

GO BOLDLY

*A strategic plan for the College of Natural Sciences
2022-2027*



WE ARE NATURAL SCIENCES



I am excited to present the College of Natural Sciences' strategic plan for 2022-2027. *Go Boldly* is a call to action for everyone in our college – as we move into the future, we do so with bold ambitions and a renewed commitment to our mission and values.

The *Go Boldly* plan is the culmination of a broad community effort that we started in Fall 2021. I am proud to say that faculty, staff, students, alumni, donors, and friends of the college have contributed their ideas and input to this plan.

Through a collaborative process, we have developed a strategic plan that builds upon our strengths and past accomplishments and positions us to continue to advance this amazing college.

As a community, we share a core belief in the power of high-quality education and research to effect transformative change. We support broad goals of inclusive excellence, research excellence, student success, and global impact. The disciplines we represent are the foundation needed to realize the vision set forth in Colorado State University's strategic plan. As such, our *Go Boldly* plan aligns our strategies with those of the University's plan while celebrating our individual strengths and ambitions.

To everyone in our community – those of you who work here, study here, and support us – I invite you to **Go Boldly**.

Sincerely,

A handwritten signature in black ink that reads "Jan Neger". The signature is fluid and cursive.

Janice L. Neger, Dean
College of Natural Sciences



Mission

Harnessing the power of the foundational sciences, the College of Natural Sciences leads transformative research, education, and engagement; supports an inclusive community that removes barriers to access and success; and fosters a spirit of inquiry.

Vision

The College of Natural Sciences will continue to be a global leader in foundational and multidisciplinary research, recognized for innovative high-quality education in the sciences and important, impactful outreach and engagement.

Values

- We embrace curiosity and a culture of innovation.
- We champion fundamental and applied research.
- We support world-class education at all levels.
- We encourage collaboration and multidisciplinary work.
- We foster a diverse and inclusive environment where everyone can thrive.
- We value local, national, and global engagement.

Colorado State University's Principles of Community

Inclusion – Integrity – Respect – Service – Social Justice

BUILDING ON SUCCESS

Some Highlights From the Last Five Years



We advanced our research mission.

- Two new state-of-the-art science buildings were opened – Biology and Chemistry Research.
- Our research expenditures were \$185 million.
- We were awarded 1,425 external grants.
- The Data Science Research Institute was established.
- We launched our first research laboratory with a corporate partner – Panacea Life Sciences Cannabinoid Research Center.



Our faculty were locally, nationally, and internationally recognized.

- Two faculty were elected as National Academy of Sciences members.
- Six faculty were recognized as University Distinguished Professors.
- Two faculty were recognized as University Distinguished Teaching Scholars.
- We hired 51 faculty (39 tenure-track and 12 continuing and contract).
- Our faculty garnered more than 130 national and international honors and recognitions.
- Our faculty published nearly 4,000 peer-reviewed publications/books/conference proceedings.



We set new records in our fundraising.

- We raised more than \$50 million in private donations.
- The value of our endowment increased by 60%.
- We increased our number of endowed funds by 28%.
- We awarded more than 1,400 scholarships, totaling more than \$1.5 million.



We supported the education of the next generation of scientists, scholars, and leaders.

- We conferred 5,500 degrees.
- Student enrollment increased 14%.
- The new undergraduate major in data science was launched.
- Two new professional science master's degrees were launched: microscope imaging technology and biological data analytics.
- Two new master's degrees were launched: addiction counseling and applied statistics.
- We built new relationships with international university partners in Slovenia, China, Ireland, Italy, and Jordan.
- Significant new investments were made in student success, including adding academic advisers and financially investing in learning communities (Amplify), departmental learning/tutoring centers, and career services.



We invested in diversity, equity, and inclusion.

- More than \$2 million was invested in student programs, professional development, and faculty initiatives.
- The Department of Computer Science was designated as a BRAID (Building, Recruiting, and Inclusion for Diversity) affiliate.
- DEI committees were formed in the college and in each of the eight departments.
- A DEI Statement of Commitment was endorsed by college leadership.
- More than \$10 million was secured in external grants to support DEI efforts.
- We led CSU's implementation of the national Student Experience Project.



We engaged with our community locally and globally.

- The International Summer Scholars Program was established.
- More than 30,000 community members attended Little Shop of Physics annual open houses.
- The College of Natural Sciences Education and Outreach Center had 8,600 fourth-12th graders participate in science programs.
- More than 1,200 high school students participated in Math Day, an on-campus program hosted by the Department of Mathematics.

PLANNING FOR **THE FUTURE**

Organizational Analysis

Strengths

- Our excellence in foundational science translates into impactful research, education, outreach, and engagement.
- Our research portfolio is strong with a high percentage of faculty securing grant support.
- We have highly ranked programs with international reach.
- We contribute critical education to the entire CSU student body.
- Students in our majors and graduate programs have experiential and co-curricular learning opportunities that ensure they graduate with marketable skill sets.
- The graduate programs in all our departments are highly ranked and emphasize learning through research and teaching.
- We value and support diversity, equity, inclusion, and social justice.
- Our community is committed to student access and success, and this is demonstrated through our high-impact education and advising practices, our Amplify science community, and our tutoring and student support services.
- Our outreach and engagement efforts expand scientific literacy throughout the state and nation.

Opportunities

- We have strengths in disciplinary and multidisciplinary science and are poised to advance research and education in emerging fields.
- The disciplines that we teach will continue to grow and increase in importance as society requires more advanced scientific and quantitative knowledge.
- New partnerships with CSU System campuses (CSU Pueblo and Spur) will increase our opportunities to advance our mission.
- Advances in technology and increased demand for flexible learning modalities provide the opportunity to evolve the way we educate.
- The COVID-19 pandemic significantly changed how students learn and people work. With these changes, we can rethink how we provide access to education, how we prepare students for the job market, and how our employees work most effectively.
- The students who enroll in the future will require us to be nimble in our teaching methods and curricula.
- We have seen success in our multidisciplinary educational offerings, and we can expand these to ensure that CSU students graduate with well-rounded, contemporary skill sets.
- There is passion among our faculty and staff to create and foster a diverse, inclusive workplace.



OUR PATH FORWARD



Strategic Plan Summary

Goals To Advance Our Mission



Lead impactful, recognized research to address global challenges and pursue exciting research frontiers.



Support our students throughout their educational journeys and prepare them for their futures.



Expand scientific and quantitative literacy by making science accessible, interesting, and relevant.

Strategic Priorities To Reach Our Goals

1. Leverage our strengths in foundational and applied sciences to expand knowledge, address challenges, and pursue new frontiers.
2. Center CSU's Principles of Community in every facet of our work.
3. Support our people, programs, and facilities.
4. Continuously evolve our curriculum, educational practices, and co-curricular activities.
5. Be a student-ready college that fosters student success at every stage of their educational journey.
6. Create excitement for the sciences and mathematics by extending our outreach and engagement efforts.

Organizational Evolutions To Support Our Success

Foster a sense of belonging so everyone feels valued and part of the college mission.

Align budget and fundraising efforts with strategic priorities.

Attract, retain, and develop talented people throughout the college.

Immediate Actions To Launch Our Plan

- Invest in faculty research initiatives and entrepreneurship.
- Create new credential opportunities in data science, cybersecurity, and addiction counseling.
- Establish strategic partnerships with CSU Spur.
- Align departmental tactical and hiring plans with strategic priorities.

MEASURING SUCCESS

Key Performance Indicators



Lead impactful, recognized research to address global challenges and pursue exciting research frontiers.

- Research grants and expenditures.
- Publications and presentations.
- Patents and startup companies.
- National and international awards and recognition.
- Investments in research infrastructure.



Support our students throughout their educational journeys and prepare them for their futures.

- Academic success rates (e.g., course success rates, student retention, time to degree, graduation rate).
- Retention and graduation gaps.
- Undergraduate research and internship opportunities.
- Participation in CNS-sponsored support services (e.g., Calculus Center, Chemistry Learning Resource Center).
- Degree programs and certificates.
- Trends from First Destination Survey, including graduate placement rates by program.



Expand scientific and quantitative literacy by making science accessible, interesting, and relevant.

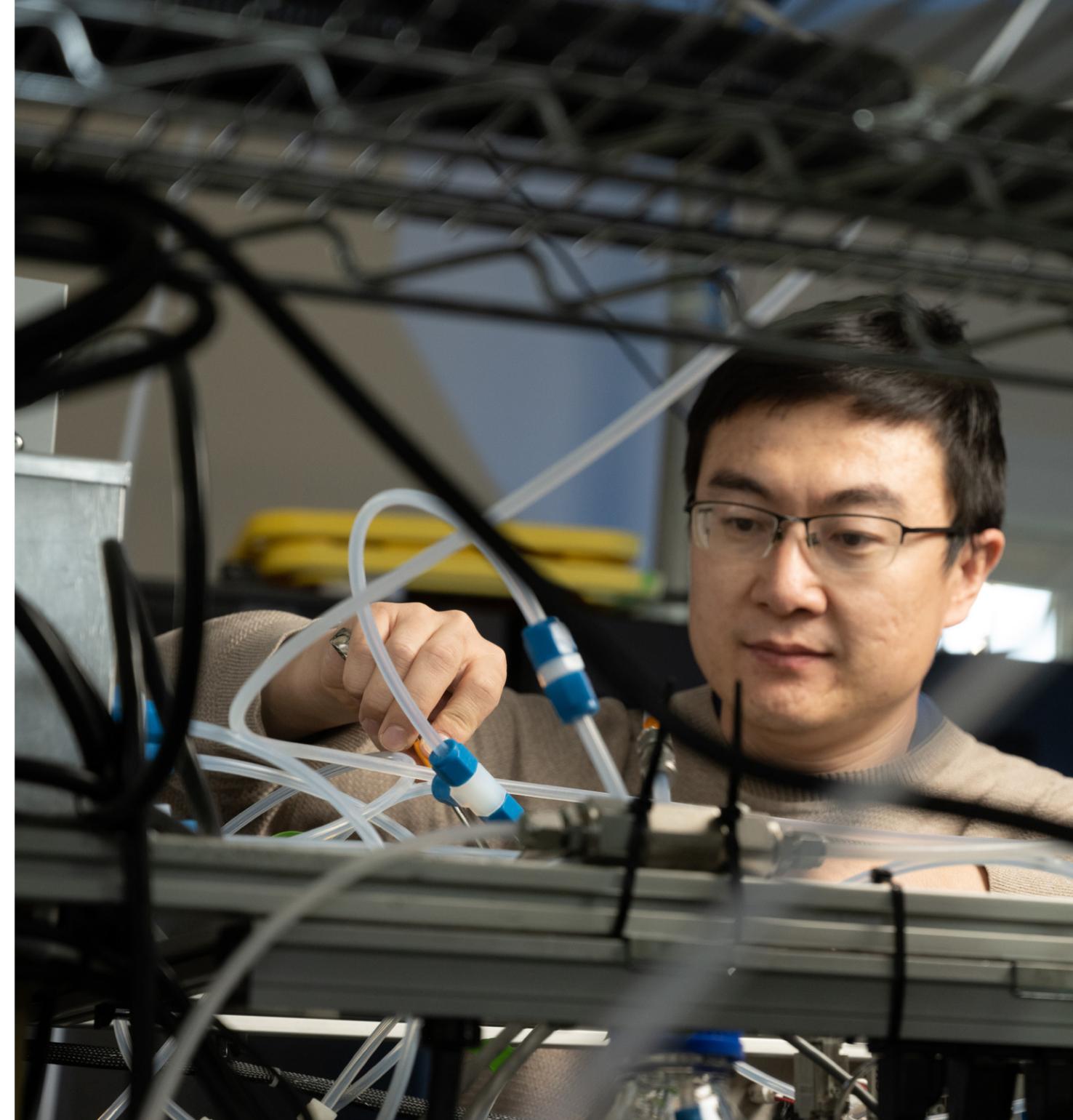
- Number of participants in outreach efforts.
- Extramural grants and donations for outreach programs.
- Geographical range of outreach efforts.
- Online and hybrid degree and course opportunities.
- Investments in innovative programming.



Strategic Priority #1

Leverage our strengths in foundational and applied sciences to expand knowledge, address challenges, and pursue new frontiers.

- A. Invest in the cross-cutting strategic research areas of:
 - a. Data science
 - b. Health
 - c. Quantum science
 - d. Sustainability
 - e. Computing
 - f. Imaging at every scale
 - g. Science and mathematics education
- B. Support multidisciplinary research collaboratives that transcend traditional disciplines.
- C. Encourage cluster-hiring among departments and colleges in strategic research areas.
- D. Champion basic research.
- E. Support faculty research initiatives and entrepreneurship.
- F. Align fundraising priorities to support research, including prioritizing new endowed chairs and professorships, scholarships/fellowships for students, and funds to further enhance research infrastructure.



Strategic Priority #2

Center CSU's Principles of Community in every facet of our work.

- A. Build a culture of respect by valuing everyone's roles, backgrounds, and perspectives.
- B. Provide more transparency in our operations and increase the number of voices informing our decisions.
- C. Take a data-informed approach to understand the climate in our college for employees and students.
- D. Assure our recruitment and retention practices encourage diversification of our faculty, staff, and student body.
- E. Integrate the Principles of Community into the curriculum and our classrooms.
- F. Provide professional development opportunities for all our employees.

Strategic Priority #3

Support our people, programs, and facilities.

- A. Invest in current and new research facilities to attract and retain talented faculty and research staff.
- B. Increase research activity by investing in research cores, training and center grants, seed grant programs leading to extramural funding, research gap funding, and award administration.
- C. Secure industry and community partnerships in support of our research enterprise.
- D. Seek competitive, equitable salaries and compensation across all levels of the college.
- E. Provide career advancement and professional development opportunities for faculty and staff.
- F. Assess the need for additional and more flexible support across the college by cross-training staff.
- G. Further develop efficient and effective means of internal and external communications.



Strategic Priority #4

Continuously evolve our curriculum, educational practices, and co-curricular activities.

- A. Create opportunities for student learning in our strategic research areas of data science, health, quantum science, sustainability, computing, imaging at every scale, and science and mathematics education.
- B. Establish curriculum and concentration review processes that ensure students are provided a rigorous education that includes cutting-edge, discipline-specific skills as well as relevant multidisciplinary skills, so they are well equipped for the modern workforce.
- C. Expand access to high-quality undergraduate research opportunities.
- D. Ensure the curriculum is constructed with a student-centered focus, informed by the Science of Learning and designed to be accessible to all students.
- E. Continuously review our introductory and service courses to assure they are meeting the needs of the University.
- F. Develop concentrations, certificate programs, and graduate degrees that foster lifelong learning and provide students with marketable skill sets.
- G. Make our programs available and accessible to a broader range of learners by expanding our online and hybrid presence.

Strategic Priority #5

Be a student-ready college that fosters student success at every stage of their educational journey.

- A. Take a data-informed approach to understanding the student population in each of our programs.
- B. Utilize CSU's equity gap data to inform funding decisions for student success initiatives.
- C. Identify and remove barriers to increase access and success.
- D. Develop graduate student-success initiatives.
- E. Invest in graduate student training and funding opportunities and increase stipends to levels that are competitive with peer institutions.
- F. Expand opportunities to build communities among graduate students and postdoctoral fellows.
- G. Expand programming in the College of Natural Sciences Amplify community.
- H. Develop new opportunities for students to engage in STEM experiences.



Strategic Priority #6

Create excitement for the sciences and mathematics by extending our outreach and engagement efforts.

- A. Extend our reach and influence through strategic partnerships with CSU Spur, CSU Pueblo, and the Office of Engagement and Extension.
- B. Raise the profile of our STEM teacher-education programs.
- C. Grow our partnerships with Colorado K-12 science and mathematics teachers.
- D. Facilitate outreach efforts of our faculty, staff, and students.
- E. Promote the work of the College of Natural Sciences Education and Outreach Center and the Little Shop of Physics.

Strategic Plan Implementation Process

Go Boldly is a roadmap designed to empower departments and units to develop their own tactical plans that align with the college's strategic priorities. The tactical plans will identify annual and multiyear initiatives and priorities and thereby inform and guide the college leadership team as they prioritize initiatives and set budgets at the beginning of each budget cycle. Departments and units will report their progress annually in relation to relevant metrics and key performance indicators to inform next steps in the prioritization and funding process.



Statement of Commitment Endorsed by Leadership Team

As the leadership team of the College of Natural Sciences, we know that science is shaped by the people who study it and, therefore, we are committed to building an equitable community and inclusive culture that encourages, supports, and celebrates diversity. We pledge to uphold CSU's five Principles of Community: inclusion, integrity, respect, service, and social justice. We are committed to identifying and removing barriers to provide equitable access to research, learning, and engagement. We will consciously promote acceptance and demonstrate respect, actively listen and learn, center equity in the development of new programs and initiatives, and celebrate differences among all the people in our community.

*“Whatever you can do or dream you can, begin it.
Boldness has genius, power, and magic in it.”*

– Johann Wolfgang von Goethe as translated by John Anster



COLLEGE OF
NATURAL SCIENCES
COLORADO STATE UNIVERSITY