 Good Health and Well-Being.
2. Benchmark other schools' courses, multi-disciplinary concentrations, and faculty symposia at the intersection of BME and sustainability.
 - 2.1. Resources: [Planetary Health Report Card](#), [Virginia Clinicians for Climate Action](#), [UVA Health System Sustainability Committee](#), [Practice Greenhealth](#)

Goal 5: Research Development

Establish BME as a top producer of academic articles and action research projects focused on BME and sustainability topics.

Responsible leaders

Departmental Research Success Committee Chair(s), Postdoc Sustainability Representative, and BME Sustainability Committee Faculty Co-Chair

Strategic Actions

1. Host an annual “grant-brewing” event that is sustainability-themed to support building sustainability into grants.
 - 1.1. Resource: [BETR Grants](#)
2. Participate in the [SOM/Environmental Institute faculty symposium on sustainability research](#).
3. Identify existing research symposia and similar events where a special call for applications on sustainability-focused projects can be integrated (e.g., the undergraduate research symposium).
 - 3.1. When possible, highlight sustainability actions relevant to research (e.g., Green Labs Certification, climate impacts related to research outcomes).

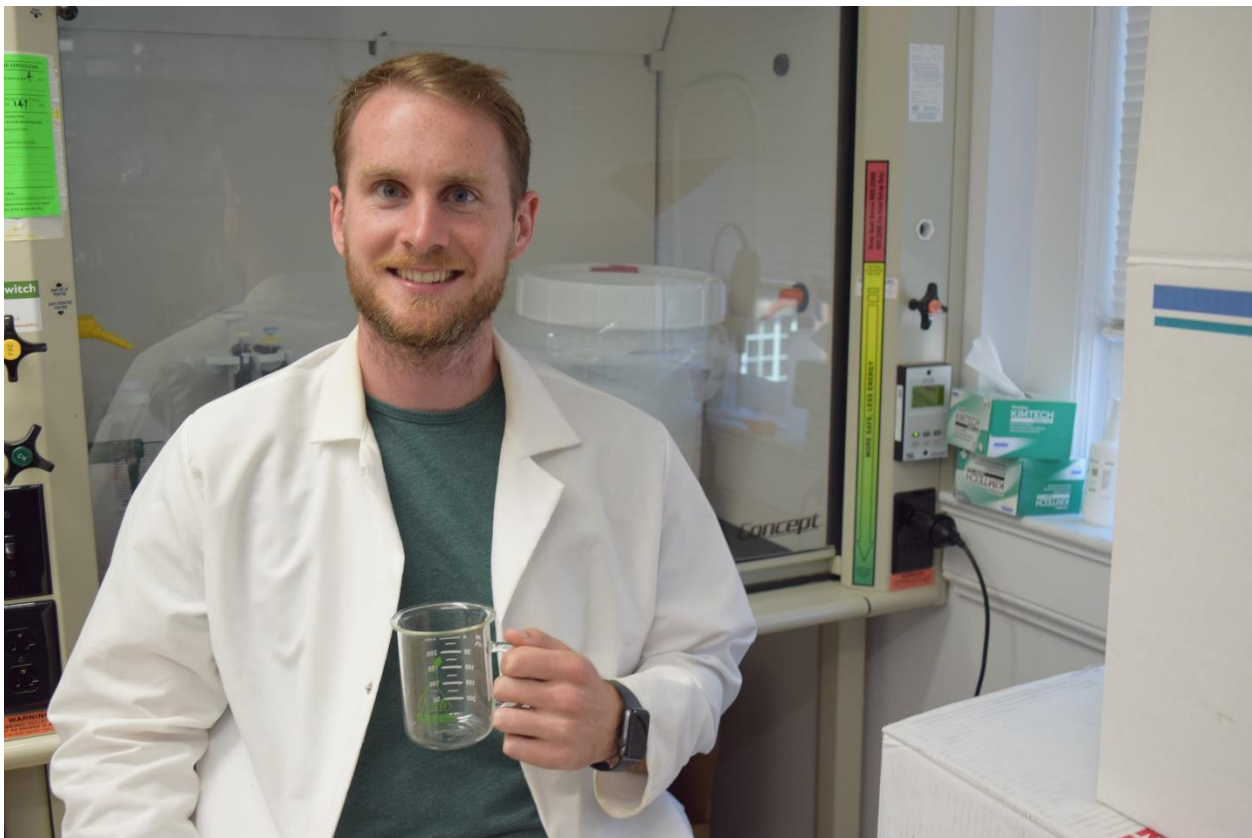


3 The Multiscale Muscle Mechanophysiology (M3) Lab celebrating their Green Labs re-certification in June 2025

Governance and Accountability

The BME Sustainability Committee will be led by two co-chairs - one faculty member appointed by the Department Chair and one student representative appointed by the Graduate Biomedical Engineering Society (GBMES) - and will meet every other month. The Committee will operate according to the Biomedical Engineering Department Sustainability Committee Charter.

One of the co-chairs will also participate in monthly meetings of the [Green Labs Working Group](#) and the [Health System Sustainability Committee](#), respectively. BME Sustainability Committee membership will include students, faculty, and staff volunteering to serve without term limits.



4 Dr. Noah Perry, inaugural 2021 Graduate Biomedical Engineering Society (GBMES) Sustainability Chair

Strategic Planning References

Appendix A: Sustainability Committee Charter

I. Organization Name and Description

The “BME Sustainability Committee” (hereafter, “Committee”) is composed of faculty, students, and staff members from within the UVA BME community. The Committee is a meeting point for a wide range of efforts addressing sustainability at all levels of BME, encompassing all of research, teaching, and service operations.

II. Purpose

The purpose of this Committee is to advocate for and foster sustainability-related initiatives within the UVA BME department. The scope of the Committee is strictly limited to UVA BME. However, it performs a degree of outreach in terms of communicating and coordinating ideas with other organizations, both within and beyond UVA, as appropriate. The mission of the Committee addresses all aspects of sustainability. A non-exclusive list of activities involves: energy conservation at all levels; materials conservation and reuse; reduce/replace/recycle efforts (especially in the context of plastics); equipment/resource sharing; and promoting alternate travel/virtual attendance, etc.

We encourage active participation in sustainability efforts by all members of the BME community. However, we respect that each individual has a unique perspective on this challenge, and we respect these unique perspectives – i.e., every individual chooses their level of engagement.

III. Membership requirements

Must be currently employed or enrolled at the University of Virginia as an undergraduate or graduate student, staff, or faculty.

The Committee does not restrict its membership activities on the basis of age, color, disability, gender identity, material status, national or ethnic origin, political affiliation, race, religion, sex (including pregnancy), sexual orientation, veteran status, or family and genetic information.

IV. Officers

Faculty Chair/Co-Chair

- a. Calls and presides over official meetings of the Committee
- b. Acts as the tie-breaking vote in matters of business
- c. Maintains Committee in good standing with UVA via communication with other interested University entities (e.g., Office for Sustainability)

Student/Staff Chair/Co-Chair

1. Leads Student/Staff efforts
2. Records minutes of all official meetings of the Committee and emails them to everyone after the meeting; if not present, designates another member to take minutes in their place
3. Maintains official historical record for the Committee (constitution, bylaws, minutes, rosters, financial records, risk management, records, etc.)

V. Officer Selection

- A. Faculty and staff members are appointed to the Committee by the BME Dept. Chair with the exception of representatives from the BME Postdocs who will be nominated by that group.
- B. Student members of the Committee are nominated by Committee appointees and existing student members, if any, and are invited to the Committee for terms that are typically one year in length, with longer service possible at the Committee Chair's discretion.
- C. Removal from the Committee will follow a process determined by the Committee Chair.

VI. Meetings

Meetings will occur, nominally, once every two months and will be scheduled in agreement with the officer team. Any officer can initiate and lead the meeting. The Student/Staff Co-chair will be responsible for taking attendance and meeting notes. At least two officers must be present at each meeting. Meetings should be centered on education, event planning, and discussing strategic opportunities for promoting sustainability.

VII. Bylaws

Bylaws will be created to dictate the structure and procedures of the organization. Bylaws may be proposed by any member and must obtain a majority vote of the membership.

VIII. Committees

Committees of the organization will be created from time to time by the executive board in order to organize and distribute the workload of the organization. Committees shall be governed by bylaws and shall not have authority over the executive board or the general body.

Any active member (including the officers) may serve as a committee chair. Committee chairs will be appointed by the Co-chair and will coordinate the planning and execution of the committee project. Any number of active members may be on a committee.

IX. Advisors

- A. If the organization deems it necessary or desirable, one or more University of Virginia faculty, staff, or graduate students may serve as an advisor.
- B. Advisors will be responsible for meeting with the leadership team at least once a semester to guide initiatives and provide general mentorship.

X. Amendments

- A. Amendments to the sustainability plan may be proposed in writing by any active member of the Committee. Amendments should be submitted to the Co-chair, who will then designate time for discussion of the proposed amendment at the following full-body meeting.
- B. Proposed amendments will become effective following approval of a two-thirds (2/3) majority vote of active voting members.

XI. 2025-2026 Committee Structure

Position: Name

Faculty co-chairs: Chris Highley and Noah Perry

Student members: Audrey Kidd, Tor Breza, Sam Crowl

GBMES Sustainability Co-Chairs: Emma Loewgren and Lena Zell

Postdoc member: Róża Przanowska

Undergraduate BMES Sustainability Chair: Samyut Ghimire

Appendix B: GBMES Leadership in Sustainability Planning

Who is GBMES?

The Graduate Biomedical Engineering Society (GBMES) is a student-led organization that aims to offer academic, professional, and social support for graduate students within the BME department at UVA. GBMES also creates initiatives to support social and environmental change at the student, faculty, and departmental levels, including addressing the extensive energy, water, and waste required for scientific advancement. Further, given "our mission [to] transform healthcare and medicine...by discovering new knowledge, designing new technologies and training the next generation of leaders to solve the world's challenges," we as biomedical researchers, scientists, and engineers must begin to discuss our roles and responsibilities in combating climate change, which is negatively impacting the health of people across the globe.

GBMES Sustainability Chair and Progress

GBMES President in '21-'22, Delany Fisher, created a new board position, Sustainability Chair, which was first held by Noah Perry. Noah connected BME's numerous academic research labs with the Green Labs program at UVA and encouraged adoption of sustainable lab practices at BME Faculty Meetings. Through Noah's hard work, three of the 26 BME Labs completed their Green Labs certification process in this first year.

As the second Sustainability Chair in '22-'23, Tor Breza led efforts to: 1) increase the visibility and accessibility of sustainability efforts at the lab and departmental levels; and 2) encourage the adoption of sustainability practices and outreach across the other engineering and biomedical sciences departments at UVA. Through a new BME department-wide *Sustainability Challenge*, the number of Gold Green Lab-certified labs increased from three in 2022 to ten in 2023.

BME Department Sustainability Committee

With the support of GBMES and BME Department Chair, Shayn Pierce-Cottler, Ph.D., the first BME Department Sustainability Committee was established in 2022. The inaugural committee consisted of Ph.D. students as well as faculty John Hossack and Chris Highley. With Sam Crowl as the '23-'24 GBMES Sustainability Chair, the Sustainability Committee initiated development of a departmental action plan to focus student, faculty and staff efforts to incorporate sustainability initiatives into standard operating procedures, such as grant writing, scientific ordering, lab equipment purchasing and use, scientific travel, and more.

Collaboration

Through participating in the monthly Green Labs Working Group meeting, GBMES realized the importance of increasing engagement in our sustainability efforts. Thus, GBMES works alongside Green Labs to encourage student-led initiatives within other departments, acting as an example of best practices and a source of additional support. For example, the '22-'23 GBMES President, Yoni Aberra, facilitated a meeting between Green Labs/GBMES Sustainability and the Graduate Engineering Student Council (GESC) within the School of Engineering and Applied Science (SEAS), giving a call to action to develop sustainability positions across the different graduate student organizations and offering GBMES as a resource. From these efforts, additional student organizations have created Sustainability Chair positions, and a new Student Organization Sustainability meeting was created to encourage collaboration across student groups to reach our sustainability goals, such as increasing the number of zero-waste food events and expanding recycling of lab plastics.

GBMES is in a unique position to act as leaders in sustainability, not only within the BME department but also across both SEAS and the School of Medicine (SOM). Our board is incredibly passionate and collaborative, showing time and time again that we can enact widespread discussion and change by engaging with our UVA community. In 2024, GBMES's efforts were recognized when we were a student category winner of the [UVA Sustainability Leadership Award](#). GBMES leads by example, striving for excellence, and through this, we are hopeful that sustainability will be integrated into the BME department and beyond.

Authors: Tor Breza, Sam Crawl, and Noah Perry

Appendix C: University Sustainability Resources

School or Unit-Specific Plans Darden School of Business Sustainability Plan Facilities Management Sustainability Plan Library Sustainability Plan	Overall University Plans UVA 2030 Sustainability Plan UVA Great and Good Plan UVA Health <i>One Future Together</i> Strategic Plan
Energy, Waste & Food Energy Green Labs Program Waste Green Workplace Program Single-use Plastics* Sustainability Passport Program Waste Minimization and Landfill Diversion* Zero Waste Events Food Sustainable Food Goals Other Carbon Removals and Offsets at UVA*	Buildings Building Efficiency Program* Green Building Standards* Smart Labs Sustainable Clinics [link forthcoming] * Required