Project 50 Forward Strategic Plan for the College of Arts and Sciences

CAS: The First 50 Years

The College of Arts and Sciences (CAS) houses the original departments that opened with the formation of Stony Brook University over fifty years ago. Since then several other important departments have been added. Through the years the excellence of the CAS departments has been a major contributor to Stony Brook's growing national and international reputation. The college itself was officially formed in the early '90s by combining four divisions: Humanities and Fine Arts (HFA), Life Sciences (LS), Physical Sciences and Math (PSM) and Social and Behavioral Sciences (SBS).

CAS mission statement:

> *The College of Arts and Sciences is committed to improving the quality of life of our students through the arts and sciences. Positioned within one of the top research universities in the nation, the College is committed to excellence in our individual disciplines, and to interdisciplinary learning and collaboration. The College has a track record of innovative programming and unique opportunities to explore the infinite possibilities the convergence of arts and science can offer.*
>
> *We believe that the study of the arts and sciences creates informed, inquisitive and inventive citizens who are prepared to contribute to the rapidly changing global environment in which we live.*

The college is equally devoted to undergraduate education in the liberal arts and sciences, training of the next generation of scholars, and excellence in research. We seek innovation in all these areas, which is the core of our vision for the next ten years. In the process, we hope to become a leader in all three domains, and in many areas of the college we have already demonstrated notable strength.

Current State of affairs:

Innovative Research and Scholarship. The strength of our research and scholarship is reflected in the excellent showing of CAS departments in national rankings. Nine of the CAS graduate programs were in the top quartile nationally in the recent National Research Council rankings. In the most recent rankings of graduate programs by U.S. News and World report, 13 CAS programs were in the top 50. While this is a record to be proud of, one of the major challenges facing the college is to increase the ranking of all programs and bring more of them into the top echelons.

Programs in top quartile NRC Rankings 2010	**Programs in top 50 U.S. News and World Reports' Rankings 2010**
Anthropology	American Politics
Chemistry	Biological Sciences
Genetics	Chemistry
Mathematics	Clinical Psychology
Molecular Biology	Geology/Earth Science
Philosophy	Geometry
Physics and Astronomy	Mathematics
Political Science	Nuclear Physics
Psychology	Physics
	Political Science
	Psychology
	Sociology
	Topology

External funding. In the sciences and social sciences, another measure of quality and innovation is the ability to garner external funding. In 2009/2010, the total CAS expenditures from external (mostly

federal) sources was 45.5 million. When compared to peer departments at other research universities, the vast majority of CAS departments have greater per capita funding than their peers. (For example, according to the 2008 Delaware study, 10 of the 11 funded CAS departments had greater research expenditures than their peers.) Our funding profile is good, but needs improving, especially in view of the national picture of decreasing state subsidy of public higher education and the need for alternative funding sources.

Table 1: Research funding data from the 2008 Delaware Study. The top portion compares 11 CAS departments, funded at a significant level, to their peers; the bottom part compares the other department to their peers.

	Peer Group	Stony Brook			
	Median funds/faculty	Faculty	Total funds	Funds/ faculty	Difference SB - peers
Anthropology	32,000	13	565,000	43,000	11,000
Biochemistry	330,000	19	9,011,000	474,000	144,000
Chemistry	223,000	27	7,203,000	267,000	44,000
Economics	13,000	12	171,000	14,000	1,000
European Languages	2,000	24	211,000	9,000	7,000
Geosciences	119,000	12	1,913,000	161,000	42,000
Linguistics	2,000	10	177,000	18,000	16,000
Mathematics	24,000	25	1,095,000	44,000	20,000
Physics and Astronomy	132,000	40	11,629,000	290,000	158,000
Political Science	4,000	14	134,000	10,000	6,000
Psychology	130,000	31	4,453,000	144,000	14,000
Africana Studies	2,000	7	0	0	
Art	100	13	0	0	
Asian and Asian American Studies	2,000	9	0	0	
Comparative Literary and Cultural Studies	2,000	7	0	0	
English	1,000	18	0	0	
History	4,000	24	12,600	500	(3,500)
Music	100	19	1,000	50	(50)
Philosophy	0	19	0	0	0
Sociology	10,000	18	8,000	500	(9500)
Theater	400	3	1,000	300	(100)
Women's Studies	2000	1	0	0	
Writing and Rhetoric		0	0		

Collaborations. One unique strength of Stony Brook University is its location, allowing collaborations with nearby Brookhaven National Lab, and Cold Spring Harbor Lab. These facilities allow for research partnerships with excellent scientists in related fields and access to state-of-the-art technology not available on campus. Many CAS faculty members (from Physics to Philosophy) take part in cross-institution collaborations and many Brookhaven and Cold Spring Harbor employees have joint or affiliate appointments in CAS departments. Similarly, the location of Stony Brook midway between the cultural centers of Manhattan and the arts communities of the east end of Long Island enhances the capacities of many departments, particularly those in the fine and performing arts.

In addition to external collaborations, almost every department in CAS is involved in collaborative teaching and scholarship with other CAS departments or with departments in other schools and colleges. Some of the vigor of this interdisciplinarity is captured in the accompanying brochure on *Centers and Institutes*. Interdisciplinary projects bring vitality to both scholarship and education, keeping CAS on the cutting edge in both areas. Perhaps the most exciting result of the strategic-planning process has been discovering the amazing extent to which the CAS departments are working across disciplinary boundaries

to create the college of the future. A major challenge will be to align the undergraduate educational experience with the new shape of the college.

Undergraduate Diversified Education. The college contains 27 departments and programs. It offers 37 undergraduate majors and 47 minors, and 61 graduate programs (24 Ph.D., and 37 Masters). The College also provides general education for students in all Schools and Colleges via the Diversified Education Curriculum (DEC). Annually 79% of the University's course seats are in CAS courses. Table 2 shows enrollment in CAS courses by the college of the student's major, illustrating the widespread impact of the diversified-education curriculum across the campus. It has been a decade or more since the DEC has been updated, but the Provost has assembled a committee to look at this important issue. It is critical for all SBU schools and colleges that the DEC is as modern and pedagogically powerful as possible if all students are to become informed citizens.

Table 2: Enrollments in CAS courses by College of Major

	Fall 09	Spring 10	AY 09-10
CAS	62,118	57,619	119,737
CEAS	12,302	12,318	24,620
COB	4315	4662	8977
SoMAS	1318	1463	2781
SOJ	1890	1174	3064
SPD	3704	3957	7661
other west	4290	3741	8031
	89,937	84,934	174,871

Links to the community. CAS departments provide education and entertainment for the Long Island community. In particular, the Departments of Music, Theatre, and Art, housed in the Staller Center for the Arts provide a wide array of cultural experiences. Over 250,000 students, faculty, community members and audiences from all over the region attend Staller events, workshops, master classes and outreach events annually. Several CAS departments are actively involved in pre-college education locally, and many scientists in the College mentor local students in their science projects. Nonetheless, community engagement is critical to the strength of the University, and CAS needs to increase its efforts to play a leading role in community outreach. Given the breadth of the intellectual territory covered by the college there should be many opportunities.

Weaknesses that need to be addressed.

Large class sizes and insufficient teaching staff. With the decrease in state support for hiring faculty and the increase in undergraduate enrollment, with every year the College falls farther behind in its ability to offers courses with low to medium enrollment. This was exacerbated in the past year when cumulative budget cuts forced CAS to decrease the pool of contingent faculty by 50% (70 FTE). Not only does this trend result in fewer small-class experiences for students, but the increased faculty workload diminishes research and scholarship.

As of 2008 80% of CAS departments had greater student FTE that than their peers (Delaware Study, 2008.) Figure 1 shows comparative data from the 2008 Delaware study of Instructional Costs and Productivity. Of the 23 CAS departments represented in this study, 16 show larger student/faculty ratios that their peers, some by very substantial amounts. Correcting the inequities in teaching power must be a major goal going forward.

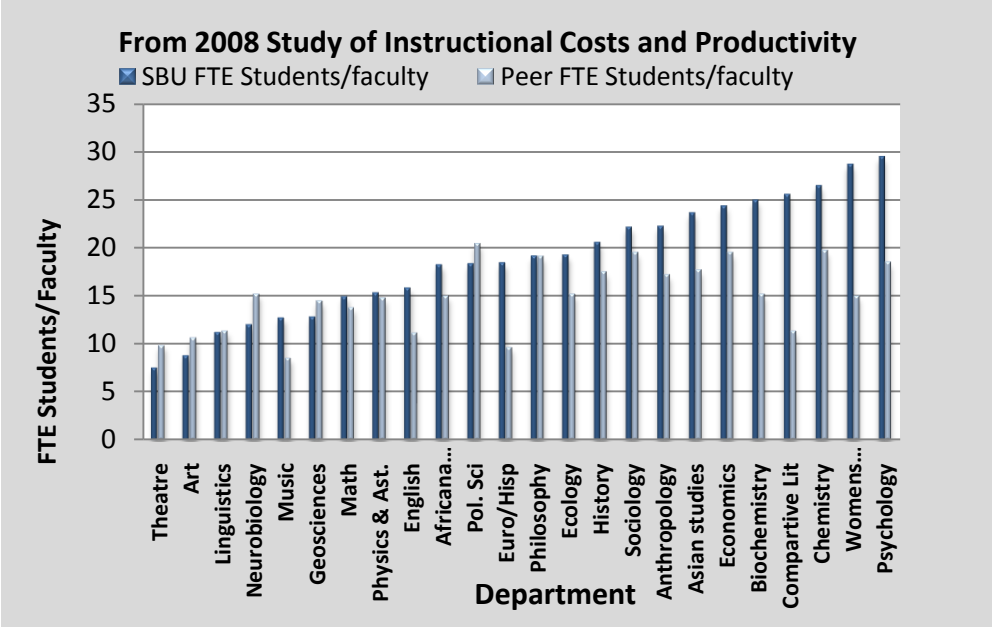


Figure 1: Comparison of students per faculty between CAS departments and peer institutions. Approximately 80% of the CAS departments have more students per faculty than their peers.

Insufficient support for research and scholarship. By like token, the decrease in base state budget has dramatically reduced the ability of the College to provide support funds for research and scholarship in the form of start-up funds for new faculty members' research, funds for travel to professional meetings by faculty and graduate students, and seed money for innovative projects. The value of our stipends for graduate students is very far below that of our peers, making it hard to compete for the very best graduate-student prospects.

Summary: CAS has been and continues to be a major source of strength for the University's educational and research mission. It is, however, endangered by the growing budgetary crisis and in its strategic planning it needs to identify innovative new ways to preserve its capacity to conduct world-class research and provide world-class education at both the undergraduate and graduate levels. Key to this will be the ability to continue to attract the very best faculty members and graduate students.

CAS: Into the 21st Century

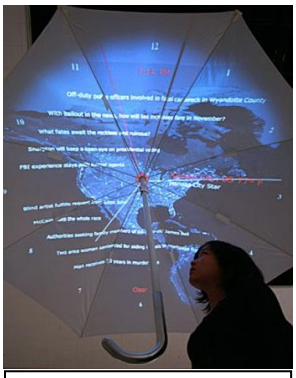
The CAS strategic planning process proceeded from the bottom up. Departments, Programs, Centers and Institutes engaged in developing visions for the future. Central to these visions were plans to raise more CAS departments into leadership positions in their fields.

Interdisciplinary initiatives that will move Stony Brook into a leadership position

Interdisciplinary collaborations are booming in the college, in recognition that research on the frontiers of knowledge thrives in a climate of collaboration. The magnitude of the boom is evidenced by the fact that it has been all but impossible to catalogue all instances. This section therefore presents examples of initiatives in several critical areas. (For more information and other examples see the two CAS brochures: *Department Strategic Plans*, and *Centers and Institutes*.)

Center for Science and Mathematics Education (CESAME) is already a leader in the field of education. It has received impressive external support and has created several degrees programs including the new Ph.D. in Science Education. CESAME brings together faculty from many departments in CAS and Engineering, as well as from the School of Marine and Atmospheric Science, Cold Spring Harbor Labs, and Brookhaven National Labs. It was the brain child of Dr. David Bynum (Department of Biochemistry and Cell Biology) who brought the center to national and international attention as a model for science and math education, a model that reflects Stony Brook's passion for both education and research, and a model that we hope will find equally effective application beyond the sciences.

The Consortium for Digital Arts, Culture and Technology (cDACT) is a Provostial initiative that represents collaboration between the CAS departments of Art, Music, Theatre, and Comparative Literary & Cultural Studies, and the Computer Science Department in the College of Engineering and Applied Sciences. It brings together artistic creation and scholarship with study and application of new technologies. Since its inception in 2007 it has sponsored many installations and performances, and it offers several popular courses in the Digital Arts Minor. cDACT is expanding its interactions across the university. There are plans for artists associated with cDACT to work with CEWIT's revolutionary "RealityDeck," an immersive screen environment. cDACT faculty are also collaborating with researchers at the Brookhaven National Laboratory to sonify x-ray scattering data, and with the arts programs at the new Simons Center for Geometry and Physics. This is interdisciplinarity *par excellence* and exemplifies the spirit of exploration embodied in the arts and sciences.



Climate Shifts: a networked installation utilizing live newscasts

Stony Brook Center for the Arts. One of the most exciting outcomes of this strategic-planning process is that the multiple programs in the Fine and Performing Arts are developing a plan to create a research, creation, performance and educational center that will foster collaboration across departments, produce educational innovations, and produce a more visible footprint on Long Island, from Southampton to Manhattan. The programs involved in the planning are Art History, Studio Art, Music History-Theory and Ethnomusicology, Music Composition, Music Performance, Theatre Arts, and the Consortium for Digital Arts, Culture and Technology. Importantly, the emerging plan involves closer collaboration with the Staller Center for the Arts. Central to the success of the Center are collaborations between departments, creation of interdisciplinary educational programs, the hiring of a specialist in advancement for the arts, and a specialist in public relations who will interface with the community.

The Center for Accelerator Science and Education (CASE) was formed as a joint institute of Stony Brook University and Brookhaven National Laboratory (BNL). The CASE mission is to educate and train the next generation of accelerator scientists and technologists and to develop a unique program of educational outreach providing young students and secondary school teachers with access to a research accelerator. CASE scientists have identified three principle areas of research: high gradient laser acceleration, coherent electron cooling, and energy recovery. CASE is an excellent example of how research and education can act synergistically in ways that bring both to new levels of distinction.

Enhancing Research and Scholarship

Support for scientific research and education. Although CAS departments have an excellent track record in external funding for research, the capacity for internal support is waning. The two most urgent needs are funds for providing competitive start-up offers for new faculty members and competitive stipends for graduate students so that we can attract the very best. The college will work both on advancement opportunities to support research projects and on restructuring the college budget to alleviate this situation but help from higher levels of the University is also needed. Collaborative projects will be particularly encouraged.

Stimulate a culture of outside funding in the Humanities and Fine Arts. While faculty in the Sciences, and in some of the Social Sciences are well acculturated on the important role of external funding, for other Social Science departments this needs encouragement, and in the Arts and Humanities a focus on this needs to be created from the ground up. To that end, a staff member in the College of Arts and Sciences has been assigned to work with the Research Foundation to identify sources of funding and to communicate these to the chairs of the relevant departments. As we proceed, we will offer other aids (such as grant-writing support) to faculty members in their search for external support for their projects.

Promote advancement activities throughout the college. We have been energetically pursuing advancement opportunities for the college and have identified a number of significant opportunities that could be transformative. We are also educating chairs and faculty about the importance of advancement in securing a bright future. For example, in November 2010 we adapted the spring-appeal approach suggested by Advancement to allow for each chair to write a personal appeal to the department alumni, highlighting the departments' most significant and exciting opportunities for support. Greater contact between departments and alumni should help boost University-wide spirit and fund raising.

Emerging themes. Review of the strategic plans from the departments and programs revealed a number of important themes that can form the basis for new collaborations on common goals. (See appendix for the results.) All of these represent significant opportunities for the college to advance collaboration and other important goals. A few deserve special note.

Globalization. There is impressive expertise and interest in global cultural and environmental issues distributed across the college. The efforts of inter-college center CIDER could be bolstered and broadened by contributions from several other units, and perhaps by incorporating expertise on global cultural issues. The Department of Sociology has long been a leader in the field of globalization and recently established an *Institute for Global Studies*. Combining consideration of social issues with those of cultural issues could provide additional breadth to students' and scholars' understanding of the diversity of life experiences on campus and worldwide.

Guest Scholars. The Department of Philosophy led the way in its visiting scholars program, redeploying a faculty line to be able to host notable scholars for protracted period. Some of the distinguished scholars who have enriched the department and the university are Noam Chomsky, Jacques Derrida, Angela Davis, and Jurgen Habermas. A college-wide guest scholars program could extend the stimulating effects to students and faculty across the college.

Diversity. Efforts to diversify the teaching faculty in the college have not been notably successful. One of the most serious problems has been in creating an hospitable environment that nurtures diversity. Top-down efforts are likely to be ineffective in the long run. However, there is significant expertise on issues of diversity in our scholarly community. For example, some faculty members in the Psychology Department are expert in the areas of ethnic and gender bias, and in overcoming the hurdles that face individuals from underrepresented groups in adapting to a new working environment. It may be time to marshal our combined expertise in the interest of making our faculty as diverse as our student body.

Outreach to community. Some examples of community service are obvious, such as the important effect of our musical and theatrical offerings on community engagement. Similarly, the mentoring role of our faculty members in national science competitions for high school students gets well-deserved recognition. Other creative efforts fly under the radar. One particularly appealing and effective one is the new program in Writing and Rhetoric where the teachers are having students do interviews -- oral

histories -- of the residents of the assisted living facility on campus. Historically the relationship of Stony Brook to its local community has been troubled. We hope that increased efforts like these will help to improve that situation and enrich both the campus and the community.

Undergraduate Education

Create innovative cross-disciplinary majors. The CAS faculty continues to think creatively across disciplinary boundaries, and there are many examples of recent products. One of the most exciting, we think, is the proposal for a new major in **Human Evolutionary Biology (HEB)**. The proposal results from a collaboration between faculty members in the Departments of Anthropology and Ecology & Evolution.
The new major will combine a strong foundation in the natural sciences and a comparative approach to examine how evolutionary forces shaped and continue to shape the human condition. The major would be suitable for students planning careers in the fields of medicine, dentistry, public health, allied health, biotechnology, and related academic fields such as biological anthropology and evolutionary biology.

The Anthropology Department is spearheading another new major in **Early Civilizations** which will examine the emergence and nature of the world's first urban societies from multiple perspectives, bridging between the Social Sciences and Humanities, just as HEB bridges between the Social and Life Sciences.

Improve support for modern pedagogy. Most of our classrooms are not conducive to the use of modern pedagogical techniques. CAS therefore enthusiastically supports proposed initiatives such as the **Seawolf Active Learning Center.** This facility, which was proposed by the Chemistry Department would provide flexibility in the physical arrangement of classrooms so that students can actively engage with each other in the learning process. The design is based on recommendations stemming from pedagogical research into effective learning strategies. Another proposal on the table is a computerized testing center which will serve large classes and relieve the pressure to find multiple small rooms for large exams. This would be modeled after the successful test center at Penn State.

But modern pedagogy is not just the facilities and technology. The Chemistry Department, with its passion for education, has adapted active-learning technique into its traditional large-enrollment classes, and with striking effect. The active-learning approach is based on research on pedagogy, and the college needs to improve its support for pedagogical research. One area in which we have aspirations is second-language acquisition. The Linguistics Department long ago built an excellent Master's Program in the Teaching of English to Speakers of Other Languages (TESOL), which supplies much of Long Island with its ESL teachers. For the teaching of other languages we have experts, applied linguists, scattered across several departments. These experts are joining forces to improve second-language teaching at Stony Brook, relying on up-to-date research on pedagogical techniques and improved technology. To support these efforts, greater investment needs to be made in our heavily used **Language Learning and Research Center** (see brochure on *Centers and Institutes*).

Hires in strategic teaching areas of high demand that will also strengthen research. Hiring decisions in the past appear to have been made largely without reference to teaching demands, thus creating large inequities in teaching load across departments in the college (as illustrated in Figure 1). While scholarly excellence has to be the driver in hiring decisions at Stony Brook as at all major Research Universities, we believe that it is possible to pursue excellence and meet the instructional needs of our undergraduates at the same time. We plan to achieve this by several approaches, but most particularly by reorganization of the college units into more efficient and effective cross-departmental units that will at the same time promote cutting-edge scholarship and the highest quality education for our students. The linkages between the three arts departments, cDACT, and the Staller Center through the Stony Brook Center for the Arts is one example, and another that is in the planning stages is a center for second-language acquisition research and pedagogy.

End note, To every extent possible all components of the CAS plan will enhance education and scholarship simultaneously. Quality in both areas is essential to the CAS mission and we strongly believe that one does not need to be sacrificed for the other. The strategic-planning process has unleashed imaginations in a way that bodes well for the future of the college.

APPENDIX:

Table 3: Emerging themes

Program	Biomed issues	Global environ issues	Global Cultural issues	Study abroad	Diversity	Guest scholars	Dist Learn	Technology in classroom	Relevance to jobs in industry after graduation	Outreach to Community	Out of classroom experiences for students
Africana			x	x	x		x			x	
Anthropology											x
Art			x					x		x	x
Asian/Asian Amer.											
Biochem Cell Bio	x				x	x		x	x		x
cDACT			x					x	x		x
Chemistry	x	x						x		x	x
Comp. Lit/Cult Studies	x		x	x	x	x		x	x		x
Ecology/Evolution		x	x								
Economics											
English			x								
Euro Lang			x	x		x	x	x		x	
Geosciences	x	x			x					x	x
Hispanic			x	x	x	x		x	x	x	x
History		x	x								
Linguistics			x	x					x	x	x
Math										x	
Music			x			x	x	x		x	x
Neurobio	x				x	x	x	x	x	x	x
Pharmacol	x			x		x		x	x		x
Philosophy	x	x	x	x	x	x				x	
Physics/Ast		x									
Polit. Science		x									
Psychology	x				x						
Sociology		x	x	x	x	x					
Theatre			x			x		x		x	x
Women & Gender	x		x		x						x
Writing			x					x	x		x