Cleveland State University
College of Science
Strategic Plan

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I. EXECUTIVE SUMMARY

Strategic Plan Process and Planning Horizon

The Strategic Plan for the College of Science is intended to guide short- and long-term activities and decisions over a five year period commencing with the 2009-2010 academic year and culminating in 2014-2015. The College undertook this strategic planning process at the request of the Provost and the Board of Trustees, in response to the Chancellor’s Strategic Plan for Higher Education in Ohio published in 2008.

The planning process involved the College faculty, visiting committee, and administration as each group examined the appropriate role for the College in the context of the CSU strategic plan, Vision Unlimited, and the Chancellor’s plan. The College focused its efforts on identifying appropriate long-term goals, objectives to meet those goals, and strategies for measuring outcomes and adjusting the plan as the College moves forward.

History, Mission, Vision, and Strategic Objectives

History

The College of Science was founded in 2004, based on the request of seven departments in the former College of Arts and Sciences that had determined their goals, in terms of education and research, would benefit from closer collaboration in a smaller and more cohesive administrative unit. Those seven departments -- Biological, Geological, and Environmental Sciences; Chemistry; Health Sciences; Mathematics; Physics; Psychology; and Speech Pathology and Audiology -- formed the College of Science. The Department of Speech Pathology and Audiology merged with Health Sciences to create one administrative unit with multiple programs. Thus, the College currently houses six academic departments.

Among the indicators of the College’s success are:

- Enrollment has grown by a minimum of 3% per year during its five year existence, according to CSU’s Office of Institutional Research;
- For the years 2003-2007, each dollar invested by CSU to support research in the College of Science has attracted $3.27 in external funding;
- External funding from such sources as the National Institutes of Health has grown substantially;
- There has been an increase of 188% in the past five years in graduate student support provided by external funds;
- The College has secured significant new funding to support students, including two Choose Ohio First Scholarship initiatives, two NSF funded grants to support Graduate Assistants in Areas of National Need (GAANN) Fellowships, and the first ever CSU McNair Scholarship program from the U.S. Department of Education.
While these markers are important, other factors also reflect the energy and growth of the College. Several new programs of study have been established, including:

- Doctor of Physical Therapy (which replaces the Master of Physical Therapy);
- Bachelor of Science in Pharmaceutical Science;
- Ph.D. in Adult Development and Aging (joint with the University of Akron);
- Concentration in Physician Assisting Science in the M.S. H.S (joint with Cuyahoga Community College;
- Specialization at the MS level in Applied Statistics;
- Undergraduate certificate in Forensics;
- Undergraduate minor in Statistics;
- Undergraduate/Graduate Certificate in Science and Technology Entrepreneurship with the Colleges of Business and Engineering.

There have also been significant faculty accomplishments:

- Strategic hiring in molecular medicine has dramatically increased the number of externally funded, research productive faculty with growing national and international reputations;
- The Center for Gene Regulation in Health and Disease is the College’s first Center of Excellence and identifies a unique and strong research niche for CSU and the College;
- Faculty collaborations include strong interdisciplinary research with the Cleveland Clinic, and collaborations at Universities and Institutions around the country and around the globe. Among the many examples are the doctoral programs in Clinical-Bioanalytical Chemistry and Regulatory Biology, which are joint programs with Cleveland Clinic, and Adult Development and Aging, a joint doctoral program with University of Akron.

The Mission of the College of Science

- To educate students for careers in science and provide science education to all students in the University.
- To foster the development and application of new knowledge through research and scholarship.
- To promote a culture of service to the University and its diverse communities.

Within this broad context the College of Science will:

- Advance the purposes and activities of all disciplines of its constituent departments by uniformly facilitating, encouraging, and respecting the pedagogy, scholarship, and practice of each.
• Promote quality teaching through pedagogical excellence, instructional innovation, and application of technology.

• Meet the needs of all CSU students in engaged learning through excellent instruction, individualized advising, and involvement in research and scholarship.

• Foster the creation of new knowledge through basic and applied research that both respects the methodologies and customs of each discipline and encourages cross-disciplinary collaboration.

• Work with community partners to provide instruction with a real-life context and to understand community problems and find solutions for them.

• Forge internal and external partnerships that promote the advancement of science and its application.

• Promote a culture of service to the University, urban, and professional communities.

• Serve appropriate University, urban, regional, national, international, and professional communities.

Vision

The College of Science is the premier public educational and research institution in Northeast Ohio, serving our students, faculty, and community as we build a healthier region.

Relationship of COS Strategic Plan to relevant University and State documents

In developing its strategic plan, the College began with an examination of the CSU strategic plan, Vision Unlimited. Its long-range goals include the following:

CSU Long Range Strategic Goals

• Academic Excellence

• Solid Financial Foundation for Advancement

• Collaborative Organizational Culture

• Commitment to Student Success

• Valued Community Resource

• Distinctive Image with a Vibrant Environment

For detail on Vision Unlimited, go to: http://www.csuohio.edu/committees/selfstudy2010/documents/VisionUnlimitedFINAL.pdf

The College also drew important goals from the Strategic Plan for Higher Education 2008-2017, published by the Ohio Board of Regents. That plan had three important goals:

1. Graduate more students

2. Keep more of our graduates in Ohio
3. Attract more degree holders from out of state

To accomplish those goals, the Chancellor suggested that the state develop many educational options, end counter-productive competition among institutions and create distinctive missions for each, with an emphasis on establishing nationally and internationally-recognized centers of excellence.

The Chancellor noted that CSU “is focused on contributing to the region’s growing health care and biomedical economy. This positive direction, which is a logical extension of its historic emphasis on the STEM disciplines and economic development studies, should be supported and encouraged” (p. 34).

Based on that plan and on its vision for itself, the College identified five long-range strategic goals.

**Long Range Strategic Goals**

1. Provide excellent education that meets student interests and regional needs.
2. Meet research, service and economic development objectives of the region and State, particularly in the health and biomedical fields.
3. Build partnerships through which the College of Science meets the needs of the region and the country.
4. Engage and continue to build the faculty and administrative team necessary to meet programmatic needs.
5. Strengthen and diversify the funding base to support mission, vision, and objectives.

**II. STRATEGIC PLANNING PROCESS & CONTEXT**

Upon the request of the Provost, the College of Science undertook a strategic planning process during the fall and early spring, 2008-09. This process began with an examination of Departmental and College responses to Vision Unlimited. Individual departments were asked to revisit their previous documents and to update them to include specific goals and objectives, along with planned outcome measures.

Based upon the data gathered through this process, a draft strategic plan was developed by the College Budget and Planning Committee, setting forth the mission, values, vision, and objectives for the College. The draft was reviewed as a working document with faculty, staff, and the College Visiting Committee. Input from all of the above was incorporated into the final College of Science Strategic Plan which is presented here.

**Trends affecting Science and Health Professional Education**

Colleges of Science are under pressure to respond to a variety of societal concerns that must be considered in shaping the goals and objectives for education, research, and service.
A science and knowledge economy: Science and health science programs have an obligation to support teacher preparation in the STEM disciplines; to increase math and science literacy of all college students, and to ensure high quality, high level preparation for both undergraduate and graduate majors in mathematics, science, and health disciplines. Further, students must be well-prepared to move into the workplace ready to contribute to the economic development of the region and the country. To prepare students for this economy, colleges and universities require:

- Smart classrooms, smart students, and scientifically and technologically literate faculty;
- Core science, health, and mathematics curricula that ensure understanding of new challenges and opportunities;
- Programmatic integration of math, science, and technology;
- An ability to help students leverage the power of technologies that can help improve health and can enhance competitive advantage and performance in the workplace.

A resource-challenged economy: Characterized by industries, governments, and societies that are environmentally challenged and that must compete globally for contested resources creating movement towards increased collaboration as well as cut-throat competition. In the health fields, the probability of diminished resources requires careful thought about how to provide high quality care while reducing costs. The resource issue also affects research in science and health, as there is ever-greater competition for increasingly limited research dollars.

A globally interdependent economy: Characterized by emerging global competition driving the need for researchers, teachers, and health care providers to work confidently and competently across cultures. To respond effectively, science and health programs need to enhance opportunities to learn about other cultures (through study abroad, collaborative research, and curricular additions).

Severe shortage of graduates in Health Sciences: As the population ages, and as chronic diseases increase in the U.S., the demands on the healthcare system have increased, and this increase is projected to continue. However, long-standing faculty shortages limit the number of students who can be accepted to health professional programs. Institutions must think creatively about how best to address this concern.

Shortage of Graduates in Science: There has been growing concern about the lack of interest and the poor performance on objective tests of knowledge and understanding in the sciences and mathematics in the U.S. This has profound implications for the country’s competitive position, and there are significant efforts to increase the numbers of students from minority backgrounds and women in science.

Northeast Ohio Trends & Conditions

Strengths and Opportunities in NEO

- Health care and social assistance are the two largest employers in Ohio, with health care the largest in Northeast Ohio.
Science, Technology, Engineering, Mathematics and Medicine (STEMM) disciplines are the focus of considerable new resources and concern nationally and locally.

The region has a strong tradition in research and scientific initiatives particularly in the biomedical and health fields.

**Threats and Challenges**

- A regional population that is at best stagnant and may be shrinking;
- A lack of awareness of the region’s strength in emerging industries ("rust belt" image);
- Competition from other institutions in the region, and an inaccurate perception that CSU is not as strong in science and health as these competitors.

**III. STRATEGIC PLAN DETAIL**

This section describes each component of the strategic plan in greater detail than provided in the Executive Summary. It also includes a discussion of the College’s view of the critical success factors that will be critical to the success of the final plan.

**Mission**

- To educate students for careers in science and provide science education to all students in the University.
- To foster the development and application of new knowledge through research and scholarship.
- To promote a culture of service to the University and its diverse communities.

**Vision**

The College of Science vision represents the essential aspirations that the College holds for its future. Stated below, the College’s vision describes the overall direction and long-term destination that will continually provide guidance about what to preserve and what to change.

The College of Science will be the premier public STEMM educational and research institution in Northeast Ohio, serving our students, faculty, and community as we build a healthier region.

Cleveland State University's College of Science will be a source of pride for the University, Greater Cleveland, and Northeast Ohio. It is a place where dedicated students and faculty choose to be. Students and faculty engage in exploration of important questions regarding the human condition, and in so doing, partner with the community and with colleagues around the world. These experiences sharpen faculty research, deepen course curricula, strengthen financial support, and increase both student placement and employer satisfaction. College of Science faculty are nationally recognized and distinguished for their cutting-edge research that improves quality of life. Faculty and students are an integral part of the community, providing not only new knowledge but also important service. The College is an organization with a strong sense of purpose and a vision that includes positive impact for
Local citizens and employers perceive the College of Science as an invaluable resource because of the range, quality and relevance of degree and certificate programs offered. Alumni stay connected and committed to the College recognizing the powerful impact of their college experience on their quality of life.

Critical Success Factors

Critical success factors represent a limited number of areas in an organization in which excellent results will ensure success; the highest leverage points (priorities) for achieving desired results. Critical success factors significantly shape the development of strategic, long range objectives, focusing attention and resources on the activities having the greatest impact for improvement.

The College of Science identifies the following as crucial factors for success:

1. **Strong, Effective, Collaborative Culture**: A strong, collective, pervasive, and visible commitment to a common mission and set of values:
   - Created and held by faculty, administrators, students, alumni, and other constituents.
   - A culture that grounds and shapes the College’s hiring, outreach, professional development, teaching, curriculum and programs.

2. **Relevant, Integrated, Cross Disciplinary Curricula, Programs, and Research Projects**: Consistent delivery of curricula, programs, and research projects that are relevant, integrated and cross-disciplinary, designed to develop the leaders and workforce for a vital and dynamic workplace is critical to the success of the College. Curriculum and programs that meet current and emerging needs of the scientific and health care communities.

3. **Clear, Compelling and Inspiring Identity (Brand)**: A clear, compelling, and inspiring identity within the College of Science, the University, the city, and the region.

4. **Adequate, Diverse Funding**: Structure and authority to ensure sufficient and diverse funding base to accomplish College objectives.

5. **Organizational Capacity and Effectiveness**: People, structure, technology and systems.
   - Strong and effective faculty and administrative team;
   - Effective and agile College structure (departments, programs, degrees, certificates, etc);
   - Accessible and useful technology and systems
   - Sufficient and focused outreach
Long Range Strategic Goals & Primary Objectives

The following long-range strategic goals address critical success factors for the College of Science and provide an overarching, strategic, and integrated framework for on-going action and evaluation. This framework sets the course of action over the next five years, guiding decisions and activities for academic departments and programs, and administrative functions. For certain goals, a series of objectives have been developed to suggest the steps / activities necessary to accomplish the goal. It should be noted that these “suggestions” are based on data gathered during the planning process and will need to be more fully evaluated, defined, and prioritized as part of a detailed action planning process. For some goals, objectives are yet to be developed.

Long Range Strategic Goals

Goal 1: Provide excellent education that meets student interests and regional needs.

Objective 1.1: Initiate three signature college educational programs that are responsive to community and industry needs and interests, and address emerging economic development opportunities.

- Partner with community to inform programs / curricula development.
- Leverage strengths and capacities of other CSU Colleges - (Business, Engineering, Education).
- Build upon College strengths.

Objective 1.2: Maintain key accreditations.

Objective 1.3: Align size and composition of student body with program objectives.

- Increase admissions and performance standards for students.
- Recruit and retain students to continue growth and change in composition and size:
  - The number of FT doctoral students and doctoral degrees awarded will be double the 2004 level.
  - The number of undergraduate students will increase 20% above the 2004 level.
  - The number of Masters students will increase 25% above the 2004 level.

Objective 1.4: Ensure strength and viability of programs.

- Strategically allocate new faculty positions to support key, targeted programs.
- Establish and evaluate novel strategies for addressing faculty shortages (eg., partnerships with community colleges and other community partners).
- Support effective teaching methods, including the incorporation of new technology-based methods and tools.
o Support existing cooperative education and internships programs and build on their success, consistent with CSU’s focus on engaged learning.

**Objective 2.1:** Build upon our strong research productivity, particularly in the biomedical and health fields.

Currently funded faculty will secure continuation funding from national agencies to support research.

o Add new faculty who will secure external funding within three years of arriving at CSU.

o Collaborative research with other institutions will increase by 20% as measured by number of projects and/or number of funded projects.

o Institute workload policies to support greater research effort of key faculty.

**Objective 2.2:** Continue to build strong relationships with area businesses and institutions.

o Interact with collaborating agencies and institutions in the region to enhance joint educational, research, service, and commercialization efforts. For example, build upon its existing partnerships with Cleveland Clinic in multiple degree programs to increase educational and research opportunities.

o Continue to build faculty and graduate relationships with businesses in the region.

**Goal 3:** Build partnerships through which the College of Science meets the needs of the region and the country.

**Objective 3.1:** Connect faculty to the science, health care, and business communities by establishing innovative programs of support.

**Objective 3.2:** Build community partnerships and secure funding to drive initiatives.

**Objective 3.3:** Engage students in multidisciplinary academic programs that are knowledge based and provide opportunities for students to become productive and engaged citizens through internships, co-ops, and research experiences.

**Objective 3.4:** Encourage faculty to develop interdisciplinary research projects across the College, University, and community.

**Goal 4:** Continue to build the faculty and administrative team necessary to meet programmatic needs.

**Objective 4.1:** Build collective faculty and administrative capacity to support and advance strategic objectives.

- Faculty:
  o Replace and add new positions in strategically focused areas with rigorous recruitment and retention plans.
o Continue Special Project Associate program to mentor prospective administrators.

o Establish two endowed professorship positions.

o Engage the faculty in recruiting well established senior professors from highly regarded universities and providing continuous faculty development opportunities.

- Administration:
  o Improve effectiveness and efficiency of College advising to support students and academic departments and programs.

- Faculty & Administrative:
  o Align annual faculty and administrative development plan with College vision and objectives.

  o Strengthen mentoring for junior faculty.

  o Build collegiality of faculty and administration across colleges.

  o Support synergies and respect among and between faculty and staff.

**Objective 4.2:** Establish College incentive and reward structure (faculty and administrative staff) to support and advance mission, vision, and strategic objectives.

**Objective 4.3:** Increase external recognition for the outstanding accomplishments of faculty (publications, scholarly work and Fulbright Scholar awards) and administrative staff through low cost publicity and marketing.

**Goal 5:** Strengthen and diversify the funding base to support mission, vision, and objectives.

**Objective 5.1:** Initiate new research and entrepreneurial activities.

**Objective 5.2:** Build faculty relationships within the NEO / Cleveland community that strengthen the community and the College.