COLLEGE OF SCIENCE & LIBERAL ARTS

2023 Annual Report

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COLLEGE OF SCIENCE & LIBERAL ARTS
Overview, Mission, Vision, and Objectives

OVERVIEW

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 (BIOL), Chemistry & Environmental Science (CES), History (HIST), Humanities & Social Sciences (HSS), Mathematical Sciences (MATH), and Physics (PHYS)—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.

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.

CORE VALUES

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.
G. **Communication**, to share information and understand each other's perspectives.

OBJECTIVES

Informed by the College's vision, mission, and core value, CSLA's five major objectives include our commitment to:

1. **Access**
   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**
   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**
   Diversify our student body, faculty, and staff by attracting members from under-represented groups.

4. **Visibility**
   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**
   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.

COLLEGE OF SCIENCE & LIBERAL ARTS
2023 Annual Report

The following is an annual report of the College of Science & Liberal Arts (CSLA) and its
progress in the five major objectives that comprise its 2025 Strategic Plan[1].

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[1] Published October 2021

CSLA has continued 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, while supporting student success and faculty excellence in teaching and learning.

As displayed in Figure 1, CSLA has steadily increased enrollment, netting an 11.29% increase in total student headcount over the past five years.

Figure 1. Headcount Of CSLA Majors by Level, AY 2019 - 2023
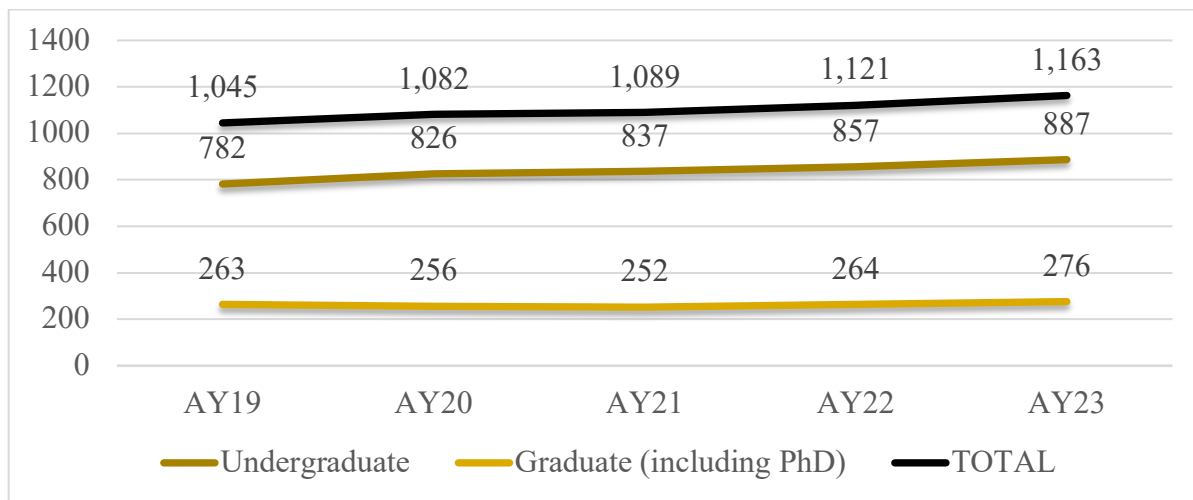
Fall 2022 marked CSLA's largest overall enrollment, with a record 1,163 students enrolled in the College across all degree levels. It also marked CSLA's largest class of incoming students, with 182 first-time, full-time freshmen (FTFTF) joining the College.

We anticipate continued growth in overall undergraduate and graduate (including doctoral) headcount based on admissions data for the Fall 2023 term (see Table A1).

While increasing new enrollment remains a priority, so too does our commitment to student success and the provision of a supportive learning environment. As of FY23, CSLA maintains an undergraduate freshman retention rate of 89%. The College has seen a 23% increase in the total number of graduated students across all degree levels since 2021 (see Figure A1). These figures represent the dedication and aptitude of our students as well as the unwavering commitment to teaching and mentorship upheld by our faculty and staff.

CSLA is committed to educational excellence and actively promotes this throughout curriculum and instructional personnel. Our faculty, lecturers, adjunct instructors, and teaching assistants are often recognized for their excellence in teaching as evidenced by NJIT institutional awards and the College of Science & Liberal Arts annual awards.

At the time of preparing this report, the intuition's 2023 Excellence in Teaching Awards awardees had not yet been announced; however, NJIT's 2022 Excellence in Teaching Awards awardees included:

- Dr. Daniel Bunker (Biological Sciences) for Excellence in Lower Division Undergraduate Instruction by Tenured/Tenure Track Faculty;
- Dr. Eric Fortune (Biological Sciences) for Excellence in Graduate Instruction by Tenured/Tenure Track Faculty; and
- Dr. Padma Natarajan (Mathematical Sciences) for Excellence in Upper Division Instruction by a University Lecturer, Senior University Lecturer and/or Program Directors.

CSLA excellence in teaching awardees for 2023 include:

- Dr. Ji Meng Loh (Mathematical Sciences) for Excellence in Undergraduate Education: Tenured/Tenure Track Faculty;
- Dr. Anand Oza (Mathematical Sciences) for Excellence in Graduate Education: Tenured/Tenure Track Faculty;
- Dr. Caroline DeVan (Biological Sciences) for Excellence in Teaching: University Lecturer;
- Dr. Narendra Neel Khichi (Humanities & Social Sciences) for Excellence in Teaching: University Lecturer; and
- Ms. Nicole Casciola (History) for Excellence in Teaching: Adjunct Faculty.

Since 2018, CSLA has created the following undergraduate degree programs in response to and in anticipation of market and societal needs:

- **Bachelor of Science in Cyberpsychology**
- **Bachelor of Science in Data Science–Statistics**
- **Bachelor of Science in Forensic Science**
    - w/ options in Forensic Biology, Forensic Chemistry, and Digital Forensics

These new degree programs were closely developed in conjunction with department leadership and program directors upon comprehensive evaluation of existing curriculum, program learning objectives, and new opportunities. They offer robust curricula in pertinent fields of study that have resonated with first-time, full-time freshmen (FTFTF) students.

Furthermore, since 2018, CSLA has also launched the following graduate and doctoral degree programs:

- **Master of Science in Biology of Health**
- **Master of Science in Data Science–Statistics Option**
- **Professional Science Master's in Pharmaceutical Chemistry Cell & Gene Therapy Sciences Option**
- **Doctor of Philosophy in Data Science–Statistics Option** (launching Fall 2023)

We are also continuing to expand our offerings at the masters and doctorate levels. Forthcoming CSLA graduate degree programs include:

- **Master of Science in Cyberpsychology** (AY25 anticipated launch)
- **Doctor of Philosophy in Cyberpsychology** (AY25 anticipated launch)

There are currently 189 full-time equivalent faculty (117 tenured/tenure track, 56 lecturers, 3 Professors of Practice, 10 research professors, and 3 academic staff) who hold appointments within the College (see Table A2). Fall 2022 marked NJIT's largest class in university history, with a total enrollment of 12,332 students.[2]

As CSLA continues its aim to expand opportunities for students and increase overall enrollment, so to must our instructional and research staff. This is especially true as the overall growth in university enrollment directly impacts the number of course sections needed for students to complete the University's general education requirements (GER), the vast majority of which are courses taught within CSLA.

Through the College's commitment to the University's GER as well as other service courses, we are proud to provide approximately 37% of all student credit hours annually at NJIT. This is the highest single percentage among all the University's academic units (see Table A3) and a commitment shared by all six of our academic departments (see Table A4).

The NJIT experience continues to provide access to pathways to professional schools for our students. CSLA faculty engage in pre-professional advising of our students interested in pursuing professional health studies or law school. In AY23, all 33 (100%) of NJIT students that were engaged in pre-professional health advising were admitted to health profession schools – 29 of the 33 students graduated from degree programs in CSLA. 15 students were accepted by and will be matriculating in allopathic medicine schools for the MD (these include UPenn School of Medicine, Rutgers New Jersey Medical School, Rutgers Robert Woods Johnson Medical School, Drexel Medical School, New York Medical College, Commonwealth School of Medicine, and Cornell Medical School); 6 students will be matriculating in osteopathic medicine schools for the DO (Rowan School of Osteopathic Medicine, New York Institute of Technology College of Medicine); 5 students will be attending dental school for the DDM (Rutgers School of Dental Medicine, University of Maryland School of Dentistry); and 3 students will be attending Physician Assistant programs. One of our students scored 100 percentile on the MCAT!

[2] NJIT Office of Institutional Effectiveness Institutional Data

RESEARCH

CSLA has continued to encourage and promote interdisciplinary research endeavors between investigators within the College as well as the University's other colleges and schools.

Interdisciplinarity is at the heart of CSLA, and our departments thrive on interdisciplinary pursuits. This ethos coincides with a broader trend that emphasizes interdisciplinarity in new external funding opportunities.

Cross-disciplinary grant submissions by CSLA have grown substantially, with an average submission increase of 35% since 2020 (see Figure B1). The number of cross-disciplinary grants awarded to CSLA (see Figure B2) and subsequent funding for interdisciplinary, multidisciplinary, and transdisciplinary research activity (see Figure B3) reflects the prescience of CSLA's research.

As shown in Figure 2, research funding is widespread throughout all six of our academic departments. CSLA has been awarded $13,247,738 in new funding in FY23 (as of May 2023 – a figure that does not yet account for funding received by the Center for Solar-Terrestrial Research and the Institute for Space Weather Sciences), a figure that represents college-wide achievement in research productivity and will bring FY23 to a close with a record year of new, external research funding for the College.

Figure 2. New Research Funding by CSLA Department, FY 2016 - 2023
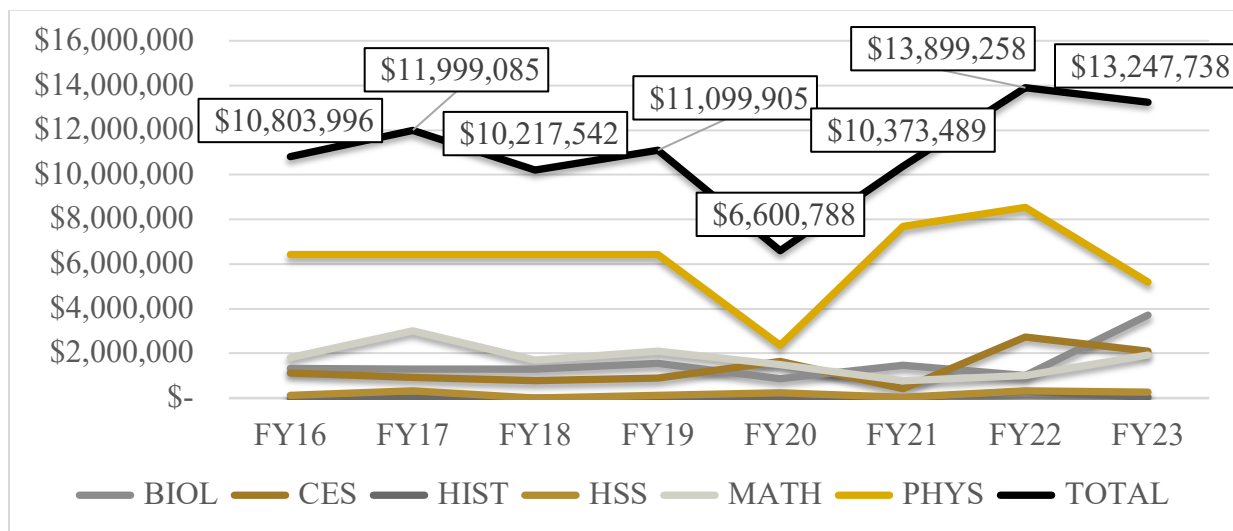
Note. *FY20 and FY23 PHYS figure does not include funding for the Center for Solar-Terrestrial Research or the Institute for Space Weather Sciences*

CSLA has also effectively targeted grant submissions related to funding in priority areas as identified by federal funding agencies (see Table B1). These priorities include:

- Biotechnology & Health Sciences (B&HS)
- Data Science (DS)
- Education, Diversity, & STEM Pathways (EDSP)
- Engineering (ENGR)
- Environmental Science, Sustainability, & Space Weather (ESSW)
- Materials Science, Modeling, & Simulation (MSMS)
- Social/Behavioral Science & Policy (SBSP)

As of 2023, CSLA has 100 active awards in the above areas (see Table B2), which align with our research expertise and serve as a key component of the U.S. research and development pipeline, helping to drive innovation as well as scientific, ideological, and technological breakthroughs.

As presented in Figure 3, CSLA's total research expenditures have remained steady over time, speaking towards the scale and intensity of our research activities as well as their sustainability.

Figure 3. Total Research Expenditures, FY 2019 - 2022
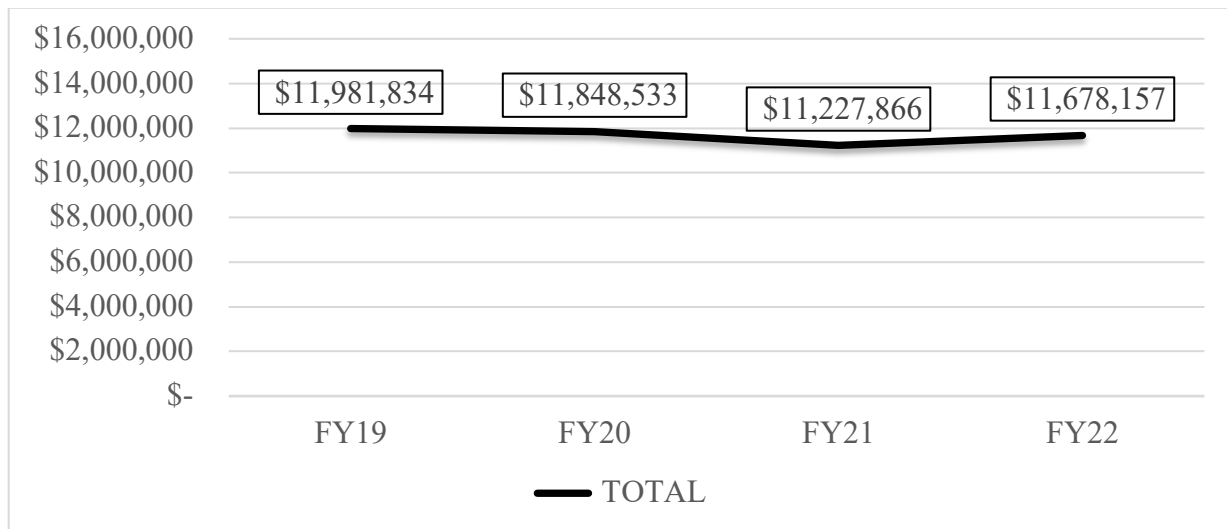
In addition to procuring external funding, CSLA faculty maintains steady scholarship productivity, with an average college-wide publication rate of 70% (see Table B3). As we look to increase the number of faculty publications and the percentage of faculty who publish, we must continue to provide the necessary resources to facilitate research productivity, particularly in post-award support, which is severely lacking.

CSLA has also continued to encourage and promote research endeavors among students. In 2022, CSLA introduced two National Science Foundation (NSF) Research Experience for Undergraduates (REU):

- BioSensor Materials for Advanced Research and Technology (BioSMART) at the Environment/Biotechnology Nexus[3]
- Solar, Terrestrial, and Space Weather Sciences [4]

REU Site: BioSensor Materials for Advanced Research and Technology (BioSMART) at the Environment/Biotechnology Nexus

This REU provides a unique learning experience for undergraduates in biosensors, capitalizing on the biosensor research opportunities at NJIT in the Departments of Chemistry & Environmental Science, Biological Sciences (Federated with Rutgers), and Chemical Engineering & Material Science. The site's intellectual focus emphasizes biosensor materials, biorecognition and protein engineering, sensor designs and characterization, and field applications. Beginning in 2022, this site award supports the training of 10 students for ten weeks through the summer of 2024. It is anticipated that a total of 30 undergraduate students, primarily those from schools with limited research opportunities or from under-represented groups, will be trained in the program.

REU Site: Solar, Terrestrial, and Space Weather Sciences

This REU site is based at NJIT's newly formed Institute for Space Weather Sciences (ISWS) that integrates the strength of three major research entities: the Center for Solar-Terrestrial Research, the Center for Computational Heliophysics, and the Center for Big Data. A total of eight students per year will be selected nationwide to participate in research projects in solar, terrestrial, and space weather physics. Beginning in 2022, this site award supports the training of 8 students for ten weeks through the summer of 2024. It is anticipated that a total of 24 undergraduate students, primarily from schools with limited research opportunities or from under-represented groups, will be trained in the program.

NIGMS U-RISE (T34) Grant

In 2023, CSLA and the Newark College of Engineering (NCE) received a $2,697,640 National Institute of General Medical Sciences (NIGMS) T34 grant. This five-year *Undergraduate Research Training Initiative for Student Enhancement* (U-RISE) program supports seven undergraduate students per year to participate in a biomedical research immersion program that aims to combine the strengths of NJIT's Departments of Biomedical Engineering, Biological Sciences, and Chemistry & Environmental Science. The fellowship is open to rising sophomores who attend NJIT full-time with a major related to the biomedical sciences (including biomedical engineering, biology, chemistry, and biochemistry) and plan to pursue a doctorate and a career in the biomedical sciences. This grant will provide opportunities not only for the students who participate in the U-RISE program, but also for CSLA and NCE faculty as a further means of cross-college collaboration.

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[3] Housed in the Department of Chemistry & Environmental Science (CES)
[4] Housed in the Department of Physics (PHYS)

CSLA continues to diversify our student body, faculty, and staff by attracting members from under-represented groups.

The College works with search committees to emphasize the importance of offering consideration to diverse, qualified faculty and staff candidates. Due to these efforts, gender diversity is progressing particularly well among CSLA's faculty and instructional staff with 27% of CSLA's current tenured or tenure-track faculty members identifying as female, and with 44% of full-time instructional staff identifying as female (see Table C1).

However, only 5% of CSLA's tenured or tenure-track faculty members and full-time instructional staff identify as an under-represented minority (see Table C2). Under-represented minority diversity among faculty and instructional staff remains a challenge and a key area of focus for hiring withing the College.

We also continue to work with the Office of University Admissions to recruit diverse, qualified students. The effects of these efforts have shaped CSLA into an inclusive academic community that fosters intellectual growth, creativity, and cross-cultural exchange.

Across all degree levels, 30% of students within CSLA identify as an under-represented minority. Fall 2022 marked another key milestone for CSLA as the first time in the College's history where the number of female students enrolled outnumbered the number of male students enrolled; in fact, females now comprise 53% of CSLA's total student population (see Table C3).

The gender and racial and ethnic diversity among undergraduate students within CSLA is particularly noteworthy within our STEM disciplines. CSLA undergraduates pursuing STEM degrees are now more than 55% female. Among the key drivers of the College's new enrollment and gender diversity figures include the Department of Biological Sciences, 60% of which identifies as female, which now accounts for nearly 30% of CSLA's student body.

Housed within the Department of Chemistry & Environmental Science and introduced in 2019, the forensic science program, 77% of which are female and 37% of which identify as an under-represented minority, is now the third-most enrolled undergraduate program within CSLA.

CSLA has made progress in increasing the visibility of our research, programs, faculty, and students. Increasing our College's reach serves to enhance the impact of our efforts in other areas, to increase dissemination of our faculty's scholarship, and to bolster our overall competitiveness.

In addition to measures taken at the University-level (i.e., via the Office of Strategic Communications, the Office of University Admissions, etc.) to promote CSLA's visibility, the College has also spearheaded several in-house marketing and branding campaigns.

Beginning in 2020, CSLA initiated the "Light the Lamp" campaign with the aim of elevating the profile of the College both on campus and throughout the wider academic community through a comprehensive branding effort.

The "Light the Lamp" campaign involved graphical and digital displays in the lobby and throughout the second floor of Cullimore Hall, which have served to increase our College's image and gravitas on campus. Along with these visual enhancements, Cullimore Hall now houses two digital displays used for event promotion and news dissemination to the wider NJIT community.

A cornerstone of CSLA's visibility efforts is the creation of a cohesive visual and brand identity. In addition to environmental graphics, the "Light the Lamp" campaign encompassed the creation of other branding materials, including a new CSLA logo (see Figure D1), which has been used throughout subsequent marketing and branding campaigns. These campaigns have been implemented across three communication channels:
- Social Media
- Email
- Print

Communication Channel: Social Media

CSLA retains Facebook, Instagram, Twitter, and LinkedIn accounts where we actively post content regarding the College's events and faculty, student, and recent alumni accomplishments. This content is posted organically (i.e., non-paid promotions).

Facebook's decreasing reach and diminishing use among key audience demographics in relation to other social media platforms calls into question our continued use of the platform (see Figure D2). Since May 2022, the CSLA Facebook account has only gained 8 new followers, with stagnating audience engagement, and only 238 total page visits during the past twelve months.

Instagram's continued reach and prevalence among our audience solidifies it as a platform critical for engagement with current and prospective students (see Figure D3). Since May 2022, the CSLA Instagram account has gained 100 new followers, with 780 profile visits. Due to algorithm changes favoring video content, CSLA has pivoted to increase video content posted to the platform in order to meet this changing dynamic.

Twitter's use among our audience renders it a platform worthy of continued use. However, due to changes in platform ownership and an algorithm favoring paid accounts, it is likely we will see stagnating reach (see Figure D4). Since May 2022, the CSLA Twitter account has gained 17 new followers, with 11,489 profile visits.

LinkedIn's continued reach and prevalence among faculty members, industry connections, and the wider academic community makes it as a platform beneficial to CSLA visibility efforts (see Figure D5). Since May 2022, the CSLA LinkedIn account has gained 107 new followers, with 324 page views.

Communication Channel: Email

Ancillary to the email communications that prospective students already receive from the Office of University Admissions, CSLA has engaged in email campaigns that not only operate at the foundational level of brand awareness and College visibility, but also serve as a call to action to students admitted to the College, providing them an additional means to submit their tuition deposit. These campaigns ultimately resulted in 19 undergraduate deposits and 8 graduate deposits for the Fall 2022 semester. As of May 2023, these campaigns have resulted in 21 undergraduate deposits and 2 graduate deposits for the Fall 2023 semester. In addition to outreach to admitted students, further email campaigns are sent to deposited students throughout the summer prior to the start of the fall term. These campaigns provide the deposited students with helpful department resources, keep them up to date on the latest CSLA and NJIT news, and ultimately maintain their engagement with CSLA before the start of the semester.

Communication Channel: Print

As of 2022, CSLA has initiated multiple print marketing projects promoting our newest undergraduate degree programs (i.e., the B.S. in Cyberpsychology, the B.S. in Data Science–Statistics, and the B.S. in Forensic Science). The first of these campaigns is comprised of personalized letters and recruitment items sent to students admitted to our programs of focus. These initial letters congratulate the student regarding their admission to the program, relay the prescience of the program's curriculum in today's global market, and ultimately encourage their tuition deposit. Upon submitting their tuition deposit, students in the focus programs also receive a personalized follow-up letter and secondary item, expressing CSLA's gratitude, providing them with program and faculty highlights, emphasizing the new opportunities available to them, and encouraging the student to reach out with any questions. CSLA's second print project promotes the focus programs to high school guidance counselors throughout the tristate area, who received a poster (see Figure D6) promoting the programs, along with ancillary flyers containing program details. Since their distribution in October 2022, these flyers have netted 89 scans, 77 of which have been unique, though their overall reach far exceeds this number.

Benchmarking and tracking metrics proves challenging for CSLA's visibility efforts. All data regarding student applicants, applicants, and deposits are retained by the Office of University Admissions. At the same time, the Office of University Admissions and the Office of Strategic

Communications engage in enrollment and visibility campaigns to the benefit of CSLA across a wide variety of mediums.

CSLA's in-house campaigns and content operate outside of Slate, the University-wide customer relationship management (CRM) system, which makes proving direct correlation between marketing efforts and enrollment figures difficult. Thus, CSLA's in-house marketing campaigns best serve as approximations for reach and general awareness as opposed to direct yield statistics. Our marketing and branding campaigns will continue to develop in tandem with University-level promotional activity as we build upon this existing foundation and pursue new means of visibility as they arise.

Awards

Faculty and student awards, scholarships, and fellowships increase CSLA's prominence, making the College more widely recognized as leader in applied research and student and faculty achievement.

The following CSLA junior faculty members have received NSF Faculty Early Career Development (CAREER) Awards, the most prestigious award in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department and organization:
- Dr. Casey Diekman, Department of Mathematical Sciences, awarded in 2016
- Dr. Bin Chen, Department of Physics, awarded in 2017
- Dr. Alexei Khalizov, Department of Chemistry & Environmental Science, awarded in 2017
- Dr. Brittany Hamfeldt, Department of Mathematical Sciences, awarded in 2018
- Dr. Mengyan Li, Department of Chemistry & Environmental Science, awarded in 2019
- Dr. Satoshi Inuoe, Department of Physics, awarded in 2011
- Dr. Philip Barden, Department of Biological Sciences, awarded in 2022
- Dr. Junjie Yang, Department of Physics, awarded in 2023

Other recent prestigious awards and fellowships among CSLA's faculty include:[5]
- DARPA Young Faculty Award: Dr. Simon Garnier, Department of Biological Sciences, awarded in 2019
- Steven Vogel Young Investigator Award: Dr. Brook Flammang, Department of Biological Sciences, awarded in 2019
- Royal Society of Chemistry Fellowship: Dr. Kevin Belfield, Department of Chemistry & Environmental Science, awarded in 2022
- Senior Member of the National Academy of Inventors: Dr. Mengyan Li, Department of Chemistry & Environmental Science, awarded in 2022
- American Council of Learned Societies Fellowship: Dr. Rosanna Dent, Department of History, awarded in 2021
- Institute for Advanced Study Fellowship: Dr. Rosanna Dent, Department of History, awarded in 2022

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[5] Organized by department and year.

- New York Public Library Dorothy and Lewis B. Cullman Center for Scholars and Writers Fellowship: Dr. Neil Maher, Department of History, awarded in 2022
- Foreign Policy Research Institute Senior Fellowship: Dr. Karl Schweizer, Department of History, awarded in 2022
- Safina Center Fellowship: Dr. David Rothenberg, Department of Humanities & Social Sciences, awarded in 2019
- Fulbright U.S. Scholar Award: Dr. Casey Diekman, Department of Mathematical Sciences, awarded in 2019
- Distinguished Lecturer by the Institute of Electrical and Electronics Engineers' Oceanic Engineering Society: Dr. Eliza Michalopoulou, Department of Mathematical Sciences, awarded in 2022
- Thomas Alva Edison Patent Award: Dr. Ken Chin, Department of Physics, awarded in 2018
- American Astronomical Society Fellowship: Dr. Philip Goode, Department of Physics, awarded in 2021
- Karen Harvey Prize: Dr. Bin Chen, Department of Physics, awarded in 2023

The work and achievements of our students have also increased CSLA's name recognition and prominence. Recent prestigious awards and scholarships among CSLA students include:

Barry Goldwater Scholarship:
- Dylan Renaud, Physics and Mathematical Sciences, awarded in 2017
- Samantha Lomuscio, Physics, awarded in 2017
- Joseph Torsiello, Physics and Mathematical Sciences, awarded in 2020
- Phillip Zaleski, Mathematical Sciences, awarded in 2020
- Abdul-Rahman Azizogli, Biology, awarded in 2021
- Sreya Sanyal, Biology and History, awarded in 2021
- Simone Bishara, Biology, awarded in 2022

David L. Boren Scholarship:
- John Antley, Chemistry, awarded in 2019
- Samuel Carlos, Mathematical Sciences and History, awarded in 2021

Fulbright Scholar Award:
- David Anderson, Mathematical Sciences, awarded in 2016
- Joseph Torsiello, Physics and Mathematical Sciences, awarded in 2020

Gilman International Scholarship:
- Destiny Adeleye, History, awarded in 2022
- Kiaja Jones, History, awarded in 2022

NSF Graduate Research Fellowship:
- Axel Turnquist, Mathematical Sciences, awarded in 2018
- Sumbel Yaqoob, Chemistry, awarded in 2023

CSLA has continued our partnership with the community, state, and industry to share our talents, expertise, and to provide assistance in areas of need. We actively work to better serve local communities with which we engage. Below are brief overviews of some of CSLA's recent community engagement initiatives and activities.

Math Success Initiative

With our colleagues in the Center for Pre-College Programs (CPCP), we founded the Newark Math Success Initiative (MSI), a collaboration among CSLA, CPCP, the City of Newark Mayor's Office, and the Newark Board of Education (NBOE). MSI is designed to strengthen Newark high school students' mathematics knowledge, skills, and preparation for college work with the goal of enrolling them at NJIT as first-year college freshmen prepared to take calculus upon graduation from high school.

The initiative also contains a professional development component that is provided to selected mathematics teachers in the NBOE's participating high schools with the goal of building a professional learning community to help ensure teachers' success in teaching of mathematics in the classroom.

Launched in 2019, four cohorts of Newark high school seniors have participated in MSI. In the first two years of the program, a total of 33 MSI participants became first-year college freshman at NJIT. 2021-2022 saw a 26% increase in student participation from 2019-20, with a total of 35 completing the program.

Forensic Science Initiative

With our colleagues in the Center for Pre-College Programs (CPCP), we founded the Forensic Science Initiative (FSI), a collaboration with the Newark Board of Education (NBOE) supported by a grant from the U.S. Department of Education. FSI is designed to strengthen Newark, Orange, Hillside, Elizabeth and Kearny high school students' STEM knowledge, skills, and preparation for college work with the goal of enrolling them at NJIT as first-year college freshmen.

Incorporating classwork, lab work and field research experiences, FSI is built as a pathway for students who may find biology, chemistry, physics, and mathematics inaccessible or intimidating. By incorporating these topics into hands-on research experience, this initiative develops competency and preparation for college-level STEM work for students who otherwise may be dissuaded from entering STEM fields.

Launched in 2022, 15 students completed the FSI summer program successfully, 13 of which went on to enroll in FRSC 201: Introduction to Forensic Science on campus for dual enrollment credit.

STEM for Success

STEM for Success (S4S) is a project of the Collaborative for Leadership, Education, and Assessment Research (CLEAR), a center housed under CSLA. S4S is an integrated program to broaden participation in STEM, especially for those in traditionally under-represented groups, and is designed to foster collaborative community engagement and provide educational STEM resources.

S4S engages in a variety of activities aimed at promoting hands-on STEM activities to under-represented groups. In 2022, and in conjunction with school district partners, S4S projects engaged 350 K-8 students with hands-on STEM projects to learn about chemistry, brain activity, color science, fluorescence, luminescence, and bioluminescence.

S4S also supports an afterschool program for 36 middle school girls to come to NJIT's campus to learn about STEM and participate in the First-Tech Challenge. A larger set of initiatives were tied to Women's History Month and STEM Month 2022, where S4S sponsored several workshops and virtual conferences.

In addition, S4S works with alliance partners and educational stakeholders to provide access for students to showcase their work, managing and retaining a collection of digital tools and repositories where its hands-on STEM content is made available to stakeholders. Through this footprint, S4S has reached 105 institutions across nearly 70 countries.

New Jersey Chemistry Olympics

The New Jersey Chemistry Olympics (NJCO) was established by NJIT in 1985 to provide educational experience for NJ high school chemistry students. This annual competition provides participating students with opportunities to learn, innovate and experiment in a supportive environment with chemistry as a unifying theme.

The 2023 NJCO ran as an in-person competition for the first time since the COVID-19 pandemic. Over 200 students from 14 high schools across the state arrived on-campus to compete in various events including chemistry research, environmental research, chemical engineering research, website design, analytical labs, instrumentation labs, debate, and more. All told, the 32 medals from the 35th annual NJCO were distributed between 18 of the 21 teams that competed on event day.

NJCO is made possible by the dedicated efforts of faculty and staff from across NJIT, particularly those from the Department of Chemistry & Environmental Science. NJCO has also been a dual effort with North Jersey Section of the American Chemical Society (NJ-ACS) and drawn additional sponsorship from companies such as Agilent Pharmaceuticals, Bristol-Myers Squibb, Exemplify, and Merck.

Theatre Arts and Technology Program

CSLA has also maintained engagement with the performing arts community through our Theatre Arts and Technology (THAT) program. In March 2023, THAT hosted the Newark Playwrights Festival, reaching out to high schools in Newark and Elizabeth for play submissions by high schoolers and ultimately producing plays from East Side High School, Thomas Jefferson Arts Academy, Rutgers University-Newark and NJIT students.

In October 2023, THAT will host the Short Film Festival (formerly the Newark Short Film Awards), which receives hundreds of submissions from around the country. In addition to an awards ceremony, this event will provide film-making and acting workshops, panels, networking events, entertainment, and an overall support system for filmmakers, artist, actors, composers, directors, writers, and all aspects of video production.

Previously, THAT has hosted the Newark Improv Festival, featuring professional troupes, as well as high school and college troupes in the surrounding metropolitan area and offering free improv classes. THAT also holds annual Fall and Spring concerts through NJIT's Music Initiative, which are open to the public and have garnered significant attendance. Additionally, THAT hosts a wide variety of workshops open to NJIT, Rutgers University-Newark, and Essex County College students.

The initiatives and activities listed above serve as an example of how CSLA brings our experience and talents to the community and help inform our own efforts while serving critical needs and gaining visibility. This engagement cultivates strong relationships that, in turn, generate support of our College's mission. FY23 has been a banner year for philanthropic support for CSLA, with >$320,000 received from alumni, friends, companies, and supporters in support of our students, programs, and priorities.

Figure A1. CSLA Students Graduated FY 2020 – 2023
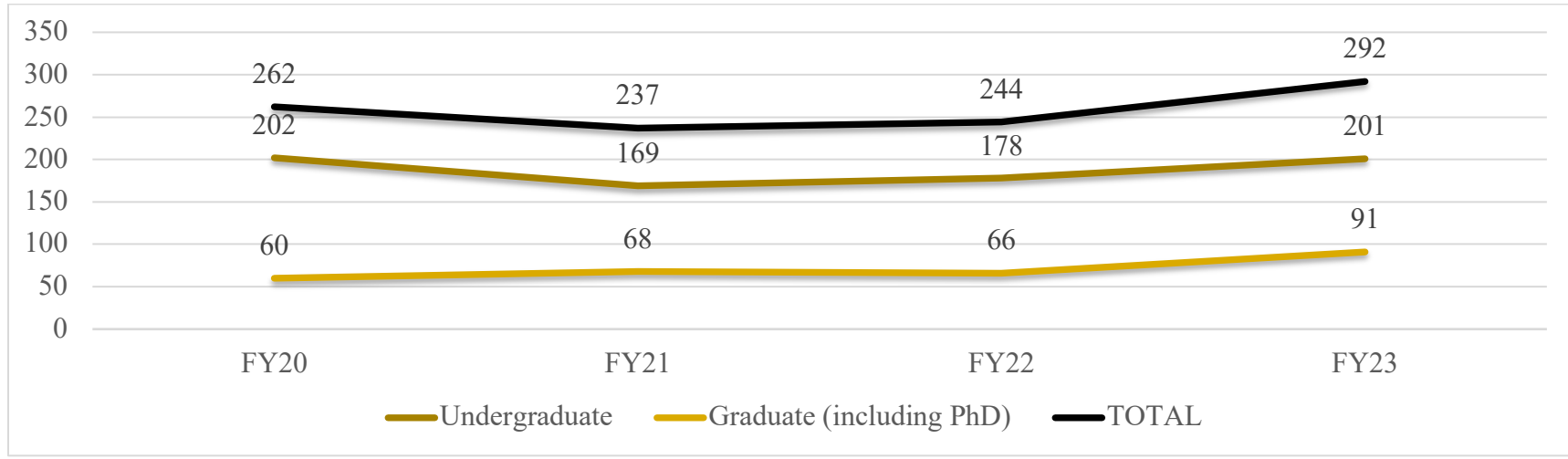
STUDENTS GRADUATED	2020	2021	2022	2023
Undergraduate	202	169	178	201
Graduate	60	68	66	91
TOTAL	**262**	**237**	**244**	**292**

Table A1. Fall 2023 Application and Admissions Data for First-Time, Full-Time Freshman (FTFTF) as of May 22, 2023.

PROGRAM	APPLICATIONS				ADMITS				DEPOSITS			
	2023	2022	2021	2020	2023	2022	2021	2020	2023	2022	2021	2020
Applied Physics	103	84	75	83	80	54	53	65	13	10	11	8
Biochemistry	277	253	245	207	223	205	196	153	28	25	17	16
Biology	1,174	1,126	1,128	1,015	939	861	862	706	90	77	92	65
Chemistry	78	91	86	96	62	72	70	74	6	10	5	7
Communication	74	109	83	60	45	62	44	26	5	4	5	3
Cyberpsychology	65	66	37	0	43	45	24	0	10	6	5	0
Data Science Statistics Option	79	61	0	0	60	48	0	0	9	9	0	0
Environmental Science	85	71	96	59	68	57	72	40	9	11	6	4
Forensic Science	215	212	152	127	164	156	99	61	44	35	20	11
History	23	18	23	20	11	12	14	8	0	0	2	1
Law, Technology, & Culture	93	118	109	84	59	71	73	38	10	9	4	2
Mathematical Sciences	114	104	124	134	86	79	98	112	19	15	14	18
Science, Technology & Society	29	31	28	24	25	23	18	22	3	0	0	3
Theater Arts and Technology	30	24	23	18	12	16	13	9	0	0	3	3
Undecided-Sci & Liberal Arts	276	321	331	301	167	199	203	146	21	18	10	5
CSLA FTFTF TOTAL	**2,715**	**2,689**	**2,540**	**2,228**	**2,044**	**1,960**	**1,839**	**1,460**	**267**	**229**	**194**	**146**

Table A2. Instructional and Research Staff by CSLA Department

FULL-TIME EQUIVALENT FACULTY	BIOL	CES	HIST	HSS	MATH	PHYS	TOTAL
Tenured and Tenure-Eligible	13	18	6	17	40	23	117
Lecturers	4	7	2	22	12	9	56
Professors of Practice	–	1	–	1	1	–	3
Research Professors	1	–	–	–	–	9	10
Academic Staff	–	1	–	1	–	1	3
TOTAL	**18**	**26**	**8**	**41**	**53**	**42**	**189**

Table A3. NJIT Teaching Productivity by College, AY 2020 – 2022

ACADEMIC UNIT	TOTAL STUDENT CREDIT HOURS					
	AY20	%	AY21	%	AY22	%
College of Science & Liberal Arts	97,409	39%	95,881	36%	95,289	37%
Hillier College of Architecture & Design	12,633	5%	13,683	5%	14,518	6%
Martin Tuchman School of Management	20,589	8%	22,489	9%	23,621	9%
Newark College of Engineering	69,833	28%	72,270	27%	65,736	25%
Ying Wu College of Computing	52,186	21%	57,735	22%	61,367	24%
NJIT (TOTAL)	**252,650**		**263,432**		**252,650**	

Table A4. Teaching Productivity by CSLA Department, AY 2022

DEPARTMENT	TOTAL STUDENT CREDIT HOURS (%)	
	within CSLA	within NJIT
Biological Sciences (BIOL)	6%	2%
Chemistry & Environmental Science (CES)	12%	4%
History (HIST)	4%	1%
Humanities & Social Sciences (HSS)	32%	12%
Mathematical Sciences (MATH)	30%	11%
Physics (PHYS)	16%	6%
CSLA (TOTAL)	100%	36%

Figure B1. CSLA Grant Submissions by Grant Type, FY 2020 – 2023
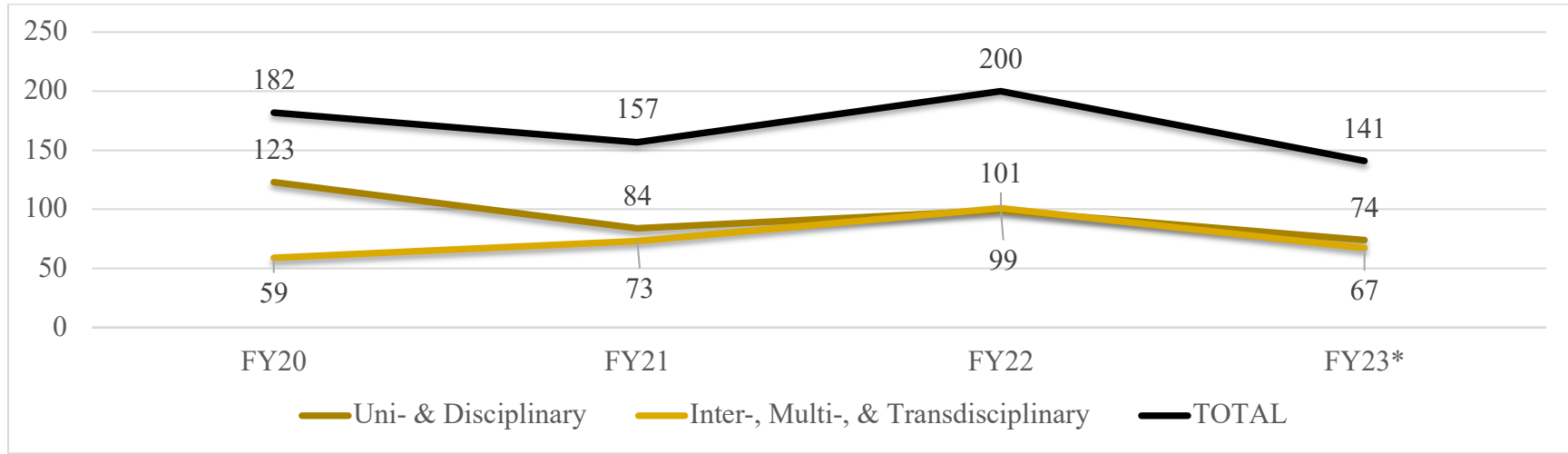
GRANT TYPE	# OF SUBMISSIONS			
	2020	**2021**	**2022**	**2023**
Uni- & Disciplinary	123	84	99	74
Inter-, Multi-, & Transdisciplinary	59	73	101	67
TOTAL	**182**	**157**	**200**	**141**

Note. FY23 does not yet account for grant submissions by the Center for Solar-Terrestrial Research or the Institute for Space Weather Sciences

Figure B2. CSLA Grant Awards by Grant Type, FY 2020 – 2023
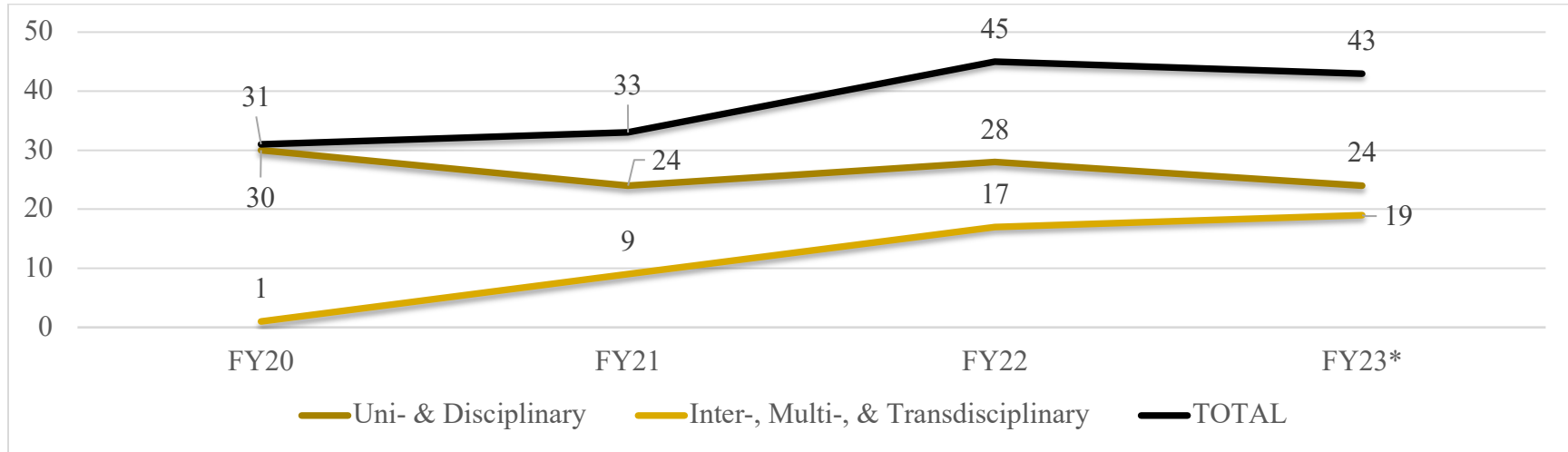
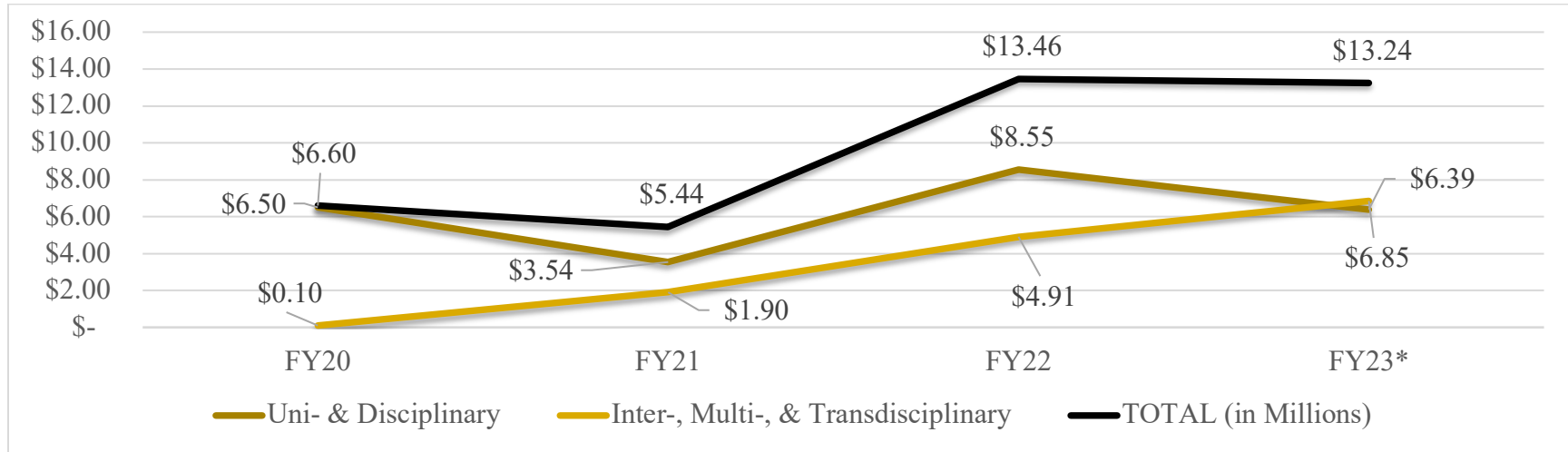| GRANT TYPE	# OF NEW AWARDS			
	2020	**2021**	**2022**	**2023**
Uni- & Disciplinary	30	24	28	24
Inter-, Multi-, & Transdisciplinary	1	9	17	19
TOTAL	**31**	**33**	**45**	**43**

Note. FY23 does not yet account for grants awarded to the Center for Solar-Terrestrial Research or the Institute for Space Weather Sciences

Figure B3. CSLA Grant Funding (in Millions), FY 2020 – 2023

GRANT TYPE	TOTAL FUNDING (IN MILLIONS)			
	2020	2021	2022	2023
Uni- & Disciplinary	$6.50	$3.54	$8.55	$6.39
Inter-, Multi-, & Transdisciplinary	$0.10	$1.90	$4.91	$6.85
TOTAL	**$6.60**	**$5.44**	**$13.46**	**$13.24**

Note. FY23 does not yet account for funding received by the Center for Solar-Terrestrial Research or the Institute for Space Weather Sciences

Table B1. Number of New Awards in Areas of Federally-Identified Priorities, FY 2021 – 2023

EXTERNAL FUNDING IN AREAS OF FEDERALLY-IDENTIFIED PRIORITIES	# OF NEW AWARDS		
	2021	**2022**	**2023***
B&HS	5	5	10
DS	0	0	0
EDSP	2	4	1
ENGR	1	3	0
ESSW	8	9	7
MSMS	24	25	23
SBSP	0	1	2
TOTAL	**40**	**47**	**43**

- *Biotechnology & Health Sciences (B&HS)*
- *Data Science (DS)*
- *Education, Diversity, & STEM Pathways (EDSP)*
- *Engineering (ENGR)*
- *Environmental Science, Sustainability, & Space Weather (ESSW)*
- *Materials Science, Modeling, & Simulation (MSMS)*
- *Social/Behavioral Science & Policy (SBSP)*

Note. FY23 figure does not yet account for grant awards to the Center for Solar-Terrestrial Research or the Institute for Space Weather Sciences

Table B2. Number of Active Awards in Areas of Federally-Identified Priorities, FY 2021 – 2023

EXTERNAL FUNDING IN AREAS OF FEDERALLY-IDENTIFIED PRIORITIES	# OF ACTIVE AWARDS		
	2021	2022	2023
B&HS	7	9	14
DS	0	0	0
EDSP	5	5	3
ENGR	1	1	1
ESSW	15	17	22
MSMS	42	47	60
SBSP	1	1	2
TOTAL	**71**	**80**	**102**

- *Biotechnology & Health Sciences (B&HS)*
- *Data Science (DS)*
- *Education, Diversity, & STEM Pathways (EDSP)*
- *Engineering (ENGR)*
- *Environmental Science, Sustainability, & Space Weather (ESSW)*
- *Materials Science, Modeling, & Simulation (MSMS)*
- *Social/Behavioral Science & Policy (SBSP)*

Table B3. Scholarship Productivity by CSLA Department, FY 2023

SCHOLARSHIP PRODUCTIVITY	BIOL	CES	HIST	HSS	MATH	PHYS	TOTAL
Articles & Related Publications	45	64	4	13	47	72	245
Book Chapters	1	21	0	0	0	3	25
Conference Papers	1	0	2	5	2	0	10
Percentage of Faculty Who Published	85%	80%	67%	60%	70%	75%	70%

Table C1. Percentage of Female Tenured or Tenure-Track Faculty and Full-Time Instructional Staff, AY 2020 – 2022

FEMALE	2020	2021	2022
Tenured or Tenure-Track Faculty	21%	23%	27%
Full-Time Instructional Staff	43%	44%	44%

Table C2. Percentage of Under-Represented Minority Tenured or Tenure-Track Faculty and Full-Time Instructional Staff, AY 2020 – 2022

UNDER-REPRESENTED MINORITY	2020	2021	2022
Tenured or Tenured-Track Faculty	6%	6%	5%
Full-Time Instructional Staff	5%	6%	5%

Table C3. Percentage of Female and Under-Represented Minority CSLA Students, AY 2020 – 2022

CSLA STUDENTS	2020	2021	2022
Female	46%	47%	53%
Under-represented Minority	23%	23%	30%
TOTAL	**1,058**	**1,128**	**1,163**

Figure D1. CSLA Visual Branding Asset and New Logo

Figure D2. Facebook Reach May 2022 – May 2023
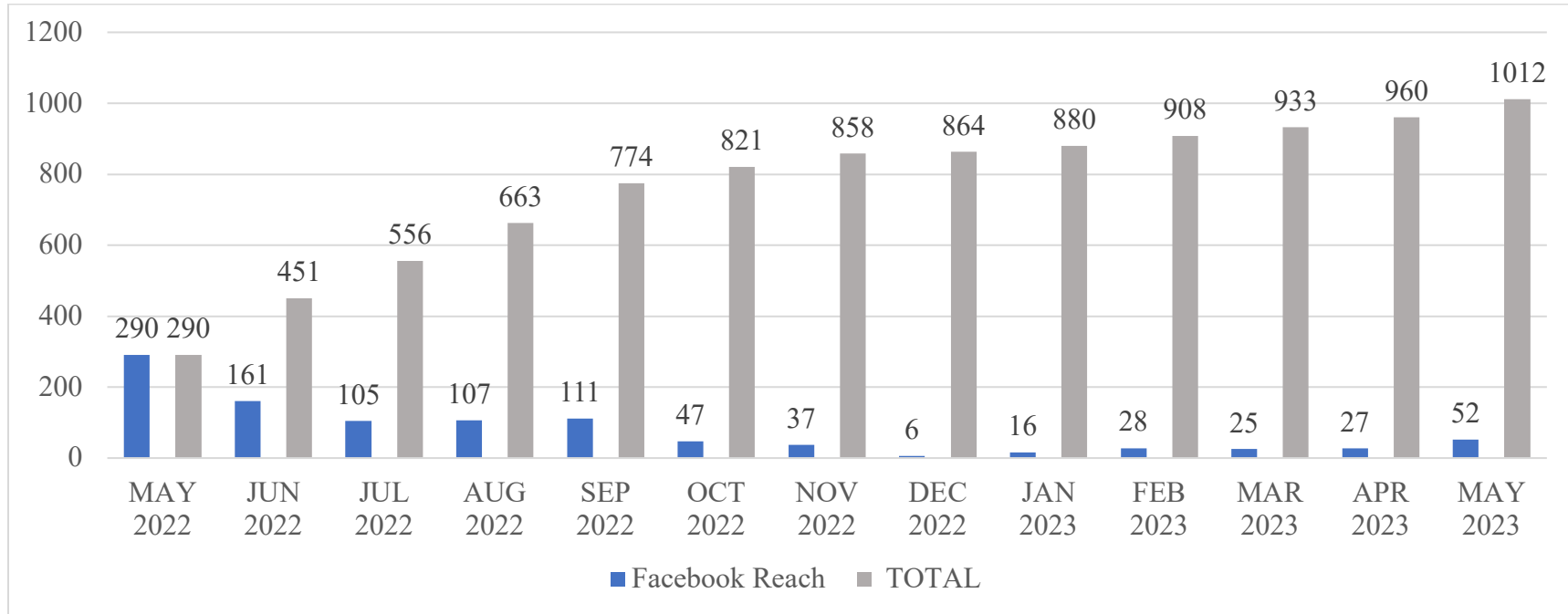
Figure D3. Instagram Reach May 2022 – May 2023
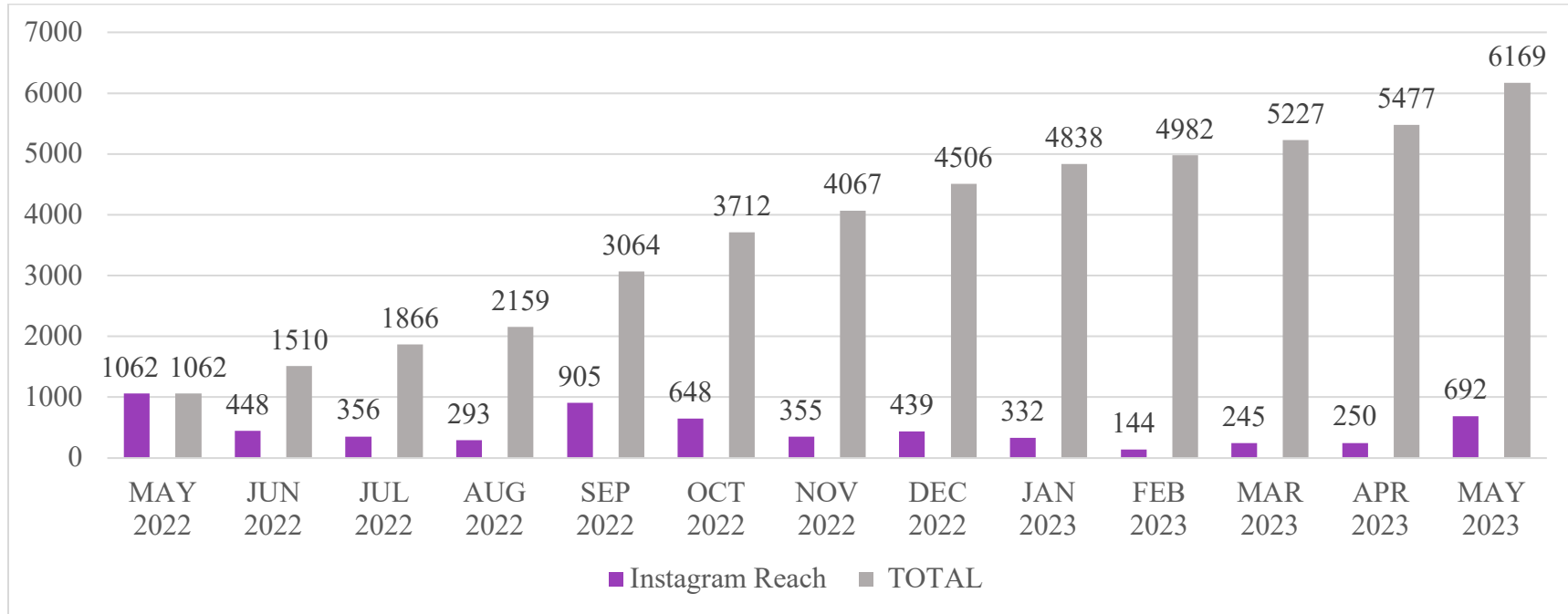
Figure D4. Twitter Impressions May 2022 – May 2023
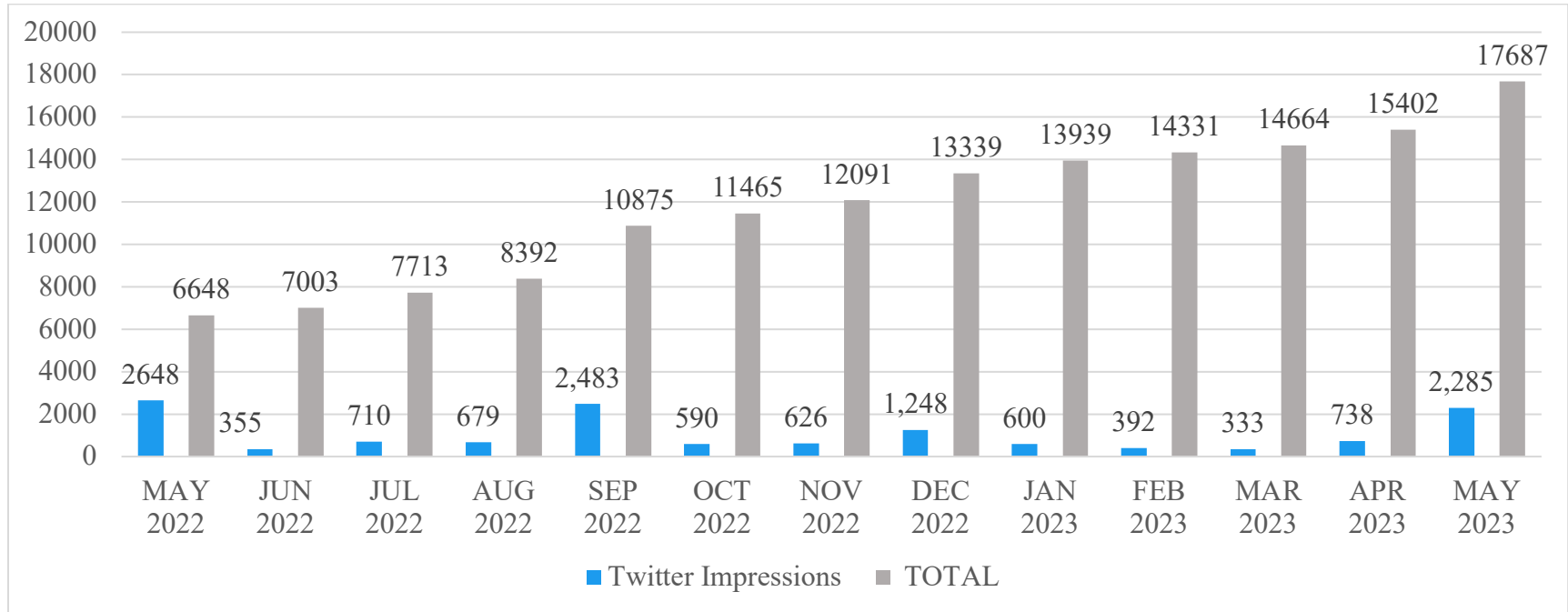
Figure D5. LinkedIn Reach May 2022 – May 2023
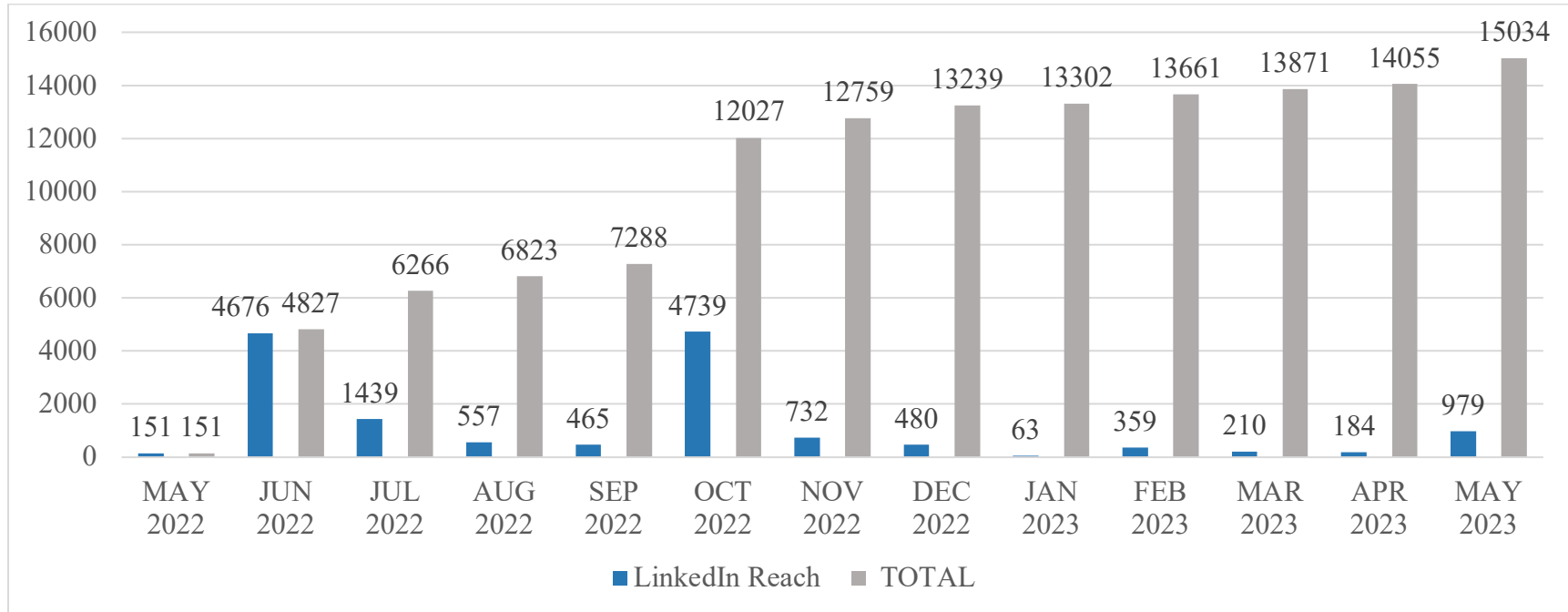
Figure D6. Cyberpsychology, Data Science-Statistics, and Forensic Science Poster