

# COLLEGE OF ENGINEERING AND MATHEMATICAL SCIENCES

# Inclusive Excellence Action Plan 2023-2028

### **INTRODUCTION**

Inclusive Excellence Committee/Implementation Team Members and College of Engineering and Mathematical Sciences (CEMS) Diversity, Equity, and Inclusion (DEI) Committee:

Name	Title	College/Division/Department/Unit
Linda Schadler	Dean	CEMS
KC Williams	Asst Dean, Equity, Belonging, and Student Engagement	CEMS and DEI Committee
Bree Mathon	Sr. Lecturer, Civil and Environmental Engineering	CEMS and DEI Committee

#### **CEMS DEI Committee:**

Name	Title	College/Division/Department/Unit
Dustin Rand	Sr. Lecturer, Mechanical	CEMS
	Engineering	
David Jangraw	Asst. Professor, Electrical and	CEMS
	Biomedical Engineering	
John Lens	Professor of the Practice, Civil	CEMS
	and Environmental Engineering	
Lisa Dion	Sr. Lecturer, Computer Science	CEMS
Danica Dytioco	Undergraduate Student, Junior,	CEMS
	Environmental Engineering	
Izzy Haase-Puissant	Undergraduate Student, Junior,	CEMS
	Computer Science	
Olivia O'Brien	Undergraduate Student, Senior,	CEMS
	Biomedical Engineering	
Sarah Lindberg	Graduate Student, Statistics	CEMS



# Unit(s) within College, Division, Department or Unit

- Civil and Environmental Engineering Department
- Computer Science Department
- Electrical and Biomedical Engineering Department
- Mathematics and Statistics Department
- Mechanical Engineering Department
- Physics Department
- Dean's Office which includes:
  - o Administrative Support
  - o Equity, Belonging, and Student Engagement
  - Laboratory Safety and Support
  - Student Services

# A Vision of Responsible and Equitable Development and Implementation of Technology

UVM's College of Engineering and Mathematical Sciences will create a more sustainable and equitable future through its excellence in education and research focused on solving the complex problems facing our world. The College's graduates will be recognized for: their acumen in discipline, interpersonal and inclusive communication skills, commitment to a just world, lifelong learning, creativity, and actively empathetic leadership.

# The Mission of CEMS @ UVM

UVM's College of Engineering and Mathematical Sciences is an open and conscientious intellectual community focused on excellence and committed to its public responsibilities as part of a comprehensive land grant institution. The College's mission is to:

- Prepare the next generation of technical and societal leaders who thrive in a world that is volatile, complex, and full of promise, and who are committed to a sustainable and equitable world, lifelong learning, and empathetic leadership.
- Advance knowledge in fields that align with our commitment to a more sustainable future.
- Provide leadership and develop partnerships across VT with K-12 STEM (Science, Technology, Engineering, and Mathematics) educators, companies, and municipalities.

## Background



For decades there has been a focus on increasing the representation of women and BIPoC (Black, Indigenous, and People of Color) in the STEM fields. While there has been progress, it has been limited. The demographics in CEMS at the University of Vermont are above the average for some populations, but behind the universities that are leading the way. In addition to diversifying our demographics, CEMS is committed to continuing to build a culture of inclusive excellence in the college.

The primary motivation for creating a culture of inclusive excellence is to ensure that we are educating a diverse workforce and creating a welcoming place to work and learn. This is particularly critical for the STEM disciplines where the grand challenges of our time require complex solutions best developed from a team of diverse expertise and perspectives.

CEMS recognizes identities pertaining to race, ethnicity, citizenship and documented status, gender identity, sexual and romantic orientations, ability, age, neurodiversity, socioeconomic class or status, and spiritual and religious practices, and acknowledges the importance of how identities and affiliations impact community members' experiences. We also recognize affiliations, including military and veteran status, and other statuses that may increase community members' marginalization, and are committed to our responsibility to address identity-based oppression within higher education and advocate for resources and data needed to identify challenges, implement impactful changes, and measure progress. We embrace the UVM land acknowledgment (<a href="https://www.uvm.edu/news/diversity/board-adopts-land-acknowledgment">https://www.uvm.edu/news/diversity/board-adopts-land-acknowledgment</a>).

#### In CEMS we value:

- The university's Our Common Ground (OCG) statement: respect, innovation, integrity, openness, justice, and responsibility. We have added courteous goodwill to OCG
- Academic excellence
- Our community of peers, students, staff, and faculty and the communities from which they come.
- Open, honest, and culturally adept communication
- Community members that hold each other accountable for inclusive practices
- The health and wellness of our community and the ways in which we can support and include people in every stage of their physical, mental, and spiritual health, fitness, and wellness journeys.



#### SIX PART STRATEGY FOR DEI SUCCESS

### Part 1 – Academic Success Goals and/or Co-Curricular Learning

Since 2018, CEMS has increased its financial investment in DEI for student support. The new office of Equity Belonging and Student Engagement (EBSE) has a full-time staff member, plus two graduate assistants. We have supported student groups including NSBE (National Society of Black Engineers), SWICS (Society of Women in Computer Science), and SWE (Society of Women Engineers). We have grown the summer bridge program to include CEMS students (a few a year) that is run by the MOSAIC center. The EBSE details are presented later in the document.

1. Reach parity in retention and 4-year graduation rates for undergraduate students regardless of their identity or college preparation by 2027 (2023 incoming class).

Sub Goal and Action Items	Responsible Group	Time Frame
Continue to improve and implement Study C.A.T.S. (Connect, Achieve, Thrive, Succeed) which is already improving the retention of students with GPAs below 2.3.	• EBSE (Office of Equity Belonging and Student Engagement)	• Ongoing
Continue to develop <i>e</i> STEM initiatives that support BIPoC student participation in clubs, research, and professional development. New data suggests working intentionally with BIPOC STEM students yields important retention results.	• EBSE	• Ongoing
Create Departmental Action Teams to:  - Study best practices to create inclusive pedagogy for their field, particularly, but not limited to, introductory courses  - Determine resources necessary to sustain the plan  - Implement the plan and assess it annually with the new resources.	<ul> <li>Departments</li> <li>Dean's Office</li> <li>Directors of Curricular Enrichment</li> </ul>	<ul> <li>DATs formed Fall 2023.</li> <li>Plans approved and pilots implemented Fall 2024</li> </ul>
Create a tutor database for CEMS-specific courses with the help of the Student Success Center and using their criteria for identifying appropriate students.	Deans's Office and The Office of Student Success	• Identify key courses fall 2023, tutors by fall 2024



Create coordinated graduate student office hours and locations in the early evening so students can get support on several topics at one time. Dean's Office will find classrooms.	Dean's Office,     Chairs, and     Faculty	<ul> <li>Pilot Fall 2023</li> <li>Implement Spring 2024</li> </ul>
Provide CEMS specific GTA (Graduate Teaching Assistant) training that includes Universal Design for Learning (UDL) principles and inclusive classroom practices. Follow up training include microteaching sessions for new and existing GTAs who teach	Dean's Office and Graduate Program Director	• Piloted Fall 2022

# 2. Develop a Career Readiness Program and set of outreach opportunities that engage all students (graduate and undergraduate).

Sub Goal and Action Items	Responsible Group	Time Frame
Women and nonbinary networking night	Career Center with CEMS     Career Readiness     Coordinator	Ongoing
eSTEM events on research experiences for undergraduates	<ul> <li>Equity Belonging and Student Engagement with the ADR</li> </ul>	Ongoing
Required Career Readiness Badge for all students that include a resume, cover letter, interview practice, thank you notes, participation in networking nights and career fairs or graduate school information sessions.	CEMS Career Readiness     Coordinator in     coordination with     department career     readiness courses??	• Piloting Fall 2023 in Brightspace
Develop graduate student-specific programming in Career Readiness	Graduate Program     Coordinator	• Pilot Fall 2023

- 3. Ensure equitable access to CEMS awards by giving awards by cohort instead of by SCH to ensure that those with AP credit do not get earlier access to awards (started Fall 2021).
- 4. Provide leadership training to all club leaders, led by the Office of Equity Belonging and Student Engagement (started Fall 2021).
- 5. Expand our graduate student orientation beyond the first week to include regular workshops for graduate students on graduate academic success and leadership (Graduate Program Coordinator, Fall 2023)



#### Part 2 – Recruitment and Retention

Note: This complements the plan from Enrollment Management which has strategies in place to diversify the student body

While the percentage of women-identifying people and people of color is within the national averages for STEM schools, there is room for improvement. Recruiting women-identifying faculty and faculty of color has been a key focus. While we have a higher percentage of women faculty in the junior faculty ranks than ever before, several women faculty either retired during COVID or returned to their countries of origin. We continue to implement the best hiring practices to recruit diverse faculty. As a result, we have a more diverse cohort of junior faculty than senior faculty. We also need to diversify our student ranks. We have done a lot in recent years to achieve student diversity, but we have a long way to go. To date:

- 1. We supported the initiation of a student chapter of the National Society of Black Engineers (NSBE) with more than \$30,000 of funds in the last four years.
- 2. We have supported the Society of Women in Computer Science (SWICS) and the Society of Women Engineers (SWE) though they are already receiving significant Student Government Association funds.
- 3. We have created an Office of Equity, Belonging, and Student Engagement led by KC Williams and supported with two graduate students at 20 hours a week from the Higher Education and Student Affairs (HESA) master's program as well as several HESA practicum students and undergraduates. EBSE runs several important programs and initiatives:
  - a. <u>eSTEM</u> The <u>eSTEM initiative at UVM</u> was founded in April 2021 using the principles of the <u>Meyerhoff Scholars Program</u>. The goal was to develop a comprehensive program focused on the specific factors associated with minority student success in STEM subjects (Maton & Hrabowski, 1995). The initiative provides students with financial, academic, and social support while encouraging collaboration, close relationships with faculty, and immersion in research. Specific goals include:
    - Inspire confidence in BIPOC STEM students, and reduce feelings of isolation by building community.
    - Introduce students to dynamic people, especially BIPOC, currently working in STEM fields
    - Support student attendance at national and international conferences
    - Help prepare résumé and portfolio materials
    - Connect corporate partners with students
    - Introduce students to research opportunities, internships, and co-ops



- b. <u>CEMS Study C.A.T.S.</u> (Connect. Achieve. Thrive. Succeed.) The Study CATS program started at the University of Vermont (UVM) in the College of Engineering and Mathematical Sciences (CEMS) in Fall 2020. It is an academic success program designed to support first- and second-year CEMS students who have a cumulative GPA of 2.3 or below with the goal of increasing CEMS retention by reducing the number of students who transfer to another college or who do not meet the academic requirements for continuing their degree or for graduation from CEMS.
  - i. Students are automatically enrolled in Study CATS when they reach a 2.3 cumulative GPA with the hopes of supporting students before their GPA is low enough for the student to be at risk for academic dismissal.
  - ii. The program focuses on connecting students with academic and holistic campus resources and supporting students to develop more effective study habits and time management skills.
- c. Provides professional development (including inclusive excellence training) for our student club leaders
- d. Conducts professional development for our faculty
- e. Participates in Admitted Student Visit (ASV) days
- f. Provides support for students and faculty from underrepresented groups in STEM, as well as faculty in CEMS looking for ideas and assistance with incorporating inclusivity into their course/lab materials, adjusting their classroom environment, and managing other DEI issues.
- 4. We have provided many workshops for our faculty to encourage their participation in creating more inclusive classrooms and provided a library of articles and journals to assist with implementation.
- 5. We have begun DEI cultural competency discussions for our professional development for our faculty committee that decides whether students on trial are dismissed.
- 6. We have a regular DEI moment at the College meeting that brings reminders to our faculty on cultural awareness, best practices, and more.
- 7. We have begun more regular faculty advisor training and asked all faculty to ask at least three career readiness questions as part of their advising. The questions to ask are sent out annually.
- 8. We are supporting a full FTE (Full Time Equivalent) worth of staff in the UVM Extension office to help us improve our K-12 pipeline programs and ensure that they reach across the State.

### Recruitment and Retention SMART Goals



Numerous CEMS goals in this area overlap with our academic goals mentioned earlier. Our role as a college in recruiting is limited to our partnership with Enrollment Management on ASV days, tours, individual meetings with applicants, writing handwritten letters, and much more. Our Office of Student Services and our Office of Equity, Belonging, and Student Engagement focus on student retention. Our data shows that creating a welcoming space is a key area of focus for us to both recruit and retain students from students traditionally underrepresented in STEM. Our specific goals:

# 1. Increasing the percentage of undergraduate women to 35% by 2028, and the BIPoC students to 20% by 2028

Sub Goal and Action Items	Responsible Group	Time Frame
Develop a cohort-based program for students of color modeled after the Meyerhof Program that will house them together and provide added advising and career readiness support. It would require participation in research and/or internship programs and focus on building a community of learners of color in STEM.	CEMS Dean's     Office & Provost's     Office	No later than fall 2024. Note: This depends on securing an external grant in this space.
Create a Student DEI Advisory Board. Students can run their own meetings/have discussions about current issues/successes, schedule talks by underrepresented identities in STEM.	CEMS DEIC	Spring 2023
Continue the practices listed at the start of this section around faculty and staff professional development and those described in the next section. Work to make those more action oriented.	CEMS Dean's     Office and The     Office of Equity     Belonging and     Student     Engagement	Ongoing
Work with NSBE, SWICS and SWE to create a comprehensive interdisciplinary set of professional development opportunities that also help build community.	CEMS Dean's     Office and The     Office of Equity     Belonging and     Student     Engagement	• Start Fall 2023



2. Create a more welcoming research environment and stronger community for all graduate students.

<b>Sub Goal and Action Items</b>	Responsible Group	Time Frame
Create common spaces for graduate students to meet and work together.	Dean's Office	• Torrey building, Spring 2025
Create CEMS-wide courses and workshops in transferrable skills such as research, writing, and professional development for students to learn and study together.	Grad Program     Coordinator and     Faculty	• Spring 2024
Formation of a Graduate Council that runs programming and provides input to the Dean.	Associate Dean of Research and Graduate Program Coordinator (GPC)	• Done
Faculty training on supporting international students in graduate courses and research labs (cross-cultural competency).	Dean's Office	• Spring 2024

3. Continue to use best practices in hiring to ensure that the faculty in CEMS continue to diversify. Our goal is a faculty that has at least the same level of diversity as our student body.

## Part 3 – Professional and Faculty Development

In Part 2, we list various actions the college has taken, including professional development for faculty in advising and classroom instruction. We also have added a one-hour department level professional development workshop each year. The focus this year was on personal actions faculty can take, but we also hoped to gather that information to include in this plan. Our faculty have edited Department RPT (Reappointment, Promotion, & Tenure) documents to include criteria associated with participation in DEI activities. Our goals are:

1. To develop inclusive classrooms as evidenced by improvements in the climate survey, decreases in DFW (Ds, Fs, and Withdrawal) rates (and the parity in those rates).

<b>Sub Goal and Action Items</b>	Responsible Group	Time Frame
To provide financial support and guidance and if needed course releases for faculty (also listed in the academic goals) to create inclusive classrooms, starting first with those teaching first-year required STEM classes.	CEMS Dean's Office & CTL & Faculty	Begin summer     2023



To provide ongoing faculty advisor training that includes best practices for appreciative advising, support for neuro-diverse students, and students who receive accommodations.	CEMS Student Services     & Faculty	Ongoing with     Department     meetings each year
Continue to grow our repository of assets, coordinated with CTL, where faculty can learn best DEI practices and have access to examples of positive work done by their colleagues, can share materials and collaborate with successful colleagues.	CEMS DO, DEIC, EBSE, and Pedagogical Innovation Committee	• Ongoing
Build interpersonal and cross-cultural skills and DEI confidence through workshops for Faculty and Staff.	• Faculty, Department Chairs, DEIC, UDC, EBSE, CTL, and Pedagogical Innovation Committee (PIC)	Ongoing
Add a new course evaluation question that provides feedback to the faculty on students' sense of belonging in the classroom.	PIC & Faculty with support from DO	Ongoing

2. To improve our mentoring program based on feedback for new faculty including better engagement with the University mentoring program and connection to both College and University workshops that provide support in the first year.

In addition, the faculty of CEMS agree to the following:

- 1. To participate in the Department Faculty meeting each fall that includes professional development for inclusive teaching and advising practices. Or participate in at least one workshop a year that has DEI-related content offered by CTL, the Provost's Office, or CEMS or demonstrate ongoing professional development in these areas via RPT documentation.
- 2. To prioritize improving the inclusivity of their classrooms, labs, and office hours with the support of the programs listed above.
- 3. To intervene when they observe behavior that is inappropriate or harmful. This can be done in private or can be done by asking a clarifying question, with the goal of creating dialog. Professional development in this space will be made available.
- 4. To try to be part of the CEMS community and engage with colleagues.



- 5. To welcome new faculty and staff and help them understand the University's structure and functions and what is available to them as appropriate. (This is in addition to the more formal mentoring program already in place).
- 6. To support piloting common graduate student TA office hours in coordinated spaces in the early evenings.
- 7. To take seriously the components of an RPT document that discuss a faculty members participation in and commitment to DEI when voting on RPT cases.

*In addition, the staff of CEMS agree to the following:* 

- 1. To attend at least one workshop a year that has DEI-related content offered by the Provost's Office, CTL, or CEMS.
- 2. To intervene when they observe behavior that is inappropriate or harmful. This can be done in private, or can be done by asking a clarifying question, with the goal of creating dialog. Professional development in this space will be made available.
- 3. To reach out to new staff with similar roles and offer informal mentoring.

The CEMS leadership (Chairs and Dean) agrees to:

- 1. Review faculty participation in DEI and other professional development and hold their faculty accountable for engagement in DEI.
- 2. Work with faculty as they innovate, trying and failing forward, towards inclusive pedagogical advances in creating inclusive classrooms and laboratories.
- 3. Provide financial support and guidance for the initiatives listed above.
- 4. Provide time annually at a College meeting for faculty (TT/NTT) and staff to discuss issues and concerns or challenges to the IEAP.

## Part 4 – Accessibility

"Universal Design is the design and composition of an environment so that it can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, ability, or disability. An environment (or any building, product, or service in that environment) should be designed to meet the needs of all people who wish to use it. This is not a special requirement, for the benefit of only a minority of the population. It is a fundamental condition of good design. If an environment is accessible, usable, convenient and a pleasure to use, everyone benefits. By considering the diverse needs and abilities of all throughout the design process, universal design creates products, services and environments that meet peoples' needs. Simply put, universal design is good design" (What is Universal Design, 2020).

Our primary goal is to create accessible classrooms, laboratories, and advising spaces for students, faculty, and staff.



# **Physical Accessibility**

Sub Goal and Action Items	Responsible Group	Time Frame
Be ADA compliant in all undergraduate teaching laboratories, offices, and classrooms under CEMS control.	Dean's Office	• Done
CEMS faculty will gain awareness of how differing physical abilities affect students' performance in classes, labs, and office hours and what they can do to lead the way in accommodations.	CEMS faculty in coordination with Student Accessibility Services	• Ongoing
Complete an ADA compliance survey of all research laboratories.	<ul> <li>Dean's Office</li> </ul>	• FY 25

# **Digital Accessibility**

Sub Goal and Action Items	Responsible Group	Time Frame
CEMS shares the CTL workshops in this space regularly and encourages participation.	CEMS Pedagogical Innovation Committee	Ongoing
Continue to increase faculty awareness of how access differs among graduate and undergraduate students and how that may affect students' performance in classes, labs, and office hours.	CEMS faculty, and DEIC	Ongoing

# **Cognitive Accessibility**

Sub Goal and Action Items	Responsible Group	Time Frame
CEMS shares the CTL workshops in this space regularly and encourages participation.	CEMS Pedagogical     Innovation     Committee	Ongoing
Continue to educate faculty and student services staff about the harm that assumptions around lack of motivation or intelligence can have on undergraduate and graduate students, specifically those who are	PIC, Dean's Office	Ongoing



neurodivergent or have cognitive differences.	

#### Part 5 – International Inclusion and Global Education

CEMS has a significant population of international faculty, staff, and students. In addition, students study abroad, and faculty spend sabbaticals abroad. We have been doing the following to support faculty transition, and grow the graduate student community, but there is significantly more to do. We currently:

- Have a formal tenure track faculty mentoring program. Faculty meet annually with their chair off cycle for non-evaluative feedback. In addition, chairs are available regularly for consultation. The Dean meets annually with junior faculty in small groups with the Associate Dean of Research (ADR), and the ADR also meets with junior faculty one-on-one. New TT faculty receive a set of workshops on teaching, advising, and writing research grants.
- Have an informal lecturer / senior lecturer mentoring program. In addition, new lecturers receive workshop on teaching and advising.
- We hold a CEMS-only graduate student orientation day.
- We have initiated a graduate student council to plan social events and provide feedback on programming.
- We have begun professional development programming for the graduate students.
- We have hired a Graduate Program Director to support students and to act as an independent advisor.

Our goal is to more fully develop these programs and continue to hear from students through the graduate council about student needs.

Sub Goal and Action Items	Responsible Group	Time Frame
Include international students studying	• Student Services	• FY 23
abroad at UVM from specific exchange		
locations in the recruitment efforts for		
UVM study abroad. This will provide		
these international students with an		
important opportunity to share their		
stories and will provide UVM students		
with a unique opportunity to learn more		



about their intended study abroad program.		
Work to identify at least one travel study course taught by a CEMS faculty member and will include a component of global education specifically tied to the mission and values of CEMS.	Department Chairs and Dean's Office	• FY 24
Encourage a faculty or staff member from CEMS to lead a Global Trek trip.	Department Chairs and Dean's Office	• FY 24
CEMS Student Services will have a dedicated advisor who serves as a primary or secondary advisor for all undergraduate international students, who will also serve as a liaison to campus partners (Office of International Education, similar advisors across academic units, Residential Life, etc.).	Student Services	Ongoing
The CEMS DEIC will incorporate international cultural awareness in the College meeting DEI moments.	• DEIC	• FY 23
CEMS Student Services and EBSE will collaborate to provide programming designed to build community within the international student community and within CEMS as a whole.	EBSE and Student Services	• FY 23

# Part 6 - Building Faculty and Staff Community

CEMS has regular college meetings, a December and a May college event that includes a luncheon, and Departments have their own traditional events. Regular coffee events have not been successful, but coupons for groups of 3 or more to get coffee have had some use. We have also had one or two staff only events. We have worked to include some wellness (Yoga, plants) into CEMS programming. The overall goal would be to provide more options for faculty and staff to gather and get to know each other either in formal or informal settings.

Sub Goal and Action Items	Responsible Group	Time Frame
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Build staff and faculty community by working together with departmental social committees to find options that are inclusive and accessible.	Department Chairs,     Faculty	• Launch summer 2023
Identify areas where staff and faculty can work together or create something together to build camaraderie.	Create a college-wide committee	• Launch summer 2023
Creative active learning activities in college meetings for people to meet each other and learn more about each other.	<ul><li>Dean</li><li>Presenters</li></ul>	Spring 2023
Incorporate fun and esprit de corps into College meetings.	<ul><li>Chairs</li><li>Dean</li><li>Presenters</li></ul>	• Spring 2023
Better communicate to the public how we as a community and team are contributing to important societal solutions through excellent stories, social media, and more.	Dean's Office, department chairs, staff	• Launch summer 2023