University of Houston

Plan to Achieve Recognition as a National Research University

April 2011 Progress Report

Introduction

Last year, as mandated by House Bill 51, the University of Houston developed and submitted to the Texas Higher Education Coordinating Board a plan to achieve recognition as a national research university. In the key areas of research funding and productivity, undergraduate education, faculty and student development, and libraries, the plan articulated the goals, objectives and strategies through which the university would achieve its vision of becoming the state's third public Tier One institution. Equally important, the plan identified five-year performance targets through which the university would evaluate its progress. The report that follows describes the progress that has been made to date. Key finding include:

1. Record levels of research funding: Total research expenditures approaching $100 million and one-year growth in federal research expenditures exceeding 40%.

2. Record student enrollment: The 38,752 students who enrolled at UH this year constituted an institutional high and demonstrate the university's commitment to, and success in, expanding access to higher education.

3. Record student success: Over the past year, the university's one-year freshman retention rate and six-year graduation rate increased by three percentage points and five percentage points respectively, to 82% and 46% – the highest in UH history.

In addition to quantitative measures of excellence, the University of Houston has also received important recognition of institutional quality this year from national organizations. In January, UH was recognized by the Carnegie Foundation for the Advancement of Teaching as a university of "very high research activity," the highest designation for research universities**.** UH was one of only three public universities in Texas (along with the University of Texas and Texas A&M University) to receive this distinction. On the heels of recognition by the Carnegie Foundation, UH was also named one of the nation's best institutions for undergraduate education by the *Princeton Review* and will appear in the 2012 edition of its "best colleges" guidebook for the first time this fall. Both of these distinctions reflect the progress UH has made in becoming a Tier One University.

Plan for Research Funding and Productivity

Goal: **Increase the level of annual research expenditures to be commensurate with that of a tier-one university by 2015**

Performance Data and Targets

	2009 Base	2010	2015 Target	Percent of Target Achieved
Total Research Expenditures	$87.4M	$95.9M	$150M	64%
Federal Research Expenditures	$35.3M	$49.9M	$105M	48%

Performance Analysis

The University of Houston experienced record highs in FY 2010 in terms of both total and federal research expenditures. Over the past year, total research expenditures increased by 10% and federal research expenditures increased by 41%. In one year, the university is more than halfway to achieving its 2015 target for total research expenditures and almost halfway to achieving its target for federal expenditures.

The University of Houston's research strategy is to invest in areas that represent both institutional strengths and strong opportunities for external funding – primarily, the health sciences and energy. For FY10, research expenditures in the health sciences were $45.7 million, while energy-related expenditures were $9.3 million. Central to the growth in these areas is the expansion of core research facilities on campus. This year, the university is nearing completion of the Science and Engineering Research Center (SERC) and has begun construction of the Health and Biomedical Sciences Center. Renovation of the UH Energy Research Park also continues, including the launch this year of UH's new Petroleum Engineering program. In addition, plans for a new College of Pharmacy building are underway. Building and equipping these research facilities, as well as hiring faculty in strategic areas of opportunity, are the foundation through which UH will achieve its research targets for 2015 and beyond.

Plan to Improve Undergraduate Education

Goal 1: Build an undergraduate student body that is both highly qualified and diverse

Performance Data and Targets

	2009 Base	2010	2015 Target	Percent of Target Achieved
Average SAT	1079	1090	1160	94%
Percent of Top 10% FTICs	17.6%	18.6%	25.0%	74%
FTIC Acceptance Rate	69.7%	68.9%	52.0%	75%
Total Undergraduates	29,298	30,688	30,206	102%
African-American Undergraduates	4,223	4,261	4,467	95%
Hispanic Undergraduates	6,733	7,857	7,148	110%

Performance Analysis

The University of Houston's growth in enrollment and student quality, especially at the undergraduate level, has been tremendous and in some cases already exceeds 2015 targets. In terms of access and diversity, UH surpassed the 2015 target for total undergraduate enrollment by two percentage points, while the target for Hispanic undergraduate enrollment was surpassed by 10 points. In addition, growth in the number of African-American undergraduates has placed UH at 95% of target. With respect to the academic qualifications of incoming freshmen, the average SAT score and percent of freshmen who graduate in the top 10 percent of their high school class continue to rise.

Looking ahead, UH foresees continued improvement across all measures. For the fall 2011 semester, the university has experienced a 12% increase in total applications, with FTIC applications increasing by 18%. For fall 2012, UH will also raise freshman admission standards to admit students who are better prepared to succeed academically. As a result, average SAT scores will continue to rise along with the enrollment of FTIC students who are in the top 10% of their high school graduating class.

Plan to Improve Undergraduate Education

Goal 2: Increase the success of undergraduate students completing a bachelor's degree to tier-one performance levels

Performance Data and Targets

	2009 Base	2010	2015 Target	Percent of Target Achieved
One-Year FTIC Retention Rate	79%	82%	90.0%	91%
Six-Year FTIC Graduation Rate	41%	46%	54.0%	85%
Bachelor's Degrees Awarded	4,874	4,778	5,539	86%
Bachelor's Degrees Awarded to African-American Students	567	571	609	94%
Bachelor's Degrees Awarded to Hispanic Students	1,071	1,077	1,274	85%
Bachelor's Degrees Awarded in High Demand Fields*	544	634	809	78%

*Includes engineering, computer science, math and physical sciences

Note: Targets for degrees awarded in the table above have been revised from the original plan to correspond to more recent projections established for Closing the Gaps.

Performance Analysis

A strong record of student success is an essential element of a Tier One university and represents (along with national competitiveness) one of the University of Houston's fundamental goals. Over the past year, UH has achieved a three percentage point increase in the one-year retention rate of FTIC freshmen and a five percentage point increase in the six-year graduation rate. These achievements are due, in part, to multiple initiatives the university has undertaken in recent years to provide students with the financial, academic, and campus life support they need to progress toward the timely completion of a bachelor's degree.

In addition to retention and graduation rates, the university is performing well in terms of degree production. Bachelor's degrees awarded to both Hispanic and African-American students are on the rise, and degrees awarded in high demand fields have increased by 17% in the past year alone. While total bachelor's degrees awarded decreased slightly from last year, the trend over the past several years has been one of substantial growth.

Plan for Faculty and Student Development

Goal 1: Increase the number of faculty on campus and provide them with the support they need to achieve, and receive recognition for, the highest quality research, scholarship and instruction

Performance Data and Targets

	2009 Base	2010	2015 Target	Percent of Target Achieved
Total Tenured/Tenure-Track Faculty	933	936	1,033	91%
National Academy Members, Nobel Laureates	8	10	10	100%

	2004-08 Base	2005-09	2015 Target	Percent of Target Achieved
Number of Citations	22,755	25,423	30,000	85%
Number of Papers	4,677	5,111	6,000	85%

	2007 Base	2008	2015 Target	Percent of Target Achieved
Top American Research Universities (TARU) Faculty Awards	3	4	8	50%

Performance Analysis

An outstanding faculty is critical to the University of Houston's performance as a Tier One university, and data for 2010 demonstrate that UH is improving in terms of both the number and productivity of faculty. The number of scholarly papers published and the number of times UH scholarly works have been cited have increased by 9% and 12% respectively over the past two reporting periods. In addition, UH has increased by two the number of faculty who are members of the national academies: Dr. Kaspar Willam, Professor of Engineering, is a member of the National Academy of Engineering, and Dr. Jan-Ake Gustafsson, Professor of Biology and Biochemistry, is a member of the National Academy of Science.

UH has also increased the number of faculty awards that form part of the Top American Research Universities (TARU) rankings. UH faculty received four awards in 2008: two Fulbright Scholarships, a Beckman Young Investigator award, and a Sloan Research Fellow award. To improve future performance, the university has catalogued the TARU awards and the ways to apply for them in order to help UH faculty secure more awards.

Plan for Faculty and Student Development

Goal 2: Increase opportunities for UH undergraduates to participate in research activities and receive recognition for their work

Performance Data and Targets

	2009 Base	2010	2015 Target	Percent of Target Achieved
Undergraduates Participating in Research-Enhanced Courses*	5,200	11,600	20,000	58%
Undergraduates Receiving UH-Funded Awards for Mentored Research*	119	124	200	62%

*The performance measures and targets have been revised from those included in the original plan.

Performance Analysis

The University of Houston provides opportunities for undergraduates to engage in research through two main vehicles: (1) four internal competitive grant programs through which students participate in faculty-mentored research and (2) the Learning Through Discovery Initiative, which promotes a campus-wide teaching and learning culture supportive of research in all disciplines for all undergraduate students.

A key component of the Learning Through Discovery Initiative is the Curriculum Development Grant Program, the purpose of which is to incorporate research learning activities into courses. In 2010, the program provided $205,890 to fund the development of research-enhanced courses ranging from introductory core courses to senior capstone courses. From 2009 to 2010, the number of undergraduates participating in these courses more than doubled, from approximately 5,200 to 11,600 students. The University of Houston's plan is to expand the Curriculum Development Grant Program annually in order to achieve its 2015 target of 20,000 students participating in research enhanced courses.

The university's four grant programs for undergraduate research include the Summer Undergraduate Research Fellowship, the Provost's Undergraduate Research Scholarship, the Work-Study Student Training and Research Program, and the UH Tier One Scholarship program. Students who participate in these programs possess higher graduation rates than the general student population and report that their research experience enhanced their education, positioned them for greater professional success, and increased their competitiveness for graduate and professional school admissions. Although participation in these programs has been essentially flat over the past two years (119 and 124 students), resource and program expansion in the coming years will position UH to achieve its target of 200 student researchers by 2015.

Plan for Faculty and Student Development

Goal 3: Increase the number, diversity and quality of UH graduate students to enhance the research productivity of UH, meet the professional workforce needs of Texas, and prepare the next generation of scholars in higher education

Performance Data and Targets

	2009 Base	2010	2015 Target	Percent of Target Achieved
Percent Graduate & Professional Students	21%	21%	24%	88%
Total Master's Enrollment	4,287	4,537	5,928	77%
Total Professional Enrollment	1,768	1,740	1,962	89%
Total Doctoral Enrollment	1,647	1,787	1,792	100%
African-American Doctoral Enrollment	88	102	125	82%
Hispanic Doctoral Enrollment	120	156	161	97%
Doctoral Degrees Awarded	235	233	351	66%

Performance Analysis

Over the past year, the University of Houston has made progress toward its 2015 targets in most areas of graduate education. Master's enrollment increased by 6%, and, most significantly, doctoral enrollment increased by 9%, fueled by a 24% increase in the number of African-American and Hispanic students enrolling in UH doctoral programs. To achieve further increases in doctoral enrollment and degree production, the university has created the Doctoral Student Fellowship Program, through which over $9 million is invested annually. Even though total graduate and professional enrollment increased by 5% this past year, the percentage of graduate and professional students among the entire student population remained flat at 21%. This was due to significant growth in undergraduate enrollment. In light of such growth, increasing the percentage of graduate and professional students to 24% by 2015 will be a significant challenge.

Plan for the University of Houston Libraries

Over the past year, the UH Libraries have expanded the number of students taught by 10%. In addition, over 100 subject and class specific online research guides were developed and have received over 100,000 visits since implementation in September of 2010. The libraries also have acquired key research materials – in particular, high-demand electronic journal back issues – in support of doctoral programs and research. Approximately 3,000 new items were added to the Digital Library during the past year, increasing the total number of digital items available to more than 15,500.

A useful benchmark for measuring the improvement of a research library is the Association of Research Libraries (ARL) index. The index is based on four factors: (1) total library expenditures, (2) salaries and wages for professional staff, (3) total library materials (collections) expenditures, and (4) number of professional and support staff. Currently the UH Libraries are ranked 74th on this index (up from 81st the previous year). An achievable goal for the library would be to increase its ranking to 60th among research libraries. The table also compares the current amounts for each of these factors for the UH Libraries and a relevant subset of ARL libraries.

Data for Selected ARL Libraries (2008-09)

	Total Library Expenditures	*Professional Staff Salaries*	*Total Salaries*	*Library Materials Expenditures*	*Other Operating Expenditures*	*Professional plus Support Staff*	*ARL Investment Index Rank*
Value for library ranked 50th in the ARL list	$25,260,636	$5,109,277	$10,923,211	$11,225,286	$2,910,773	212	
Value for library ranked 60th in the ARL list	$23,042,922	$5,230,804	$10,383,218	$10,158,424	$2,458,941	188	
Median Value – All ARL Libraries	$23,569,150	$5,344,639	$10,457,781	$10,274,939	$2,514,923	196	
University of Houston Libraries	$20,149427	$3,086,844	$6,297,022	$10,008,742	$3,843,665	138	74
University of Illinois at Chicago Libraries	$20,616,384	$5,111,645	$7,984,514	$10,718,513	$1,913,357	158	70
University of South Carolina Libraries	$19,284,992	$3,801,759	$7,631,053	$8,233,132	$3,420,807	175	83
Texas Tech University Libraries	$26,049,443	$5,421,156	$10,383,218	$11,588,090	$4,078,135	240	46
University of Cincinnati Libraries	$20,330,143	$5,059,307	$7891,184	$10,314,543	$2,124,416	129	71
North Carolina State University Libraries	$28,483,805	$7,882,273	$12,177,807	$9,759,503	$6,546,495	234	17
University of Pittsburgh Libraries	$30,145,301	$6,927,317	$12,882,043	$14,351,657	$2,911,601	292	31