The STEM Complex at The University of Vermont

moveMountains

The Campaign for The University of Vermont

this is WHERE

STEM WILL DRIVE THE FUTURE

For more than two centuries, scientific research has helped define a culture of innovation and discovery at The University of Vermont. This has fueled economic development and enhanced a regional quality of life recognized across the nation.

Now, as universities make multi-million-dollar investments in science, technology, engineering and mathematics (STEM), UVM faces a crucial moment: Commit to a promising future as a public research institution or risk falling behind.

A state-of-the-art STEM facility — one that unites the distinctive interdisciplinary research and instruction already flourishing on the campus — will answer this challenge. Your support for the STEM Complex will enable our students and faculty to *move mountains* for our state, nation and world by taking on and solving some of the most complex STEM-related challenges. Join us.

↑ 50%

From 2015–2025, STEM undergraduate enrollments at UVM are projected to rise by 50% and graduate enrollments to double.

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Making a Commitment to STEM Disciplines

The STEM Complex features new and renovated facilities that will become a 21st-century nerve center to respond to growing interest in the STEM disciplines. With these modern facilities, UVM can better attract and retain top students and faculty members.

To prosper as a comprehensive public research university, UVM must replace the aging labs, classrooms and project spaces that now house our science- and technology-related research and instruction. Every year, the university's recruitment of top faculty and students is hindered by outdated research spaces. With an ambitious agenda that extends from wind power to biotechnology, UVM's investment in STEM isn't optional — it is an obligation and a commitment to the economic future of the state and region.

UVM's carefully considered vision is not merely a promise to invest in new teaching and research space for STEM but also an opportunity to create new curricula and programs that attract students from all disciplines. We see a future where all UVM graduates possess a basic understanding of

Votey Hall Exterior

engineering, mathematics and the physical sciences as they grasp the increasingly significant role that science and technology play in all aspects of our society.

Supporting Top Faculty, Advancing Research

Already, a burgeoning STEM faculty is helping the university attract world-class researchers. For example, Mary Dunlop, an assistant professor of engineering with a B.S. from Princeton and a Ph.D. from Caltech, chose UVM precisely because of its combination of teaching and research in a vibrant setting. At the Complex Systems Center, UVM has assembled an interdisciplinary team of scientists who build robots and create models in the new world of prediction science as they apply Big Data solutions to real-world problems.

The Vermont Center on Behavior and Health (VCBH) — the recipient of $35 million in new grants — exemplifies a future where science and research at UVM impact public policy and public health. VCBH participants include investigators, collaborators and advisors across 15 academic departments in the College of Medicine and seven other colleges at UVM as well as five other universities. Researchers at the center are on the cutting edge of national initiatives investigating how to reduce disease risk and prevent premature death by examining personal behaviors. For example, recent research published by Stephen Higgins, the center's director, demonstrates how financial incentives can motivate economically disadvantaged women to stop smoking during pregnancy, leading to improved fetal growth.

Recently, a team of engineering undergraduates and faculty advisors was selected by NASA to help develop technology that could one day be used on deep space missions. Professor Darren Hitt, the principal investigator on the project, is also director of the NASA-funded Vermont Space Grant Consortium, which promotes aerospace-related research and career development. Faculty members and students alike find that the opportunity for undergraduates to quickly become involved in research is a distinguishing feature of UVM.

> "Now is the time for this university to accelerate the growth of the STEM program by constructing 21st-century facilities to address 21st-century problems — and thus claim our future."
>
> *— Tom Sullivan, President*

A 21st-Century City of Innovation

People who come to UVM are also choosing the university's unique location in Chittenden County, which has consistently attracted new residents from across the nation, even during the recession of the late 2000s. The city of Burlington and UVM have created a powerful and symbiotic relationship that emphasizes collaboration and creativity on a workable scale.

Here, an entrepreneurial culture is thriving in a city shaped by innovation, natural beauty and creativity. A STEM facility will complement and enhance the "new economy" evolving across Vermont and the country, where states forge knowledge-based economies that are global, entrepreneurial and driven by information technology and innovation.

The Burlington region features a solid mix of knowledge-based businesses and industries, with a growing number of successful start-ups, such as the automotive web technology company Dealer.com and MyWebGrocer.com, the nation's largest provider of e-commerce and e-marketing solutions to the grocery industry. These companies are hiring UVM graduates into full-time positions.

At the same time, the impact of STEM at UVM can reach far beyond Burlington. The National Academy of Engineering has defined an essential set of goals that must be met if we are to maintain our nation's security, quality of life and the promise of a sustainable future. These "21st-Century Grand Challenges" address priorities perfectly aligned with UVM's demonstrated strengths in the environment, human health, food systems and global quality of life. Our approach to these challenges builds upon UVM's historic commitment to scholar-teachers who reach across disciplines in a small campus environment. In sharp contrast to larger research universities, UVM delivers engineering through collaboration on a more accessible scale.

In addition, The University of Vermont Medical Center provides a unique opportunity for collaboration and research on major health challenges, as do the College of Medicine, home to 80 percent of the university's research portfolio, and the College of Nursing and Health Sciences.

this is WHERE

we have a vision for STEM that is "uniquely Vermont." With STEM-related occupations growing 1.7 times faster than other jobs, President Obama is calling for one million additional STEM graduates over the next decade. Here in Vermont, STEM graduates will fill an acute need in a state with low unemployment that is hungry for educated workers. A growing cadre of STEM graduates from UVM will help attract new companies to Vermont for industries that are already here and ready to grow — from wind energy and solar power to biotechnology and precision manufacturing and e-commerce. "We can do something incredible here, at the confluence of energy, high tech, health care informatics, finance, biotech and advanced computing," says Provost David Rosowsky.

> "I believe in the power of collaboration — a horizontal approach where more people approach a problem in more kinds of different ways. That's what I see at UVM."
>
> *— Professor Joshua Bongard, UVM Complex Systems Center*

The STEM Complex includes more than 250,000 square feet of new construction and renovation that will transform the Central Campus, with completion of all work expected in 2019. The first phase includes construction of the Discovery Building, a state-of-the-art teaching and research laboratory facility, while the second phase will add the Innovation Building, a classroom and office facility. Phase three will include selected renovations within the Votey Building. Consistent with our commitment to the environment, we will seek Leadership in Energy and Environmental Design (LEED) certification for the project. This will be the largest capital construction project in UVM's long history. To help pay for the $104-million price tag, we are seeking $26 million from non-debt sources, including private gifts.

We envision a STEM facility that serves as a literal and figurative spine for the Central Campus. The STEM Complex will bridge the iconic buildings of University Row to the west with the health sciences complex to the east. Aligned with the long

axis of Cook, the STEM Complex will also serve as a backbone connecting Museum Row and the Trinity Campus to the north with the Davis Student Center and the residential life areas to the south. The STEM building will serve as an iconic symbol of the university's commitment to science and its place in the overall life of the institution.

This facility will inspire and enable, with buildings that are as beautiful as they are functional, as forward-looking as they are accessible and as connected as they are connecting. The entire project will be designed to foster cross-disciplinary cooperation in teaching and research — two hallmarks of a UVM education. Nestled between existing arts, humanities and social sciences facilities and the health sciences branch of campus, the complex will facilitate collaboration across a broad range of disciplines. The facility will be home to STEM students, but it will also lure students from other fields of study and expose them to important STEM-related conversations and concepts.

The entire complex will be a purposeful mix of chemistry, physics, mathematics, computer science and engineering. Laboratories will be constructed to be reconfigurable and adaptable: The same lab can be used by both chemistry and environmental engineering, for example. As teaching and learning needs evolve, so will the spaces in the STEM Complex. Learning spaces and classrooms of the

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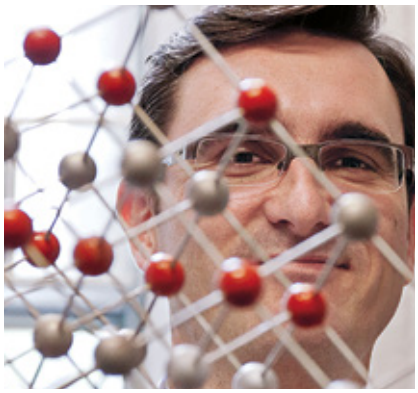
The Brookings Institute and Business Insider list of the 20 most innovative cities in the U.S., based upon patents held, ranked Burlington ahead of Seattle, Washington, and Austin, Texas, and second only to the Silicon Valley.



5.4 million

National Science Foundation: The number of workers in science and engineering jobs grew from 182,000 in 1950 to 5.4 million in 2009, an annual growth rate of 5.9 percent.

future, with flexible configurations and technology infrastructure, will support new methods of teaching.

UVM projects that undergraduate enrollments in STEM disciplines will rise by 50 percent while graduate enrollments double over the next decade. With a new facility as the centerpiece of our focus on STEM, we will attract and yield better students. At the same time, the university will add and expand K–12 programs that partner with schools across Vermont to build the pipeline of students interested in STEM.

With our dynamic faculty and fertile entrepreneurial community in Burlington as a magnet, we will respond to the call from the White House, the National Institutes of Health and others to dramatically increase the number of women and underrepresented minority students pursuing majors in STEM fields at UVM. We will create the Center for Women and Minorities in STEM as a resource for all of our engineering and physical science programs and a new STEM Scholarship Program to recruit talented women and minority students.

The arrival of the STEM Complex also comes as UVM builds new platforms for scientific research and inquiry. Just one example is UVM's new Institute for the Environment, modeled after the Institute for Advanced Studies at Princeton. The new facility will also alleviate a critical shortage of laboratory space, opening new doors to competitive grants from federal agencies such as the National Institutes of Health, the National Science Foundation and the Department of Energy.

Claiming Our Future

Join us in taking this critical next step. As Provost Rosowsky told the UVM Board of Trustees in early 2014, the time to act is now: "We must commit to maintaining UVM as a comprehensive, engaging, compelling and impactful public research university." Your commitment will help us ensure that UVM ranks among the most effective teaching and research universities in the nation. Indeed, your gift to STEM has amplified power here at UVM, where it will transform the university and fuel a vital economic development engine propelling Vermont and the region into the future.

The STEM Complex features many opportunities for donors to name spaces within the facility. A named space is a high-profile reflection of a donor's interests and generosity as well as a compelling endorsement that a project is worth major investment. Naming opportunities within the STEM Complex are as diverse as the tremendous range of activity and innovation the Complex will house.

Select Naming Opportunities

Entire STEM Complex: $13,000,000

Discovery Building: $8,500,000

Innovation Building: $5,500,000

Innovation Building
Lecture Hall: $750,000

School of Engineering Lab: $500,000

Research Labs (multiple): $250,000

Innovation Building Lobby: $250,000

Collaborative Space/Common Area
at intersection of buildings: $200,000

External Courtyard: $100,000

Innovation Building
Conference Room: $100,000

Faculty and Graduate
Student Offices (multiple): $25,000

For more details about any of these and other giving opportunities, contact:

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The Campaign for The University of Vermont

The time has come for UVM to assert our position as one of the nation's best public research universities. *Move Mountains: The Campaign for The University of Vermont* nurtures a culture of excellence and value and supports new opportunities for research, academic success and learning beyond the classroom. We will raise $500 million in private support to ensure that UVM is where we indeed *move mountains* — through the students we educate, the discoveries we make and the positive impact we have on Vermont and the world.

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