Chair, Department of Biomedical Engineering
Vanderbilt University School of Engineering
Nashville, Tennessee

THE SEARCH

Vanderbilt University School of Engineering invites nominations and applications for the position of Chair, Department of Biomedical Engineering (BME). BME seeks a visionary, collaborative leader who will continue to strengthen the department's mission to maintain its position as a global leader in BME education and research. Reporting to the Dean of Engineering, the incoming chair will be expected to build upon BME's nationally recognized programs, leading the department to greater levels of distinction and impact.

Housed in the Vanderbilt University School of Engineering (VUSE), the Department of Biomedical Engineering is ranked number 14 by the *U.S. News & World Report*, and the program, accredited by the Engineering Accreditation Commission of ABET, remains one of the most well-respected programs nationally. BME is home to 40 primary faculty and more than 45 secondary faculty, and graduates 50-70 undergraduates annually. The department boasts 138 current PhD students, including nine who entered through Vanderbilt's MD/PhD dual degree Medical Scientist Training Program (MSTP). A third of the department's PhD students have individual graduate fellowships, including 41 National Science Foundation Graduate Research Fellows. Highly interdisciplinary by nature, the BME undergraduate curriculum combines math, science, engineering, design, and a broader education in the liberal arts to prepare biomedical engineers to advance human health. The department maintains a close affiliation with the school of medicine, which was ranked fifth by the *U.S. News & World Report's* annual ranking of top medical schools for research and facilitates a wide variety of collaborative efforts between faculty and students in both schools.

The Department of Biomedical Engineering seeks a leader with a record of outstanding scholarship with a collegial, transparent, decisive, and empowering leadership style that will propel the department forward. Potential candidates must communicate effectively about the department's goals and vision internally, across departments, with the dean and university leadership, and with external stakeholders, including alumni and donors. The next department chair must be an innovative, inclusive, and forward-looking leader with significant recognition for high-impact scholarship, a strong commitment to interdisciplinary research and education, and must demonstrate comprehensive leadership acumen with a track record of successful and inclusive mentoring of faculty, staff, and students.

Vanderbilt has retained Isaacson, Miller, a national executive search firm, to assist in conducting this important search. All inquiries, nominations, and applications should be directed to Isaacson, Miller as indicated at the end of this document and will be held in the strictest confidence.

VANDERBILT UNIVERSITY

Vanderbilt University, located in Nashville, Tennessee, is a top-15 private research university offering a full-range of undergraduate, graduate, and professional degrees. Created in 1873 from an initial $1 million gift from Cornelius Vanderbilt, who envisioned a school that would "contribute to strengthening the ties that should exist between all sections of our common country," Vanderbilt is situated on a 330-acre campus near the thriving city center, serving more than 13,000 students and employing almost 7,000 faculty and staff. In October 2022, Provost C. Cybele Raver announced a $5 million annual investment to enhance graduate education and promote discovery and collaboration, inspire scholarly excellence, and augment student support structures across the university.

Vanderbilt offers 71 undergraduate majors and a full range of graduate and professional degrees across 10 schools and colleges, including the Blair School of Music, College of Arts and Sciences, Divinity School, Graduate School, Law School, Owen Graduate School of Management, Peabody College, School of Engineering, School of Medicine, and School of Nursing. The combination of cutting-edge research, strength in the liberal arts, and nationally recognized schools of business, divinity, education, engineering, law, medicine, and nursing creates an invigorating atmosphere where students tailor their educational experiences to meet their goals and where researchers collaborate to solve complex questions affecting health, culture, and society.

Vanderbilt University is one of the core partner universities in association with Oak Ridge National Laboratory (ORNL), the U.S. Department of Energy's largest science and energy laboratory conducting research in energy and security. This relationship offers opportunities for Vanderbilt University faculty, postdoctoral researchers, and students to access ORNL's world-class facilities as well as develop collaborations with ORNL researchers.

Vanderbilt provides a gateway to greatness, drawing the best and brightest students from all backgrounds across the nation and around the world. Vanderbilt alumni can be found in Congress, on the judicial bench, among the list of Nobel laureates, heading corporations, conducting innovative medical research, writing for and appearing on the stage and screen, and playing in the NFL and major league baseball.

Equity, diversity, and inclusion are top priorities across the Vanderbilt campus. In 2021, a university-wide report underscored Vanderbilt's commitment to expanding dialogue and community partnerships, increasing investments in related programming and infrastructure, and confronting historic racial inequities. The School of Engineering recently launched the VUSE Alumni Mentor Network as well as the Fall Early Start Transition (FESTival) program to help build community for underrepresented and first - generation students and strengthen outcomes. VUSE also collaborated with the Graduate School, the

College of Arts & Science and the Peabody College of Education and Human Development to develop new courses focusing on neurodiversity for students entering STEM fields and the Emerging Scholars lecture seminar series hosted early career academics from underrepresented groups in engineering. Vanderbilt's senior leadership is also committed to diversifying faculty and administrative hiring.

The university is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award bachelor's, master's, education specialists and doctoral degrees. Vanderbilt is a member of the Association of American Universities.

Vanderbilt University School of Engineering

Founded in 1886, the Vanderbilt University School of Engineering (VUSE) is internationally recognized for the superior quality of its research and education programs in selected engineering fields. VUSE fosters strong partnerships inside the university and with its research peers. The combination of innovative and interdisciplinary research, commitment to undergraduate and graduate education, and active collaboration with the distinguished Vanderbilt University Medical Center creates an invigorating atmosphere for faculty members, research staff, and graduate and undergraduate students. VUSE has experienced significant and strategic faculty growth in recent years, expanding the tenure-stream faculty from 89 in 2015 to 115 in 2022 and non-tenure-track faculty from 52 to 78 during the same period. Notably, there will be an opportunity for continued growth among the faculty ranks, building on the institution-wide strategic priority, Destination Vanderbilt, to recruit new faculty leaders and rising stars in their fields across the university. The school currently enrolls 1,457 undergraduate and 834 graduate and professional students across all degree programs. VUSE's talented staff, over 160, deftly support and manage the myriad operations and complex research and administrative processes across the school. Building upon Destination Vanderbilt, Discovery Vanderbilt, a major new initiative in faculty research, discovery, and education, aims to catalyze the University's transformative research and discovery apparatus to make a lasting societal impact. Two interdisciplinary Discovery Centers have been launched in the past year, and several more are in the planning stages. The total research expenditures for VUSE in FY23 was $82.2 million and 25% of the external research funding for the school comes from NIH.

Vanderbilt's university-wide culture of and strategic commitment to interdisciplinary research, study, and engagement is fundamental to VUSE's mission, vision, and overarching success. VUSE is internationally recognized for the superior quality of its research and education programs and prepares students to become leaders and innovators in solving increasingly challenging and significant problems.

The school encompasses the departments of Biomedical Engineering, Chemical and Biomolecular Engineering, Civil and Environmental Engineering, Computer Science, Electrical and Computer Engineering, and Mechanical Engineering, along with the Division of General Engineering and multiple interdisciplinary degree-granting programs.

Vanderbilt University School of Engineering fosters strong scholarly partnerships inside the university and with its research peers. VUSE has a long and successful tradition of collaboration with colleagues at other universities, VUMC, the Vanderbilt College of Arts and Science, the Peabody College of Education and Human Development, and other key colleges and schools on campus.

During the last strategic planning effort at the school, priority research areas spanning multi-disciplinary groups, centers, and institutes were loosely combined into a collection of nine "intellectual neighborhoods" to promote interdisciplinary approaches to research and discovery. Since then, VUSE has been opportunistic in its continued research growth and cross-institutional collaborations, including targeted hires in computer science, creating a Computer Science department separate from Electrical and Computer Engineering, and key projects with the Vanderbilt University Medical Center (VUMC). VUSE also benefits from a host of innovative and entrepreneurial partnerships across the university, organizing these efforts through a robust and interdisciplinary group of centers, institutes, and labs that brings together various disciplines in the study of environmental management and policy issues, Vanderbilt Institute for Surgery and Engineering, a trans-institutional center; the Biophotonics Center, which focuses on translational research to the clinical and commercial sector; The Institute for Software Integrated Systems, which conducts basic and applied research in the area of systems and information science and engineering; and the Vanderbilt Institute of Nanoscale Science and Engineering (VINSE), which leverages its state of the art cleanroom to enable new multi-disciplinary discoveries in the field of nanoscience. Furthermore, The Wond'ry, Vanderbilt's Center for Innovation and Design, and the Center for Technology Transfer and Commercialization streamline efforts to bring ideas to life and optimize the flow of innovation to the marketplace.

Leadership

The School of Engineering is led by Krishnendu "Krish" Roy, who joined VUSE in August 2023. Prior to VUSE, Dr. Roy was a Regents' Professor and Robert A. Milton Chair at Georgia Institute of Technology and a nationally renowned researcher. Dr. Roy brings a clear strategic vision and leadership acumen to his new role as dean. During his time at Georgia Tech, he directed multiple centers that lead cutting-edge biomedical research, including the National Science Foundation Engineering Research Center for Cell Manufacturing Technologies, the Marcus Center for Therapeutic Cell Characterization and Manufacturing, the National Institutes of Health's in-depth cell characterization hub and the Center for Immunoengineering. He champions big ideas and leads several significant efforts across Vanderbilt. The new Chair will work closely with Dr. Roy in creating a strategic vision to catapult Biomedical Engineering to even greater heights.

Dr. Roy will continue to strengthen interdisciplinary and cross-college collaborations, as well as expand opportunities with industry partners, meeting the moment and establishing VUSE as the go-to partner as Nashville's thriving job market attracts corporations seeking expansion or relocation. Roy's strong vision for the future of VUSE includes strengthening DEI initiatives across the school. These efforts will range

from increasing the diversity of the faculty and student ranks to infusing inclusivity-driven engineering throughout Vanderbilt's research and education endeavors.

DEPARTMENT OF BIOMEDICAL ENGINEERING

Vanderbilt biomedical engineering program is a pioneer in its field, offering a bachelor of engineering degree in biomedical engineering since 1968. Naturally, the department's talented faculty, including eight NSF CAREER awardees, staff, and students have been at the vanguard of interdisciplinary and cross-institutional work, and departmental research spans the areas of Biomaterials and Drug Delivery, Medical Devices, Medical Imaging, Low Resource Biomedical Technologies, Surgery and Engineering, Computational Modeling, Biomechanics and Mechanobiology, and Biomedical Photonics. With the School of Engineering now under the exciting leadership of Dean Krishnendu "Krish" Roy, BME's momentum continues on a positive trend: BME represents the second largest award recipient at the VUSE over the last three years, with a $19 million per year (73%) increase from prior years. BME has also been a part of the top five departments at Vanderbilt in terms of research expenditures for the last three years running, and in the top 10 for the last six years. Eighty percent of BME's funding comes from the NIH. Graduate program enrollment is up 2.2% and the BME/ECE dual degree program increased by 41%. In Fall 2023, 67% of BME undergraduates, 48.2% of BME graduate students, and 28% of the department's primary faculty were women. 23.8% of the department's undergraduates are from groups underrepresented in the field of engineering.

BME's Faculty members participate in several cross-institutional centers, including the Vanderbilt Brain Institute, Vanderbilt Institute for Surgery and Engineering (VISE), Vanderbilt University Institute of Imaging Science (VUIIS), Vanderbilt Institute for Nanoscale Science and Engineering (VINSE), the Vanderbilt Center on Mechanobiology, the Data Science Institute (DSI), the Vanderbilt Biophotonics Center (VBC), the Vanderbilt Memory and Alzheimer's Center, the Vanderbilt Institute for Global Health (VIGH) and the Vanderbilt Center for Stem Cell Biology. The department maintains a synergistic relationship with entities in medicine including the Vanderbilt Diabetes Research and Training Center, the Vanderbilt Institute for Infection, Immunology, and Inflammation (VI4), The Vanderbilt-Ingram Cancer Center (VICC), and many others. Among several NIH T32 training programs on campus, BME students have access to NIH T32 training programs through the Diabetes and Engineering and Innovative Engineering Research in Surgery and Intervention programs administered directly out of engineering. It is critical for the incoming chair to maintain the department's track record of visionary leadership and excellence in research and scholarship while showcasing and supporting its incredibly talented faculty, students, and staff to further elevate the program into the most elite status.

THE ROLE OF THE CHAIR

Reporting to the dean, the chair serves as a key strategic partner, helping to promote a culture of innovation, inclusion, wellbeing, and excellence within the department, while maintaining and cultivating close partnerships with the Vanderbilt University Medical Center and other key campus constituents.

Charged with providing visionary leadership to the department, the incoming chair will launch BME's talented faculty, students, and staff through its next phase of growth and development.

The next chair will demonstrate outstanding leadership, management, and mentoring ability, and possess a clear vision for the future of biomedical engineering. Overseeing a current budget of over $20 million, the chair leads a team of 40 faculty and 18 staff. The chair heads the biomedical engineering Industrial Advisory Board, a diverse group of bright and enterprising leaders from across the sector offering leadership and support, which meets annually. The new chair will be expected to build upon the department's recognized strengths, recruit outstanding faculty, promote scholarly initiatives, oversee the continual evolution of cutting-edge training programs, facilitate internal and external research collaborations, and build strategic educational and entrepreneurial partnerships with the biotechnology sector, with a keen understanding of the industry. Furthermore, the next chair will foster corporate and alumni relations, promote new funding opportunities through research and advancement, steer the department through an exciting period of growth and change in the field, and lead the department to its next level of excellence and visibility.

OPPORTUNITIES AND CHALLENGES FOR THE CHAIR

Lead the department with passion, commitment, dedication, and collaborative leadership.

As the leader of the department, the chair will develop and communicate a vision that supports, promotes, and sustains the department. As a voice of the department, the chair represents an array of exciting and diverse academic interests and advocates for their needs. Acting as part of the dean's team, the chair will work effectively with senior leadership while engaging internally with the biomedical engineering faculty. The next chair will exhibit internal leadership to faculty, staff, and students to ensure all voices are heard and respected while exhibiting external leadership to foster the department's brand and mission to key constituents and stakeholders. The next chair will build on the department of biomedical engineering's prominent position and seek out new opportunities.

Foster an environment that values diversity, equity, and inclusion, and embraces a commitment to increasing diversity within the department.

A strong leader with a proven record of promoting diversity, equity, and inclusion, the chair will build a culture of inclusion, and champion initiatives that address racial diversity in the department among faculty, staff, and students. The chair will seek to increase faculty, staff, and student representation through future recruitment and retention, and increase trust and support within the department. More specifically, the new chair will support efforts to increase the diversity among faculty and students and realize the ambitious targets regarding faculty/staff composition and student body. To promote inclusion, the chair will establish an atmosphere of trust where people at all levels of the department are made to feel that they are valued and that their voices are heard.

Support the work and development of the Department of Biomedical Engineering faculty.

As the chair of the Department of Biomedical Engineering, the chair will lead with transparency, collegiality, and respect for every individual's contribution to the department's success. The chair will enhance opportunities for teaching and scholarship. The chair will support faculty and pursue ways to promote their excellence and professional impact. The chair will seek resources to allow faculty time and space to engage in meaningful research that drives discovery and yields new biomedical products with impact on human health, in addition to advancing the profile of the department and individual careers. The chair will promote the careers of junior faculty while honoring the work of senior faculty and embrace initiatives that address retention and satisfaction.

Encourage interdisciplinary research, programming, and collaboration across the university.

The chair will seek opportunities to work collaboratively with the chairs and faculties of other schools at Vanderbilt to build multi and interdisciplinary programs, encourage cross-functional work, and facilitate access to biomedical engineering classes and resources university-wide. The next chair will foster goodwill and strong, proactive relationships across the university, building solid bridges between the other departments, schools, and colleges.

Strengthen and expand local, regional, national, and global partnerships to increase visibility and impact.

The chair will be an inspirational, savvy, and accessible representative of the Department of Biomedical Engineering, building productive local, regional, national, and global partnerships. The chair should actively collaborate in finding opportunities for cross-disciplinary partnerships, activities, and programming. As a futuristic leader, the chair will connect with the biotechnology industry to elevate the Department of Biomedical engineering as a prominent player. The chair will have a keen understanding of the industry and make biomedical engineering a lead in interacting with the industry. The chair will work closely with industry partners, alumni, and other stakeholders to further strengthen connections that can promote translational collaborations with clinical and industrial researchers, engagement opportunities for faculty, students, and staff, and expand the department's impact locally, nationally, and internationally.

QUALIFICATIONS AND CHARACTERISTICS

While no single candidate may have all of the following qualifications and characteristics, the ideal candidate should possess many of the following:

- A doctorate degree in biomedical engineering or closely related fields of science and engineering as well as a record of scholarly and research achievement appropriate for appointment as a tenured full professor is required.

- Demonstrated strategic vision through leadership of a well-established, national and internationally recognized research program, with a strong record of externally funded research and a distinguished record of service.
- Exceptional experience in teaching, with a commitment to high-quality instruction in biomedical engineering, and interest in advancing education programs with a balance between undergraduate and graduate levels.
- Commitment to global education and cultural diversity, equity, and inclusion; the ability to lead a school with a racially, culturally, and economically diverse student body and to recruit and support a diverse faculty and staff.
- Superb interpersonal skills combined with a commitment to broad consultation, openness to multiple views and perspectives, and the ability to recognize the ideas of others and to listen to the voices and opinions of all.
- Clear capacity for strategic visioning; a track record of innovation, imaginative problem-solving, and impeccable judgment with the ability to execute ambitious, fiscally responsible, entrepreneurial initiatives.
- Eagerness to create new external partnerships while continuing to build existing relationships with companies, foundations, healthcare systems, and other organizations for teaching, research, and internships for students.
- Effective change agent, with the ability to think strategically and translate ideas into action; self-assured problem solver who can anticipate challenges and obstacles and has the intelligence, creativity, and tenacity to provide and execute strategic and effective solutions.
- Commitment to collaboration, transparency, and entrepreneurship.
- An appreciation of the importance of interdisciplinary collaboration with both basic science and clinical disciplines.

TO APPLY

Vanderbilt University has engaged Isaacson, Miller to assist the Department of Biomedical Engineering Chair Search Committee with identifying and reviewing candidates for this position. Inquiries, applications, and nominations may be sent in confidence to the following:

Karen McPhedran, Managing Associate
Afi Tettey-Fio, Senior Associate

https://www.imsearch.com/open-searches/vanderbilt-university/chair-department-biomedical-engineering

Vanderbilt University has a strong institutional commitment to recruiting and retaining an academically and culturally diverse community of faculty. Minorities, women, individuals with disabilities, and members of other underrepresented groups, in particular, are encouraged to apply. Vanderbilt is an Equal Opportunity/Affirmative Action employer.

APPENDIX

ABOUT NASHVILLE

As the hub for several booming industries, the home to a global community – including the nation's largest Kurdish population – and "America's friendliest city" according to *Travel + Leisure* magazine, Nashville combines history and hospitality with diverse culture and growth.

Tennessee's capital is also an international destination for the arts, entrepreneurship, and scientific research, thereby attracting world-renowned scholars to Vanderbilt and the broader community. In turn, it's no surprise that many students, families, and professionals choose to call Music City home.

Major regional industries include many that are key strategic partners for VUSE, such as healthcare management and IT, automotive production, manufacturing, and technology. VUSE has ongoing relationships locally with Nissan, Amazon, and Oracle and is facilitating additional relationships across the city. Nashville has been named one of the 15 best U.S. cities for work and family by *Fortune* magazine, was ranked as the #1 most popular U.S. city for corporate relocations by *Expansion Management* magazine and was named by *Forbes* magazine as one of the 25 cities most likely to have the country's highest job growth over the coming five years, making it the perfect backdrop for VUSE's Smart Cities integrated systems research.

Home to more than 100 stand-alone parks, and a quick drive away from the Great Smoky Mountains, Nashville offers many opportunities for enjoying the great outdoors. In addition to the nearby greenways, scenic hiking routes, and historic riverfront, the Vanderbilt campus is itself a top outdoor attraction. An accredited arboretum, the university campus has more than 6,000 trees and shrubs, including nearly 200 different species.

School of Engineering Academic Programs

The VUSE strives to meet its mission and commitment to undergraduate education by offering degree programs in fields of engineering relevant to the needs of today's society. An objective of these programs is to provide a technical education integrated with strong humanities, fine arts, and social sciences subject matter that provide the requisite foundation for leadership and life-long learning. The availability of second majors and minors in subject areas in other schools and colleges of the university increases opportunities for engineering students to enhance their education by pursuing studies in the non-technical disciplines. At the graduate level, VUSE offers eight PhD programs and a number of master's of engineering and master's of science programs, including the recent addition of online master's and off-residence PhD programs. Its online master's program in computer science was recently named the #1 program in the United States by *Fortune* magazine.

Student Profile

VUSE's total undergraduate enrollment in the fall of 2023 was 1,457. The first-year undergraduate student population is a remarkable 53% women, and the entire undergraduate population includes 8.7% African-American, 21.8% Asian-American, 12% Hispanic-American, and 13% International students. Twenty-three percent of students in the first-year class are Pell Grant recipients. Students also benefit from Opportunity Vanderbilt, the university's commitment to meeting 100% of demonstrated financial need without loans. Over 30% of the engineering undergraduates have studied or interned abroad for at least a month and 88% of VUSE's domestic undergraduates seeking employment have at least one job offer before graduation. VUSE undergraduates also have the opportunity to participate in one of the country's largest and most rigorous summer research programs. In 2023, almost 50 students participated in the 10-week program and received $6,000 of support to aid in the cost of housing and living expenses. In 2022, three engineering undergraduate students received NSF fellowships.

The Vanderbilt University School of Engineering hosts 834 graduate/professional students, 64.2% who are pursuing a PhD and 17% who are enrolled in online (2U) master's degree programs. The School of Engineering also hosts 32 post-doctoral scholars. In 2022, 16 engineering graduate students were awarded highly competitive NSF Graduate Research fellowships, and Biomedical Engineering netted more than any other BME department in the country with 10 fellows.

Faculty and Staff

The Vanderbilt School of Engineering has 153 full-time teaching faculty, including 115 tenure and tenure-track faculty, and 126 non-teaching research faculty and staff. VUSE also boasts 29 endowed chairs for full professors and seven endowed chairs for junior faculty members.

Thirty-one current faculty members have or held NSF CAREER awards and three earned a PECASE award. At present, senior faculty members hold 89 fellowships (some faculty members are fellows in more than one society), including ten American Association for the Advancement of Science (AAAS) fellows and one National Academy of Engineering (NAE) member.

VUSE employs over 160 administrative and research staff, who are critical members of the community and integral to the work and accomplishments of the school. This group also includes a 17-member staff advisory council to boost the ideas of staff, open lines of communication across the school, and celebrate the integral work of staff to support the VUSE's mission.

Finances

FY2023 research expenditures for VUSE totaled $82,227,000 and the per tenure/tenure-track faculty member research expenditures were $747,518. It is expected that with the steep increase in the number of faculty in recent years, the total expenditures will increase rapidly in the next few years as well.

The FY2024 annual budget for VUSE is $151M, including an estimated $3.3M that will come from individual giving.

Board of Visitors

The Vanderbilt University School of Engineering's Board of Visitors is comprised of some of the school's most distinguished alumni and friends. The board was established in March 2013 as the successor organization to the school's Committee of Visitors and the Engineering Alumni Council. Board members serve as advisers to the dean and senior staff and meet twice annually. The board's role is to provide advice and foster the achievement of excellence in all aspects of the school, review and support strategic plans, and assist in developing beneficial relationships with industry, government, and other academic institutions.

Industry Partnerships

The Vanderbilt University School of Engineering is interested in strengthening its connections to local, national, and international corporations of all sizes, as well as startups, as a means to initiate new opportunities for its students and faculty and increase revenue streams to the school. The dean's office works with faculty to increase funding opportunities for scholarly and student activities as well as state government and trade associations to advocate for incentives and policies, respectively, that advance the university's mission. In just the past year, dean's office staff has met with over 30 companies to discuss various types of partnerships.

Large, institutional-level relationships are being developed between Vanderbilt (primarily VUSE) and Nissan, Amazon, and Oracle. Prospective relationships are also being explored with Capgemini and Ford. Additionally, the Vanderbilt School of Engineering is strengthening the relationship with the metro government of Nashville to expand research opportunities on Civic Innovation Challenge (CIVIC)-related projects directly related to smart and connected cities and other infrastructure.

Notably, Nashville has become an attractive metropolitan area for corporate expansion and relocation. Over the next five years, six companies are expected to create over 30,000 new jobs in the metro area. This growth exceeds normal corporate growth that a major city experiences in a good economy. The dean's office meets regularly with the Nashville Technology Council and its advocacy committee, the state economic and community development office, and the Chamber of Commerce to provide input on workforce development and corporate partnership opportunities.