



# STRATEGIC PLAN FOR STEM

**Lehman College**  
**The City University of New York**  
**2013-2018**



**LEHMAN**  
COLLEGE



## BACKGROUND AND CONTEXT

Science, technology, engineering, and math (STEM) attainment is critical if students, communities, and institutions in the Bronx and surrounding region are to thrive. In response to this urgent need, Lehman College has established a STEM plan to support the College's goal to serve as a leading center for science research, education, and innovation in the Bronx and beyond.



*Lehman maintains both research and teaching greenhouses.*

Plan ensures that the College leverages synergies between STEM departments, schools and administrative areas as we develop new academic programs and strengthen existing programs. It also seeks to ensure that the College recruits and retains faculty with active research interests and success in being awarded research grants.

This plan is intended to create an academic pipeline from PreK-12 through science education programs. It recognizes the importance of improving pre-college STEM education as well as the transfer, persistence and graduation of students from community colleges and other feeder institutions who want to major in STEM related areas. Our shared intentions are that these goals have a positive and lasting impact on the community.

The success of this plan is contingent upon reliable funding streams, so increasing private and research funds are a critical component of the plan. The strategies to achieve the goals and objectives will become part of the action plans that are developed; action plans that will include a timeline, metrics and cost projections.

## STEM VISION

*Lehman College, with its rich cultural and linguistic diversity, will be recognized as a center of scientific excellence, for research that advances our understanding of our world, for science education that begins at the PreK-12 level and extends beyond the doctorate, for the use of technology to teach, inspire, and discover, and for expanding scientific literacy and engagement.*



*Lehman is the only college in New York City with a research cornfield.*

Lehman's new science facility is an important "bridge to the future" for STEM. It is the first new laboratory building in what has been hailed as "CUNY's Decade of Science" and the first CUNY project to be designed and submitted for LEED® (Leadership in Energy and Environmental Design) certification. Building on Lehman's tradition in the liberal arts and its history of excellence in the sciences, the new facility will promote collaboration between students and faculty, while serving as a gateway to the sciences by attracting students who might not otherwise consider pursuing a career in these fields. The architectural, landscape, and sustainable aspects of the project all support this goal.

The Strategic Plan for STEM is aligned with the strategic goals of *Achieving the Vision: Strategic Directions for Lehman College 2010-2020* and *Lehman's Mission Statement*. This Strategic

## GOAL 1: EXCELLENCE IN TEACHING, RESEARCH, SERVICE AND LEARNING

### Objective 1.1 Recruit, support, and retain distinguished STEM faculty.

1. Recruit and retain faculty with demonstrated engagement in their areas of expertise who can build teams of researchers and thus improve their outlook for obtaining funding.
2. Create endowed chairs for distinguished teaching and research faculty who have a record of successful grantsmanship and of nurturing underrepresented populations in STEM.
3. Provide competitive start-up support and mentoring for junior faculty so they can initiate independent and collaborative research programs.
4. Provide support services, such as grant-writing specialists, research assistants, and staff, to help with post-award grant management.

## **Objective 1.2 Support existing academic programs and develop new programs of exceptional quality informed by a rigorous review process, including programs responsive to the health and social welfare needs of the surrounding community.**

1. Strengthen existing successful programs in STEM and develop innovative programs to prepare students for professional and graduate schools and for positions in growing and emerging areas, such as the biotech/ pharmaceutical industry and health care professions.
2. Design and/or strengthen dual degree (Bachelor's/Master's) programs for future teachers of mathematics, science, and educational technology in middle and high schools.
3. Implement a process to assess and improve student learning outcomes in STEM disciplines.
4. Develop collaborative programs within and outside Lehman to increase STEM academic offerings, increase STEM enrollment, and maximize the use of physical space and financial resources for STEM education.

## **Objective 1.3 Achieve greater external recognition and success of academic (STEM) programs, including success in improving the quality of life for residents of the Bronx and surrounding boroughs.**

1. Enhance the national and international reputation of Lehman College faculty in the STEM disciplines by publicizing their research contributions through peer-reviewed (and non-reviewed publications), supporting/sponsoring their attendance at scientific conferences and meetings, and nominating faculty for prestigious awards and appointments.
2. Create partnerships with key stakeholders in the Bronx and surrounding region to foster collaborative research and professional development opportunities and to attract extramural funding.
3. Establish interdisciplinary science seminar series with scientists and science education experts to speak in forums that are open to both the Lehman and broader community.
4. Seek accreditation from ABET (Accreditation Board for Engineering and Technology) for Computer Science and maintain accreditation for other STEM departments as evidence of the quality of the programs that produce graduates with a solid educational foundation, are prepared to pursue advanced study, or to enter their professions directly after graduation.



*Basic scientific and quantitative literacy is a learning outcome for all Lehman students.*

## **GOAL 2: ENHANCED STUDENT SUCCESS**

### **Objective 2.1 Recruit well-prepared, promising, and motivated students of diverse ethnicities and cultures consistent with the College's mission.**

1. Enhance the visibility of the College as a desirable choice for STEM education for well-qualified high school students, undergraduate and graduate students, transfer students, and Macaulay Honors College students who want to major in the STEM disciplines.
2. Increase the number of underrepresented students who successfully complete STEM degrees.
3. Establish STEM-specific agreements, such as articulation and joint degrees, with community colleges and expand the Lehman STEM Scholars program to strengthen the academic conduit in order to serve as an effective transfer vehicle for well-prepared students in the STEM disciplines.
4. Building on success in pedagogical models developed in STEM disciplines, achieve basic scientific and quantitative literacy among all Lehman graduates.
5. Increase course offerings in ethics and communications as it relates to STEM fields.
6. Pursue university partners for collaborative programs to attract international undergraduate and graduate students in STEM disciplines.

## Objective 2.2 Strengthen academic resources and student support services.

1. Build a sense of community among students in STEM disciplines through cocurricular programs and activities, mentoring, advising, and internships to improve student retention and graduation rates.
2. Establish a coordinated advising process with feeder community colleges and at Lehman that includes:  
a) continuous monitoring of advising for STEM course selection, and b) academic performance to encourage persistence and improve graduation rates.

## GOAL 3: GREATER INSTITUTIONAL EFFECTIVENESS

### Objective 3.1 Integrate institutional planning and assessment to improve program effectiveness.

1. Create the administrative infrastructure necessary to support ongoing planning, coordination, assessment, and continuous improvement of STEM initiatives.
2. Align STEM priorities to budget and planning processes to ensure a funding stream that supports research and teaching in STEM-related disciplines and maintains/upgrades the College's research infrastructure.
3. Ensure that science-related technology investments support a digital campus and maximize teaching, learning, research, and collaboration capabilities.
4. Establish external fundraising programs that are integrated with STEM academic priorities, engage Lehman alumni in the support of STEM activities, and profile the research accomplishments of STEM faculty and students to the broader community.
5. Increase the number of research proposals over the next five years to encourage research and scholarship and to improve the competitiveness of Lehman faculty in seeking and obtaining extramural funding in STEM-related areas.



*Comprehensive institutional planning and assessment ensure excellence in the College's research infrastructure.*

## GOAL 4: COMMITMENT TO ENGAGEMENT AND COMMUNITY SERVICE



*A Lehman alumnus teaches math to third-graders in a Bronx public school.*

### Objective 4.1 Enrich the community through collaboration with community agencies and organizations, and increased engagement of the College's resources.

1. Strengthen partnerships with schools, hospitals, corporations, and cultural and science-rich institutions, such as the New York Botanical Garden, Bronx Zoo, Museum of Natural History, and Wave Hill, to stimulate new areas of research and scientific discovery, and enhance the profile of Lehman College as a center of excellence in science education.
2. Create a Center for STEM Excellence that uses traditional, virtual, and social media programs and activities to enhance the public's understanding of the value of STEM knowledge and skills, spark PreK-12 student interest in science, and improve PreK-12 STEM education.
3. Forge connections between STEM faculty at the College and CUNY Institutes and Centers housed at Lehman through joint sponsorship of community-based projects.
4. Strengthen and expand STEM PreK-12 teacher education programs to improve the quality of science and mathematics teaching in Bronx schools.

### Objective 4.3: Contribute to the economic and social vitality of the Bronx and surrounding region.

1. Promote science and technology education among adult, non-traditional, and international students to prepare them to enter or advance in STEM-related careers.
2. Partner with employers, unions, community-based organizations, professional studies, and continuing education providers to offer workforce development programs in growing and emerging STEM areas.