



COLLEGE OF SCIENCE & LIBERAL ARTS

2025 Strategic Plan



COLLEGE OF SCIENCE *and* LIBERAL ARTS

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COLLEGE OF SCIENCE & LIBERAL ARTS 2025 STRATEGIC PLAN

HISTORY

The College of Science & Liberal Arts was founded in 1982. It was originally known as the Third College, as it had been preceded by NJIT's Newark College of Engineering and the New Jersey School of Architecture. In 1986, as a result of a more distinctly defined mission and direction, the name of the college was officially changed to the College of Science and Liberal Arts (CSLA). Growing steadily ever since, CSLA has spawned three of NJIT's six schools and colleges: the School of Industrial Management (now the Martin Tuchman School of Management) was spun out of CSLA's Department of Organizational and Social Sciences in 1987, the Albert Dorman Honors College (founded in 1995), which evolved out of the Honors Program that was established within CSLA in 1985, and the College of Computing Sciences (now Ying Wu College of Computing), which evolved from CSLA's Department of Computer and Information Science in 2001.

The College of Science & Liberal Arts (CSLA) is committed to excellence in teaching, research, and service and aims to have an enduring impact on society. Our six departments—Biological Sciences, Chemistry & Environmental Science, History, Humanities & Social Sciences, Mathematical Sciences, and Physics—are home to internationally renowned research centers, award-winning researchers and educators, and outstanding students. CSLA is also home to the Department of Aerospace Studies (Air Force ROTC Detachment 490), the University's program in Theatre Arts & Technology, an interdisciplinary program in Materials Science & Engineering, the Institute for Brain & Neuroscience Research, the Institute for Space Weather Sciences, the Center for Applied Mathematics & Statistics, and the Center for Solar-Terrestrial Research (CSTR), which operates the Big Bear Solar Observatory, Owen's Valley Solar Array, and a number of radio telescopes in the Antarctic and around the world. We are a diverse group of scientists, scholars, and artists, bound together by a commitment to intellectual excellence and a desire to continue to cultivate an understanding of the natural and social world in which we live.

VISION

To continue to be recognized as a preeminent college where research, teaching, and service to the community are innovative and conducted with the highest levels of creativity and excellence; that has a local and global impact on society; that is integrated in the process of economic development; that is engaged in society; that emphasizes and creatively integrates interdisciplinarity in all these activities; and that ultimately becomes a beacon for other institutions.

MISSION

CSLA is distinct among the colleges and schools at NJIT in terms of its breadth and the interconnections it fosters among diverse disciplines in the sciences and the liberal arts. The boundaries between the College's academic departments and programs are flexible. The shared commitment to the University's General Education Requirements (GER) and service courses for other colleges brings an exceptional unity to the various interacting parts of CSLA.

Research and education are two sides of the same coin in CSLA. We integrate research into our courses and engage students in our research programs. Our departments thrive on interdisciplinary pursuits that connect theoretical knowledge with practical, industry-based applications. Our goal is to build upon our expertise in the sciences and the liberal arts to understand and improve our global community while expanding the horizon of opportunity for our students.

Therefore, the mission of the College of Science & Liberal Arts supports NJIT's mission of commitment to excellence, evolution, and growth in (a) education, preparing diverse students for positions of leadership as professionals and as citizens through innovative curricula, committed faculty, and expansive learning opportunities; (b) research, advancing knowledge to address issues of local, national, and global importance with an emphasis on high impact basic, applied, and transdisciplinary scholarship; (c) economic development, anticipating the needs of business, government, and civic organizations to foster growth, innovation, and entrepreneurship; and (d) engagement, applying our expertise to build partnerships, serve our community, and benefit society as a whole.

CSLA plays a central role in the research mission of the institution and is critical to its classification as a Carnegie R1 university. In recent years, the National Academies of Sciences, Engineering, and Medicine have identified a number of Grand Challenges for the country, while research priorities of the Endless Frontiers Act have been codified in the United States Innovation and Competition Act for the National Science Foundation (NSF) as ten key technology focus areas. The National Institutes of Health (NIH) developed a "Roadmap for Medical Research," and the United Nations announced Sustainable Development Grand Challenges.

Informed by the priorities and grand challenges of major funding and policy agencies, the College will focus its efforts to address pressing issues related to sustainability, environment, health, and the big data revolution to focus on (a) biotechnology, genomics, and synthetic biology; (b) natural or anthropogenic disaster prevention, including space weather sciences; (c) materials science and advanced energy, modeling and simulation; (d) creating efficient, healthy, secure, resilient communities; (e) developing understanding of and creating new technologies for detecting and treating disease to improve health and the quality of life; (f) quantum computing; (g) developing the cyberinfrastructure, data science methods, artificial intelligence, machine learning, data storage technologies and security for the 21st century; and (h) fostering informed policies, decisions, and actions. Additionally, the College will increase its leadership in innovative and inclusive STEM education to prepare the workforce of the future.

This will bring to bear all the talents across the College and will serve to inform decisions regarding future hires and investments to bolster some areas while filling gaps in others. Applying our research expertise in collaboration with colleagues across the institution, at other universities, in government, and within industry to address these grand challenges will also establish a prominent reputation for CSLA and its researchers while having a substantial impact on society.

CORE VALUES

The core values of the College of Science & Liberal Arts mirror those of the institution and reflect our beliefs, guide our behavior, shape our culture, and in so doing establish a sense of community, common purpose, and student focus. These core values include (a) excellence, innovation in the pursuit of excellence in all that we do and continued improvement in order to meet and sustain the highest standards of performance; (b) integrity, an honest and ethical approach in all we do, including the commitment to keep our promises and the humility to acknowledge our mistakes; (c) civility, treating each other with respect and with dignity; (d) sustainability, emphasizing responsible development and respecting the needs of future generations; (e) social responsibility, proactive engagement and partnerships to enhance the communities in which we live; (f) diversity, an emphasis on inclusiveness in our university community, a focus on the acceptance of cultural and personal differences, and a refusal to allow or succumb to discrimination in any form; and (g) communication, to share information and understand each other's perspectives.

OBJECTIVES

Five major objectives comprise CSLA's 2025 strategic plan. Informed by the College's vision, mission, and core values, these objectives include our commitment to:

1. Access

NJIT has been ranked #1 in economic mobility of our students while our graduates consistently rank amongst the highest in the country in mid-career earnings. An NJIT education truly transforms the lives of students year after year and contributes to the economic and social well-being of individuals, families, and society. We've recently created new degree programs designed to prepare students for the future of work and will continue to develop new programs and revise existing curricula, including the first-year experience to ensure a multitude of pathways and opportunities for our students while addressing the workforce demands of our state and nation. We aim to expand opportunities for more students to benefit from the high-quality educational experience of our programs and the research and experiential learning opportunities we provide. To enable this, along with continued sustainability of our degree programs, we will provide opportunities to more students by increasing the enrollment in our undergraduate, graduate, and doctoral programs, thereby expanding our impact, and benefiting more people.

2. Research

CSLA has developed a profound group of talented scientists, scholars, and artists that significantly contribute to their respective fields through high quality research, scholarship, and student mentoring. CSLA underpins the research mission and Carnegie Research 1 status of the institution as discovery, knowledge creation, applied research, and innovation are infused in our culture and yield dividends for our students, faculty, and society. We are committed to focusing our efforts on the most pressing challenges of our times, including sustainability, environment, health, space weather research, and the big data revolution as described above, and fostering collaborations with industry and other institutions.

Studies have shown that students that are engaged in research and creative work pursue graduate education at higher rates than those that are not. The foundational and

translational research and training conducted by our faculty and students leads to economic development with broad impact across society. We aim to develop research initiatives, research support, and organizational structures in strategic fields that will respond to grand challenges faced by society, enhance our current faculty's productivity, attract outstanding faculty and students, increase external research funding, and engage more students at all levels in research and scholarship.

3. Diversity

We will continue to diversify our student body, faculty, and staff by attracting members from underrepresented groups. Diversity, equity, and inclusion (DEI) extends beyond increasing the demographic diversity of students, faculty, and staff. It also encompasses how we teach, the research we conduct, and the programs we offer, to name a few. Universities play a transformational role in the lives of countless students and their families. NJIT is recognized as one of the very best universities for providing students with socioeconomic transformational opportunities. As a public institution we have an obligation to provide opportunities to all students, especially those that are disadvantaged as this is, perhaps, where we have greatest impact. It has been widely reported that diverse groups of people bring to bear synergistic backgrounds and skills, resulting in more creative approaches to problem solving, research, instruction, and curricula. Meanwhile, the demographics of society and students continue to change. It is incumbent upon us not only to reflect these changes but to lead the institution in DEI efforts and guide students to realize their own potential. CSLA is among the most diverse colleges at the institution based on our breadth of disciplines and demographics of our students, faculty, and staff. We are committed to increasing diversity, equity, and inclusion, bolstering our leadership as an example for the campus and community and driving innovation in teaching, learning, and research while increasing the diversity of our student body, faculty, and staff.

4. Visibility

NJIT and the College of Science & Liberal Arts, to a large degree, remains a hidden gem, a place that offers tremendous opportunity for education, professional development, and knowledge creation. Increased name recognition for us will greatly assist in student recruiting to offer more access and opportunities for students to benefit from the NJIT experience. Increased visibility of our research, programs, and people will enhance the impact of our efforts, increase dissemination of our research, and increase the competitiveness of our students and faculty to receive prestigious scholarships, fellowships, awards, and research grants. We aim to escalate the visibility and recognition of the College, its programs, students, and faculty through marketing and branding, increasing nominations to prestigious awards and fellowships, and pursuing recognition by professional societies and national academies.

5. Engagement

CSLA has a tradition of partnership with the community, state, and professions to share our talents and resources, and provide assistance in areas of need. For example, with our colleagues in the Center for Pre-college Programs (CPCP), we founded the Newark Math Success Initiative, a collaboration among CSLA, CPCP, the City of Newark Mayor's Office, and the Newark Board of Education designed to enable more students from Newark

public schools to attend NJIT and realize their goals and dreams through progressive calculus-based math skills development of rising high school seniors, and professional development of math teachers in the Newark public schools. Faculty and students from the biological, chemical, biochemical, and environmental sciences have been engaged with the Newark-based organization Students2Science, which aims to inspire, motivate, and educate Newark elementary, middle, and high school students to pursue STEM careers by providing an authentic, state-of-the-art laboratory experience complete with modern instrumentation and meaningful interactions with professional scientists. Following our leadership to create Future Ready Schools New Jersey, CSLA created the STEM for Success initiative, an integrated program to broaden participation in STEM, especially for those in traditionally underrepresented groups, by fostering collaborative change. Through our Theatre Arts & Technology program, we are intimately engaged in the community through the Newark Arts Festival, Newark Improv Festival, Newark Playwrights Festival, Young Playwrights Festival, and outreach to local area high schools. All these and other similar initiatives bring our experience and talents to the community and help inform our own efforts – on campus and off – while serving critical needs and gaining visibility. We aim to expand the College’s mission to better serve local communities within Newark as well as the State of New Jersey and the various companies and professional societies with which we engage.

Please see Table 1 for a map of action plans and key performance indicators (KPIs) by objective.

TABLE 1. CSLA 2025 STRATEGIC PLAN ACTION PLANS AND KEY PERFORMANCE INDICATORS (KPI) BY OBJECTIVE

| OBJECTIVES | ACTION PLANS | KPIs |
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| I. Access | <ul style="list-style-type: none"> - Create new degree programs and concentrations that respond to or anticipate market and societal needs, which are best addressed through coursework, study, or scholarship in the sciences and liberal arts. (<i>Academic faculty & staff within the College</i>) - Market and promote key existing programs with the capacity and potential for significant enrollment growth. (<i>Admissions & Strategic Communications</i>) - In partnership with the Office of Development & Alumni Relations, create new or enhance existing scholarships and fellowships to support increasing the total number of undergraduate, masters, and doctoral students matriculated within the College, contributing to access and sustainability. - Submit proposals for doctoral training fellowships in support of increasing the total number of doctoral students matriculated within the College. (<i>Graduate faculty</i>) - Expand the number and type of courses included in the gateway courses initiative. - Broaden the reach of gateway course initiatives within gateway courses to create parity among different student cohorts comprising the courses (e.g., first-time full-time degree-seeking undergraduates [FTFTU], continuing, transfer, etc.). - Constitute a college-level STEM Gateway Courses Committee to assess and oversee student performance in the STEM gateway courses. - Conduct a comprehensive evaluation of all programs within the College to identify current offerings as well as opportunities to increase experiential and/or capstone learning opportunities. - Work with the College's program directors to actively review programs' learning objectives and assessment plans, supplementing and updating as needed. - Seek opportunities through the University's current General Education Requirements (GER) to better promote and coordinate these efforts. | <ul style="list-style-type: none"> a. Increase undergraduate enrollment by ~300 (\pm 50) students, to a goal of approximately 1,150 total undergraduate matriculants. b. Increase graduate enrollment by ~100 (\pm 25) students, to a goal of approximately 200 total graduate matriculants. c. Increase doctoral enrollment by ~35 (\pm15) students, to a goal of approximately 175 total doctoral matriculants. d. Increase the total number of courses included within the College's STEM gateway courses initiative. e. Increase the pass rate (i.e., the percent of students receiving a final grade of a C or above) of continuing and transfer students in gateway courses. f. Increase the total number of degree programs offering experiential and/or capstone learning opportunities. g. Increase enrollment in existing experiential learning and capstone courses within the College. h. Increase external financial support for students by at least 5 new named endowed scholarships. i. Increase number of proposals submitted to external agencies in support of doctoral student training to at least one major proposal per year. j. Increase the number of programs within the College that have clearly defined and articulated learning objectives to approximately 100%. k. Increase the number of programs within the College that have clearly defined and articulated assessment plans to approximately 100%. |
| II. Research | <ul style="list-style-type: none"> - Encourage and promote interdisciplinary research endeavors between investigators within the College and those within the University's other colleges and schools. - Actively coordinate the interdisciplinarity that exists within CSLA programs (e.g., forensic science, cyberpsychology, data science, etc.). | <ul style="list-style-type: none"> a. To maintain a scholarly, peer-reviewed publication rate of 85% among tenured or tenure-eligible faculty. b. To reach a research funding rate of 65% among tenured or tenure-eligible faculty. |

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| | <ul style="list-style-type: none"> - Reorganize the degree programs, subject areas, and organizational structure comprising the liberal arts, social sciences, and behavioral sciences to foster and expand research collaboration. - Develop new interdisciplinary research centers and/or institutes constituted around the areas of research articulated by federally identified priorities. - Increase the number of doctoral students in each PhD program. - Enhance facilities to support the College's research mission. | <ul style="list-style-type: none"> c. Increase the number of interdisciplinary research and education grant proposals submitted. d. Increase the number of interdisciplinary research and education grant proposals funded. e. Revise organizational structure for the liberal arts, social sciences, and behavioral sciences (e.g., school, department, etc.). f. Increase the number of new research centers and/or institutes within the College. g. Increase the amount of funding in areas of federal-identified priorities. h. Secure funds for at least two research fellowships through development efforts and increase the number of PhD students by ~35 (± 15). i. Add new or renovated research space to accommodate growth. |
| III. Diversity | <ul style="list-style-type: none"> - Work with search committees to emphasize the importance of offering consideration to diverse, qualified applicants. - Work with Admissions to recruit diverse, qualified students. - Ensure curricula foster inclusiveness. | <ul style="list-style-type: none"> a. Increase the College's gender diversity, with a goal of 30% ($\pm 5\%$) female tenured and tenure-track faculty. b. Increase the College's gender diversity, with a goal of 40% ($\pm 5\%$) female university lecturers and professors of practice. c. Increase the College's racial and ethnic diversity, with a goal of 45% ($\pm 5\%$) under-represented minority (URM) tenured and tenure-track faculty. d. Increase the College's racial and ethnic diversity, with a goal of 35% ($\pm 5\%$) URM university lecturers and professors of practice. e. Increase the College's gender diversity, with a goal of >50% ($\pm 5\%$) female students. f. Increase the College's racial and ethnic diversity, with a goal of 30% ($\pm 5\%$) traditionally underrepresented minority students. |
| IV. Visibility | <ul style="list-style-type: none"> - Launch digital marketing and branding campaigns to increase visibility of programs and research efforts within the College. - Expand efforts to nominate faculty as well as research and instructional staff for prestigious awards and fellowships. - Expand efforts to nominate students for prestigious awards and fellowships. - Encourage faculty to hold offices in professional societies and editorial boards of reputable journals. | <ul style="list-style-type: none"> a. Quantify and create benchmarks for physical and digital marketing and branding campaigns for academic programs within the College. b. Quantify and create benchmarks for physical and digital marketing campaigns to promote research within the College. |

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| | | <ul style="list-style-type: none"> c. Increase the number of faculty nominations for prestigious awards/fellowships within the College. d. Increase the number of student nominations for prestigious awards/fellowships within the College. e. Increase the number of College faculty conferred prestigious awards/fellowships. f. Increase the number of College students conferred prestigious awards/fellowships. g. Increase the number of media interviews, stories, and mentions of our faculty. |
| V. Engagement | <ul style="list-style-type: none"> - Expand engagement with local communities and organizations (e.g., MSI, Newark playwriting initiative, Students 2 Science, Research Engineering & Apprenticeships, Project SEED, Chemistry Olympics, Professional Societies, etc.). - Increase participation in local outreach and pre-college programs (e.g., CHEM 125, FRSC 201, HUM 101, MATH 111, PHYS 111, etc.). - Encourage faculty and staff to serve in civic and professional organizations. | <ul style="list-style-type: none"> a. Increase the number of local community focused or pre-college programs. b. Increase the size and/or scope of local community focused or pre-college programs. c. Increase the enrollment in pre-college course offerings. d. Increase the number of students from underserved or underrepresented communities (including women, minorities, and students from families with low income and those from local urban communities) studying for STEM degrees at NJIT. |
