HIGHER EDUCATION OUTCOMES & HIGH-TECH WORKFORCE DEMANDS

The Fifth Annual Systemwide Accountability Report

NEW JERSEY COMMISSION ON HIGHER EDUCATION

MARCH 2001

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I. Executive Summary

Institutional and systemwide accountability are important aspects of New Jersey's higher education system. State policy makers, students, parents, employers, and taxpayers seek data and information about the state's higher education system, as well as national comparisons to provide context. Annual institutional and systemwide accountability reports, along with a performance funding initiative for public institutions, provide meaningful information, stimulate improvement, and monitor progress toward statewide and institutional goals.

With the availability of improved data, the Commission has enhanced its systemwide accountability report each year. This fifth annual report updates information on students, faculty, and fiscal indicators, and provides new data on minority faculty, student outcomes and degree of urbanization, and capital funding. Recognizing the intense demand for well-qualified workers in scientific and technical fields, it also provides an in-depth examination of New Jersey's progress in graduating students at all levels with high-tech certificates and degrees.

Key findings in this year's systemwide accountability report:

- Full-time undergraduate enrollment increased steadily between 1994 and 1999. However, this positive trend was obscured by a significant decrease in part-time enrollment, primarily at the community colleges, which caused an overall enrollment decline that reached its nadir in 1997. Full- and part-time enrollment increased slightly at the community colleges in 1999, while part-time enrollment continued to decline among the four-year colleges and universities. Although the proprietary and theological institutions account for a very small percentage of overall enrollment, both sectors experienced substantial growth between 1994 and 1999. The projected increase in high school graduates over the next 10 years suggests that New Jersey may need to expand capacity in carefully targeted areas to meet specific needs that are tied to New Jersey's economic and societal well being.

- Minority student enrollment, particularly among Hispanic and Asian-American students, continues to grow. The overall percentage of white undergraduates declined. Recognizing that New Jersey's success in enrolling and graduating a diverse student body is critical for individuals and the state, institutions and policy makers must intensify the focus on improving minority student outcomes.

- Six-year graduation rates at New Jersey's public baccalaureate institutions have improved over time and exceed national averages. Graduation rates at the four-year independent institutions also showed improvement, but the rates at the nondoctoral independent colleges lag behind their national peers. Three-year graduation rates for New Jersey community colleges are also lower than the national average. While broader measures of success for the two-year colleges are more positive, there are no national comparative data to indicate how the New Jersey community colleges stack up against their peers on such measures. Institutions and the state must continually strive to improve these critical student outcomes by enhancing student support and advisement, maintaining affordability, reducing time-to-degree, and fully implementing the state's new electronic transfer and articulation system.

- While state and local government support for higher education in New Jersey remains higher than the national average, state support per FTE student declined markedly relative to the nation between 1994 and 1999. New Jersey is near the national median in state capital funding for higher education per student. Adequate

and predictable funding for higher education is essential to ensure the quality of its colleges and universities and maintain affordability.

- Tuition and fees at New Jersey public institutions continue to exceed national averages. However, recent increases in state aid to the community colleges, resulting in limited tuition increases at those institutions, substantially reduced the gap between New Jersey and the nation in two-year public college tuition and fees. Increasing state operating aid to the senior public institutions and the independent institutions will help to moderate future tuition increases.

- New Jersey continues to lead the nation as a whole in state-funded, need-based student assistance for full-time students. In all sectors the percentage of students receiving state-funded grants and the average amount of such grants exceed national averages. The Commission on Higher Education, the Presidents' Council, and the Higher Education Student Assistance Authority have endorsed the concept of establishing a Tuition Aid Grant (TAG) program for part-time students and relevant legislation is pending.

- Recognizing that demand for highly qualified workers in many key industries exceeds supply, New Jersey colleges and universities need to award more degrees in high-tech fields and to prepare more women and underrepresented minorities for high-tech jobs. Women and most minorities remain underrepresented in most high-tech fields and degree levels, although Hispanics have made gains in computer science. One exception is Asian Americans, whose representation in most high-tech fields exceeds their overall share of degrees granted. Even more dramatically, nonresident aliens are far better represented in high-tech fields (except life and health sciences) at all degree levels than in their overall share of degrees granted. In fact, nonresident aliens received one-half or more of the master's and doctoral degrees in certain high-tech fields.

II. A Systemwide and Sectoral Profile

Many of the indicators reported in this section are updates of data provided in previous editions of the Commission's annual systemwide accountability reports. Some new data sources and approaches to viewing them are also presented.

A. THE INSTITUTIONS

For the purposes of this report, New Jersey institutions are grouped into "sectors" as follows:

Public Research Universities (3)
- Rutgers, The State University of NJ
- New Jersey Institute of Technology
- University of Medicine and Dentistry of NJ

State Colleges and Universities (9)
- The College of New Jersey
- Kean University
- Montclair State University
- New Jersey City University
- Ramapo College of New Jersey
- The Richard Stockton College of NJ
- Rowan University
- Thomas Edison State College
- The William Paterson University of NJ

Community Colleges (19)
- Atlantic Cape Community College
- Bergen Community College
- Brookdale Community College
- Burlington County College
- Camden County College
- Cumberland County College
- Essex County College
- Gloucester County College
- Hudson County Community College
- Mercer County Community College
- Middlesex County College
- County College of Morris
- Ocean County College
- Passaic County Community College
- Raritan Valley Community College
- Salem Community College
- Sussex County Community College
- Union County College
- Warren County Community College

Public-Mission Independent Doctoral Institutions (5) *
- Drew University
- Fairleigh Dickinson University
- Princeton University
- Seton Hall University
- Stevens Institute of Technology

Public-Mission Independent Nondoctoral Institutions (9) *
- Bloomfield College
- Caldwell College
- Centenary College
- College of Saint Elizabeth
- Felician College
- Georgian Court College
- Monmouth University
- Rider University
- Saint Peter's College

Degree-Granting Proprietary Institutions (3) **
- Berkeley College
- DeVry College of Technology
- Gibbs College

Theological Institutions (8) ***
- Assumption College for Sisters
- Beth Medrash Govoha
- New Brunswick Theological Seminary
- Philadelphia College of Bible
- Princeton Theological Seminary
- Rabbi Jacob Joseph School
- Rabbinical College of America
- Talmudical Academy

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* Private not-for-profit.
** Private for-profit.
*** Primary purpose of religious education and/or training.

B. ENROLLMENT, DEGREES, FACULTY

1. Enrollment

Tracking total headcount enrollment during the last five years reveals a rather dramatic turnaround (Table 1). During the early part of this period, total enrollment declined at New Jersey colleges and universities, driven largely by a significant decrease in part-time community college enrollment. An upswing began modestly in 1998, accelerated in 1999, and is likely to continue during the next several years. Preliminary data for 2000 indicate full-time enrollment at community colleges reached a record high of over 56,000.

An examination of full-time and part-time enrollment (Table 2) reveals that for the system as a whole, full-time undergraduate enrollment increased steadily between 1994 and 1999. Part-time enrollment declined sharply at the community colleges, as well as in all four-year sectors during this time. Although the proprietary and theological institutions account for a very small percentage of overall enrollment, both sectors experienced substantial growth between 1994 and 1999.

Noncredit students, who are especially numerous at the community colleges, are not included in any enrollment tables.

Table 1:
Total Headcount Enrollment,
by Level, Sector, and Systemwide

Sector		1994	1995	1996	1997	1998	1999
Public research universities	Undergraduate Students	40,237	40,826	40,853	41,468	42,637	43,182
	Postbaccalaureate Students	19,061	19,454	19,210	19,474	18,669	19,159
	Total	**59,298**	**60,280**	**60,063**	**60,942**	**61,306**	**62,341**
State colleges/ universities	Undergraduate Students	65,846	66,214	66,242	66,807	66,707	66,972
	Postbaccalaureate Students	11,510	11,335	11,188	11,028	10,965	11,381
	Total	**77,356**	**77,549**	**77,430**	**77,835**	**77,672**	**78,353**
Community colleges	Undergraduate Students	135,762	133,240	127,103	122,588	121,114	122,882
	Postbaccalaureate Students	0	0	0	0	0	0
	Total	**135,762**	**133,240**	**127,103**	**122,588**	**121,114**	**122,882**
Public-mission independents	Undergraduate Students	40,023	38,874	39,288	38,946	39,377	39,253
	Postbaccalaureate Students	16,432	16,069	15,892	16,145	16,544	16,882
	Total	**56,455**	**54,943**	**55,180**	**55,091**	**55,921**	**56,135**
Proprietary institutions	Undergraduate Students	2,872	3,521	5,059	5,712	6,257	6,526
	Postbaccalaureate Students	0	0	0	0	0	0
	Total	**2,872**	**3,521**	**5,059**	**5,712**	**6,257**	**6,526**
Theological institutions	Undergraduate Students	641	785	827	1,089	1,298	1,645
	Postbaccalaureate Students	2,387	2,421	2,467	2,370	2,304	2,466
	Total	**3,028**	**3,206**	**3,294**	**3,459**	**3,602**	**4,111**
Systemwide Totals	Undergraduate Students	**285,381**	**283,460**	**279,372**	**276,610**	**277,390**	**280,460**
	Postbaccalaureate Students	**49,390**	**49,279**	**48,757**	**49,017**	**48,482**	**49,888**
	Total	**334,771**	**332,739**	**328,129**	**325,627**	**325,872**	**330,348**

Source: NCES, IPEDS, Fall Enrollment, 1994 through 1999.

Table 2:
Undergraduate Headcount Enrollment,
by Full/Part-Time Status, Sector, and Systemwide

Sector		1994	1995	1996	1997	1998	1999
Public research universities	Full-Time Students	31,597	32,272	32,677	33,468	34,578	35,857
	Part-Time Students	8,640	8,554	8,176	8,000	8,059	7,325
	% Full-Time	*78.5*	*79.0*	*80.0*	*80.7*	*81.1*	*83.0*
State colleges/ universities	Full-Time Students	39,356	40,265	40,934	41,874	42,843	43,895
	Part-Time Students	26,490	25,949	25,308	24,933	23,864	23,077
	% Full-Time	*59.8*	*60.8*	*61.8*	*62.7*	*64.2*	*65.5*
Community colleges	Full-Time Students	54,676	54,862	54,053	53,323	53,643	54,869
	Part-Time Students	81,086	78,378	73,050	69,265	67,471	68,013
	% Full-Time	*40.3*	*41.2*	*42.5*	*43.5*	*44.3*	*44.7*
Public-mission independents	Full-Time Students	27,358	27,023	27,833	28,401	29,412	29,750
	Part-Time Students	12,665	11,851	11,455	10,545	9,965	9,503
	% Full-Time	*68.4*	*69.5*	*70.8*	*72.9*	*74.7*	*75.8*
Proprietary institutions	Full-Time Students	2,123	2,494	3,392	3,832	4,542	4,770
	Part-Time Students	749	1,027	1,667	1,880	1,715	1,756
	% Full-Time	*73.9*	*70.8*	*67.0*	*67.1*	*72.6*	*73.1*
Theological institutions	Full-Time Students	617	727	780	1,025	1,221	1,555
	Part-Time Students	24	58	47	64	77	90
	% Full-Time	*96.3*	*92.6*	*94.3*	*94.1*	*94.1*	*94.5*
Systemwide Totals	Full-Time Students	**155,727**	**157,643**	**159,669**	**161,923**	**166,239**	**170,696**
	Part-Time Students	**129,654**	**125,817**	**119,703**	**114,687**	**111,151**	**109,764**
	% Full-Time	***54.6***	***55.6***	***57.2***	***58.5***	***59.9***	***60.9***

Source: NCES, IPEDS, Fall Enrollment, 1994 through 1999.

Rebounding enrollment, particularly among full-time students, and a projected increase in the number of high school graduates over the next 10 years suggest that New Jersey may need to expand the capacity of its higher education system in carefully targeted areas to meet specific needs tied to the state's economic and societal well-being.

Table 3 shows the distribution of students and instructional faculty among the sectors of the higher education system in New Jersey and throughout the nation. In 1999, New Jersey's community college sector had almost 45% of undergraduate enrollment systemwide, but only 20% of the full-time faculty. By contrast, the public research universities had about 15% of the undergraduate students and 27% of the full-time faculty. To some extent the higher percentage of full-time faculty at the public research universities is attributable to the role of instructional faculty in the institution's research mission, as well as to the high percentage of postbaccalaureate students at these institutions. Faculty teaching workloads and reliance on part-time instructors also vary by sector. Nationally, there are proportionally fewer undergraduate students, graduate students, and faculty at state colleges/universities and more of each at public research universities.

Table 3:
Sector Distributions of Students and Faculty,
NJ and U.S.

Sector	Percentage of Undergraduate Students				Percentage of Postbaccalaureate Students				Percentage of Full-Time Faculty			
	NJ		US		NJ		US		NJ		US	
	1994	1999	1994	1999	1994	1999	1994	1999	1994	1999	1994	1999
Public research universities	14.1	15.4	23.9	24.1	38.6	38.4	48.7	45.8	26.7	27.3	34.8	34.6
State colleges/ universities	23.1	23.9	14.6	14.6	23.3	22.8	15.8	16.9	23.6	24.5	16.0	15.7
Community colleges	47.6	43.8	43.9	43.3	0.0	0.0	0.0	0.0	21.9	20.4	21.4	21.0
Public-mission independent institutions	14.0	14.0	16.2	16.5	33.3	33.8	33.9	35.7	26.3	25.5	26.5	27.1
Proprietary institutions	1.0	2.3	1.1	1.2	0.0	0.0	0.0	0.0	0.9	1.3	0.5	0.9
Theological institutions	0.2	0.6	0.4	0.3	4.8	4.9	1.5	1.5	0.6	1.0	0.8	0.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: NCES, IPEDS, Fall Enrollment Survey, 1994, and 1999. NCES IPEDS Form #30,

Over 90% of the undergraduates in New Jersey, and in each of the three public sectors, are New Jersey residents (Table 4). Over three-quarters of the undergraduates in the public-mission independent sector are in-state students, which is a higher percentage than is typically found among independent institutions in other states.

Table 4:
Undergraduate Headcount Enrollment,
by State Residence, Sector, and Systemwide

Sector	# of in-State Students		# of out-of-state Students		Percentage In-State	
	1994	1999	1994	1999	1994	1999
Public research universities	37,142	39,478	3,095	3,704	92.3	91.4
State colleges/universities	60,640	61,489	5,206	5,483	92.1	91.8
Community colleges	134,252	120,278	1,510	2,604	98.9	97.9
Public-mission independents	31,139	30,042	8,884	9,211	77.8	76.5
Proprietary institutions	2,539	5,932	333	594	88.4	90.9
Theological institutions	100	915	541	730	15.6	55.6
Total	**265,812**	**258,134**	**19,569**	**22,326**	**93.1**	**92.0**

Source: NJCHE, IPEDS, Fall Enrollment Survey, 1994 and 1999.

During the last five years the proportions of undergraduates who are black, Hispanic, and Asian American all increased, while the white share fell below 60% (Table 5). The Asian-American percentage of student enrollment was considerably larger at the public research universities than elsewhere. The same may be said of the black and Hispanic shares at the proprietary institutions, although the absolute numbers were much smaller than in most other sectors. The increasing number of students who did not report their race/ethnicity may reflect the growing population that is of mixed race/ethnicity.

Table 5:
Undergraduate Headcount Enrollment, by Race/Ethnicity,
by Sector and Systemwide

Sector		Public research universities		State colleges/ universities		Community colleges		Public-mission independent institutions		Proprietary institutions		Theological institutions		Total	
		1994	1999	1994	1999	1994	1999	1994	1999	1994	1999	1994	1999	1994	1999
White	#	23,543	22,090	47,199	45,194	88,971	69,813	25,946	24,111	1,612	2,936	540	1,483	**187,811**	**165,627**
	%	*62.3*	*57.6*	*75.2*	*71.5*	*71.2*	*63.9*	*73.4*	*70.1*	*56.4*	*47.0*	*97.6*	*96.5*	***71.1***	***65.5***
Black	#	4,563	4,671	6,903	7,350	17,557	17,151	4,377	4,251	623	1,605	2	37	**34,025**	**35,065**
	%	***12.1***	***12.2***	***11.0***	***11.6***	***14.0***	***15.7***	***12.4***	***12.4***	***21.8***	***25.7***	***0.4***	***2.4***	***12.9***	***13.9***
Hispanic	#	3,814	4,077	6,273	7,534	12,493	15,158	2,930	3,476	494	1,315	6	2	**26,010**	**31,562**
	%	***10.1***	***10.6***	***10.0***	***11.9***	***10.0***	***13.9***	***8.3***	***10.1***	***17.3***	***21.1***	***1.1***	***0.1***	***9.8***	***12.5***
Asian American	#	5,754	7,438	2,233	2,871	5,589	6,790	2,010	2,422	115	353	5	15	**15,706**	**19,889**
	%	***15.2***	***19.4***	***3.6***	***4.5***	***4.5***	***6.2***	***5.7***	***7.0***	***4.0***	***5.7***	***0.9***	***1.0***	***5.9***	***7.9***
American Indian	#	107	99	178	224	355	348	102	122	14	36	0	0	**756**	**829**
	%	***0.3***	***0.3***	***0.3***	***0.4***	***0.3***	***0.3***	***0.3***	***0.4***	***0.5***	***0.6***	***0.0***	***0.0***	***0.3***	***0.3***
Subtotal	#	**37,781**	**38,375**	**62,786**	**63,173**	**124,965**	**109,260**	**35,365**	**34,382**	**2,858**	**6,245**	**553**	**1,537**	**264,308**	**252,972**
	%	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Nonresident Alien	#	954	1,270	1,431	1,756	3,001	3,394	1,209	1,216	13	44	88	108	**6,696**	**7,788**
	%	***2.4***	***2.9***	***2.2***	***2.6***	***2.2***	***2.8***	***3.0***	***3.1***	***0.5***	***0.7***	***13.7***	***6.6***	***2.3***	***2.8***
Unknown	#	1,502	3,537	1,629	2,043	7,796	10,228	3,449	3,655	1	237	0	0	**14,377**	**19,700**
	%	***3.7***	***8.2***	***2.5***	***3.1***	***5.7***	***8.3***	***8.6***	***9.3***	***0.0***	***3.6***	***0.0***	***0.0***	***5.0***	***7.0***
Grand Total	#	**40,237**	**43,182**	**65,846**	**66,972**	**135,762**	**122,882**	**40,023**	**39,253**	**2,872**	**6,526**	**641**	**1,645**	**285,381**	**280,460**
	%	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: NCES, IPEDS, Fall Enrollment, 1994 and 1999.
Note: Percentages for specific racial/ethnic groups are based on subtotal; those for nonresident aliens and race unknown are based on grand total.

2. Certificates and Degrees Conferred

Over 51,000 certificates and degrees were awarded by New Jersey institutions in Fiscal Year (FY) 1999 (Table 6). Since 1994, the public research universities, state colleges and universities, and proprietary institutions increased their number of degrees awarded. While community colleges saw a small increase in the number of certificates awarded, they experienced a decline in the number of associate degrees earned. This trend is likely to change now that enrollment at the community colleges is on the rise. The theological institutions also conferred notably fewer degrees in 1999 than in 1994.

Table 6:
Certificates and Degrees Conferred,
by Level, Sector, and Systemwide

Sector		Subbaccalaureate Certificate	Associate	Bachelor's*	Master's**	Doctoral	First profess.	Total
Public Research Universities	1994	209	60	7,731	2,867	568	925	**12,360**
	1999	78	81	7,696	3,403	534	990	**12,782**
State colleges/ Universities	1994	1	223	10,679	2,073	0	0	**12,976**
	1999	1	159	11,102	2,201	0	0	**13,463**
Community Colleges	1994	710	11,381	0	0	0	0	**12,091**
	1999	781	10,459	0	0	0	0	**11,240**
Public-mission independent institutions	1994	66	339	6,779	3,298	441	485	**11,408**
	1999	26	247	6,897	3,426	389	421	**11,406**
Proprietary Institutions	1994	696	596	0	0	0	0	**1,292**
	1999	518	1,224	0	0	0	0	**1,742**
Theological Institutions	1994	0	5	181	110	23	373	**692**
	1999	5	15	131	316	29	148	**644**
Total	**1994**	**1,682**	**12,604**	**25,370**	**8,348**	**1,032**	**1,783**	**50,819**
	1999	**1,409**	**12,185**	**25,826**	**9,346**	**952**	**1,559**	**51,277**

*Includes postbaccalaureate certificates.
**Includes post-master's certificates.
Source: NCES, IPEDS, Completions, 1994 and 1999.

3. Faculty Characteristics

New Jersey colleges and universities showed some progress in making the racial/ethnic profile of New Jersey faculty more representative of the general population and the students, but this progress has been slow. Data are provided on all full-time faculty as well as on newly hired faculty, in order to give a clearer picture of this progress. With regard to total faculty, there were very modest gains between 1995 and 1999 for blacks and Hispanics, and somewhat greater gains for Asian-Americans (Table 7). In absolute terms, institutions across all sectors gained 57 black full-time faculty members, 53 Hispanics, and 135 Asian-Americans. In each case, the percentage share of all faculty increased by less than one percentage point.

An examination of the numbers of newly hired minority faculty in 1999 shows considerable progress since 1995 (Table 8). The number of new black faculty members doubled to 53, and institutions added 34 Hispanic and 64 Asian-American full-time faculty. However, despite the growth in the numbers of newly hired minority faculty, minorities gained only slightly as a percentage of all new hires, and Asian Americans actually declined.

Table 7:
Race/Ethnicity of All Full-Time Faculty,
by Sector and Systemwide

Sector		Public Research Universities		State colleges/ universities		Community colleges		Public-mission independent institutions		Proprietary institutions		Theological institutions		Total	
		1995	1999	1995	1999	1995	1999	1995	1999	1995	1999	1995	1999	1995	1999
White	#	3,284	3,279	1,815	1,892	1,792	1,749	2,064	2,152	89	104	42	94	**9,086**	**9,270**
	%	*84.2*	*82.5*	*80.7*	*78.0*	*86.2*	*84.4*	*88.0*	*87.7*	*85.6*	*81.3*	*89.4*	*92.2*	***84.7***	***83.1***
Black	#	194	188	187	214	158	170	66	78	2	12	3	5	**610**	**667**
	%	***5.0***	***4.7***	***8.3***	***8.8***	***7.6***	***8.2***	***2.8***	***3.2***	***1.9***	***9.4***	***6.4***	***4.9***	***5.7***	***6.0***
Hispanic	#	91	100	103	132	58	71	50	53	3	2	0	0	**305**	**358**
	%	***2.3***	***2.5***	***4.6***	***5.4***	***2.8***	***3.4***	***2.1***	***2.2***	***2.9***	***1.6***	***0.0***	***0.0***	***2.8***	***3.2***
Asian American	#	328	398	137	182	67	79	163	170	10	10	2	3	**707**	**842**
	%	***8.4***	***10.0***	***6.1***	***7.5***	***3.2***	***3.8***	***7.0***	***6.9***	***9.6***	***7.8***	***4.3***	***2.9***	***6.6***	***7.5***
American Indian	#	5	9	6	5	3	4	2	2	0	0	0	0	**16**	**20**
	%	***0.1***	***0.2***	***0.3***	***0.2***	***0.1***	***0.2***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.1***	***0.2***
Subtotal	#	**3,902**	**3,974**	**2,248**	**2,425**	**2,078**	**2,073**	**2,345**	**2,455**	**104**	**128**	**47**	**102**	**10,724**	**11,157**
	%	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Nonresident Alien	#	238	310	18	10	0	1	62	101	0	0	0	0	**318**	**422**
	%	***5.7***	***7.2***	***0.8***	***0.4***	***0.0***	***0.0***	***2.6***	***3.9***	***0.0***	***0.0***	***0.0***	***0.0***	***2.9***	***3.6***
Unknown	#	0	1	3	5	0	2	4	13	0	1	0	0	**7**	**22**
	%	***0.0***	***0.0***	***0.1***	***0.2***	***0.0***	***0.1***	***0.2***	***0.5***	***0.0***	***0.8***	***0.0***	***0.0***	***0.1***	***0.2***
Grand Total	#	**4,140**	**4,285**	**2,269**	**2,440**	**2,078**	**2,076**	**2,411**	**2,569**	**104**	**129**	**47**	**102**	**11,049**	**11,601**
	%	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: NCES, IPEDS, Fall Staff, 1995 and 1999.
Note: Percentages for specific racial/ethnic groups are based on subtotal; those for nonresident aliens and race unknown are based on grand total.

Table 8:
Race/Ethnicity of Newly Hired Faculty,
by Sector and Systemwide

Sector		Public research universities		State colleges/ universities		Community colleges		Public-mission independent institutions		Proprietary institutions		Theological institutions		Total	
		1995	1999	1995	1999	1995	1999	1995	1999	1995	1999	1995	1999	1995	1999
White	#	165	146	66	145	39	72	107	156	6	12	1	8	**384**	**539**
	%	***83.3***	***80.7***	***69.5***	***73.2***	***84.8***	***73.5***	***79.3***	***82.5***	***85.7***	***70.6***	***100.0***	***100.0***	***79.7***	***78.0***
African American	#	7	8	8	20	3	14	9	9	0	2	0	0	**27**	**53**
	%	***3.5***	***4.4***	***8.4***	***10.1***	***6.5***	***14.3***	***6.7***	***4.8***	***0.0***	***11.8***	***0.0***	***0.0***	***5.6***	***7.7***
Hispanic	#	10	8	7	16	0	3	3	5	1	2	0	0	**21**	**34**
	%	***5.1***	***4.4***	***7.4***	***8.1***	***0.0***	***3.1***	***2.2***	***2.6***	***14.3***	***11.8***	***0.0***	***0.0***	***4.4***	***4.9***
Asian American	#	15	18	13	17	4	9	16	19	0	1	0	0	**48**	**64**
	%	***7.6***	***9.9***	***13.7***	***8.6***	***8.7***	***9.2***	***11.9***	***10.1***	***0.0***	***5.9***	***0.0***	***0.0***	***10.0***	***9.3***
American Indian	#	1	1	1	0	0	0	0	0	0	0	0	0	**2**	**1**
	%	***0.5***	***0.6***	***1.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	***0.1***
Subtotal	#	**198**	**181**	**95**	**198**	**46**	**98**	**135**	**189**	**7**	**17**	**1**	**8**	**482**	**691**
	%	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Nonresident Alien	#	31	34	3	0	0	0	13	25	0	0	0	0	**47**	**59**
	%	***13.5***	***15.8***	***3.1***	***0.0***	***0.0***	***0.0***	***8.7***	***11.5***	***0.0***	***0.0***	***0.0***	***0.0***	***8.9***	***7.7***
Unknown	#	0	0	0	9	0	0	2	4	0	0	0	0	**2**	**13**
	%	***0.0***	***0.0***	***0.0***	***4.3***	***0.0***	***0.0***	***1.3***	***1.8***	***0.0***	***0.0***	***0.0***	***0.0***	***0.4***	***1.7***
Grand Total	#	**229**	**215**	**98**	**207**	**46**	**98**	**150**	**218**	**7**	**17**	**1**	**8**	**531**	**763**
	%	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: NCES, IPEDS, Fall Staff, 1995 and 1999.
Note: Percentages for specific racial/ethnic groups are based on subtotal; those for nonresident aliens and race unknown are based on grand total.

The success of New Jersey's colleges and universities in enrolling minority students and producing a diverse cohort of well-prepared graduates is critical for individuals and the state. While minority enrollment has increased since 1995, institutions and the state must intensify the focus on improving minority student outcomes. A more diverse faculty provides mentors and role models for success and contributes to an inclusive campus environment, which can be factors in improved student outcomes.

C. STUDENT OUTCOMES

1. Graduation Rates: National Comparisons With a New Source

Results from the U.S. Department of Education's Integrated Postsecondary Data System (IPEDS) Graduation Rate Survey (GRS), the definitive national source of information on graduation rates by institution[1], were made available recently. The GRS rate for baccalaureate institutions is a six-year rate, which represents 150% of "catalogue time," as does the three-year rate for community colleges.

Table 9 compares New Jersey baccalaureate sectors against similar institutions throughout the nation. The public research universities (excluding UMDNJ) clearly exceeded their national counterparts for the 1991-1997 cohort, as did the state colleges and universities (with Edison excluded). The independent doctoral institutions were approximately on the same level as their peers, while the independent nondoctoral institutions were below theirs.

Table 9:
Six-Year Graduation Rates for Senior Institutions:
NJ Compared with National Averages

Sector	Cohort	NJ	US
Public research universities※	1991-1997	66.0%	52.8%
	1993-1999	66.9%	-- *
State colleges/universities★	1991-1997	48.8%	38.8%
	1993-1999	51.8%	-- *
Independent doctoral institutions	1991-1997	67.9%	69.4%
	1993-1999	71.9%	-- *
Independent nondoctoral institutions	1991-1997	45.9%	57.2%
	1993-1999	46.1%	-- *

Source: NCES, IPEDS, Graduation Rate Survey, 1997 and 1999.
★Edison excluded.
※UMDNJ excluded.
*U.S. data are not yet available.

The two New Jersey cohorts in Table 9 suggest some progress over time in each of the baccalaureate sectors. The strongest evidence of progress is among the state colleges/universities and independent doctoral institutions. Until additional years of national GRS data become available, the degree of stability at the national level will be unknown.

Table 10 indicates that New Jersey community colleges have lower three-year graduation rates than their peers. One reason for this gap may be that New Jersey does not require community college students to attain an associate degree before transferring to a four-year institution, placing

the state at a disadvantage relative to those that encourage or require completion of the associate degree before transfer.

Table 10:
Three-Year graduation Rates for Community Colleges:
NJ Compared with the National Average

Cohort	NJ	US
1994-1997	12.5%	21.3%
1996-1999	11.8%	-- *

Source: NCES, IPEDS Graduation Rate Survey, 1997 and 1999.
*U.S. data are not yet available.

2. Other Outcomes

The graduation rate indicator fails to capture the total mission of some institutions, particularly the community colleges, where graduation is not the ultimate goal of many enrolled students. Previous accountability reports compared New Jersey community college transfer rates with a national figure. Unfortunately, the national indicator is now being updated only biennially instead of annually; therefore it is not possible to present new comparative information on transfer in this report. However, it should be noted that in all previous comparisons, New Jersey community colleges exceeded the nation in transfer rates.

The Commission has constructed additional outcome indicators for the state's community colleges, but there are no national figures with which to compare these indicators. For example, the combined graduation and/or transfer rate for the sector's most recent cohort (1996-1999) was 25.7%. The combined graduation/transfer/retention rate was 39.7%.

Degree completion, transfer, and other measures of student success are critical performance indicators for a student-centered system of higher education. These measures are influenced by many factors, and institutions and the state must continually strive to improve key student outcomes by enhancing student support and advisement, maintaining affordability, reducing time-to-degree, and fully implementing the state's new electronic transfer and articulation system.

3. Outcomes and Degree of Urbanization

The Census Bureau has characterized the location of every institution in the nation according to the following "locale codes":

Large city	Large town
Mid-size city	Small town
Urban fringe of a large city	Rural area
Urban fringe of a mid-size city	Not assigned

This categorization scheme has many potential uses, including sharpening peer comparisons both for individual New Jersey institutions and for sectors or other groups of institutions. That is, a statistical analysis of differences in state or national outcomes or other indicators could adjust for "degree of urbanization."

New Jersey institutions in all sectors are for the most part concentrated in urban fringes of large cities, which is not the case nationally. It is important to know whether this difference between the state and the nation affects the results derived from national comparisons with corresponding New Jersey sectors. By statistically controlling for the degree of urbanization, it is possible to analyze its impact upon comparative indicator patterns.

The relevant data show that, for the most part, the similarities and differences in graduation rates between New Jersey and the U.S. for the various sectors cannot be explained by differences in the degree of urbanization (see tables in Appendix A).

D. FISCAL INDICATORS[2]

1. Tuition and Fees

In the summer of 1999 the National Center for Education Statistics (NCES) piloted a web-based data collection effort that included college prices. These new data make it possible to compare New Jersey with more recent national data than was available in the past.

The recent restraint in New Jersey community college tuition hikes, made possible by increased state operating aid, has moved the two-year public institutions' prices significantly closer to the national average. The state colleges and universities in this state are about $1,100 higher than their peers, and the public research universities are about $1,650 higher (Table 11). The independent nondoctoral institutions are about $1,300 lower than their peers, and the independent doctoral universities are about $300 lower.

Table 11:
Average* Tuition and Fees, FY 2000

Sector	NJ			US	
	N**	Mean	Adjusted***	N**	Mean
Community colleges	19	$2,111	$1,857	921	$1,767
State colleges/universities (Edison excluded)	8	$4,719	$4,150	298	$3,053
Public research universities (UMDNJ excluded)	2	$5,903	$5,192	207	$3,546
Independent 4-year nondoctoral institutions	9	$14,706	$12,934	739	$14,206
Independent doctoral institutions	5	$19,826	$17,437	189	$17,749

Source: NCES, IPEDS, IPSFA Survey, 1999.
*The averages of institutions are weighted by the number of first-time full-time freshmen.
** N is the number of institutions in each sector for NJ and the US.
*** Adjusted by the 1998 AFT Interstate Cost-of-Living Index

2. Student Assistance: National Comparisons With a New Source

The 1999 NCES pilot added student aid data to IPEDS for the first time, making it possible to compare New Jersey with the nation on student assistance in general, and specifically with respect to federal grants, state and local grants, institutional grants, and loans.

The public research universities and the independent nondoctoral institutions have a higher percentage of New Jersey undergraduates that receive aid of any kind as compared with their national counterparts (Table 12). The percentages at the state colleges and universities and the independent doctoral universities are about the same in the state and throughout the nation. A smaller percentage of New Jersey community college students received aid than is true nationally.

Table 12:
Average* Percentage of First-Time, Full-Time,
Fall Undergraduates Who Receive any Aid

Sector	NJ		US	
	N**	Mean Pct	N**	Mean Pct
Community colleges	19	43.8	921	51.1
State colleges/ universities (Edison excluded)	8	65.3	298	64.4
Public research universities (UMDNJ excluded)	2	73.5	207	64.1
Independent 4-year nondoctoral institutions	9	92.1	739	84.1
Independent doctoral institutions	5	71.3	189	71.3

Source: NCES, IPEDS, IPSFA Survey, 1999.
*The averages of institutions are weighted by the number of first-time full-time freshmen.
**N is the number of institutions in each sector for NJ and the US.

The percentages of students receiving specific types of aid present a different picture (Table 13). In every sector a higher percentage of New Jersey students receives state grants. The state is ranked second in the nation in the percentage of full-time undergraduates receiving need-based grant aid.[3] New Jersey's loan percentages are similar to the nation's in every sector except the public research universities, where the state's percentage is slightly higher. It should be noted that many students receive more than one form of financial aid, while others receive none.

To some extent the average dollar amounts of specific types of aid per student (Table 13) parallel the pattern for percentages, but there are some differences as well. In every sector New Jersey's average state grants are significantly higher than the nation's, which is reflected in the state's ranking as second in the nation in the amount of need-based aid provided per full-time student.[4] The state's loan amounts are about the same as the nation's in the community college and state college/university sectors, higher in the public research university sector, and lower in the two independent sectors.

Table 13:
Student Financial Aid to Full-time, First-time Freshmen

Sector	Type of aid	NJ				US		
		N*	Pct. of students receiving aid	Average amount of Aid**	Adjusted amount***	N*	Pct. of students receiving aid	Average amount of aid**
Community Colleges	Fed grants	19	39.4	$1,935	$1,702	893	39.2	$1,814
	State/local grants	19	37.5	$1,319	$1,160	874	26.2	$804
	Inst. grants	17	6.9	$1,062	$934	827	13.5	$840
	Loans	19	18.5	$2,268	$1,995	789	19.7	$2,186
State colleges/ universities (Edison excluded)	Fed grants	8	36.5	$2,454	$2,159	295	36.5	$2,060
	State/local grants	8	38.0	$2,247	$1,976	291	32.0	$1,440
	Inst. grants	7	21.7	$2,205	$1,939	288	25.0	$1,710
	Loans	8	48.6	$3,282	$2,887	294	46.8	$2,726
Public research Universities (UMDNJ excluded)	Fed grants	2	28.7	$2,376	$2,090	206	27.6	$2,250
	State/local grants	2	37.1	$3,488	$3,068	205	26.3	$1,743
	Inst. grants	2	37.8	$3,517	$3,093	200	29.6	$2,535
	Loans	2	52.0	$4,354	$3,830	206	45.0	$3,372
Independent 4-year nondoctoral institutions	Fed grants	9	37.9	$2,512	$2,210	728	33.1	$2,461
	State/local grants	9	47.0	$4,800	$4,222	717	37.3	$2,584
	Inst. grants	9	87.3	$5,290	$4,652	725	74.0	$5,856
	Loans	9	62.9	$2,922	$2,570	723	65.7	$3,562
Independent Doctoral institutions	Fed grants	5	31.8	$3,122	$2,746	186	25.1	$3,111
	State/local grants	5	33.6	$4,534	$3,988	185	26.8	$3,202
	Inst. grants	5	68.0	$8,948	$7,870	184	64.9	$8,526
	Loans	5	57.6	$3,683	$3,239	187	56.0	$3,969

Source: NCES, IPEDS, IPSFA Survey, 1999.

*N is the number of institutions in each sector for NJ and the US.
**The averages of institutions are weighted by the number of first-time full-time freshmen.
*** Adjusted by the 1998 AFT Interstate Cost-of-Living Index

3. Research Funding

In the New Jersey higher education system, six institutions accounted for 98% of the research expenditures by the entire system in 1998 (Table 14). They are Rutgers, UMDNJ, NJIT, Princeton, Seton Hall, and Stevens. (The data for Princeton exclude the Princeton Plasma Physics Laboratory.) Rutgers and Princeton spent the most money on research in 1998. Seton Hall had by far the largest percentage increase since 1988, followed by NJIT and UMDNJ.

Table 14:
Research Expenditures by Selected NJ Institutions and Sectors,
for FY 1988 and FY 1998, in Constant 1998 Dollars*

	1988	1998	Absolute Change	% Change
New Jersey Institute of Technology	$ 12,147,846	$ 31,738,000	$ 19,590,154	161.3
Rutgers University	$ 99,921,622	$ 137,884,000	$ 37,962,378	38.0
University of Medicine & Dentistry of NJ	$ 47,012,014	$ 81,747,000	$ 34,734,986	73.9
Princeton University	$ 91,871,610	$ 114,133,000	$ 22,261,390	24.2
Seton Hall University	$ 260,280	$ 2,546,000	$ 2,285,720	878.2
Stevens Institute of Technology	$ 6,241,128	$ 8,543,536	$ 2,302,408	36.9
Systemwide total**	**$ 268,013,117**	**$ 384,075,639**	**$ 116,062,522**	**43.3**

Source: NCES, IPEDS, Finance, 1988 and 1998.
*Adjustment for inflation is according to the research & development component of the Higher Education Price Index (HEPI). See Kent Halstead, *Inflation Measures for Schools, Colleges, and Libraries: 1998 Update* (Arlington, Va.: Research Associates of Washington, 1998).
**Includes institutions not listed.

New Jersey consistently trailed the nation in total higher education research funding per capita in 1988, 1993, and 1998 (Table 15). The state also consistently lagged behind two neighboring states (New York and Pennsylvania) and two Sunbelt competitors (North Carolina and Virginia). However, New Jersey's percentage growth in research funding per capita between 1993 and 1998 surpassed that of the nation, New York, and Virginia, but trailed Pennsylvania and North Carolina.

Table 15:
Total Research Funding in FY 1988, FY 1993 and FY 1998,
Expressed in Constant 1998 Dollars per Capita, for NJ, the US, and Four Other States --
All Research Institutions, Public and Private

Fiscal Year		NJ	US	NY	PA	NC	VA
1988		**$46**	$79	$101	$83	$84	$57
1993		**$55**	$89	$101	$99	$105	$73
1998		**$60**	$95	$106	$112	$119	$72
Change (1988-1993)	Absolute ($)	**$9**	$10	$0	$16	$21	$16
	Relative (%)	***18.8%***	*12.1%*	*0.1%*	*18.7%*	*24.9%*	*27.8%*
Change (1993-1998)	Absolute ($)	**$5**	$6	$4	$13	$14	($1)
	Relative (%)	***9.0%***	*6.7%*	*4.4%*	*13.4%*	*13.7%*	*-1.3%*

Sources: National Science Foundation, WebCASPAR database system;
US Bureau of the Census, *Statistical Abstract of the United States: 1999 & 1995*.
Note 1: Adjustment for inflation is according to HEPI (Research & Development).
Note 2: NJ institutions with R&D expenditures are as follows:
1988 - FDU, Montclair, NJIT, Princeton, Rutgers, Seton Hall, Stevens, UMDNJ and Wm. Paterson.
1993 - Drew, FDU, Monmouth, Montclair, NJIT, Princeton, Rutgers, Seton Hall, Stevens, UMDNJ and Wm. Paterson.
1998 - FDU, Monmouth, NJIT, Princeton, Rutgers, Seton Hall, Stevens and UMDNJ.

4. Overall State/Local Government Support for Higher Education

While New Jersey's state funding per FTE student was 15% higher than the nation in FY 1999, five years earlier it had been 29% higher (Table 16)[5]. On the revenue side, in FY 1997 the share of New Jersey public institutions' revenue coming from state and local government was 7% higher than for the nation (Table 17), which represents a slight decrease over five years.

Table 16:
State Government Expenditures on Higher Education
Per FTE – NJ vs. the US (=100) in Two Fiscal Years

FY 1994	NJ*	US
	129	100

FY 1999	NJ	US
	115	100

Sources: Expenditure data are from SHEEO/*Grapevine*, and FTEs are from NCES, IPEDS, Fall Enrollment.
*Adjusted for State Support Index from Kent Halstead, *State Profiles: Financing Public Higher Education, 1998 Rankings* (Arlington, VA: Research Associates of Washington, 1998).
Note: Fall 1997 enrollment data were used for calculating FY 1999 ratios.

Table 17:
State and Local Government Expenditures as a Percentage of Public Higher Education Revenues NJ vs. the US (=100) in Two Fiscal Years

FY 1992	NJ	US
	109	100

FY 1997	NJ	US
	107	**100**

Source: Calculated from data in NCES, *Digest of Education Statistics: 1995* and NCES, IPEDS, Finance, FY 1997.

Recognizing that the state must provide adequate and predictable funding for higher education to ensure the quality of its colleges and universities and maintain affordability, the long-range plan for higher education calls for increased state operating aid to public and independent institutions. Although not reflected in the above tables, the state significantly increased operating aid to the community colleges each year since FY 1999, enabling the two-year public institutions to moderate tuition increases. A similar commitment to the four-year public institutions and full funding of the Independent College and University Assistance Act would have a positive impact on affordability, capacity, and quality.

5. Capital Expenditures and Funding: a New Analysis

An underutilized source of comparative state-by-state data on capital spending by higher education institutions is the Census of Governments. The census derives the data from what used to be the IPEDS finance form and is now the finance section of the spring phase of the new IPEDS data collection schedule. The following analysis uses the most recent census data, which are unfortunately three years old.

With regard to institutional expenditures on capital funding per student, according to the Census/IPEDS, New Jersey was close to the median among the states in FY 1996 (Table 18). These expenditures include construction, land purchases, and acquisition of capital equipment.

Table 18:
1995-1996 Institutional Expenditures on Higher Education Capital Per Student, by States Ranked in Descending Order

		Higher Education ($000s)	Capital Outlay ($000s)	Fall 1996 Enrollment	Capital Outlay/Enrolled ($/per student)
United States		**100,735,501**	**11,006,116**	**14,367,520**	**766.04**

		Higher Ed ($000s)	Capital Outlay ($000s)	Fall 96 Enrollment	Capital Outlay/ Enrolled ($/stud)			Higher Ed ($000s)	Capital Outlay ($000s)	Fall 96 Enrolment	Capital Outlay/ Enrolled ($/stud)
1	Indiana	2,878,765	475,733	290,184	1639	**27**	**New Jersey**	**2,629,079**	**247,156**	**328,143**	**753**
2	Montana	379,909	70,726	43,550	1624	**28**	Kansas	1,262,759	127,791	173,865	735
3	Idaho	510,227	85,096	60,411	1409	**29**	Oklahoma	1,267,767	128,063	177,166	723
4	Tennessee	1,895,971	326,536	247,637	1319	**30**	Arizona	1,819,363	208,186	288,036	723
5	Georgia	2,383,844	392,965	300,795	1306	**31**	California	11,953,746	1,347,979	1,900,099	709
6	Michigan	4,992,659	679,205	547,629	1240	**32**	Nevada	480,098	51,742	73,970	700
7	Arkansas	847,163	117,499	108,636	1082	**33**	Texas	7,095,088	661,349	959,698	689
8	South Carolina	1,524,566	186,762	174,303	1071	**34**	Illinois	4,143,084	477,670	721,133	662
9	Washington	2,587,759	317,484	303,450	1046	**35**	Missouri	1,683,001	182,241	293,584	621
10	Utah	1,199,156	158,573	152,262	1041	**36**	Minnesota	1,881,108	173,980	284,964	611
11	North Carolina	3,400,829	380,875	372,993	1021	**37**	Maine	391,828	33,211	56,017	593
12	New Mexico	997,930	104,956	106,662	984	**38**	Colorado	1,882,068	144,515	245,112	590
13	Mississippi	1,150,352	115,642	126,027	918	**39**	Iowa	1,561,415	100,604	178,860	562
14	Kentucky	1,413,122	156,719	178,904	876	**40**	West Virginia	674,921	48,345	87,099	555
15	Wisconsin	2,525,443	257,454	299,522	860	**41**	Louisiana	1,562,049	109,776	213,993	513
16	Pennsylvania	4,120,266	504,522	587,447	859	**42**	Nebraska	804,853	60,340	120,689	500
17	Florida	3,704,575	540,815	645,832	837	**43**	South Dakota	235,220	19,844	39,820	498
18	Hawaii	579,034	52,007	62,844	828	**44**	New York	5,412,513	491,494	1,028,351	478
19	Ohio	3,990,229	448,720	544,371	824	**45**	New Hampshire	360,244	24,963	64,396	388
20	Virginia	2,614,714	291,870	355,190	822	**46**	Alaska	316,207	10,950	28,806	380
21	Wyoming	276,425	24,768	30,805	804	**47**	Massachusetts	1,510,677	67,876	411,676	165
22	Vermont	311,859	28,255	35,779	790	**48**	Rhode Island	322,936	10,748	72,432	148
23	Maryland	2,060,200	202,896	260,757	778	**49**	Connecticut	892,262	20,880	154,139	135
24	Alabama	1,866,969	168,467	220,711	763	**50**	Delaware	453,834	7,909	74,460	106
25	Oregon	1,481,983	127,139	166,662	763	**51**	Dist of Columbia	72,240	1,824	44,838	41
26	North Dakota	373,192	30,996	41,142	753						

Sources: U.S. Bureau of the Census, *Census of Governments: FY 1996*, State and Local Government Estimates; NCES, *Digest of Education Statistics: 1998*.

A new source of data on capital funding is a recently released State Higher Education Finance Officers (SHEFO) survey of state higher education coordinating boards. New Jersey is one of only 21 states that responded initially (there is a continuing effort to increase this number). In order to make the results comparable among the states, dollar figures are divided by the number of students in the state in the fall of the particular fiscal year in question. The data encompass state government appropriations to both public and independent institutions from bonds as well as general funds.

Most states experienced considerable fluctuation in capital funding levels as a result of state funding initiatives occurring in various states in different years. Therefore it is necessary to examine this data over a period of years. Calculating total funding in FY 1991 through FY 1998 and dividing by total enrollment during the same period of time provides a stable picture. In this analysis, New Jersey ranked 12th, one step below the median (Table 19). Because of the use of ratios rather than absolute dollars, it is possible to include all 21 of the responding states in this analysis; a missing year does not matter.[6] In future years, when 1999 and 2000 data are available New Jersey can expect to document a major increase, because of the state's new capital initiatives.

Table 19:
Total State Higher Education Capital Funding per Student,
for Public and Independent Institutions, FY 1991 through FY 1998,
in 21 States Ranked in Descending Order

State	91-98 Funds	91-98 Enrollment	Ratio	Rank
SC*	$304,782,271	333,605	913.6	1
CT	$888,497,931	1,288,710	689.5	2
OK*	$414,822,550	718,022	577.7	3
OH	$2,077,963,330	4,425,591	469.5	4
MN*	$667,827,000	1,616,401	413.2	5
IN	$745,296,913	2,326,690	320.3	6
ID	$143,126,400	464,688	308.0	7
IA	$395,744,715	1,390,109	284.7	8
CA	$3,893,976,000	15,109,641	257.7	9
UT	$279,930,400	1,125,178	248.8	10
VA	$645,918,994	2,839,206	227.5	11
NJ	**$574,614,000**	**2,668,457**	**215.3**	**12**
TX*	$1,421,460,111	6,623,931	214.6	13
WI	$480,331,858	2,426,355	198.0	14
VT	$48,200,000	288,932	166.8	15
MO	$379,545,506	2,355,675	161.1	16
IL	$892,106,000	5,858,732	152.3	17
FL	$266,390,938	4,706,777	56.6	18
WY	$12,844,892	247,637	51.9	19
AL*	$52,016,073	1,581,604	32.9	20
MA	$32,300,000	3,331,528	9.7	21
Total	**$14,617,695,882**	**61,727,469**	**236.8**	**-**

*States that have missing data in some years:
SC has data only for 1991 and 1997; OK, for 1992, 1996, 1997, and 1998.
MN has missing data for 1991 and 1995; TX, for 1991; and AL, for 1998.
Sources: SHEFO Survey, Summer 2000 and NCES, *Digest of Education Statistics: 1999.*

It will be useful to return to this analysis when more recent enrollment data are available nationally and when more states have responded to the survey. In response to a recommendation in the 1999 update of the long-range plan for higher education, the Commission and Presidents' Council will develop a comprehensive, systemwide approach to capital planning for higher education to enhance predictability of both needs and funding.

III. Ten-Year Trends in New Jersey's Production of Degrees in High-Tech Fields

New Jersey competes with other states and other nations for high-tech entrepreneurs, companies, and technically trained workers. As a growing technology hub, a leader in the telecommunications and pharmaceutical industries, and home to more than 500 research and development laboratories, New Jersey has a significant need for degree programs to prepare a high-tech workforce. This section of the report examines the role of New Jersey higher education institutions in meeting that need. It also examines how New Jersey compares with national data on high-tech degree production, trends over time in degree awards by level and field, and diversity among high-tech degree recipients.

For the sake of convenience this analysis examines seven relatively broad high-tech fields: communications technology, precision production, computer science, engineering and engineering technology, the life and health sciences, mathematics, and physical science.[7] Programs are not available in all fields at all degree levels. For example, engineering does not exist at the certificate level, and engineering technology is absent at the master's or doctoral levels.

By projecting occupational supply and demand data from 1996 to 2006, the New Jersey Department of Labor identified "labor demand occupations" in which the demand for workers exceeds the supply. Occupations within all of the seven high-tech fields fall into this category, with varying magnitudes of current and future labor shortages.

A. National Comparisons

New Jersey colleges and universities, like those in other states across the nation, award certificates and degrees in high-tech fields at various degree levels (Table 20). In 1997, New Jersey's percentage share of degrees among the high-tech fields differed from the nation in several fields. Most notably, New Jersey produced a larger share of sub-baccalaureate certificates, associate degrees, bachelor's degrees, and master's degrees in computer science. Engineering and engineering technology present a more complex picture; New Jersey was above the nation at the master's and doctoral levels and below at the lower levels. The state awarded a smaller percentage share of degrees in life and health sciences at all levels except at the associate degree level where the New Jersey share equaled that of the nation.

Table 20:
Percentages of Awards in High-Tech Fields,
FY 1997 - New Jersey vs. the U.S.

Discipline	Subbaccalaureate certificates		Associate degrees		Bachelor's degrees		Master's degrees		Doctoral/1st-Professional degrees	
	NJ	US	NJ	US	NJ	US	NJ	US	NJ	US
Communications Technology	*	*	0.4	0.3	*	*	*	*	*	*
Computer Science	2.0	1.7	2.1	1.9	3.0	2.1	5.0	2.4	0.7	0.7
Engineering	*	*	*	*	*	*	7.7	6.2	5.5	5.3
Engineering Technology	1.8	3.3	*	*	*	*	*	*	*	*
Engineering/Engineering Tech.	*	*	4.0	6.2	5.5	6.4	*	*	*	*
Health Sciences	23.5	29.0	*	*	*	*	*	*	*	*
Life/Health Sciences	*	*	17.6	17.6	11.1	12.7	7.6	10.0	24.3	30.8
Mathematics	*	*	*	*	1.3	1.1	0.9	0.9	1.6	1.0
Physical Science	*	*	0.4	0.3	1.7	1.7	1.4	1.3	4.2	3.8
Precision Production	2.3	4.5	0.4	1.8	*	*	*	*	*	*

*Discipline does not exist at this award level.
Source: NCES, IPEDS, Completions, 1997.

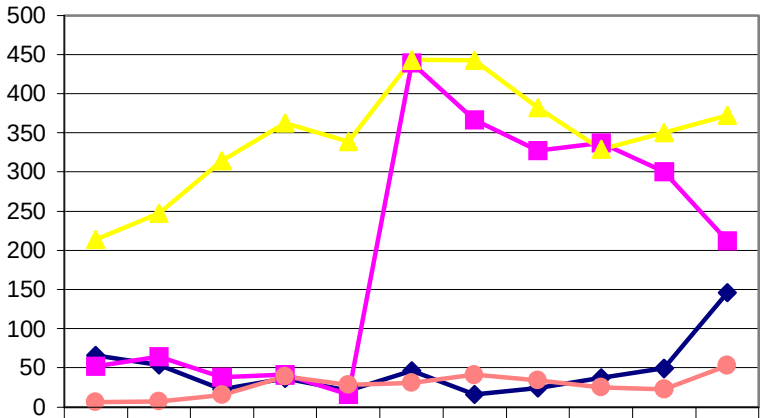
The share of degrees in particular high-tech fields is driven to some extent by state and regional workforce needs. New Jersey's higher percentage share of computer science certificates and degrees is consistent with the state's high concentration of communications technology and other high-tech industries that demand computer science expertise at all levels. While the life and health sciences have a smaller overall share of high-tech certificates and degrees in New Jersey than in the nation, the highest percentage of high-tech degrees in the state are awarded in this field.

B. Trends in New Jersey Degree Production

In 1989, New Jersey higher education institutions awarded a total of 11,181 certificates and degrees in high-tech fields. Ten years later, the number of high-tech certificates and degrees reached 13,158, an 18% increase, with overall degrees and certificates increasing by 19%. Increases were experienced at every level (certificate, associate, baccalaureate, master's, and doctoral/first professional). Increases were also visible in all high-tech fields with the exceptions of engineering and engineering technology and precision production at the associate degree level, engineering and engineering technology at the bachelor's level, and computer science, engineering, and physical science at the master's level.

The number of certificates awarded in the high-tech fields more than doubled over the last 10 years, rising from 338 in 1989 to 783 in 1999; the overall increase in certificates was only 9%. Increases were registered in all four fields at that level: computer science, engineering technology, precision production, and health sciences (Figure 1). The health sciences generally led all other high-tech fields in certificate production. Engineering technology was second at this level; however, while ahead of where it was 10 years ago, it has fallen steadily from its peak in 1994. The pronounced increase in engineering technology certificates in 1994 reflects the emergence of DeVry College of Technology as a degree-granting institution.

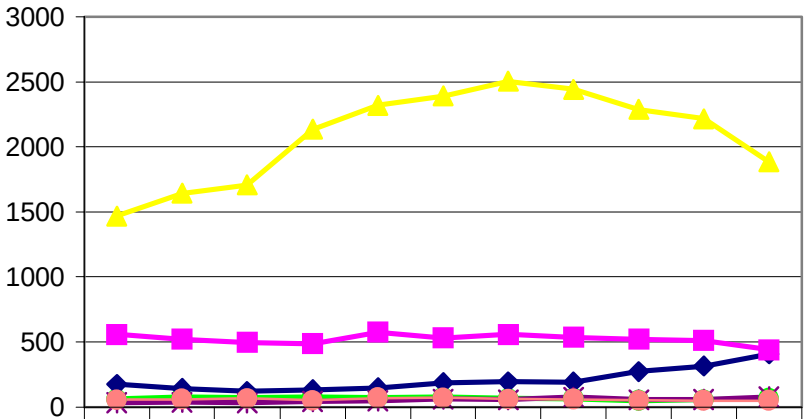
Figure 1;
Number of Subbaccalaureate Certificates Granted Annually in Each of Four High-Tech Fields, Systemwide, FY 1989-1999



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Computer Science	66	54	23	36	21	46	16	24	37	49	146
Engineering Technology	52	64	38	41	16	439	366	327	337	300	212
Precision Production	6	7	15	39	28	31	41	34	25	23	53
Health Sciences	214	247	314	362	339	443	442	382	329	350	372

The number of associate degrees awarded in the high-tech fields increased by 24% between 1989 and 1999; the overall associate degree increase was 31%. Sixty-five percent of the 2,911 associate degrees in 1999 were in the life and health sciences. Despite an overall gain in the 10-year span, the number of associate degrees in the life and health sciences declined each year for the last four years. Also noteworthy is the increase in computer science associate degrees—from 172 in 1989 to 406 in 1999 (Figure 2).

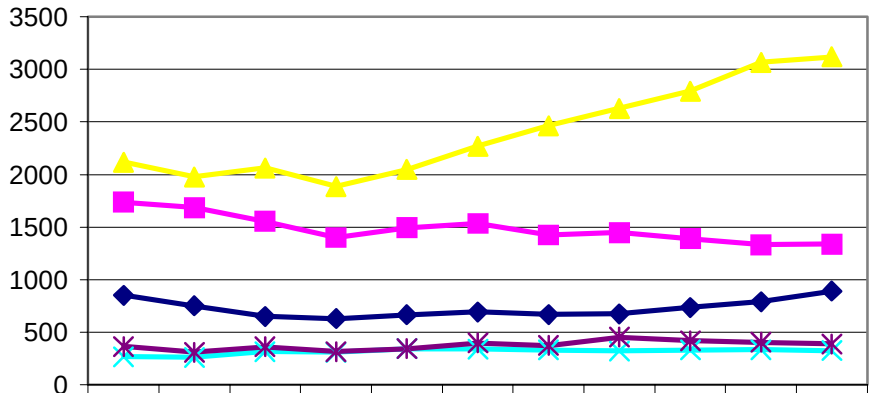
Figure 2:
Number of Associate Degrees Granted Annually in Each of Six High-Tech Fields, Systemwide, FY 1989-1999



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Communications Technology	58	75	70	76	69	73	65	61	47	54	61
Computer Science	172	141	119	130	145	185	192	189	271	314	406
Engineering/Eng. Technology	557	521	496	485	574	531	557	536	521	511	438
Life/Health Sciences	1467	1642	1708	2135	2320	2390	2505	2442	2288	2216	1882
Physical Science	32	35	30	41	47	59	55	75	54	57	76
Precision Production	55	57	65	50	66	70	58	57	50	46	48

Baccalaureate degrees in the high-tech fields also increased over the last 10 years but at a lower rate (14%), which was commensurate with the overall increase of 13%. The number rose from 5,344 in 1989 to 6,068 in 1999. Life and health sciences baccalaureate degrees grew steadily in New Jersey since 1992 and accounted for more than one-half of the high-tech degrees at this level in 1999. The only high-tech field with an overall decline in baccalaureate degrees in the 10-year period was engineering and engineering technology. These degrees decreased by approximately 23%, from 1,738 in 1989 to 1,339 in 1999 (Figure 3).

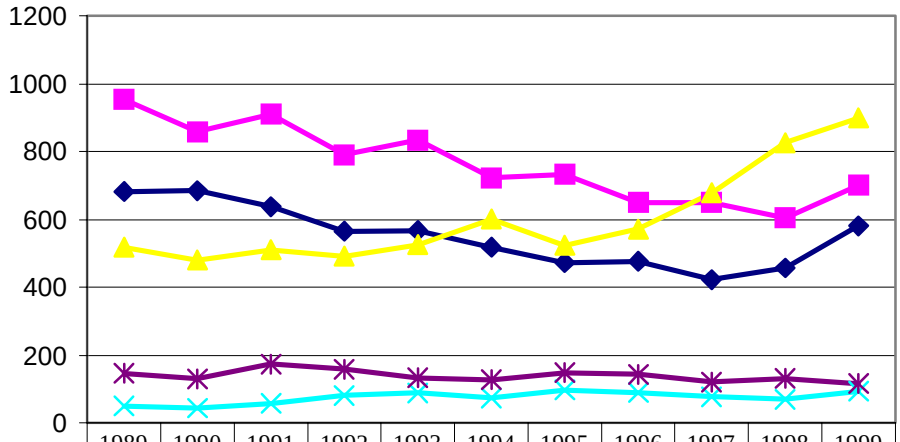
Figure 3:
Number of Bachelor's Degrees Granted Annually in Each of Five High-Tech Fields, Systemwide, FY 1989-1999



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Computer Science	852	751	651	632	668	694	670	677	736	791	893
Engineering/Eng. Tech.	1738	1685	1557	1400	1495	1534	1424	1446	1389	1331	1339
Life/Health Sciences	2118	1977	2062	1886	2046	2269	2462	2625	2790	3066	3117
Mathematics	270	263	317	311	346	343	333	325	335	336	328
Physical Science	366	313	363	318	345	401	377	455	421	406	391

The number of master's degrees in the high-tech fields totaled 2,394 in 1999, with only a very modest gain in the previous 10 years despite an overall gain of 31% in master's degrees. However, share by specific field has shifted considerably. Decreases are visible in computer science and in engineering. However, both computer science and engineering master's degrees experienced recent increases. The most notable increase for master's degrees is in the life and health sciences, which rose 73%, from 519 in 1989 to 900 in 1999 (Figure 4).

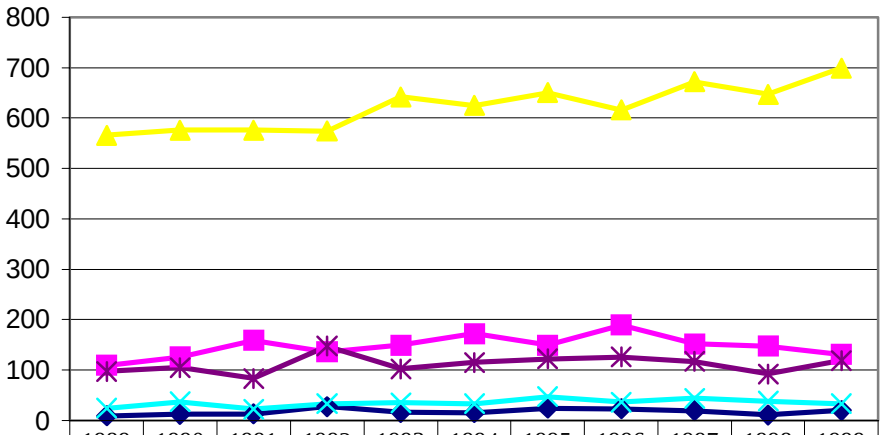
Figure 4:
Number of Master's Degrees Granted Annually in Each of Five High-Tech Fields, Systemwide, FY 1989-1999



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Computer Science	682	685	638	566	568	519	473	477	423	457	582
Engineering	954	858	911	791	834	723	733	650	650	605	701
Life/Health Sciences	519	481	511	492	526	601	524	572	679	826	900
Mathematics	51	44	58	82	89	74	98	90	78	71	94
Physical Science	147	131	174	159	134	128	149	144	121	132	117

The number of doctoral and first-professional degrees in high-tech fields also increased, rising 24% in the last 10 years (Figure 5), which is a far greater gain than the 4% overall. Dominating this level are the life and health sciences (led by M.D.'s), which comprised 70% of the high-tech degrees in 1999.

Figure 5:
Number of Doctoral and First-Professional Degrees Granted Annually in Each of Five High-Tech Fields, Systemwide, FY 1989-1999



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Computer Science	9	12	13	27	16	15	24	23	19	11	20
Engineering	109	126	159	136	149	172	149	189	152	147	131
Life/Health Sciences	566	576	576	574	642	625	650	616	672	647	699
Mathematics	24	37	22	33	35	33	47	36	44	38	33
Physical Science	97	105	83	147	102	115	122	126	117	92	119

C. Female Representation in High-Tech Fields

From 1989 to 1999 women consistently received over 60% of all associate degrees. However, with the exception of the life and health sciences (led by nursing), the female share of degrees in high-tech fields was consistently lower than 60% and usually failed to reach even 50%. This trend is most dramatic in engineering and engineering technology, where the female share never exceeded 11%. There was little or no long-term progress in female representation in any of the fields during this period.

Similarly, females consistently received over 50% of all baccalaureate degrees, but only in the life and health sciences was their share higher than the share of overall baccalaureate degrees. Also, females were again least represented in engineering and engineering technology, where their share ranged from 13% to 19%. Progress in female representation was very slight.

The pattern extends to the master's level. Females' share of all master's degrees ranged from 48% to 62%; only in the life and health sciences was the female share consistently higher than the share of degrees overall, and in 1991 and 1992 it was slightly higher in mathematics. Engineering consistently witnessed the lowest female share. Once again, long-term progress was slight.

At the doctoral and first-professional level, females received between 34% and 42% of all degrees during the 10-year period. Their share of degrees in the life and health sciences tended to be higher. Females' share of degrees in computer science was extremely erratic, and long-term progress is difficult to discern. It should be noted that the percentages of doctoral and first-professional degrees are based on fairly small numbers that are more subject to random fluctuations.

D. Racial/Ethnic Representation in High-Tech Fields

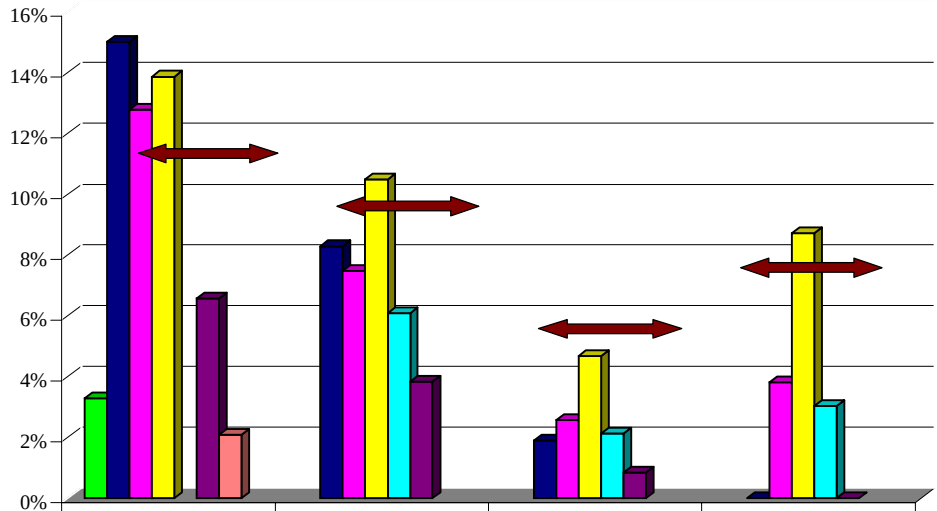
A similar analysis of degree data can compare the overall shares of degrees for blacks, Hispanics, and Asians with their percentage shares in high-tech fields. In 1999, at the associate degree level, blacks exceeded their overall degree share in computer science, engineering and engineering technology, and life and health sciences (Figure 6). Blacks had significantly lower shares in communications technology, physical science, and precision production. However, their shares in many of these fields varied significantly over time.

On the baccalaureate level, black graduates received degrees in computer science, engineering and engineering technology, and life and health sciences in roughly the same proportions as their overall share of degrees. Mathematics and physical science shares were smaller. Progress for blacks at the baccalaureate level in high-tech fields during the last decade was slight.

With the inconsistent exception of the life and health sciences, blacks' share of master's degrees in high-tech fields was consistently lower over the last decade than their overall share of master's degrees. Moreover, there is little evidence of even moderately consistent progress. On the doctoral/first-professional level, blacks' achievement in the life and health sciences tended to

exceed overall achievement over the last decade. The other high-tech fields were consistently below the overall degree share and have not demonstrated progress.

Figure 6:
Black Percentage Share of Degrees Granted in Each High-Tech Field and Overall, Systemwide, FY 1999



	Associate	Bachelor's	Master's	Doctoral/First-Professional
Communications Technology	3%			
Computer Science	15%	8%	2%	0%
Engineering/Eng. Technology	13%	7%	3%	4%
Life/Health Sciences	14%	10%	5%	9%
Mathematics		6%	2%	3%
Physical Science	7%	4%	1%	0%
Precision Production	2%			
ALL MAJORS*	11%	9%	5%	7%

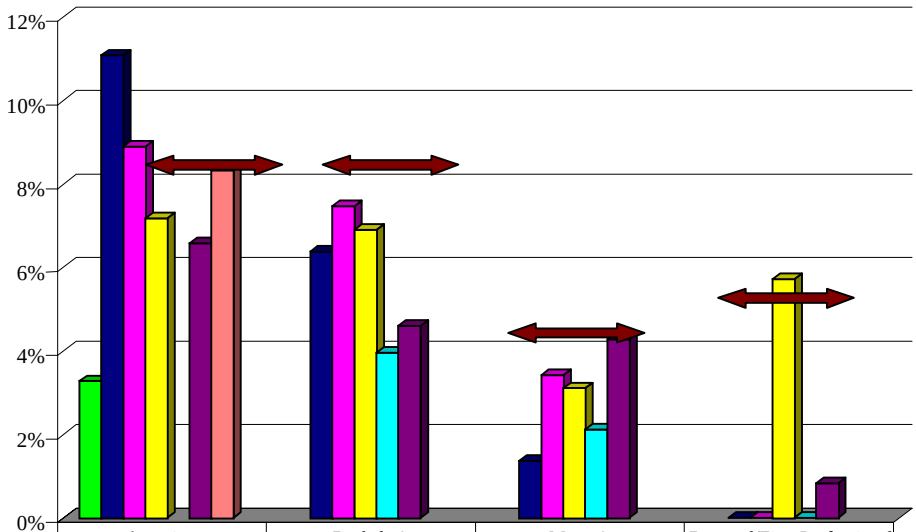
*Includes majors that are not high-tech.
Note: Blank spaces indicate that programs in a particular field are not available at that degree level.

At the associate degree level, Hispanics outperformed their overall degree achievement in computer science and engineering and engineering technology over the past decade, and progress is visible. Other areas were less positive or consistent. Figure 7, pertaining to 1999, shows that the lowest share is in communications technology.

At the baccalaureate level, engineering and engineering technology and life and health sciences had the highest percentage shares of high-tech degrees for Hispanics in 1999, but in all of the fields the Hispanic percentage fell below their overall share of degrees. Consistent progress over the last decade is lacking.

There was somewhat erratic long-term progress at the master's level for Hispanics in engineering, computer science, and physical science, although only in physical science did the degree share equal the overall share for Hispanics in 1999. At the doctoral and first-professional level Hispanics earned more degrees in the life and health sciences than they did overall but there was been no consistent long-term progress in any field.

Figure 7:
Hispanic Percentage Share of Degrees Granted in Each High-Tech Field and Overall, Systemwide, FY 1999



	Associate	Bachelor's	Master's	Doctoral/First-Professional
Communications Technology	3%			
Computer Science	11%	6%	1%	0%
Engineering/Eng. Technology	9%	7%	3%	0%
Life/Health Sciences	7%	7%	3%	6%
Mathematics		4%	2%	0%
Physical Science	7%	5%	4%	1%
Precision Production	8%			
ALL MAJORS*	8%	8%	4%	5%

*Includes majors that are not high-tech.
Note: Blank spaces indicate that programs in a particular field are not available at that degree level.

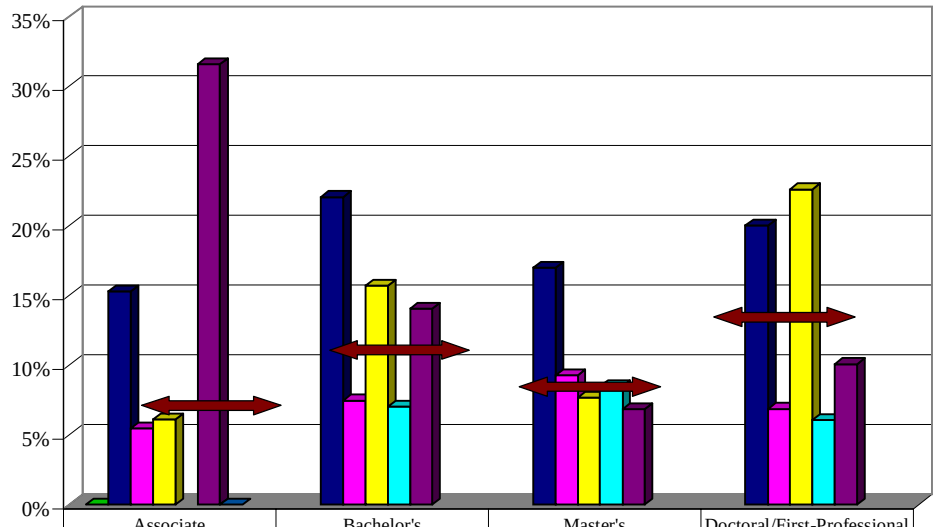
Asian-American high-tech degree numbers manifest patterns that differ substantially from those exhibited by blacks and Hispanics. For example, at the associate degree level the Asian-American degree shares were far greater in physical science and computer science than they were overall, as exhibited for 1999 in Figure 8. However, long-term progress is evident only in physical science.

The pattern at the baccalaureate level is even more dramatic. For almost every field and year, Asian-American representation in the high-tech fields surpassed their overall degree share, and progress is visible in every field except engineering and engineering technology.

At the master's level, Asian-Americans' share of computer science degrees far exceeded their share of all degrees in 1999 and their share of degrees in other high-tech fields exceeded their overall share to a lesser extent. Patterns in mathematics and physical science master's degrees earned by Asian-Americans were erratic over time, but progress was made in both fields as well as in computer science and life and health sciences. At the doctoral/first-professional

level, Asian-Americans' shares of degrees in most fields in most years exceeded their overall share of degrees. Progress is clearly evident in life and health sciences. Computer science showed modest progress, but this trend has been erratic.

Figure 8:
Asian-American Percentage Share of Degrees Granted in Each High-Tech Field and Overall, Systemwide, FY 1999



	Associate	Bachelor's	Master's	Doctoral/First-Professional
Communications Technology	0%			
Computer Science	15%	22%	17%	20%
Engineering/Eng. Technology	5%	7%	9%	7%
Life/Health Sciences	6%	16%	8%	23%
Mathematics		7%	9%	6%
Physical Science	32%	14%	7%	10%
Precision Production	0%			
ALL MAJORS*	4%	9%	6%	11%

*Includes majors that are not high-tech.
Note: Blank spaces indicate that programs in a particular field are not available at that degree level.

E. Citizenship

According to the IPEDS definition, a nonresident alien is "a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely." In contrast, resident aliens are "non-citizens…who have been admitted as legal immigrants for the purpose of obtaining permanent resident alien status…"

The percentage share of associate degrees awarded to nonresident aliens annually in specific high-tech fields rose or remained constant in every field except physical science between 1989 and 1999. Ironically, physical science, while in long-term decline, dwarfed other high-tech fields in 1999. Long-term trends by field are not easily discernible at this level.

At the baccalaureate level, the percentage share of degrees granted to nonresident aliens in specific high-tech fields remained fairly stable over the 10-year period. With a small number of minor exceptions, every field but life and health sciences was consistently above the overall

share. Computer science and engineering and engineering technology had particularly high representation.

The percentage share of master's degrees granted annually to nonresident aliens in specific high-tech fields was significantly higher than their overall share in every field except life and health sciences. Moreover, these shares were significantly higher than their shares at the associate or baccalaureate levels. In 1999 nonresident aliens accounted for more than half of the computer science and more than one-third of the engineering and physical science master's degrees statewide.

At the doctoral level, during the last 9 to 10 years, nonresident aliens received a greatly disproportional percentage of degrees in all high-tech fields except life/health sciences. With the exception of the life and health sciences where their share was only 12%, in 1999 nonresident aliens accounted for almost one-half of doctoral degrees in two high-tech fields (physical science, 49%, and engineering, 47%) and more than one-half in two other high-tech fields (mathematics, 52%, and computer science, 60%).

F. Implications

The nation's demand for high-tech workers is likely to continue increasing, particularly in states like New Jersey, which have a high concentration of telecommunications, pharmaceutical, and other highly technical industries. These industries are particularly dependent on skilled workers in many of the fields identified as "labor demand occupations" by the New Jersey Department of Labor. Engineering, quantitative research including computer systems and programming, and health diagnosis and treatment are key areas in which regional needs for workers are projected to exceed current or future supply. New Jersey's required workforce will continue to be drawn from graduates of its colleges and universities as well as from other states and other countries. Clearly, institutions and the state should strive to increase the numbers of high-tech graduates who are prepared to meet these workforce needs. While private and public sector employers may still have to import workforce talent, the state will be more competitive if it can prepare more college-educated citizens for high-tech jobs. An important related area for consideration is the need to increase the participation of females and minorities in high-tech fields.

Over the past decade, the number of high-tech degrees produced in the state's colleges and universities generally increased. The pattern of increase was not consistent by field or degree level. In some high-tech fields and at some degree levels, degree production was relatively flat. Given that the state and the nation face growing shortages of workers in the scientific and technical fields, New Jersey and its colleges and universities should target the high-demand areas of need and consider increasing capacity to prepare individuals to meet those needs. The FY 2001 High-Tech Workforce Excellence Grants are a positive step in that regard, but additional development in targeted areas is warranted.

While the workforce consists of an increasingly large share of women and minorities, New Jersey data show that blacks, Hispanics, and females are particularly underrepresented among high-tech degree completers. If the state and the nation are to prosper in the new knowledge-based economy, all segments of the population need to be encouraged and prepared to participate in high-tech fields. The current practice of looking abroad for workforce talent is not a long-term solution.

New Jersey and its colleges and universities are already engaged in extensive efforts to expand access to higher education for underrepresented groups through the generous Tuition Assistance Grant (TAG) program, the Urban Scholars program, Educational Opportunity Fund campus programs, the Minority Academic Careers Program, College Bound, GEAR UP, the Special Needs Program, and individual campus initiatives. College Bound and GEAR UP are specifically engaged in encouraging students from disadvantaged backgrounds to prepare for college and become proficient in mathematics, science, and technology. The New Jersey Statewide Systemic Initiative (NJ SSI) is also geared toward better preparing precollege students in math, science, and technology. Given the state's and nation's significant shift in workforce demographics and the continuing shortage of high-tech workers, increased efforts to prepare skilled workers in the high-tech fields and targeted programs to prepare women and underrepresented minorities for high-tech jobs will be necessary.

IV. Closing

This fifth systemwide accountability report provides valuable information about New Jersey's higher education system and its sectors. A key component of New Jersey's framework for higher education accountability, this systemwide report is intended as a reference for members of the higher education community, policy makers, and the general public. It also informs ongoing policy discussions, analyses, and future planning. It provides an update on a wide range of data pertinent to higher education in New Jersey, providing context where possible through comparisons with peer institutions and national averages. It also highlights a key issue for New Jersey's future – the production of graduates in key science and technology fields need to meet the state's intense demand for a well-qualified high-tech workforce.

As it has done from the outset, the Commission on Higher Education intends to continue enhancing New Jersey's higher education accountability framework. The Commission's Accountability Committee, along with the Accountability Committee of the Presidents' Council, will engage in an ongoing dialogue with the higher education community to stimulate improvement and make significant progress toward New Jersey's vision for higher education excellence.

APPENDIX A: Tables on Outcomes and Urbanization

Appendix Table 1:
Degree of Urbanization of NJ and US Sectors, FY 1998

	Large city	Medium city	Urban fringe of large city	Urban fringe of med city	Large town	Small town	Rural	Not assigned	Total
Community colleges									
US	84	176	157	51	34	197	51	2	**752**
NJ	1	2	14	0	0	0	2	0	**19**
State colleges/universities									
US	29	74	34	28	12	85	21	0	**283**
NJ	0	2	6	0	0	0	0	0	**8**
Public research universities									
US	45	82	20	9	18	22	5	1	**202**
NJ	2	1	1	0	0	0	0	0	**4**
Independent 4-yr nondoctoral institutions									
US	110	156	127	56	14	103	41	2	**609**
NJ	0	1	7	0	0	0	0	0	**8**
Independent doctoral institutions									
US	64	46	36	4	4	9	3	0	**166**
NJ	0	0	4	0	0	0	0	0	**4**

Appendix Table 2:
1997 Graduation Rates for NJ and US Sectors by Degree of Urbanization*

	Large city	Medium city	Urban fringe of large city	Urban fringe of med city	Large town	Small town	Rural	Not assigned	Total
Community colleges									
US	13.2	23.1	19.7	25.0	25.1	26.1	24.5	25.9	21.3
NJ	4.3	6.5	13.7	-	-	-	11.8	-	12.5
State colleges/universities									
US	30.3	37.7	38.4	45.2	44.6	40.8	37.3	-	38.8
NJ	-	56.4	46.5	-	-	-	-	-	48.8
Public research universities									
US	46.0	56.9	54.1	53.2	47.7	48.7	49.4	65.0	52.8
NJ	44.4	49.9	73.4	-	-	-	-	-	66.0
Independent 4-yr nondoctoral institutions									
US	52.4	59.9	56.5	62.9	58.3	57.7	46.7	47.8	57.2
NJ	-	45.3	46.0	-	-	-	-	-	45.9
Independent doctoral institutions									
US	65.1	73.1	69.7	75.7	83.1	69.1	58.5	-	69.4
NJ	-	-	67.9	-	-	-	-	-	67.9

*Institutional rates, taken from IPEDS/GRS, are weighted by cohort size.

ENDNOTES

[1] Data that institutions provide on the Graduation Rate Survey are used to comply with public disclosure requirements of the Student Right-to-Know and Campus Security Acts and reporting requirements of the National Collegiate Athletic Association.

[2] The last three systemwide accountability reports compared institutional cost levels and revenue source configurations in New Jersey with national standards for comparable sectors/institutions. While it would be highly desirable to update this information, it is not possible to do so because the national data have not been updated by the National Center for Education Statistics (NCES, a division of USDE). With the new web-based data entry system for IPEDS, such delays should not occur in the future.

[3] National Association of State Student Grant and Aid Programs 30th Annual Survey Report. March 2000.

[4] Ibid.

[5] The *Grapevine* survey conducted by Illinois State University provides complete state-by-state appropriations for higher education. The *Grapevine* data includes state spending on public and private higher education. Previous Commission accountability reports used a different data source that included only public funding for higher education; therefore, the figures cited here cannot be compared with those in previous accountability reports.

[6] Just as the use of one year can be arbitrary, so can the use of a specific time frame for calculating change. Two time frames illustrate the point: FY 1994 to FY 1998 and FY 1991 to FY 1994. During the more recent period the funding change in New Jersey was fifth from the bottom (out of 18 states that furnished data for both years); for the earlier period, it was next to last (out of 17). Both changes were negative, despite a lack of adjustment for the Higher Education Price Index (HEPI) (or price indexes for new construction or capital equipment).

[7] The seven relatively broad high-tech fields referenced are comprised of:

- Communications technologies include, among other types, educational/instructional media, photographic, and radio/television broadcasting.
- Precision production trades include drafting, graphic/printing equipment operators, and precision metal workers.
- Computer and information sciences include computer programming, data processing technology, information sciences/systems, and computer systems analysis.
- Engineering includes the following types: aerospace/aeronautical/astronautical, architectural, bioengineering/biomedical, chemical, civil, computer, electrical/electronic/communications, environmental, industrial, materials, and mechanical. Engineering-related technologies very roughly parallel the categories for engineering proper.
- Biological/life sciences include biochemistry/biophysics, botany, cell/molecular biology, microbiology/bacteriology, and zoology. Health professions and related sciences include medicine, dentistry, nursing, communication disorders, diagnostic/treatment services, laboratory technologies, mental health, ophthalmic/optometric services, pharmacy, public health, and rehabilitation/therapeutic services.
- Mathematics includes pure and applied mathematics as well as mathematical statistics.
- Physical sciences include physics, chemistry, astronomy, astrophysics, atmospheric sciences/meteorology, and geological and related sciences.