

April 2008 Update

MINNESOTA
OFFICE OF
HIGHER
EDUCATION

Minnesota Measures

2008 Report on Higher Education Performance



“Building Minnesota’s world-leading status in the knowledge economy requires setting goals for higher education and measuring results. *Minnesota Measures* gauges our progress so we can focus on strategies to improve.”

– Governor Tim Pawlenty

Table of Contents

Executive Summary	2
Introduction	4
College Readiness and Preparation	4
Goal One: Improve success of all students, particularly students from groups traditionally underrepresented in higher education.	6
College Participation	7
Retention	8
Degree Completion	9
Achievement Gap.....	15
Goal Two: Create a responsive system that produces graduates at all levels who meet the demands of the economy.	20
Degree Attainment	21
Degree Production	23
Program of Study	24
Degree Alignment	27
Goal Three: Increase student learning and improve skill levels of students so they can compete effectively in the global marketplace.	30
Learning Outcomes Assessment	32
Student Engagement	33
Graduate Preparation	36
Certification and Licensure Preparation	38
Goal Four: Contribute to the development of a state economy that is competitive in the global market through research, workforce training and other appropriate means.	40
Research and Discovery	41
Workforce Development	45
Goal Five: Provide access, affordability and choice to all students.	46
Access	47
Net Prices.....	48
Affordability	54
Borrowing Patterns	57
Next Steps	58
End Notes	59
Appendix	60
A. Definitions, Terms and Sources	60
B. Minnesota Rankings	62
C. Enrollment and Degrees Granted	63

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Minnesota Measures

A report on higher education performance

Executive Summary

For most of Minnesota's 150 years of statehood, its distinctive economic advantages were largely a function of its natural resources, such as timber, taconite and tourism. Today, while these and other resources remain cornerstones of the state's economy, it is clear that the intellectual capacity of Minnesota's people is emerging as a promising strategic advantage in a global economy.

Recognizing this, Governor Tim Pawlenty and the Minnesota Legislature charged the Minnesota Office of Higher Education with developing a statewide accountability system to measure the higher education sector's effectiveness in meeting state goals.

In 2005 and 2006, educators, policymakers, employers and other leaders were involved in a process to identify broad goals and indicators of success. Five goals emerged, which serve as the organizing framework for this report. The five goals and 23 indicators serve as Minnesota's public agenda for higher education. No single indicator tells the complete story. However, taken together, some findings begin to emerge.

Minnesota's leaders recognize that, in order to lead consistently in these areas, the state must first embrace a system of accountability that can measure progress toward goals.

Acknowledgements

The Office of Higher Education thanks the Minnesota State Colleges and Universities, the University of Minnesota, the Minnesota Private College Council and the Minnesota Career College Association for their participation and assistance in this process.

- GOAL ONE** | Improve success of all students, particularly students from groups traditionally underrepresented in higher education.
- GOAL TWO** | Create a responsive system that produces graduates at all levels who meet the demands of the economy.
- GOAL THREE** | Increase student learning and improve skill levels of students so they can compete effectively in the global marketplace.
- GOAL FOUR** | Contribute to the development of a state economy that is competitive in the global market through research, workforce training and other appropriate means.
- GOAL FIVE** | Provide access, affordability and choice to all students.

Minnesota Measures 2008 findings:

- On measures of student success, Minnesota's high school graduates are initially participating in college at nation-leading rates. However, many students are not persisting in college to degree completion. Minnesota's performance on key measures of retention and graduation are generally at or near the national average among states.
- A clearly defined achievement gap exists in higher education, with Black, Hispanic and American Indian students consistently succeeding at lower rates than their white and Asian counterparts.
- A higher proportion of working-age Minnesotans possess degrees than in most other states.
- Minnesota's higher education sector is responding to employment demand in many critical and growing fields by producing graduates to meet the needs. Workforce shortages are expected to persist in certain engineering, medical and information technology fields, putting a strain on Minnesota employers.
- On measures of student learning, many public and private institutions are implementing learning assessments and surveys to gauge the value added by higher education. National discussions on the importance of learning assessment and how best to accomplish this task are ongoing.
- The state's leading research institution, the University of Minnesota, is generally recognized as a leader in research and contributes to the state's economy in important ways. The University has a stated aspiration to be considered among the top public research institutions in the world.
- Minnesota's net tuition and fees are higher than the national average for most public and private institutions in the country, with some families being expected to pay a significant percentage of their adjusted gross income for their child's education. While not the only measure of access, the net price of attending college plays a critical role in understanding postsecondary participation.

The charge to the Minnesota Office of Higher Education was to provide useful information on the performance of the higher education sector.

Minnesota Measures is a work in progress, with next steps identified on page 58 of this report. It is a tool to aid Minnesota policymakers in the difficult and important work of providing the vision, identifying priorities and setting targets needed to move Minnesota forward to lead in the information age.

The full *Minnesota Measures* report is also available online at www.ohe.state.mn.us.

“Accountability is the responsibility to demonstrate that specific and carefully defined outcomes result from higher education and that these outcomes are worth what they cost.”

John D. Millett (1973)
Senior Vice President
Academy for Educational Development

Minnesota Measures

A report on higher education performance

Introduction

Minnesota Measures 2008 is the second annual report in an ongoing statewide effort to assess the performance, effectiveness and productivity of Minnesota's diverse higher education sector. The primary purpose of this effort is to provide information that will lead to educational improvement and inform policy decisions relating to higher education. The report will continue to evolve, especially in cases where new data sources or methodologies become available or where current indicators are found to be inadequate.

While much has been done to improve and update the report, the five goals established through broad statewide input in 2006 remain the same. Readers will recognize three significant changes made to the 2008 report when compared with *Minnesota Measures 2007*.

1. Degree production: Indicators for Goal Two (page 20) have been revised to include a new supply and demand component for certain high-demand fields. By combining degree production data with state employment projections from the Minnesota Department of Employment and Economic Development, Goal Two now provides insight into the responsiveness of the

higher education sector in the context of the specific workforce needs of the state.

2. Learning outcomes: *Minnesota Measures 2007* included no indicators for Goal Three because postsecondary student assessment data for the state was neither readily available nor easily summarized. Still, learning outcomes were identified as important throughout the project planning phase. Goal Three in this edition includes information from a range of assessment tools and may serve as the basis for future discussions about learning outcomes as part of higher education accountability in Minnesota.

3. Comparing Minnesota: In this report, Minnesota's performance is frequently compared to the average performance of a group of eight "peer" states in addition to the three highest performing states. Peer states were selected due to their similarities to Minnesota in terms of geography, higher education structures, economies and demographics. The peer states are Iowa, Illinois, Indiana, Michigan, Minnesota, Ohio, Pennsylvania and Wisconsin. By including the averages for this group, readers can assess how well Minnesota performs against

states with similar challenges and opportunities. This peer state comparison replaces the average for the top 10 New Economy States¹ used in 2007.

Minnesota's performance is also frequently compared against the performance of the top three states for each indicator. The top three states are unique to each indicator and provide an aspirational target for Minnesota. While Massachusetts appears most often in the top three, this group of states varies widely from measure to measure.

Developing reliable international comparisons is essential to making *Minnesota Measures* relevant in the global context. Yet international comparisons are few in this report. Internationally comparable data on higher education is not available for most indicators. As the international discussion on higher education accountability evolves, such measures will be developed in ways that ensure integrity and general understanding of the contextual and cultural differences that surround education.

College Readiness and Preparation

The effectiveness of the higher education sector depends, in part, on the preparation of new students who enter the state's colleges and universities directly out of high school. Students who complete more rigorous courses in core academic subjects in high school consistently score higher on standardized tests and college entrance assessments. These students are more likely to participate and succeed in college.

Minnesota Comprehensive Assessments

Minnesota Comprehensive Assessments measure student progress toward

Minnesota's academic standards for K-12 education. Reading and mathematics exams are given to all public school students in grades three through eight, reading only in grade 10 and mathematics only in grade 11.

The statewide results for the reading exam in 2007 indicate that there is a substantial portion of students not meeting the minimum competency standards set by the Minnesota Department of Education. The line in the charts on page 5 represents the percentage of students in each racial

or ethnic group who met minimum standards on the 2006 reading exam. Each group shows a decline in this percentage from 2006 to 2007.

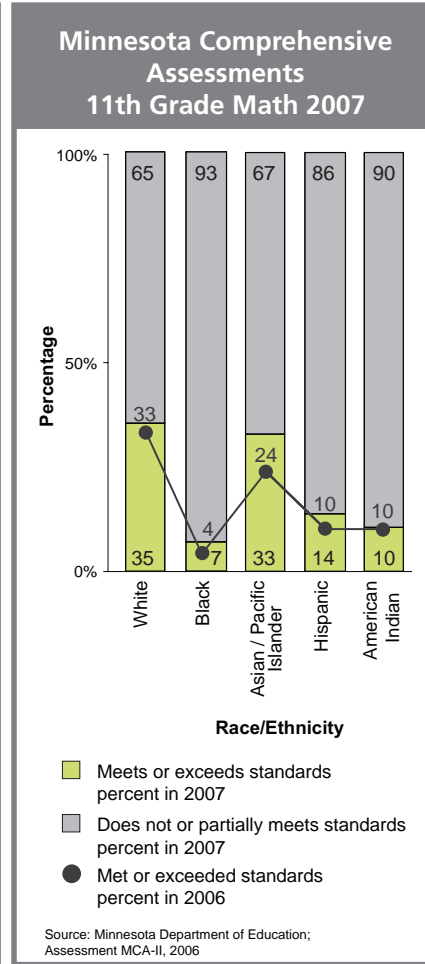
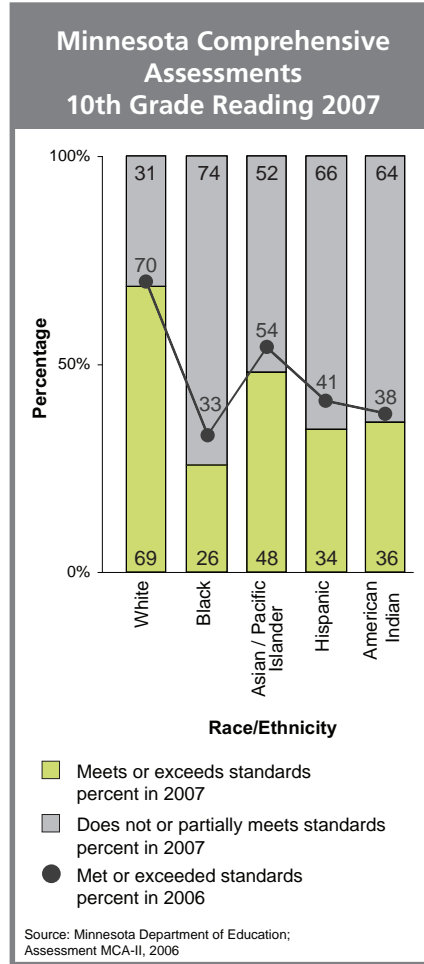
There were modest gains in the proportion of students in each racial or ethnic group meeting minimum standards on the state math exam in 2007. However, the vast majority of 11th grade students did not meet standard expectations in mathematics. The data also illustrate the achievement gap between students of color and white students.

College Readiness and Preparation continued

ACT College Entrance Exam

Minnesota's high school graduates once again posted the highest mean composite score in the nation among states where more than 50 percent of students took the ACT. With 70 percent of high school graduates taking the ACT, the mean score was 22.5 out of a total of 36. While Minnesota has the highest mean composite score in the nation, a significant proportion of high school graduates were not prepared for college-level work, according to ACT.

ACT has developed college readiness benchmarks in each of the four testing areas of its college entrance exams. Based on ACT research, these benchmarks define the score needed to have a 75 percent chance of earning a grade of 'C' or better in related college-level courses. Fewer than one-third of Minnesota's high school graduates who took the ACT were academically prepared to succeed in all four subjects of English composition, social science, college algebra and college biology. Students of color who took the ACT were less prepared to succeed in college than their white counterparts.



Percentage of 2007 Minnesota High School Graduates Who Met College Readiness Benchmarks Set by ACT²

	English Composition: score of 18 or higher in English	Social Science: 21 or higher in Reading	College Algebra: 22 or higher in Math	Biology: 24 or higher in Science	All Four Subject Areas
All Students	78%	62%	56%	38%	31%
American Indian	53%	43%	34%	18%	11%
Asian	57%	40%	42%	24%	19%
Black	37%	26%	16%	7%	5%
Hispanic	60%	45%	37%	20%	17%
White	81%	65%	58%	41%	33%

Source: ACT



Improve success of all students, particularly students from groups traditionally underrepresented in higher education.

From the state's perspective, success for students in higher education generally means that students who enter college gain the knowledge, skills and capacity to complete their chosen programs so they are prepared for a rewarding life. When more students participate in college and complete degrees, the state benefits in many important economic, cultural and social ways. No single indicator alone demonstrates student success. However, taken together, measures such as enrollment, retention and graduation rates along with success measures for each racial and ethnic group begin to paint a picture of the Minnesota experience in postsecondary education.

In general, students attending more selective public and private institutions tend to fare better on success measures than those attending institutions with more open admissions policies. A collection of indicators suggest that Black, American Indian and Hispanic students were generally less successful than their Asian and white counterparts enrolled in postsecondary education; this terminology is defined by IPEDS and explained on page 60. Black, American Indian and Hispanic students were more likely to attend college part time than full time, and completed degrees at lower rates than their white or Asian counterparts. Differences in part-time versus full-time enrollment and program choices by race and ethnicity are also illustrated here.

Minnesota's average performance on standard measures of retention and graduation, and the clearly defined achievement lag for certain populations are important and relevant policy concerns.

College Participation

Indicator 1A: What percentage of Minnesota high school graduates enroll in postsecondary education in the year following graduation?

The rate at which recent high school graduates enroll in college is known as the college participation rate. Specifically, this indicator shows the percentage of Minnesota high school graduates who enroll in postsecondary education within a 12-month period following graduation. Minnesota's performance on this measure may indicate the effectiveness of college awareness initiatives and the success of college recruiting and outreach targeted to Minnesota high school students. It is also heavily influenced by the academic preparation of high school students.

Minnesota ranked fifth in the nation in 2004, with 65 percent of the state's 2003 high school graduates enrolling in postsecondary education by 2004. The participation rate in Minnesota has remained near 65 percent since 2001.³

Of all Minnesota high school graduates, approximately:

- 50 percent chose to attend a Minnesota postsecondary institution
- 16 percent chose to attend an out-of-state school
- 34 percent chose to not attend college within the first year after graduating

Students who are 18 to 24 make up the bulk of undergraduate enrollment. In fall 2004, this group comprised 86 percent of the full-time undergraduate enrollment in Minnesota postsecondary institutions. The Minnesota State Demographic Center projects the overall number of high school graduates will peak in 2009 and decline steadily over the next six years.⁶ If the college participation rate remains steady, this could translate into a decrease in postsecondary enrollment.

College Participation Rates 2004

Top 3 States	
South Dakota	68.8%
New York	67.9%
North Dakota	67.6%
Minnesota (5th)	65.3%
National Average ⁴	55.7%
Peer States ⁵	57.8%

Source: National Center for Higher Education Management Systems

Retention

Indicator 1B: Are first-year, first-time, full-time students being retained in the second year?

College retention is defined as the number of students who return for a second year at the same institution as a proportion of those who were first-time, full-time students at that institution in the prior year. Students may not return for a wide range of reasons. Some students may find they are not academically or socially prepared for college. Some do not find the right institutional fit on the first try and do not return because their expectations or needs were not met.

Retention and graduation rates at private, for-profit two-year institutions (often called private career schools) are typically high because of the highly structured nature of these programs. Wyoming and Nevada each have a large proportion of students attending private for-profit institutions. States where the majority of students come from private for-profit institutions will tend to have higher retention rates for two-year schools overall.

Though the retention rates at Minnesota's private institutions are substantially higher than those at public institutions, the first-year full-time enrollment at private institutions is only five percent of the overall first-year full-time enrollment at two-year institutions.

Retention at four-year institutions

From fall 2004 to fall 2005, Minnesota retained 78 percent of its first-time, full-time students from the first year to the second.

For California and Washington, the bulk of the cohort group is enrolled at public institutions. In Massachusetts, the vast majority of the cohort group is enrolled at highly selective, private not-for-profit institutions. It is unclear why California and Washington public institutions retain at such high rates, but affordability and selectivity may be factors.

Minnesota's retention rate has changed little over the last three years. Overall, the private not-for-profit schools had higher first- to second-year retention than public institutions.⁷

Retention at two-year institutions

Minnesota's public and private two-year institutions ranked well below the top-performing states on this measure, with 56 percent of first-time, full-time students retained at the same institution in the second year. Students who completed their programs within their first year of study were counted as retained in the second year; thus, retention is positively impacted by students who complete their short-term programs. Minnesota's for-profit two-year institutions reported greater retention.

Minnesota Detail: Retention at 4-year Institutions

Institution Type	Fall 2005	Fall 2006 ⁸
State universities	71.9%	72.7%
University of Minnesota	83.0%	82.6%
Private not-for-profit	83.5%	84.6%
Private for-profit	60.2%	63.5%
Minnesota 4-year college retention rate	77.8%	78.8%

Source: Integrated Postsecondary Education Data System
Note: Fall 2004 cohort for 2005 data and fall 2005 cohort for 2006 data

First- to Second-year Retention at 4-year Institutions Fall 2005⁸

Top 3 States	
California	84.0%
Washington	83.9%
Massachusetts	83.6%
Minnesota (16th)	77.9%
National Average	76.7%
Peer States ⁵	78.2%

Source: Integrated Postsecondary Education Data System
Note: Fall 2004 cohort

First- to Second-year Retention at 2-year Institutions Fall 2005⁸

Top 3 States	
South Dakota	76.1%
Wyoming	72.1%
Nevada	70.8%
Minnesota (33rd)	56.8%
National Average	60.7%
Peer States ⁵	60.4%

Source: Integrated Postsecondary Education Data System
Note: Fall 2004 cohort

Minnesota Detail: Retention at 2-year Institutions

Institution Type	Fall 2005	Fall 2006
Public 2-year retention rate	55.7%	56.0%
Private for-profit 2-year retention rate	81.0%	75.0%
Minnesota 2-year college retention rate	56.6%	56.7%

Source: Integrated Postsecondary Education Data System
Note: Fall 2004 cohort for 2005 data and fall 2005 cohort for 2006 data

Degree Completion

Indicator 1C: How do Minnesota institutions compare on graduation rates? What proportion of students completed a degree within 150 percent of the generally accepted time for completion?

High graduation rates may be indications of appropriately targeted student recruitment, effective campus communication and scheduling, strong advising and accessible student support services. The academic preparation of students, colleges' admissions selectivity and student demographics also factor into graduation rates. Institutions serving a majority of traditional-age, full-time students are likely to move students through to graduation more quickly than those serving working adults who attend part time.

Graduation rates at four-year institutions

One sign of both individual and institutional success is degree completion. The graduation rate tracks a cohort of first-time, full-year, full-time students and identifies what proportion of them graduated within four or six years. Only students who stay at the same institution and complete their programs are counted in this measure. Any student who was part of the original cohort, who completes his or her degree within six years, will be captured in the graduation rate.

Graduation rates at Minnesota's four-year colleges were average among states, with 35 percent of students completing degrees within four years and 58 percent completing within six years of their initial enrollment. Minnesota's not-for-profit private colleges had the highest graduation rates. No significant change in the graduation rate occurred between 2004 and 2005. Among peer states, the range for the four-year rate was 45.0 percent (Pennsylvania) to 28.8 percent (Wisconsin).

Massachusetts has nearly three times as many students in its private not-for-profit institutions as it does in its state system; the private not-for-profit institutions tend to have higher graduation rates. The situation is similar in Rhode Island, where the 1999 cohort private not-for-profit enrollment is slightly more than two times public enrollment. Delaware ranks first in four- and six-year graduation rates within the public sector and has a very small private not-for-profit sector by comparison. None of these states has a substantial private for-profit sector at the four-year level.

Graduation Rates at 4-year Institutions 2005⁸

4-year Rate		6-year Rate	
Top 3 States		Top 3 States	
Rhode Island	52.5%	Massachusetts	68.6%
Delaware	51.8%	Rhode Island	66.8%
Massachusetts	51.2%	Delaware	66.1%
Minnesota (21st)	35.0%	Minnesota (18th)	58.0%
National Rate	35.3%	National Rate	57.2%
Peer States ⁵	37.3%	Peer States ⁵	59.7%

Source: Integrated Postsecondary Education Data System
 Note: Fall 1999 cohort

Minnesota Detail: Graduation Rates at 4-year Institutions

Institution Type	2005		2006 ⁹	
	4 year	6 year	4 year	6 year
State universities	14.9%	46.8%	20.6%	46.8%
University of Minnesota	29.0%	56.2%	30.1%	56.6%
Private not-for-profit	58.8%	70.0%	56.7%	68.2%
Private for-profit ¹⁰	42.1%	52.6%	25.9%	32.1%
Minnesota 4-year graduation rate	35.0%	58.0%	36.7%	57.5%

Source: Integrated Postsecondary Education Data System
 Note: Fall 1999 cohort for 2005 data and fall 2000 cohort for 2006

Degree Completion 1C continued

Minnesota Detail: Retention and Graduation Rates at 4-year Institutions 2006

Institution ¹⁰	First- to Second-year Retention Rate	4-year Graduation Rate	6-year Graduation Rate
The Art Institutes International Minnesota	59%	32.8%	41.4%
Augsburg College	80%	31.8%	51.8%
Bemidji State University	66%	28.2%	45.5%
Bethany Lutheran College	68%	13.5%	23.4%
Bethel University	85%	62.2%	69.7%
Carleton College	96%	88.1%	92.8%
College of Saint Benedict	90%	74.9%	79.6%
College of St. Catherine	80%	39.7%	56.9%
College of Saint Scholastica	81%	54.9%	65.7%
College of Visual Arts	55%	11.4%	25.0%
Concordia College-Moorhead	80%	63.9%	69.8%
Concordia University-Saint Paul	73%	26.9%	41.0%
Crossroads College	58%	17.1%	20.0%
Crown College	64%	29.3%	46.3%
Gustavus Adolphus College	89%	60.1%	67.2%
Hamline University	81%	53.4%	60.5%
Macalester College	93%	80.6%	85.5%
Martin Luther College	78%	36.0%	68.7%
Metropolitan State University	53%	16.3%	20.9%
Minneapolis College of Art and Design	84%	NA	73.1%
Minnesota State University, Mankato	78%	18.8%	47.8%
Minnesota State University Moorhead	70%	16.1%	42.1%
Northwestern College	81%	41.7%	58.3%
Oak Hills Christian College	45%	NA	18.5%
Pillsbury Baptist Bible College	63%	25.6%	39.5%
Saint Cloud State University	73%	19.3%	46.0%
Saint John's University	91%	77.8%	81.8%
Saint Mary's University of Minnesota	78%	53.2%	60.8%
St. Olaf College	93%	79.7%	84.7%
Southwest Minnesota State University	68%	20.3%	40.2%
University of Minnesota-Crookston	69%	16.9%	25.7%
University of Minnesota-Duluth	76%	24.3%	51.2%
University of Minnesota-Morris	80%	39.8%	57.2%
University of Minnesota-Twin Cities	86%	32.5%	60.7%
University of St. Thomas	88%	55.2%	74.1%
Winona State University	71%	26.5%	54.3%

Source: Integrated Postsecondary Education Data System

Graduation rates at two-year institutions

For two-year institutions, the three-year graduation rate includes all who completed a credential, including a certificate, diploma or associate degree. Like the retention rate, the graduation rate is adversely affected by transfer activity. Many students enrolled at public two-year institutions transfer upon completion (or even near completion) of a set of transfer courses known as the Minnesota Transfer Curriculum,¹¹ without completing an associate degree. This pattern adversely affects the graduation rate.

South Dakota has the highest three-year graduation rate for public two-year schools. Approximately 90 percent of its total enrollment in two-year institutions is at public institutions. Alaska has only public two-year schools and a very small cohort. In Wyoming, more than half the two-year enrollment is in the private for-profit sector, which tends to have higher graduation rates and lower transfer out rates than public institutions.

Minnesota’s three-year graduation rate was above the national average, but well below the top performing states. The three highest performing states on this indicator were rural western states with relatively low populations.

While there was an increase in the three-year graduation rate for private two-year colleges, the enrollment in these institutions was significantly smaller than the enrollment in the same cohort for the public institutions.

3-year Graduation Rates at 2-year Institutions 2005

Top 3 States	
South Dakota	65.7%
Alaska	57.4%
Wyoming	56.7%
Minnesota (24th)	34.0%
National Rate	32.5%
Peer States ⁵	32.9%

Source: Integrated Postsecondary Education Data System
 Note: Fall 2002 cohort

Minnesota Detail: Graduation Rates at Minnesota 2-year Colleges

Institution Type	2005	2006 ¹²
Public 2-year	31.5%	31.8%
Private for-profit 2-year	49.6%	55.2%
Minnesota 3-year graduation rate	34.0%	33.3%

Source: Integrated Postsecondary Education Data System
 Note: Fall 2002 cohort for 2005 and fall 2003 cohort for 2006

Degree Completion 1C continued

Minnesota Detail: Retention, Graduation and Transfer Rates at 2-year Institutions¹³ 2006

Institution	Retention Rate	3-year Graduation Rate	3-year Transfer-out Rate	3-year Graduation and Transfer-out Rate
Alexandria Technical College	69%	58.9%	7.8%	66.6%
Anoka Technical College	56%	42.2%	10.9%	53.1%
Anoka-Ramsey Community College	52%	14.4%	41.8%	56.2%
Central Lakes College	55%	40.3%	15.5%	55.9%
Century College	51%	12.0%	30.8%	42.7%
Dakota County Technical College	65%	46.4%	13.9%	60.4%
Duluth Business University	44%	32.5%	NA	32.5%
Dunwoody College of Technology	62%	54.0%	NA	54.0%
Fond du Lac Tribal & Community College	49%	18.1%	21.9%	40.0%
Hennepin Technical College	60%	44.2%	11.3%	55.5%
Hibbing Community College	57%	36.4%	26.6%	62.9%
High-Tech Institute-Minneapolis	83%	44.2%	NA	44.2%
Inver Hills Community College	45%	12.2%	34.1%	46.4%
Itasca Community College	58%	33.0%	26.2%	59.2%
Lake Superior College	56%	19.8%	20.2%	40.1%
Leech Lake Tribal College	46%	11.8%	NA	11.8%
Mesabi Range Community & Technical College	66%	30.9%	11.4%	42.3%
Minneapolis Business College	78%	81.3%	NA	81.3%
Minneapolis Community & Technical College	56%	19.1%	20.9%	40.1%
Minnesota State College-Southeast Technical	58%	49.1%	10.0%	59.1%
Minnesota State Community & Technical College	57%	39.2%	15.6%	54.8%
Minnesota West Community & Technical College	67%	43.9%	15.6%	59.4%
Normandale Community College	52%	12.3%	42.9%	55.2%
North Hennepin Community College	56%	17.5%	33.4%	50.9%
Northland Community & Technical College	51%	35.5%	9.7%	45.3%
Northwest Technical College	47%	44.3%	15.1%	59.5%
Northwest Technical Institute	85%	90.5%	9.5%	100.0%
Pine Technical College	57%	45.1%	13.5%	58.6%
Rainy River Community College	46%	25.4%	32.2%	57.6%
Ridgewater College	60%	42.3%	16.9%	59.2%
Riverland Community College	57%	45.5%	14.5%	60.1%
Rochester Community and Technical College	53%	26.5%	24.9%	51.4%
Saint Cloud Technical College	58%	49.1%	15.6%	64.8%
Saint Paul College	59%	43.2%	15.1%	58.3%
South Central College	60%	39.8%	16.7%	56.5%
Vermilion Community College	46%	28.6%	32.2%	60.8%

Source: Integrated Postsecondary Education Data System

Notes: This table does not include institutions that are not reporting proper graduation rate data to IPEDS. The three-year graduation and transfer-out rate is a combination of graduation and transfer-out over the three-year period.

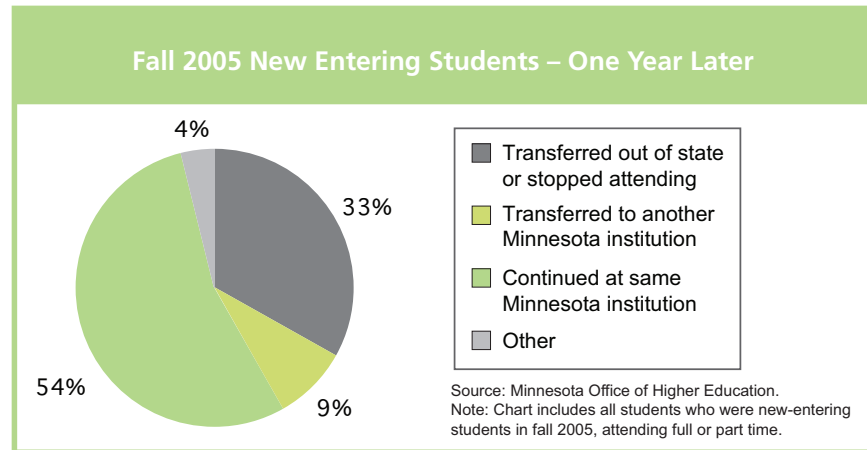
Factors affecting retention and graduation rates at Minnesota institutions

Student retention and timely graduation can be influenced by a wide range of factors. Students who work more hours outside school and attend school part time may be less likely to graduate within six years. Timely graduation is also more difficult for students who change programs of study midway through their course of study. Academic preparation and financial challenges may also influence a student's ability to graduate within an expected period of time.

Transfer activity affects retention and graduation rates. Students who transferred to another institution before completing their program are not counted as retained or as graduates of any institution. For many students at two-year colleges, transferring can be a forward progression to upper-division study. In other cases, transfers may represent students who did not initially find the right fit or the programs and services they expected or needed at their first institution.

The Office of Higher Education collects and reports data on transfer activity. The chart in this indicator represents both part- and full-time students enrolled in fall 2005, and the enrollment status of these students one year later in fall 2006. Of the students enrolled for the first time at Minnesota public and private institutions in fall 2005, 54 percent were enrolled at the same institution one year later, 33 percent stopped attending or transferred out of state and nine percent transferred within Minnesota.

With recent improvements in the transfer process and improved access to online courses, transferring credits has become commonplace. The following table shows all students enrolled in fall 2006 who transferred in credits from another Minnesota college or university. Unlike the chart, this table includes all new transfer students, not just a single cohort of students. In fall 2006, 25,499 new students reported transferring in credits from another institution.



Minnesota Undergraduate Students Admitted as Transfer Students in Fall 2006

Transferred From	Transferred To						Total
	State universities	Community & technical colleges	University of Minnesota	Private colleges	Private career schools	Private career online schools	
State universities	421	1,133	134	34	134	4	1,860
Community & technical colleges	2,687	3,297	787	239	309	9	7,328
University of Minnesota	335	630	87	40	51	1	1,144
Private colleges & universities	311	506	147	67	39	2	1,072
Private career schools	38	149	2	26	63	5	283
Unspecified Minnesota institutions	29	65	7	12	5	0	118
Out of state	1,486	2,273	655	265	262	183	5,124
Institution unknown	215	4,489	728	2,487	636	15	8,570
Total	5,522	12,542	2,547	3,170	1,499	219	25,499

Source: Minnesota Office of Higher Education 2006
Note: This table only includes students who were enrolled at one institution in fall 2005 and transferred credits to a different institution in fall 2006.

Degree Completion

Indicator 1D: What was the proportion of degree completers to full-time enrollment at two- and four-year institutions?

This indicator provides an alternate perspective on graduation rates, one that measures degree production relative to all enrolled students, including part-time, transfer and full-time students. The denominator has been adjusted, using full-time equivalent enrollment instead of total headcount enrollment. The full-time enrollment represents full-time enrollment plus part-time enrollment adjusted to its full-time equivalent.

Four-year Institutions

At four-year institutions, the number of bachelor's degrees awarded in 2005 in Minnesota represented approximately 16.6 percent of the total full-time equivalent enrollment. This means the equivalent of about one-sixth of the student body graduated from Minnesota's four-year institutions in 2005, placing Minnesota near the national average and the average for peer states on this measure. A number of private for-profit institutions award primarily certificates, diplomas, and associate degrees and have only recently begun offering four-year degrees.

Two-year Institutions

At two-year institutions, the number of students completing degrees in 2005 was slightly less than one-third of the full-time, full-year enrollment for these institutions. The impact of transfer activity may be a factor in this measure for two-year colleges, as many students transfer to complete bachelor's degrees without completing an associate degree, diploma or certificate.

Minnesota Detail: Bachelor's Degrees Awarded as a Proportion of Full-time Equivalent Enrollment 2005 and 2006

4-year Institutions	2005 Proportion	2006 Proportion
Public universities	17.7%	18.4%
Private not-for-profit	22.0%	21.3%
Private for-profit	2.3%	2.5%
Total	16.6%	16.3%

Source: Integrated Postsecondary Education Data System

Bachelor's Degrees Awarded as a Proportion of Full-time Equivalent Enrollment at 4-year Institutions 2005

Top 3 States	
Washington	21.2%
Iowa	19.2%
Nebraska	18.6%
Minnesota (23rd)	16.6%
National Average	16.4%
Peer States ⁵	16.9%

Source: Integrated Postsecondary Education Data System

Minnesota Detail: Awards Completed as a Percentage of Full-time Enrollment at 2-year Colleges 2005 and 2006

2-year Institutions	2005 Proportion	2006 Proportion
Public 2-year	28.2%	31.1%
Private 2-year	44.6%	39.2%
Total	29.1%	31.6%

Source: Integrated Postsecondary Education Data System

Associate Degrees, Certificates and Diplomas Awarded as a Proportion of Full-time Equivalent Enrollment at 2-year Institutions 2005

Top 3 States	
Alabama	49.9%
Georgia	42.5%
Wisconsin	40.7%
Minnesota (16th)	29.1%
National Average	26.7%
Peer States ⁵	25.2%

Source: Integrated Postsecondary Education Data System

Achievement Gap

Indicator 1E: Are students from all racial and ethnic backgrounds succeeding in higher education at equal rates?

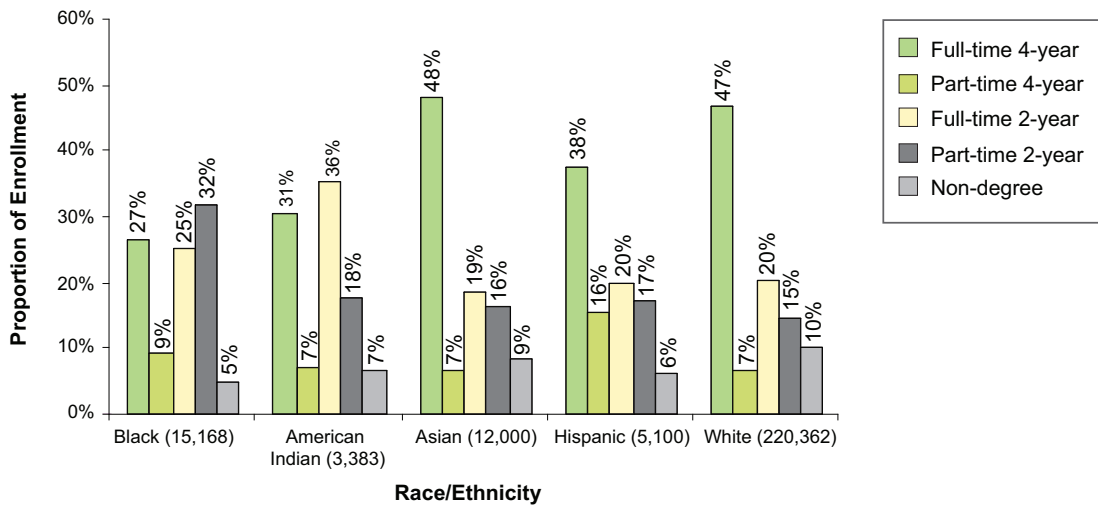
Minnesota’s traditional college-age population is becoming increasingly diverse. The state anticipates a projected increase of 40 percent in the number of high school graduates who are students of color and a decrease of 17 percent in the number of white graduates from 2004 through 2015, according to the Minnesota State Demographic Center.

During the same period, the overall number of graduates is projected to decrease by approximately 10 percent through 2014. The purpose of this indicator is to identify how students from each broad racial or ethnic group fare once they enter postsecondary education.

Enrollment patterns vary by race and ethnicity. The following observations can be made about Minnesota students enrolled in fall 2006:

- The majority (57 percent) of enrolled Black students attended two-year institutions; of these, more than half were part-time students.
- The majority (54 percent) of enrolled American Indian students attended two-year institutions; of these, more than half were full-time students.
- The majority (55 percent) of enrolled Asian students attended four-year institutions; of these, most were full-time students.
- The majority (54 percent) of enrolled Hispanic students attended four-year institutions; of these, the majority were full-time students.
- The majority (54 percent) of enrolled white students attended four-year institutions; of these, most were full-time students.

Enrollments by Race/Ethnicity and Attendance Status Fall 2006



Source: Integrated Postsecondary Education Data System

Achievement Gap 1E continued

The following graphs show degree completion for each racial or ethnic group. Students who are Black and American Indian completed degrees at Minnesota's public and private four-year institutions at substantially lower rates than their Asian, Hispanic and white counterparts, reflecting an achievement gap similar to that observed in K-12 education.

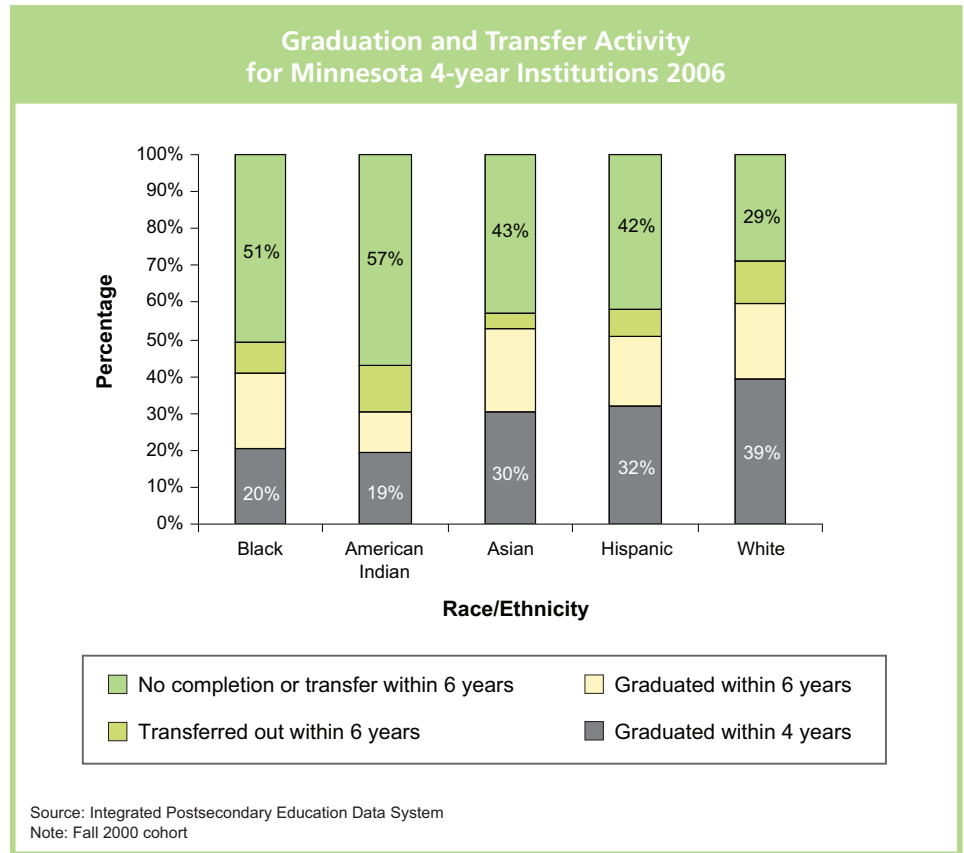
A larger portion of students of color neither graduated nor transferred within 150 percent of the expected completion time than their white counterparts. This is especially pronounced at two-year institutions where, on average, fewer than half the students of color either completed a credential or transferred to another institution within three years. What is unclear is whether these students have switched to part-time status, stopped out (meaning that they left school but intend to return) or dropped out of college.

Among students attending Minnesota's two-year colleges, Black students had the lowest graduation rate of any group, with 16 percent of full-time, first-time new entering students in fall 2003 graduating from the same institution within three years. This group also had the highest transfer out rate of any group.

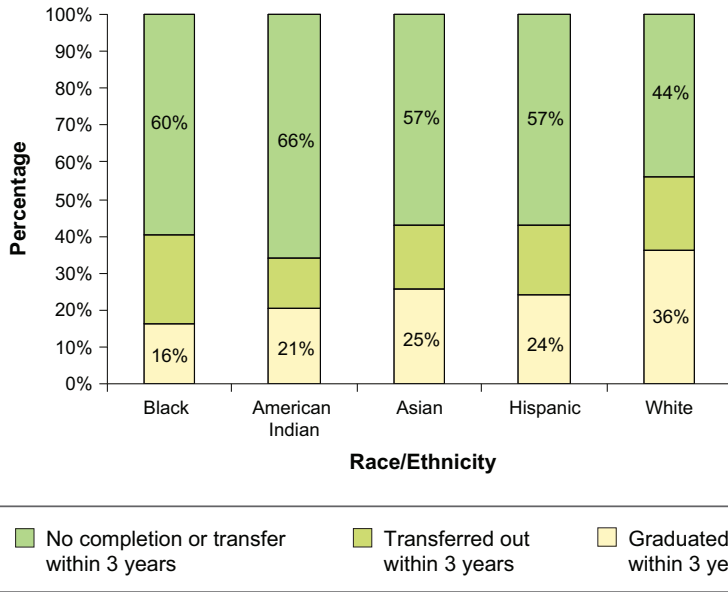
Further research and follow up with full-time students who leave higher education without completing a degree or certificate could be an area of future study.

Graduation Rates

The graduation rate for Minnesota's four-year institutions tracks a cohort of first-time, full-year, full-time students and identifies what proportion of them graduate within four or six years. Only students who stay at the same institution and complete their programs are counted as graduates in this measure.



Graduation and Transfer Activity for Minnesota 2-year Institutions 2006



Graduation Rates

The graduation rate for Minnesota's two-year institutions tracks a cohort of first-time, full-year, full-time students and identifies what proportion of them graduate within three years. Only students who stay at the same institution and complete their programs are counted as graduates in this measure.

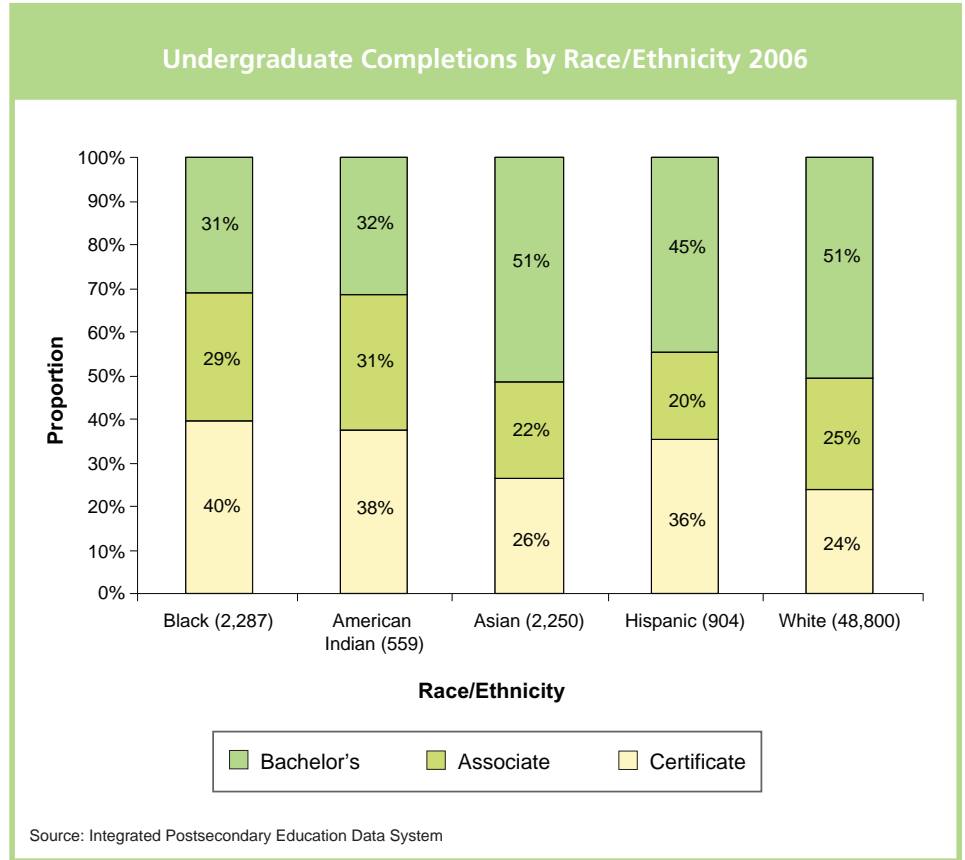
Source: Integrated Postsecondary Education Data System
 Note: Fall 2003 cohort

Achievement Gap

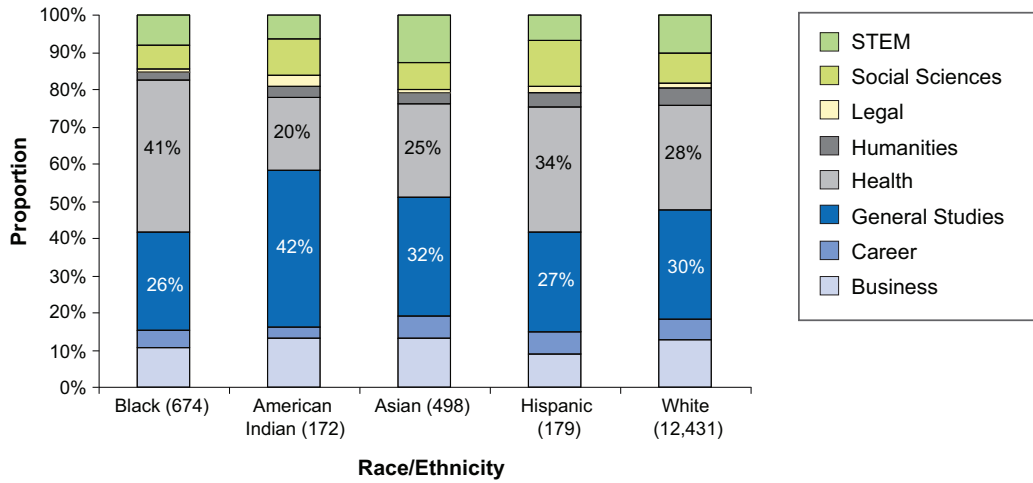
Indicator 1F: Are students from all racial and ethnic groups choosing and completing comparable undergraduate programs?

In general, the more education students complete, the more employment flexibility and income they will enjoy. Analyzing students' program choices becomes important as the state of Minnesota considers the kinds of economic opportunities available and whether students from all racial and ethnic groups are preparing for the high-wage opportunities of the future.

Completion data by race and ethnicity for 2006 paralleled enrollment patterns. The majority of Black, American Indian and Hispanic students completed certificate and associate degree programs; the majority of Asian and white students completed bachelor's degree programs. Health-related programs were the most popular at the certificate level for all groups. For all but Black and Hispanic students, liberal arts (typically reflecting a plan to transfer) were most popular at the associate degree level. Business programs are the most popular for all groups at the bachelor's degree level.

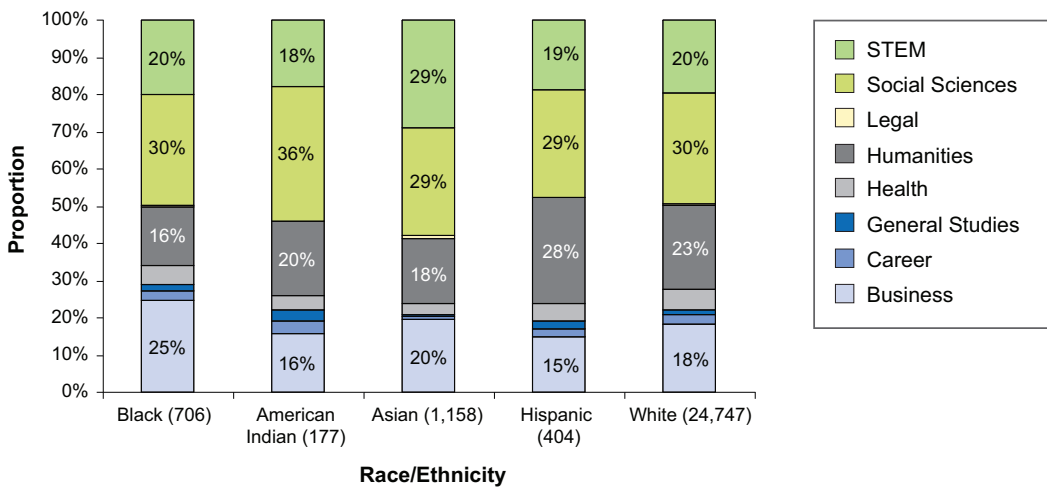


Program Completion - Associate Level 2006



Source: Integrated Postsecondary Education Data System

Program Completion - Bachelor's Level 2006



Source: Integrated Postsecondary Education Data System

2

Create a responsive system that produces graduates at all levels who meet the demands of the economy.

This section examines how Minnesota's postsecondary institutions are responding to the needs of the state from an economic perspective. The state's higher education sector is a critical driver in building and maintaining a competitive workforce.

According to job growth projections compiled by the Minnesota Department of Employment and Economic Development:

- 16 of the 20 fastest growing occupations in the state require education beyond high school.
- Of the 780 occupations analyzed in the projections, 356 are in occupations that currently pay \$15 per hour or more and require some amount of postsecondary education.
- Approximately 21 percent of the jobs that will be available in 2014 are in occupations that currently pay \$24 per hour or more and require some amount of postsecondary education.

For individuals, this means that the path to a secure financial future includes higher education.

Minnesota continues to have a highly educated workforce, ranking sixth among all states in the total working population holding at least an associate degree. Still, there are employment gaps. Using employment projections from the Minnesota Department of Employment and Economic Development, degree production was aligned with projected need in certain fields. This new approach to measure responsiveness, while not precise, enables the state to more specifically project the highest-demand fields in the years ahead.

The production of qualified graduates in some of the highest demand fields, such as computer science, is not keeping pace with the state's projected need in those fields. Minnesota lags slightly behind both the nation and its peer states in the proportion of its graduate students pursuing degrees in science, technology, engineering, mathematics and health programs.

Degree Attainment

Indicator 2A: What proportion of the state’s working-age population possesses a postsecondary degree?

Degree attainment is not only a measure of institutional and individual success, but a measure of responsiveness by the higher education sector as a whole. Having an educated citizenry benefits the state in several areas, from overall quality of life to areas more directly related to the economy.

With 40 percent of its residents ages 18 to 64 years old holding at least an associate degree, Minnesota ranked sixth in the nation on this measure of degree attainment. The state ranked consistently high on all measures of degree attainment among working-age adults. The relatively high rankings for Minnesota may be based, in part, on steady in-migration¹⁵ of college-educated people moving to Minnesota from other states. Minnesota’s performance on these measures was substantially higher than that of the nation and peer states.

Proportion of Population with at least an Associate Degree 2006

18 – 64 Year Olds	
Top 3 States	
Massachusetts	44.9%
Connecticut	42.3%
New Jersey	41.1%
Minnesota (6th)	40.1%
National	33.9%
Peer States ⁵	33.2%

Source: American Community Survey

“Minnesota ranked consistently high on all measures of degree attainment among working-age adults.”

Proportion of Population with at least an Associate Degree¹⁶ by Age Group 2006

18 – 24 Year Olds	
Top 3 States	
New York	19.1%
Massachusetts	18.5%
Iowa	17.8%
Minnesota (6th)	16.8%
National	13.4%
Peer States ⁵	14.1%

25 – 34 Year Olds	
Top 3 States	
Massachusetts	51.9%
Minnesota	48.0%
New York	47.1%
Minnesota (2nd)	48.0%
National	37.0%
Peer States	39.0%

35 – 44 Year Olds	
Top 3 States	
Massachusetts	50.5%
North Dakota	48.1%
Minnesota	46.6%
Minnesota (3rd)	46.6%
National	38.4%
Peer States	39.0%

45 – 64 Year Olds	
Top 3 States	
Massachusetts	47.1%
Colorado	45.3%
Vermont	45.3%
Minnesota (11th)	40.7%
National	36.6%
Peer States	34.5%

Source: American Community Survey

GOAL TWO

Degree Attainment 2A continued

Proportion of Population with a Bachelor's Degree or Higher

	25 – 34 Year Olds		25 – 64 Year Olds	
	2004	2005	2004	2005
Top 3 States in 2005				
Massachusetts		45%		40%
New Jersey		40%		38%
Connecticut		39%		38%
Minnesota (national rank)	36% (8th)	36% (7th)	33% (11th)	33% (10th)
Peer States ⁵		31%		28%
Top 4 Countries in 2005				
Norway		39%		30%
Netherlands		34%		28%
Iceland		33%		26%
United States		30%		29%

Source: American Community Survey of the U.S. Census Bureau for state and national data; Organisation for Economic Cooperation and Development for international data

Note: International comparison data on degree attainment for 2006 was not available. International data on this measure could not be compared at the associate degree level.

Minnesota ranked 10th in the nation on the proportion of working adults, aged 25 to 65, who hold a bachelor's degree. Minnesota's performance on this measure is influenced, in part, by a high-wage economy in which employers import talented and educated people from other states and countries.

Degree Production

Indicator 2B: How many degrees were awarded each year at all levels per 1,000 in the working-age population?

Adults with college degrees generally earn more money and make more significant contributions to the economy than those without.¹⁷ The fastest growing occupations in the current information-based economy will require postsecondary education. It is important for the postsecondary systems to continue to produce individuals who are prepared to meet the demand. Using 2006 data as a baseline, the Office of Higher Education will continue to track degrees awarded per 1,000 population in future reports.

Minnesota’s relatively high performance on the degree attainment of its citizens illustrated in indicator 2A does not directly translate into top rankings on this measure. The state’s showing on the previous indicator may be affected by the net in-migration of college-educated adults, whereas this indicator more directly evaluates graduates produced here. The indicator highlights room for improvement, particularly at the associate and bachelor’s degree levels.

Degrees Awarded per 1,000 State Population Aged 18 – 64¹⁸

Certificates, Diplomas & Associate Degrees		Bachelor’s Degrees		Master’s Degrees		Doctoral Degrees	
Top 3 States		Top 3 States		Top 3 States		Top 3 States	
Wyoming	15.4	Rhode Island	15.0	Massachusetts	6.8	Massachusetts	1.8
Arizona	12.3	North Dakota	14.9	Arizona	6.6	Iowa	1.4
Florida	11.3	Utah	13.6	New York	5.2	Nebraska	1.2
Minnesota (13th)	8.9	Minnesota (16th)	9.7	Minnesota (6th)	4.6	Minnesota (8th)	1.0
National	7.5	National	8.3	National	3.1	National	0.8
Peer States ⁵	7.5	Peer States	9.7	Peer States	3.6	Peer States	0.9

Source: Integrated Postsecondary Education Data System (degree production) and the 2006 American Community Survey of the U.S. Census Bureau (population)

Program of Study

Indicator 2C: Are Minnesota's learners choosing programs and majors that lead to rewarding high-demand careers?

The charts in this indicator compare the mix of academic degree choices of Minnesota students with the choices of students nationally and the average of the peer states.⁵ At the certificate level, Minnesota students earned certificates in fields that were proportionally comparable to students in peer states and nationally.

This information, when reviewed in conjunction with the overall degree production data on page 23, provides a picture of the composition of degrees earned by general field at each degree level. As Minnesota seeks to grow the number of K-12 students prepared to succeed in high demand STEM degree programs, policymakers and educators may utilize these data to learn how Minnesota's degree production changes over time and aligns with its peers nationally.

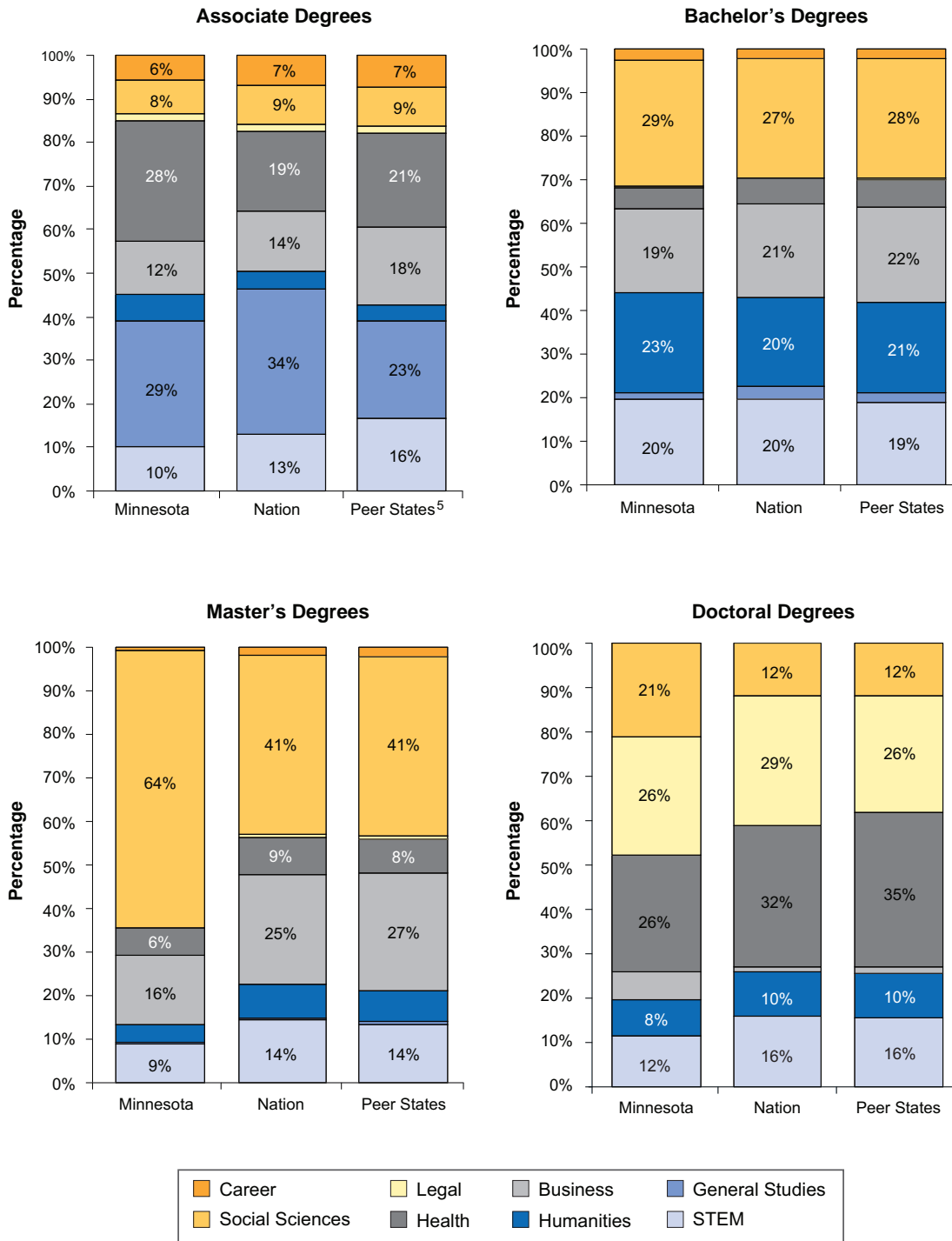
Areas of notable differences for Minnesota include:

- At the associate degree level, Minnesota graduates earned a smaller proportion of degrees in science, technology, engineering and mathematics fields. A larger proportion of students completed health-related degrees than graduates nationally and in peer states.
- At the bachelor's degree level, a slightly greater proportion of degrees are awarded in humanities and the social sciences than nationally and in peer states. (In Minnesota, 48 percent of all social science degrees are in elementary education.¹⁹)
- At the master's degree level, Minnesota graduates earned a smaller proportion of degrees in science, technology, engineering and mathematics fields (as identified by the federal government and defined as STEM fields), while a dramatically large share of students earned degrees in the social sciences compared with students nationally and in peer states.
- At the doctoral level, Minnesota graduates earned a smaller proportion of degrees in STEM fields than students nationally and in peer states, and produced a smaller proportion of doctorates in health care. At the same time, the proportion of Minnesota's doctoral graduates in the social sciences exceeded the national average and the average for the peer states.

Program categories identified in these charts include the following:

- **Career Preparation:** includes programs such as construction trades, maintenance programs and others. These are mostly offered at the certificate and diploma level.
- **Social sciences:** includes programs in education, work and family studies, family and consumer science, psychology, criminal justice, human services and economics.
- **Legal studies:** includes paralegal programs (at the certificate, associate and bachelor's levels) as well as law degrees (at the doctoral level).
- **Health care:** includes programs in nursing, medical technology, pharmacy, dentistry, medicine (both human and veterinary) and psychiatry.
- **Business:** includes programs in marketing, accounting and finance.
- **Humanities:** includes programs in ethnic group studies, communication studies, foreign languages, English language and literature, philosophy, Biblical studies, visual and performing arts and history.
- **General studies:** typically used at the associate level for transfer programs, also for customized degree programs at other levels.
- **STEM:** includes programs in agriculture, natural resources, architecture, computer science, engineering, biological sciences, mathematics and physical sciences (chemistry and physics). Interdisciplinary studies such as biophysics and bioinformatics are also classified as STEM where the distinction can be made.

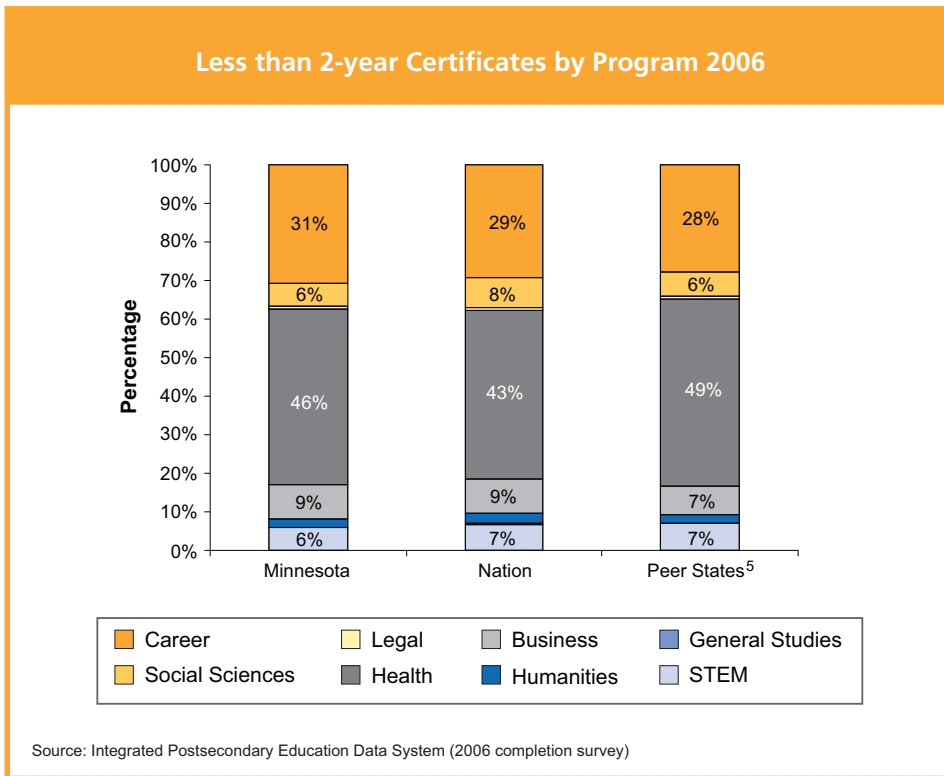
Degrees Earned by Program Area 2006



Source: Integrated Postsecondary Education Data System (2006 Completion Survey)

Program of Study 2C continued

The most common field pursued by students at the certificate level is health care. Minnesota does not have a high proportion of its students pursuing degrees in STEM fields.



Minnesota Rank: Degrees Earned per 1,000 People Aged 18 – 64

Award Type		2006 National Rank
Health Fields	certificates, diplomas and associate degrees	6th
	bachelor's degrees	33rd
	master's degrees	15th
	doctoral degrees	11th
STEM	certificates, diplomas and associate degrees	22nd
	bachelor's degrees	14th
	master's degrees	26th
	doctoral degrees	20th

Source: Integrated Postsecondary Education Data System (2006 Completion Survey)

Degree Alignment

Indicator 2D: Which fields are projected to be of highest demand in health care employment by the year 2014? Is current degree production enough to address these needs?

To assess higher education’s responsiveness to the needs of Minnesota health care employers, degree production in health fields was compared to the demands of the state’s economy.

This indicator applies the occupational projection data from the Minnesota Department of Employment and Economic Development and compares it with degree completion data from the Integrated Postsecondary Education Data System by occupation.²⁰ The result is a comparison of the projected demand for certain occupations against the degree production by Minnesota’s higher education sector.

The following health care occupations are of the highest need for Minnesota according to the Minnesota Department of Employment and Economic Development. This indicator shows the degree production progress three years into the 10-year projections through 2014. High-demand occupations in which the state has produced 30 percent or more of the anticipated need through 2006 indicate that the higher education sector has been sufficiently responsive to the state’s needs.

Health-related Fields in which Degree Production May Not Be Keeping Up with Market Demand

Occupation Title	Number Needed by 2014	Percentage Need Met through 2006	Minimum Education Requirement
Rehabilitation counselors	898	2.9%	Master’s degree
Home health aides	14,478	4.0%	< 2-year certificate
Healthcare support workers, all other	1,954	4.2%	< 2-year certificate
Pharmacy technicians	2,008	7.1%	Associate degree
Medical and clinical laboratory technicians	2,045	10.0%	Associate degree
Health educators	438	13.2%	Master’s degree
Physician assistants	811	13.7%	Master’s degree
Occupational therapists	886	16.0%	Master’s degree
Nursing instructors and teachers, postsecondary	298	19.1%	Doctoral degree
Medical transcriptionists	1,561	21.3%	< 2-year certificate
Medical secretaries	2,731	21.3%	Associate degree
Emergency medical technicians and paramedics	1,575	22.2%	Associate degree
Physical therapists	1,208	22.5%	Doctoral degree
Pharmacists	1,725	22.6%	Doctoral degree
Respiratory therapists	703	23.8%	Associate degree
Dental hygienists	1,618	26.2%	Associate degree
Cardiovascular technologists and technicians	337	29.1%	Associate degree

Source: Minnesota Department of Employment and Economic Development (job data), Integrated Postsecondary Education Data System (degree completion data). Note: Number Needed by 2014 is the number of new and replacement workers estimated to be needed in each field. Percentage of Need Met is the number of degree completers who graduated with postsecondary credentials in each field through 2006.

Degree Alignment 2D continued

Several health-related fields have received policy attention in recent years. In 2006, degree production in these areas appeared to be on target or exceeding the employment demand as projected by the Department of Employment and Economic Development. Special efforts on the part of the state's colleges and universities to increase capacity in nursing programs may be having an important effect.

While some fields may continue to have workforce shortages, policymakers should consider all possible factors before advancing postsecondary policy solutions. The factors leading to such shortages may be outside the purview of higher education. For example, in some areas, state boards license programs as well as individuals and as such may have

an impact on the workforce through restrictions on program creation and enrollment; graduates may choose to leave the state or their chosen profession for a variety of reasons; and differences between public and private sector employment may cause a shortage in one sector and an overage in the other.

This approach to comparing degree production to workforce demand projections in Minnesota is useful, but imprecise. Indicators 2D and 2E present a perspective on responsiveness to workforce demand based on a premise that Minnesota jobs are filled exclusively with graduates from institutions within the state. In fact, labor is mobile and Minnesota employers draw educated employees from outside the state.

Colleges in neighboring states play an important role in educating Minnesota's past and future workforce. Conversely, graduates of Minnesota's postsecondary institutions may leave the state to pursue employment opportunities in different markets.

Comparing workforce projections to degree production here is an effort to simplify and analyze a complex and highly nuanced dynamic. Workforce needs do not grow in equal increments each year, and higher education institutions need time to develop programs and move students through them to respond to anticipated demand. The workforce need projections for the 10-year period from 2004 to 2014 were published in 2006.

Health-related Fields for which Degree Production May Be Keeping Up with Market Demand

Occupation Title	Number Needed by 2014	Percentage of Need Met through 2006	Minimum Education Requirement
Medical records and health information technicians	1,700	71.1%	Associate degree
Registered nurses	24,042	35.5%	Associate degree
Licensed practical and licensed vocational nurses	6,387	51.8%	< 2-year certificate
Speech-language pathologists	764	35.7%	Master's degree

Source: Minnesota Department of Employment and Economic Development (job data), Integrated Postsecondary Education Data System (degree completion data).

Note: Number Needed by 2014 is the number of new and replacement workers estimated to be needed in each field. Percentage of Need Met is the number of degree completers who graduated with postsecondary credentials in each field through 2006.

Degree Alignment

Indicator 2E: What fields are projected to be of highest demand in science, technology, engineering and mathematics by the year 2014? Is current degree production enough to address these needs?

While degrees in science, technology, engineering and mathematics are widely accepted as the most high-demand and desirable degrees to build competitiveness in a world economy, a closer look at these categories reveals that some degree areas are in much higher demand than others.

Based on projections from the Department of Employment and Economic Development, it is clear that by 2014, the highest demand for STEM degrees in the state will be in computer and information science fields. Unlike the health areas, in which there is significant specialization

(especially at the certificate level), a credential in computer and information sciences may qualify an individual for several occupations. The following are high-demand occupations requiring a minimum of a bachelor's degree in some area of computer and information science.

From 2004 through 2006, approximately 4,000 individuals completed credentials in computer and information sciences at the bachelor's degree level or above in Minnesota. Nearly 29,000 computing professionals with a bachelor's degree or above will be needed by 2014,

meaning that less than 14 percent of the projected need has been met after three years by Minnesota colleges and universities.

Over the last 30 years, enrollments in computer and information science programs have had regular peaks and valleys. Enrollments in these programs bottomed out in the early 21st century, in conjunction with the so-called "dot-com bust" and the outsourcing of jobs in high-tech industries. Recruitment and retention are also significant issues in college-level computer science programs, for both students and faculty.

Information Technology Fields for which Degree Production May Not Be Keeping Up with Market Demand

Occupation Title	Number Needed by 2014	Minimum Education Requirement
Computer systems analysts	3,814	Bachelor's degree
Computer software engineers, applications	9,173	Bachelor's degree
Network and computer systems administrators	2,813	Bachelor's degree
Computer and information systems managers	3,563	Bachelor's degree
Network systems and data communications analysts	3,116	Bachelor's degree
Database administrators	1,382	Bachelor's degree
Computer software engineers, systems software	2,822	Bachelor's degree
Computer specialists, all other	2,182	Bachelor's degree

Source: Minnesota Department of Employment and Economic Development

Mathematics- and Science-related Fields for which Degree Production May Not Be Keeping Up with Market Demand

Occupation Title	Number Needed by 2014	Percentage of Need Met through 2006	Minimum Education Requirement
Actuaries	287	11.5%	Bachelor's degree
Mechanical engineers	2,532	26.1%	Bachelor's degree
Engineers, all other	1,213	26.2%	Master's degree

Source: Minnesota Department of Employment and Economic Development (job data), Integrated Postsecondary Education Data System (degree completion data). Note: Number Needed by 2014 is the number of new and replacement workers estimated to be needed in each field. Percentage of Need Met is the number of degree completers who graduated with postsecondary credentials in each field through 2006.

3

Increase student learning and improve skill levels of students so they can compete effectively in the global marketplace.

In *Minnesota Measures 2007*, there were no indicators for this goal. While student learning outcomes were identified by educators and policymakers as an essential component of a state system of higher education accountability, the best approaches were not evident since the tools for such measures are evolving. This section offers an abbreviated inventory of activities in this area. Discussions about best practices for student learning assessment are in progress at the national, state and institutional levels. Future reports will build from those discussions and include models that better reflect the totality of students' postsecondary experiences.

Currently, several tools are available for institutions to assess student learning. However, the use of such data at the state level creates a fragmented picture, in part because no single tool has broad institutional participation and no one test can capture the breadth and depth of a postsecondary student's learning. The diversity of institutional missions and academic programs further complicates the task.

In response to national dialogue about the need for clear and transparent information about student learning, public and private colleges and universities across the country are collaborating in unprecedented ways to explore methods for capturing meaningful data about the student experience. One such collaboration is the Voluntary System of Accountability, which is a joint product of the American Association of State Colleges and Universities and the National Association of State Universities and Land-Grant Colleges. Under this voluntary system, participating public colleges and universities are utilizing a web-based common college profile that includes descriptive information for each school. Student survey data is used to illustrate levels of student engagement. A pilot

study to evaluate various student learning assessments, including several tools described in this section, is also underway. The National Association of Independent Colleges and Universities has also launched the University and College Accountability Network. U-CAN is a web-based common college portrait designed for consumers with descriptive information on participating private institutions' students and graduates with the option for institutions to include information on their students' learning outcomes, including data from engagement surveys, standardized tests and alumni satisfaction surveys.

The Office of Higher Education will continue to explore the use of current assessment instruments for future reports as well as how best to capture the value of students' experiences at two- and four-year institutions across the state.

Abbreviated Inventory of Assessment Tools Currently in Use in Minnesota

	Assessment Tool	Purpose	Minnesota Participation (Most Recent Year)	National Participation (Most Recent Year)	Report Indicator Number
Learning Assessments	Collegiate Assessment of Academic Proficiency	General education test for students at two- and four-year institutions	11 four-year institutions; 1 two-year institution	415 institutions	3A
	Measure of Academic Proficiency and Progress	General education test for students at two- and four-year institutions	5 four-year institutions; 1 two-year institution	250 institutions	3A
Student Surveys	National Survey of Student Engagement	Annual survey of student engagement at four-year colleges and universities	15 institutions	610 institutions	3B
	Community College Survey of Student Engagement	Annual survey of student engagement at two-year colleges	14 institutions	279 institutions	3B
Graduate Admissions	Graduate Record Exam	General graduate school admissions test	5,300 students	344,251 students	3C
	Law School Admissions Test	Law school entrance exam	1,190 students	119,206 students	3C
	Medical College Admissions Test	Medical school entrance exam	1,331 students	258,062 students	3C
Career Licensure	Teacher Licensure: PRAXIS	Set of exams used for teacher licensure	3,714 candidates	39 states	3D
	Nursing Licensure: National Council Licensure Examination	Exam for licensing of registered and practical nurses	4,069 candidates	167,686 candidates	3D
	Certified Public Accountant Licensure	Exam required to practice as a certified public accountant	NA	NA	3D

Source: Minnesota Office of Higher Education

Learning Outcomes Assessment

Indicator 3A: What is the level of student learning at Minnesota postsecondary institutions?
How do learning outcomes in Minnesota compare with other states?

Two assessment tools that measure general education have been in limited use for several years. The Collegiate Assessment of Academic Proficiency and the Measure of Academic Proficiency and Progress both offer institutions a means to assess general learning in ways that are flexible and can be customized to yield information needed for academic improvement.

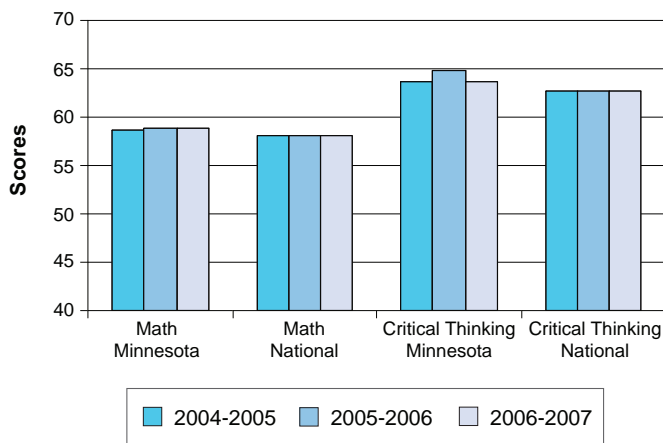
The CAAP and the MAPP are designed to measure student learning and facilitate transparency and comparability of student-centered information at the institutional level.²¹ Although these assessments provide a picture of current practices in learning outcomes, the data are incomplete. Institutions choose which modules of the assessment they will use and there is limited participation in these national assessments by Minnesota institutions.

Collegiate Assessment of Academic Progress

The CAAP is a general education test available to two- and four-year institutions that is designed to assess general learning. The test has multiple choice and essay questions and offers six modules, including critical thinking, writing skills, reading skills, science, essay writing and mathematics. The test is completed by students in class.

The CAAP is not widely used in Minnesota. In 2007, 1,591 students attending 4 four-year institutions and 369 students attending 1 two-year institution took the test. Over the past three years of testing at four-year institutions, Minnesota students performed slightly better on the CAAP math and critical thinking modules than did participants nationally. Two-year college data is not shown here due to the small sample size.

Collegiate Assessment of Academic Progress Scores:
Minnesota and National 4-year Institutions



Source: ACT

The Measure of Academic Proficiency and Progress

The Measure of Academic Proficiency and Progress is another general education test for students at two- and four-year institutions that combines four general education skill areas (critical thinking, reading, writing and mathematics) into one integrated test, available in 40-minute or two-hour versions. Scores from both test formats are included in the scores reported by MAPP.

In 2007, 3,012 Minnesota students attending 5 four-year institutions and 1 two-year institution took a portion or all of the MAPP assessment. Due to the small sample size at the two-year college level and the condensed format of some of the tests, data from the MAPP are not included here.

Collegiate Learning Assessment

A third example is the Collegiate Learning Assessment, a comprehensive instrument used to ascertain broad student abilities. Its purpose is to measure learning gains over time. It focuses on the institution as the unit of measurement, rather than on the student. The CLA is used by a limited number of four-year public and private institutions in the state, but data was not publicly available.

Student Engagement

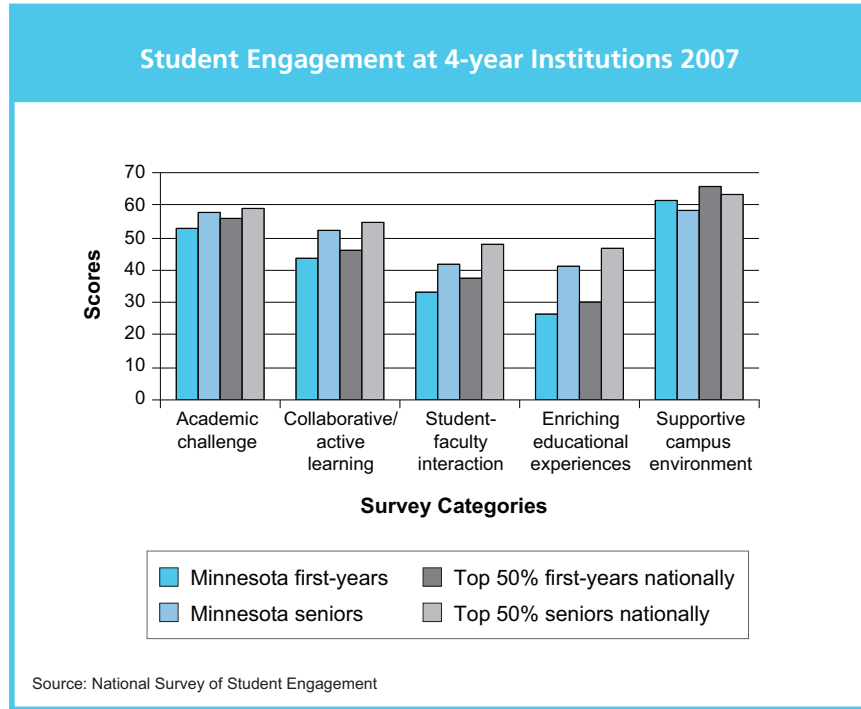
Indicator 3B: Are Minnesota students fully engaged in the educational process?

Another current tool used to assess the undergraduate experience is a student survey designed to gather feedback about students' levels of engagement, both academic and non-academic, at their institutions. This indicator presents data gathered through two surveys of student engagement: the National Survey of Student Engagement and the Community College Survey of Student Engagement. The NSSE is a survey of students at four-year public and private institutions. The CCSSE surveys students at community and technical colleges. While not identical, both surveys cover general topics relating to student engagement such as academic rigor, collaborative learning, student-faculty interaction and student support.

The surveys are based on self-reporting by students. Research indicates that self-reported responses are reliable in large volume as is the case with both the NSSE and CCSSE.²² Both surveys contribute to an overall picture of how well institutions served the needs and maximized the abilities of their students. A benchmark score of 50 on the CCSSE is equivalent to an average score.

The National Survey of Student Engagement²³

The National Survey of Student Engagement is an annual survey distributed to students at participating four-year public and private institutions nationwide. The survey, which is conducted online and through direct mail, allows for comparisons of responses from first-year students and seniors to measure changes in student engagement levels. In 2007, 610 institutions participated in the survey nationally, including 15 from Minnesota.



The Minnesota State Colleges and Universities system, which enrolls more than half the undergraduates in Minnesota, will require their institutions to conduct either NSSE or CCSSE at least biennially beginning in 2008.

Students attending Minnesota four-year institutions indicated comparable levels of engagement across all categories as students in peer states in 2007. The average ratings for both

first-year and senior students were lower across all categories than the average for students at the top-scoring 50 percent of institutions participating in NSSE nationally. Minnesota college seniors had higher ratings of engagement than Minnesota first-year students across all categories except for supportive campus environment, which was rated lower by the seniors than by the first-year students.

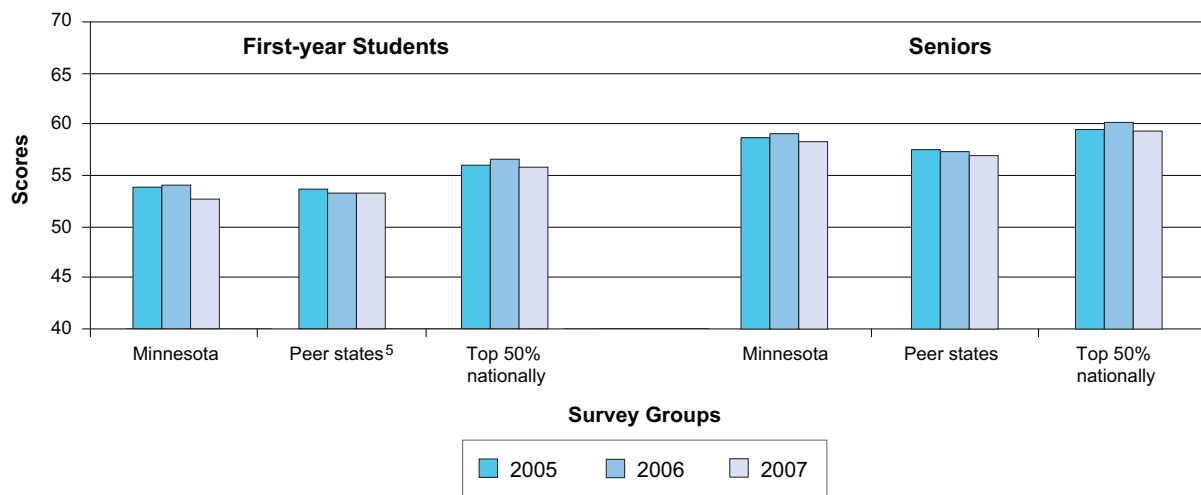
Student Engagement 3B continued

On measures of academic rigor assessed by the NSSE survey, Minnesota's first-year and senior-year students rated their institutions comparably to students in peer states, yet lower than the average for the top 50 percent of institutions participating in NSSE nationally in 2007.²⁴ Scores in this category were based on

a section of survey questions including whether students worked harder than expected to meet instructor expectations, the amount they studied, whether they applied concepts learned to problems and situations, the number and length of papers they wrote and the number of assigned texts and course readings.

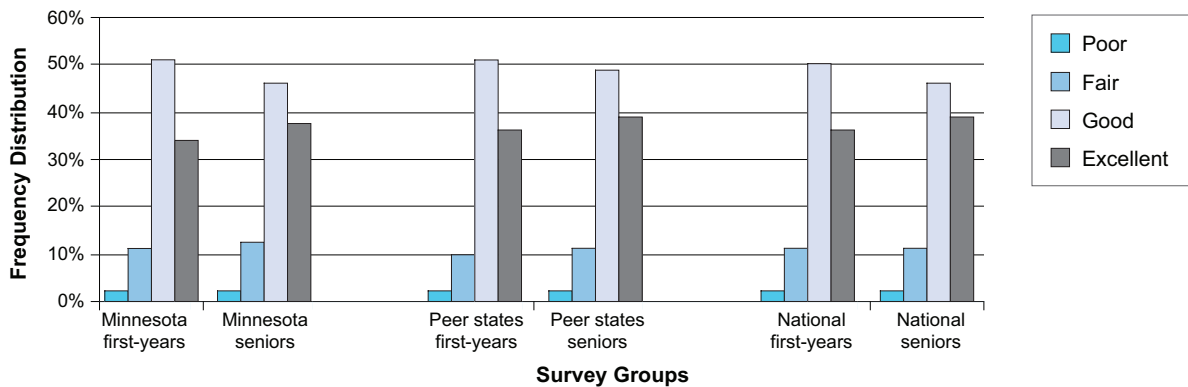
On measures of satisfaction with their overall educational experience assessed by the NSSE, students at Minnesota institutions indicated comparable satisfaction and dissatisfaction levels with both the peer states and the top 50 percent of participating institutions for both first-year and senior students.

Level of Academic Challenge Reported by Students at 4-year Institutions



Source: National Survey of Student Engagement

Overall Educational Experience Reported by Students at 4-year Institutions 2007



Source: National Survey of Student Engagement

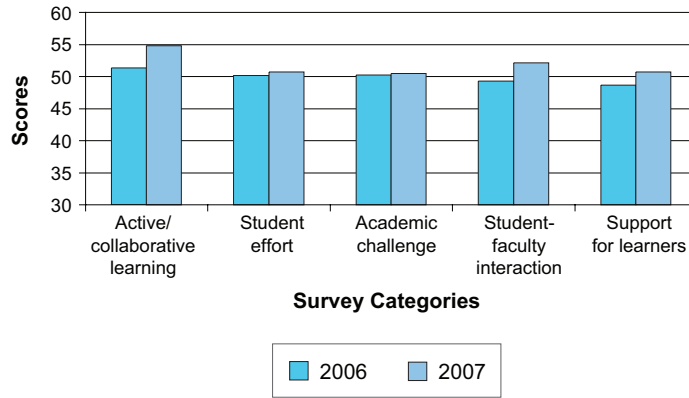
The Community College Survey of Student Engagement²⁵

The Community College Survey of Student Engagement is a survey of public community and technical college students' level of engagement at their institutions. In 2007, 279 public two-year institutions participated nationally, of which 14 were Minnesota institutions. Students in credit-based courses were randomly selected and surveyed during class sessions.

Minnesota institutions improved from 2006 to 2007 across all five survey categories: active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners. Minnesota students indicated a higher level of engagement with their postsecondary institutions when compared to students in other states participating in CCSSE, especially in the areas of active and collaborative learning and student-faculty interaction.

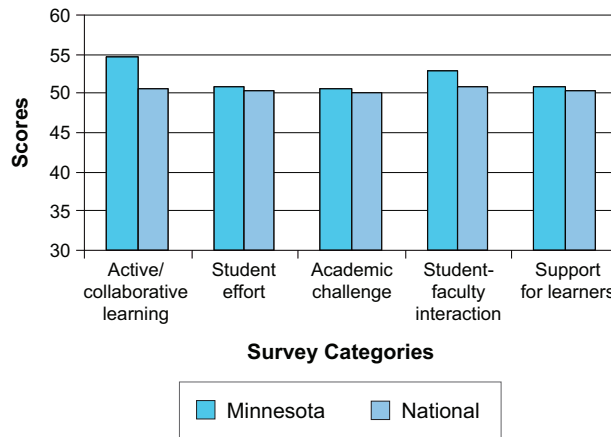
“Minnesota institutions improved from 2006 to 2007 across all five survey categories.”

Minnesota Student Engagement at 2-year Colleges



Source: Community College Survey of Student Engagement

Student Engagement at 2-year Colleges 2007



Source: Community College Survey of Student Engagement

Graduate Preparation

Indicator 3C: Are Minnesota postsecondary institutions doing an adequate job of preparing individuals for graduate study?

Certain graduate admissions tests provide another perspective on undergraduate student learning. These exams are designed to evaluate an individual's level of preparation for graduate study, which includes master's, doctoral and professional degree programs. When viewing graduate admissions test results as measures of student learning, three important caveats should be considered:

- Test-takers represent a select subset of undergraduates who plan to pursue graduate study. While some entire baccalaureate programs use the Graduate Record Exam as a learning outcomes assessment for the program, these tests, in general, are taken by individual students who are interested in pursuing a specific area of graduate study.
- Some test-takers may have completed their undergraduate studies several years prior to taking the test.
- Exams such as the Law School Admission Test and Medical College Admission Test are targeted to specific graduate programs of study.

Given these caveats, it is still useful to consider the extent to which Minnesota undergraduate institutions are effective in preparing individuals for graduate study nationwide.

Graduate Record Exam

Educational Testing Service provided three years of aggregated GRE data, based on the state in which the test-takers earned their undergraduate degrees. Two GRE subtests, quantitative and verbal reasoning, are presented here. In each of the three years reported, approximately 5,300 individuals who had completed their undergraduate degree at a Minnesota institution took the GRE.

On the quantitative subtest, those completing their undergraduate degrees at Minnesota institutions consistently ranked high. Minnesota learners also ranked at the top among the eight peer states and well above the national average in each of the three years.

On the verbal subtest, graduates from Minnesota institutions consistently ranked within the top one-third, though that ranking has slipped over the last three years. As with the quantitative scores, Minnesota test-takers ranked at the top among peer states and well above the national average. Verbal scores have declined over the past three years in 28 of the 50 states. Required minimum scores for admission to graduate school vary by the institution.

Quantitative Reasoning Scores on the Graduate Record Exam

2003 – 2004		2004 – 2005		2005 – 2006	
Top 3 States		Top 3 States		Top 3 States	
Utah	601.3	Massachusetts	592.0	Utah	591.5
Massachusetts	599.0	Minnesota	591.7	Massachusetts	590.9
Oregon	594.6	Wisconsin	590.2	Minnesota	590.8
Minnesota (4th)	593.5	Minnesota (2nd)	591.7	Minnesota (3rd)	590.8
Peer States ⁵	574.9	Peer States	572.2	Peer States	569.8
National Average	558.6	National Average	554.4	National Average	551.2

Source: Educational Testing Service.

Note: Forty-eight of the 50 states experienced an overall decline in quantitative scores over three years; 5,482 individuals in Minnesota took the exam in 2005-2006.

Verbal Reasoning Scores on the Graduate Record Exam

2003 – 2004		2004 – 2005		2005 – 2006	
Top 3 States		Top 3 States		Top 3 States	
Massachusetts	514.8	Massachusetts	513.6	Massachusetts	514.0
Oregon	514.6	Washington	512.4	Vermont	513.6
Washington	512.9	Oregon	511.0	Washington	511.8
Minnesota (13th)	494.5	Minnesota (14th)	494.2	Minnesota (16th)	492.5
Peer States ⁵	479.8	Peer States	481.4	Peer States	479.8
National Average	475.6	National Average	476.6	National Average	475.0

Source: Educational Testing Service.

Note: 5,482 individuals in Minnesota took the exam in 2005-2006.

Law School Admission Test

The average score on the Law School Admission Test for graduates from Minnesota postsecondary institutions was somewhat better than both the national and the peer states average for all three academic years.

Medical College Admission Test

The Medical College Admission Test is taken by undergraduates planning to go to medical school. The Office of Higher Education obtained aggregate data for three years, 2004 through 2006.

The maximum score possible on the MCAT is 45. The first set of columns is for all MCAT completers over the three-year period, the second set is the same data for MCAT completers who were accepted into medical school over that same period. The acceptance rate for Minnesota undergraduates is essentially 50 percent, which is also the case for the peer states. Each is significantly above the national acceptance rate of approximately 21 percent. The mean score for all Minnesota undergraduates completing MCAT is higher than that for the peer group as well as the nation. There are not significant differences between the mean scores for the accepted group.

Law School Admission Test Mean Scores

	2003 – 2004	2004 – 2005	2005 – 2006
National			
Number	128,994	126,224	119,206
Mean	150.8	150.7	150.9
Minnesota			
Number	1,376	1,317	1,190
Mean	152.9	153.1	153.6
Peer States⁵			
Number	22,666	21,617	19,326
Mean	151.8	152.0	152.3

Source: Law School Admissions Council

3-year Performance on the Medical College Admission Test 2004 through 2006

	All MCAT Completers		MCAT Completers Accepted Into Medical School Nationwide	
	Number	Mean score	Number	Mean score
Minnesota	1,331	27.6	665	29.8
Peer States ⁵	21,862	27.3	10,757	30.0
National	258,062	24.8	53,803	29.7

Source: American Association of Medical Colleges

Certification and Licensure Preparation

Indicator 3D: Are Minnesota graduates passing certification and licensure exams at rates better, comparable or worse than students nationally?

The Praxis Series assessments

Praxis Series assessments are a set of exams by Educational Testing Service used for teacher licensure. Three basic areas are covered by the exams: basic content (reading, writing and mathematics), professional knowledge (knowledge related to education) and academic content (based on the subject being taught). These areas are combined into summary pass rates. To pass a portion of the Praxis, test-takers must achieve a score at or above the established cut score, which is set by each state's licensing organization individually. Because cut scores are set individually by each state, no state-to-state comparative data for the Praxis exam exists.

National Council Licensure Examination

The Minnesota State Board of Nursing requires graduates to complete the National Council Licensure Examination at either the practical nurse or registered nurse level in order to obtain licensure in the state. In terms of pass rates at both levels, Minnesota nursing students performed at rates comparable to students nationwide. At the practical nurse level, there has been a slight drop in the pass rate in Minnesota over the past four years.

Other than the associate degree programs at the College of St. Catherine and Rasmussen College, all the associate degree nursing programs (whether preparing students to become practical nurses or registered nurses) are provided by Minnesota public two-year colleges. Many public and private institutions offer bachelor's and master's degree programs in nursing, but there was not a significant difference in the pass rates between students with two- or four-year degrees.

Minnesota Detail: Pass Rates for the Praxis Series

Summary Assessments for Teacher Licensure			
	2003	2004	2005
Public institutions	95.4%	94.2%	88.8%
Private institutions	96.9%	97.5%	95.7%
Total ²⁶	95.9%	95.4%	91.4%
Academic Content Pass Rates			
	2003	2004	2005
Public institutions	98.6%	97.9%	91.1%
Private institutions	98.4%	98.8%	95.8%
Total	98.5%	98.3%	93.0%
Professional Knowledge Pass Rates			
	2003	2004	2005
Public institutions	99.2%	98.9%	99.3%
Private institutions	99.3%	99.5%	99.6%
Total	99.3%	99.1%	99.4%
Basic Skills Pass Rates			
	2003	2004	2005
Public institutions	96.0%	95.2%	95.6%
Private institutions	98.2%	98.4%	98.9%
Total	96.7%	96.4%	96.8%

Source: U.S. Department of Education.

Note: In 2005, a total of 3,714 students took all or part of Praxis, including 2,284 at nine public four-year institutions and 1,430 at 19 private not-for-profit four-year institutions. The decline in summary pass rates between 2004 and 2005 is primarily due to a change in licensure requirements for elementary and middle school teachers.

First-time Licensure Exam Pass Rates for Nursing School Graduates

Group	2003	2004	2005	2006
Minnesota practical nurse candidates	91.0%	91.0%	90.0%	88.6%
National practical nurse candidates	88.0%	89.0%	89.0%	87.9%
Minnesota associate degree (RN) candidates	87.0%	85.0%	84.0%	87.0%
National associate degree (RN) candidates	87.0%	85.0%	87.0%	88.0%
Minnesota bachelor's degree or higher (RN) candidates	90.0%	90.0%	86.0%	88.3%
National bachelor's degree or higher (RN) candidates	87.0%	85.0%	87.0%	88.3%

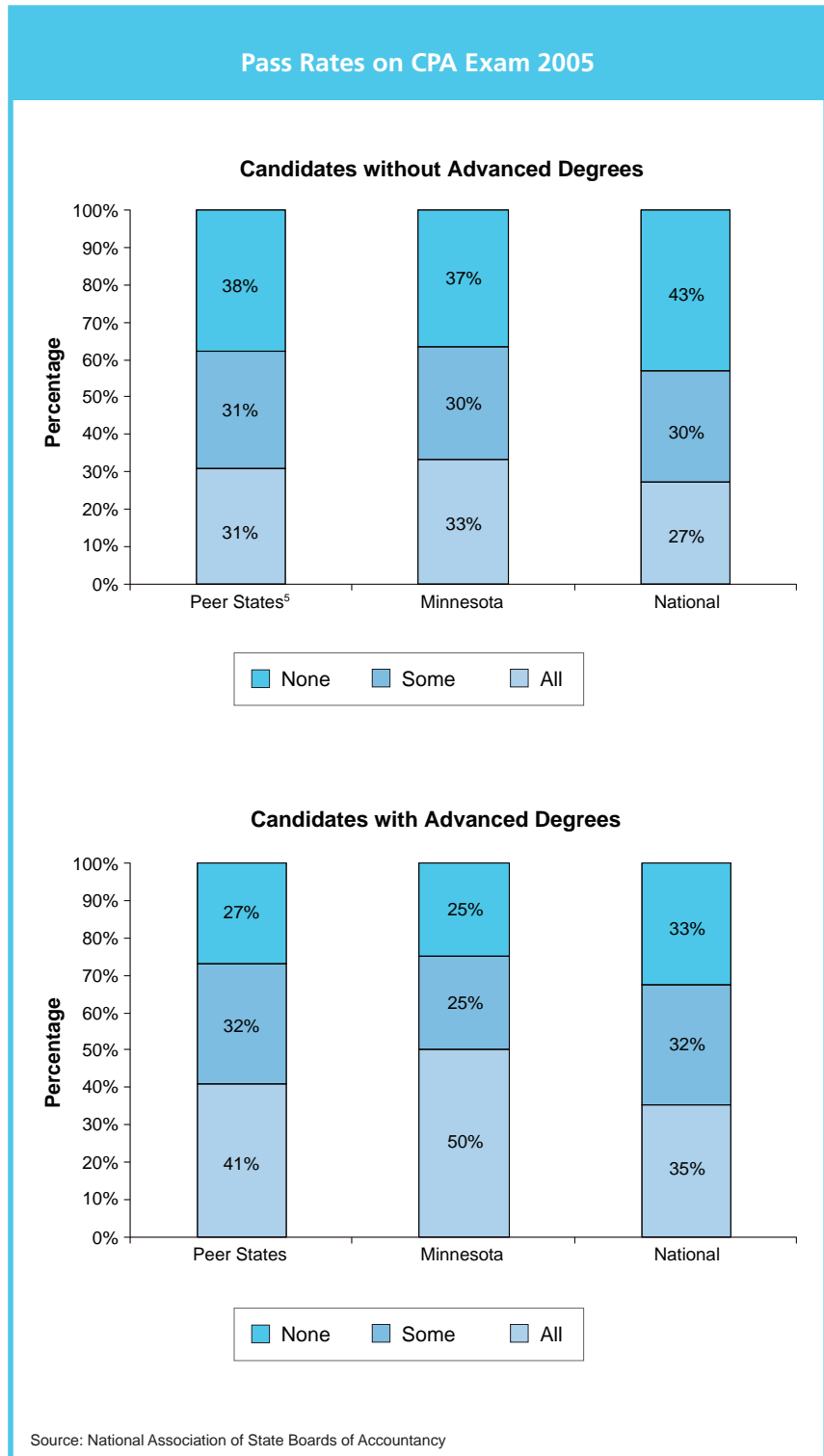
Source: Minnesota State Board of Nursing.

Note: In 2005, nearly 1,700 Minnesota students completed the NCLEX PN exam and nearly 2,400 completed the NCLEX RN exam.

Uniform Certified Public Accounting Exam

The Uniform Certified Public Accounting exam is administered across the country by the National Association of State Boards of Accountancy. The structure of the exam was changed in 2005 (removing one section and adding another), so trend data will be displayed in future reports. In 2005, 576 individuals from Minnesota took the exam.

In the following charts, the labels (all, none and some) refer to the percentage of unique candidates that passed all four sections, none of the sections and some (but not all) of the sections respectively. As is clear from both charts, Minnesota CPA exam-takers perform very well compared to the nation and the peer states. Pass-rate data on individual exam sections were not reported in the aggregate.





Contribute to the development of a state economy that is competitive in the global market through research, workforce training and other appropriate means.

A strong academic research component is beneficial to institutions, students and the state's economy. While many institutions engage faculty and students in some academic and applied research, the University of Minnesota is the state's leading research institution. The University of Minnesota ranks among the top 20 institutions nationally in terms of total federally-funded academic research dollars. The University and the state have a vested interest in seeing the state's rank and reputation improve in this area. The University of Minnesota's strategic plan adopted in 2006 establishes research as a key priority.

The state is fortunate to have a rich complement of institutions performing research through other organizational structures. The Mayo Clinic is a non-profit institution educating health care professionals and receives extensive federal funds for research, much like the University of Minnesota. For this reason, the Mayo Clinic is included in some of the measures in this goal.

This section also includes a measure of workforce training efforts by the Minnesota State Colleges and Universities. This indicator provides valuable information, but falls short of fully measuring the impact of higher education on workforce issues. Additional indicators, based on employer input, will be developed for future reports.

Research and Discovery

Indicator 4A: What was Minnesota's relative position in its national share of academic research?

This indicator recognizes the contribution of academic research to the competitive position of Minnesota in the global economy. Business produces a substantial amount of research to develop new products and processes. However, higher education institutions, such as the University of Minnesota and related non-profit organizations contribute in unique ways that should be separately measured.

The federal government, through agencies such as the National Science Foundation, the National Institutes of Health and the U.S. Department of Defense, provides billions of dollars annually for research. Much of this money is spent on university campuses. These research funds have two significant impacts on the economy of the state. First, the spending provides jobs and income directly through the research process and less directly as the money moves through the economy. Second, and more importantly, this research can lead to new products, techniques and services that can create new industries.

Minnesota ranked 18th for 2004 in its share of national academic research dollars, which can translate into research activity. Minnesota's share of 1.9 percent was well below the two top states, California and New York, both of which are significantly larger than Minnesota and are home to numerous research

institutions. The share of the total in Minnesota of 1.9 percent is well below the 3.3 percent average for Minnesota's peer states. (This figure is a weighted average for the states in this group.)

While Minnesota cannot expect to reach the research activity levels of California or New York due to its size, the percent share of total research over time provides a good indication of the state's position and direction. Slight changes in the share of research dollars can make a big difference to a state. For example, an increase of one percentage point in the share would bring in another \$324 million to the state. Between 2003 and 2004, total academic research grants in the state grew by about 10 percent. This change was driven in large part by success at the Mayo Clinic, which received a 27 percent increase in grant funds.

This measure included all institutions of higher education and the Mayo Clinic. Minnesota's data are dominated by the University of Minnesota since few other universities in Minnesota obtain significant funds for sponsored research. This indicator included research funded by the federal government, business and industries and non-profit foundations. It excluded research funded by states or institutions.

Compare Minnesota: Academic Research Share and Rank

	2000	2001	2002	2003	2004
Minnesota	1.8%	1.8%	1.9%	1.9%	1.9%
Rank	19	18	17	18	18
Top 3 States					
California					13.4%
New York					8.1%
Texas					6.5%
Peer States ⁵	3.4	3.5	3.6	3.5	3.3

Source: National Science Foundation Division of Science Resources Statistics, Academic Research and Development Expenditures, fiscal year 2005

Research and Discovery

Indicator 4B: How does the University of Minnesota compare to other flagship research institutions?

The competition for sponsored research dollars among institutions with similar scope and mission around the country and the world is intense. A publicly established goal of the University of Minnesota’s governing board is to be among the top three public research universities in the world.

The Arizona State University report on America’s top research universities defines top research universities as those receiving more than \$20 million in annual federal research dollars and ranking within the top 25 on at least one of the nine measures listed below.

- Research dollars
- Federal research dollars
- Size of endowments
- Annual giving to the institution
- Membership in the national academies
- Number of faculty awards
- Number of doctorates granted
- Number of post doctorates appointed
- The average SAT scores of entering freshmen

Seventy institutions met the criteria and were included in the ranking of top research institutions in the country. From there, researchers ranked institutions based on how many times each institution ranked among the top 25 percent on these measures. The top institutions earned nine points, one point in each of the categories listed above. The University of Minnesota earned seven points, ranking among the top 17 research universities in the country.

The University improved its score from six points in 2005, to seven of the nine measures in 2006. The improvement came in the faculty awards category. The two measures where the University of Minnesota did not score in the top 25 percent were the membership in national academies and student SAT scores. While this is positive improvement, the University’s rank dropped from 15 to 19 in overall research funding and posted a slight decline in federal research.

Ranking of Top 17 Public and Private U.S. Research Universities 2006

Type	Institution	Number of Measures in the Top 25 Nationally
Private	Columbia University	9
Private	Harvard University	9
Private	Massachusetts Institute of Technology	9
Private	Stanford University	9
Private	University of Pennsylvania	9
Private	Johns Hopkins University	8
Private	Duke University	8
Public	University of California-Berkeley	8
Public	University of Michigan-Ann Arbor	8
Private	Yale University	7
Public	University of Minnesota-Twin Cities	7
Public	University of Washington-Seattle	7
Public	University of California-Los Angeles	7
Private	Cornell University	6
Private	Washington University-St. Louis	6
Public	University of Wisconsin-Madison	6
Public	University of California-San Francisco	6

Source: The Center for Measuring University Performance, Arizona State University,²⁷2006

Arizona State University’s analysis evaluated institutions within the United States and did not establish international comparisons. Other organizations rank higher education institutions on an international basis. Because the methodologies of these other rankings have not been completely investigated, they are not fully presented in this report.

“The University of Minnesota earned seven points, ranking among the top 17 research universities in the country.”

Comparison to other countries is important given the aspirations of the University of Minnesota leadership to improve the institution's standing and reputation on research and discovery internationally.

Related rankings by other sources:

- Institute of Higher Education, Shanghai Jiao Tong University in China ranked the University of Minnesota 33rd internationally among the top 100 research institutions for 2007. This is comparable to Minnesota's rank the previous year.
- Wuhan University's Research Center for Chinese Science Evaluation ranked the University of Minnesota 18th in the world. The ranking is based on Essential Science Indicators, which provide data on journal article publication counts and citation frequencies in over 11,000 journals around the world in 22 research fields.
- *London Times Higher Education Supplement* ranked the University of Minnesota 187th out of 200 internationally in 2006. This was down from a ranking of 150 the prior year.
- The G-factor International University Ranking placed the University of Minnesota 19th in the world. This source ranks universities as a function of the number of links to their Web sites from the Web sites of other leading international universities. Using a similar approach, Webometrics pegs the University at 19th as well.
- *Newsweek* ranked the University of Minnesota 30th internationally among research institutions in 2006.

Research and Discovery

Indicator 4C: What were the total expenditures on research and development as a proportion of gross domestic product?

While indicator 4B measures academic research dollars, this indicator measures total expenditures on research in the state from all sources, including business. Total research expenditures for the state were larger, by a factor of eight, than spending on academic research alone. This provides a context for the academic research measure. Research in business and industry is more closely aligned with finished products produced by corporations. But many of these products may have their roots in basic research performed at an earlier stage at a university. Total academic research spending (including non-profit based research) in 2004 in Minnesota was \$742 million. Total research spending from all sources was \$5.99 billion.

Research as a share of output in Minnesota grew between 2000 and 2003 but dropped somewhat in 2004. There has been a significant increase in business spending as well. Even though the share declined in 2004, Minnesota's rank improved between 2003 and 2004.

Performance on this indicator can be influenced by factors that have nothing to do with the strength or growth of a state's economy. For example, New Mexico has the highest share of gross state product both because its economy is small and two large federal laboratories are located there.

“Research as a share of output in Minnesota grew between 2000 and 2003 but dropped somewhat in 2004.”

Research Expenditures as a Proportion of Gross Domestic Product by State and Country

	2000	2001	2002	2003	2004
Top 3 States					
New Mexico					8.0%
Maryland					6.3%
Massachusetts					5.2%
Minnesota	2.3%	2.6%	2.6%	2.8%	2.7%
Rank	17	16	14	15	14
National average	2.7%	2.7%	2.5%	2.6%	2.4%
Peer States ⁵	2.7%	2.7%	2.5%	2.5%	2.5%
OECD Countries Average	2.2%	2.3%	2.2%	2.3%	2.3%
Top 3 Countries					
Finland					3.5%
Japan					3.1%
Korea					2.9%

Source: The National Science Foundation (national data), Organisation for Economic Cooperation and Development (international data).

Note: In order to scale the measure across states, the indicator was divided by gross domestic product by state which is provided by the Bureau of Economic Analysis.

Workforce Development

Indicator 4D: What is the activity at Minnesota State Colleges and Universities in customized and contract training?

Much of postsecondary education can be seen as a form of workforce training since many students continue their education beyond high school to obtain the knowledge and skills needed for future employment. This indicator is more limited in scope and is intended to address one important aspect of direct workforce training undertaken at the Minnesota State Colleges and Universities.

The system's 32 two- and four-year institutions offer employee training, including contract training, in a broad range of areas designed to meet common business challenges. For some employer needs, a standard training program works best. More often, however, colleges and universities customize or create new training tailored to an employer's workforce, timeline, industry or business plan. Training is delivered on-site, on campus or online. This indicator measures the change in unduplicated headcount enrollment in credit and non-credit courses in customized training from 2003 through 2006.

More than 97 percent of all customized training offered by the Minnesota State Colleges and Universities is provided by the system's two-year colleges. This activity tends to be more prevalent in the non-metropolitan part of the state, with about 63 percent of the total number of customized training course sections offered in greater Minnesota in 2006.

**Customized Training – Full-year Unduplicated Headcount
Minnesota State Colleges and Universities 2006**

Fiscal Year	Contract Courses			Open Enrollment	Total Customized Training Enrollment
	Credit	Non-Credit	Total Contract Courses		
2003	5,136	83,456	87,918	57,645	141,780
2004	4,927	81,388	85,699	60,812	142,829
2005	4,582	78,266	82,160	62,096	141,262
2006	3,674	82,224	85,219	64,310	146,345

Source: Minnesota State Colleges and Universities system, Office of Research and Planning, 2007.

Note: The totals in the tables do not add up exactly since this is an unduplicated count and students are only counted once even though they may take both credit and non-credit courses. Open enrollment is non-credit enrollment by individuals that is not contracted by an employer.

5 Provide access, affordability and choice for all students.

With more than 150 postsecondary institutions in Minnesota offering a wide variety of programs at all levels, students have many choices. A range of admissions policies and the availability of online courses from both public and private institutions further enhance access and opportunity.

Academic preparation is an issue of continuing concern and has a great impact on access. Lack of academic preparation rivals affordability as a barrier to college access. Both public and private colleges and systems are increasing their involvement in efforts to improve high school rigor, clarify expectations and improve college readiness.

College affordability is a complex issue for which there is no ideal measure and comparisons nationally and internationally are difficult. Affordability is a function of college prices, the student's college and program choice, income, assets and financial aid coupled with the family's determination of what it wants to invest in the student's education. Among the findings in this section are that Minnesota students are borrowing more and at higher rates than students in the peer states, and that net tuition and fees are higher than both the national average and the peer state average.

Access

Indicator 5A: What are the enrollment rates in Minnesota postsecondary institutions by age group?

One way to measure access and affordability is to consider the extent to which individuals are enrolling in postsecondary education generally. This enrollment data, based on the American Community Survey, is the most comprehensive measure of postsecondary enrollment for which there is comparable international data. Its inclusion in this section is based on the premise that enrollment levels may be a reflection of accessibility and affordability.

In 2006, 41 percent of traditional age college students were enrolled in some form of postsecondary education in Minnesota. This is slightly above the national average.

This data must be interpreted in a broad context. For example, in the 25- to 34-year old age group, Minnesota ranks 34th in young adult enrollment nationwide. But in terms of degree attainment for this same group, Minnesota was ranked second in the nation, with 48 percent of this population holding an associate degree or higher (see Indicator 2A on page 21).

Proportion of 18 – 24 Year Old Population Enrolled in Postsecondary Education 2006

Top 3 States	
Rhode Island	53.6%
Massachusetts	49.6%
North Dakota	48.9%
Minnesota (17th)	41.4%
Peer States ⁵	42.6%
National	39.7%

Source: American Community Survey, U.S. Census Bureau.
Note: 2006 was the first year the American Community Survey included individuals living in group housing, including campus residence halls, in its survey. International data for 2006 was not available.

Proportion of 18 – 24 Year Old Population Enrolled in Postsecondary Education 2005

Top 3 Countries	
Republic of Korea	51.7%
Greece	44.5%
Belgium	33.7%
Minnesota	36.2%

Source: American Community Survey, U.S. Census Bureau (domestic data), Organization for Economic Cooperation and Development (international data).

Proportion of 25 – 34 Year Old Population Enrolled in Postsecondary Education 2006

Top 3 States	
Utah	15.1%
Maryland	14.9%
New Mexico	14.5%
Minnesota (34th)	10.5%
Peer States ⁵	11.3%
National	11.4%

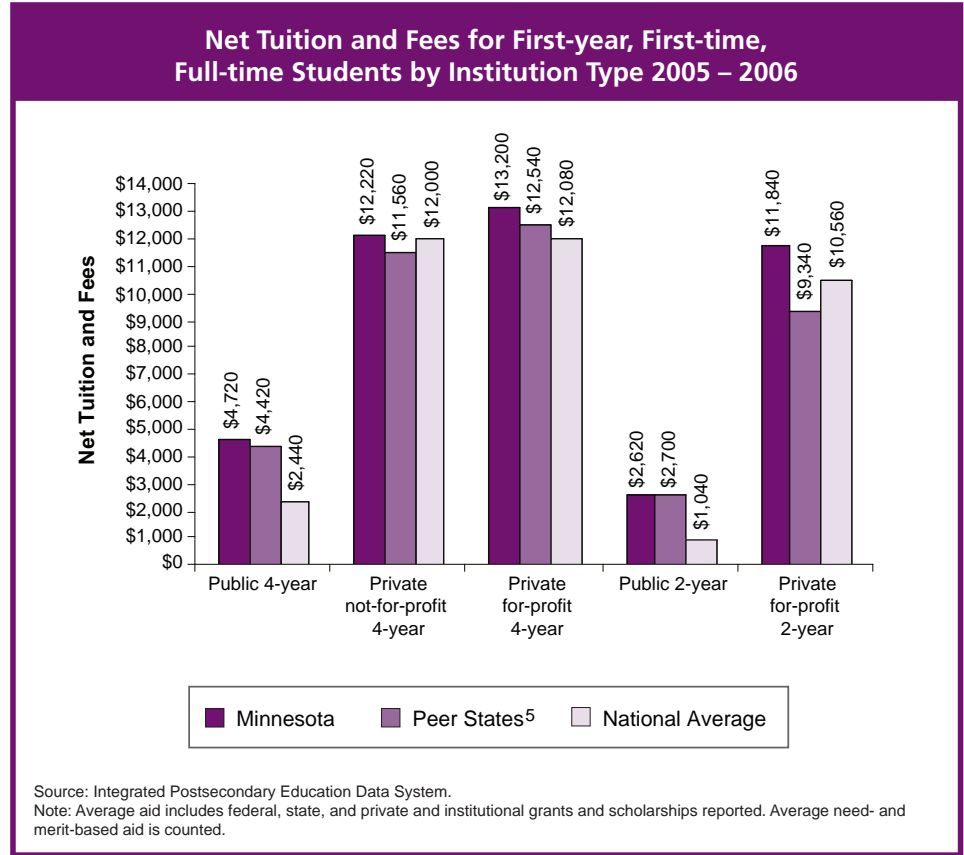
Source: American Community Survey, U.S. Census Bureau.
Note: 2006 was the first year the American Community Survey included individuals living in group housing, including campus residence halls, in its survey. International data for 2006 was not available.

Net Prices

Indicator 5B: How do net tuition and fees at Minnesota institutions compare to the net tuition and fees at colleges nationally?

Tuition and fees vary greatly among institutions. Evaluation and analysis of college prices are incomplete without consideration of the range of financial aid provided to students. In higher education, too often the true net price of attendance is obscured by the sticker price, and net prices are unclear to students and their parents until the final days of their college selection process.

This measure shows the net price for first-year, first-time, full-time students, broken down by institution type. Net tuition and fees is tuition and fees minus all grant-type aid that does not have to be repaid including federal, state and institutional grants and scholarships. The averages shown here are weighted by the number of first-time, full-time students at each institution. These data represent averages for students of all incomes.



Breakdown of Financial Aid for First-year, First-time, Full-time Students Fall 2005

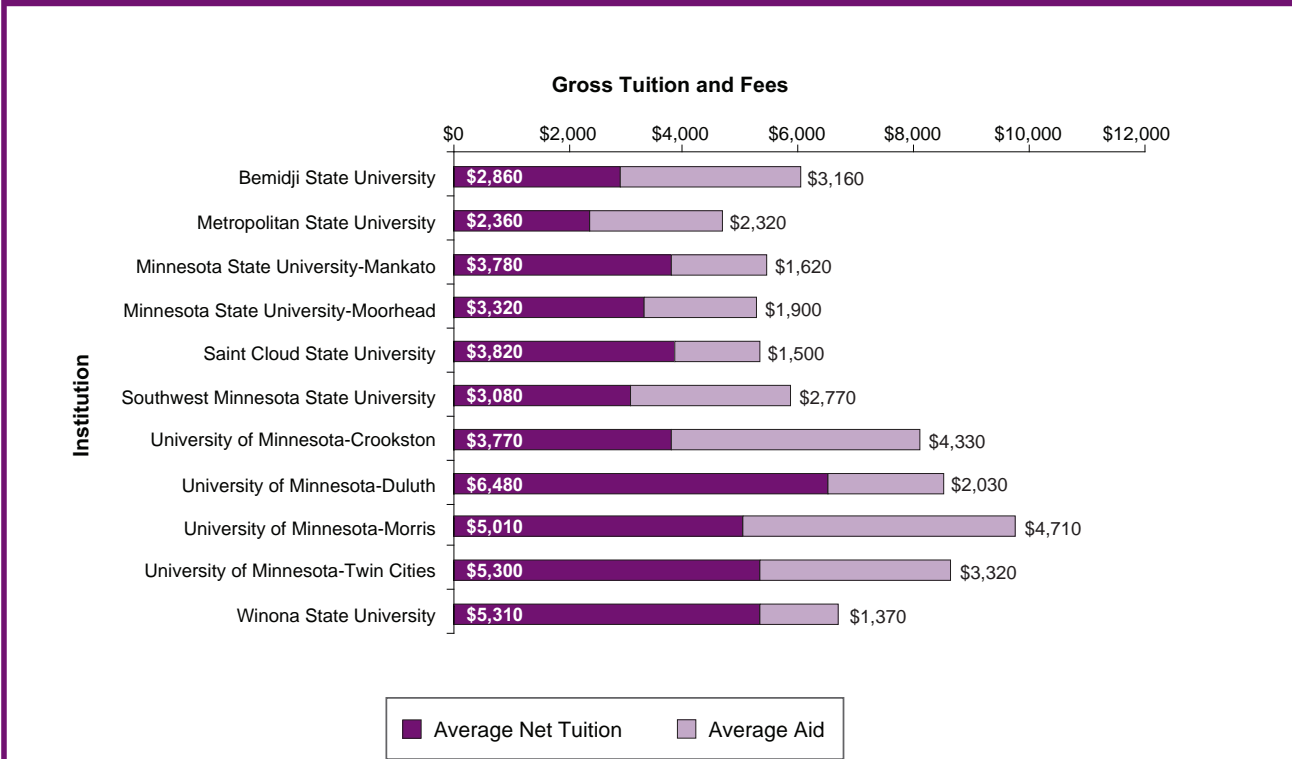
Institution Type	Fall 2005 Cohort	% Receiving Federal Aid	Average Federal Aid	% Receiving State Aid	Average State Aid	% Receiving Institutional Aid	Average Institutional Aid
Public 4-year	16,143	19%	\$3,542	26%	\$2,636	34%	\$3,017
Private not-for-profit 4-year	10,013	19%	\$3,470	25%	\$3,316	90%	\$9,731
Private for-profit 4-year	2,847	43%	\$2,221	46%	\$1,692	16%	\$1,390
Public 2-year	18,964	34%	\$2,821	35%	\$1,249	7%	\$945
Private for-profit 2-year	1,285	48%	\$2,683	57%	\$1,871	4%	\$1,519

Source: Integrated Postsecondary Education Data System.
 Note: The cohort here is first-time, full-time, first-year students in the fall of 2005.

Minnesota’s two- and four-year public institutions have among the highest gross tuition and fees nationally (sixth and ninth respectively). The same is true for the average net tuition and fees. At Minnesota’s two- and four-year public institutions, average net tuition and fee amounts are essentially double the national averages for their respective segments. There is no consistent relationship between the amount of grant aid and gross tuition across states.

The following charts show the distribution of financial aid and net price for first-year, first-time, full-time students at most of Minnesota’s postsecondary institutions. The charts are separated by institution type. The full bar represents gross tuition and fees. The dark purple portion is the average net tuition and fees. The light purple is the total average grant aid.

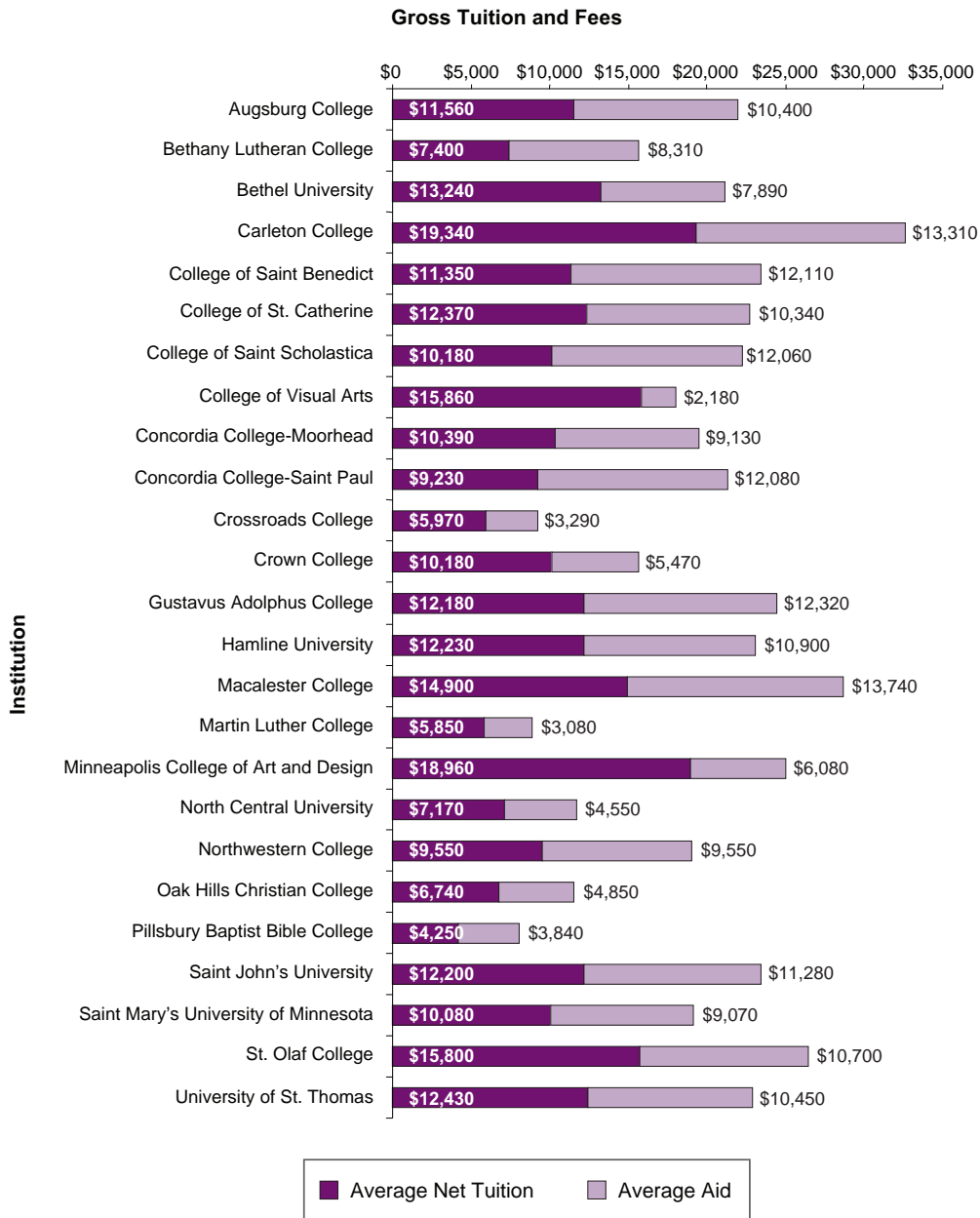
Net Tuition and Average Aid for First-year, First-time, Full-time Students at Public 4-year Institutions 2005 – 2006



Source: Integrated Postsecondary Education Data System.
 Note: Average aid includes federal, state, private and institutional grants and scholarships reported, based on a weighted average for the students attending each institution. Average need- and merit-based aid is counted. Students receiving no financial aid were included in the calculation of average aid for each institution.

Net Prices 5B continued

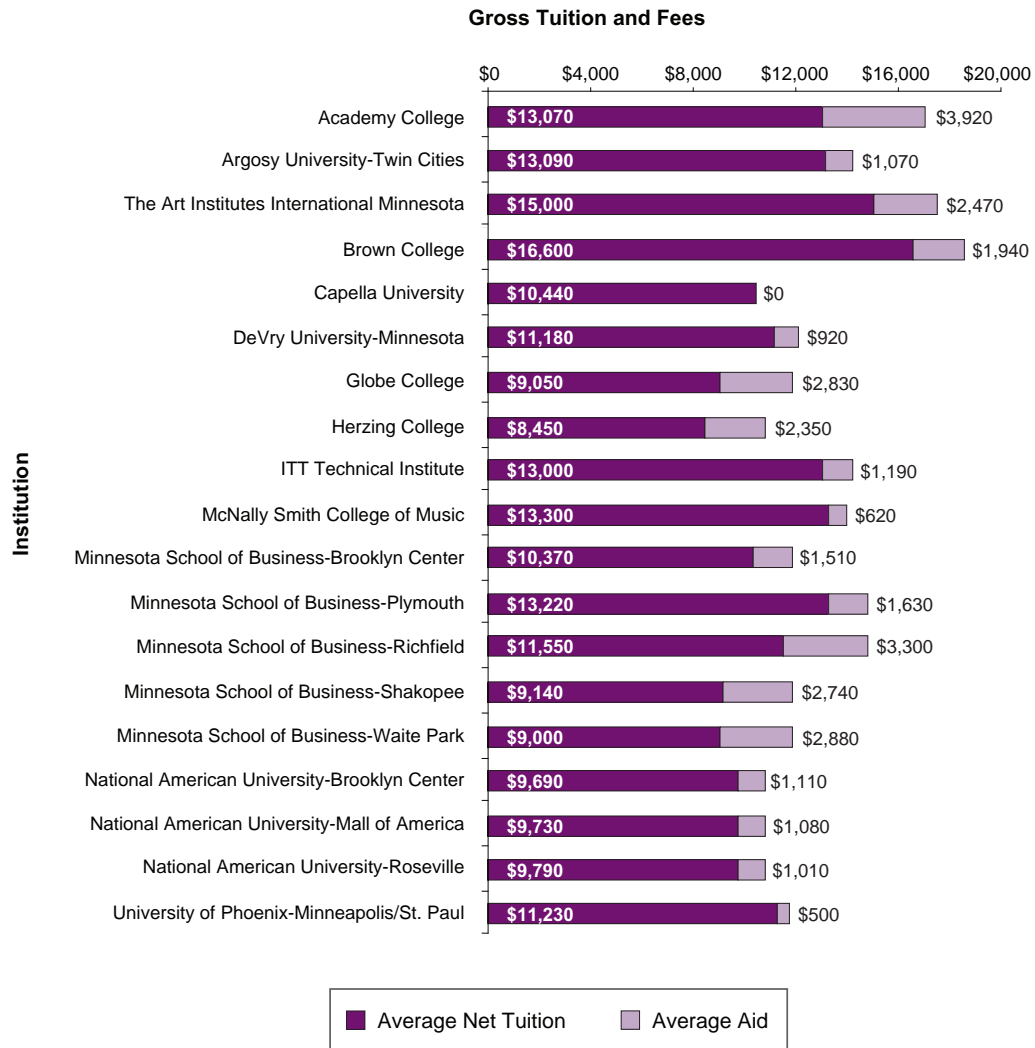
Net Tuition and Average Aid for First-year, First-time, Full-time Students at Private Not-for-profit 4-year Institutions 2005 – 2006



Source: Integrated Postsecondary Education Data System.

Note: Average aid includes federal, state, private and institutional grants and scholarships reported, based on a weighted average for the students attending each institution. Average need- and merit-based aid is counted. Students receiving no financial aid were included in the calculation of average aid for each institution.

Net Tuition and Average Aid for First-year, First-time, Full-time Students at Private For-profit 4-year Institutions 2005 – 2006

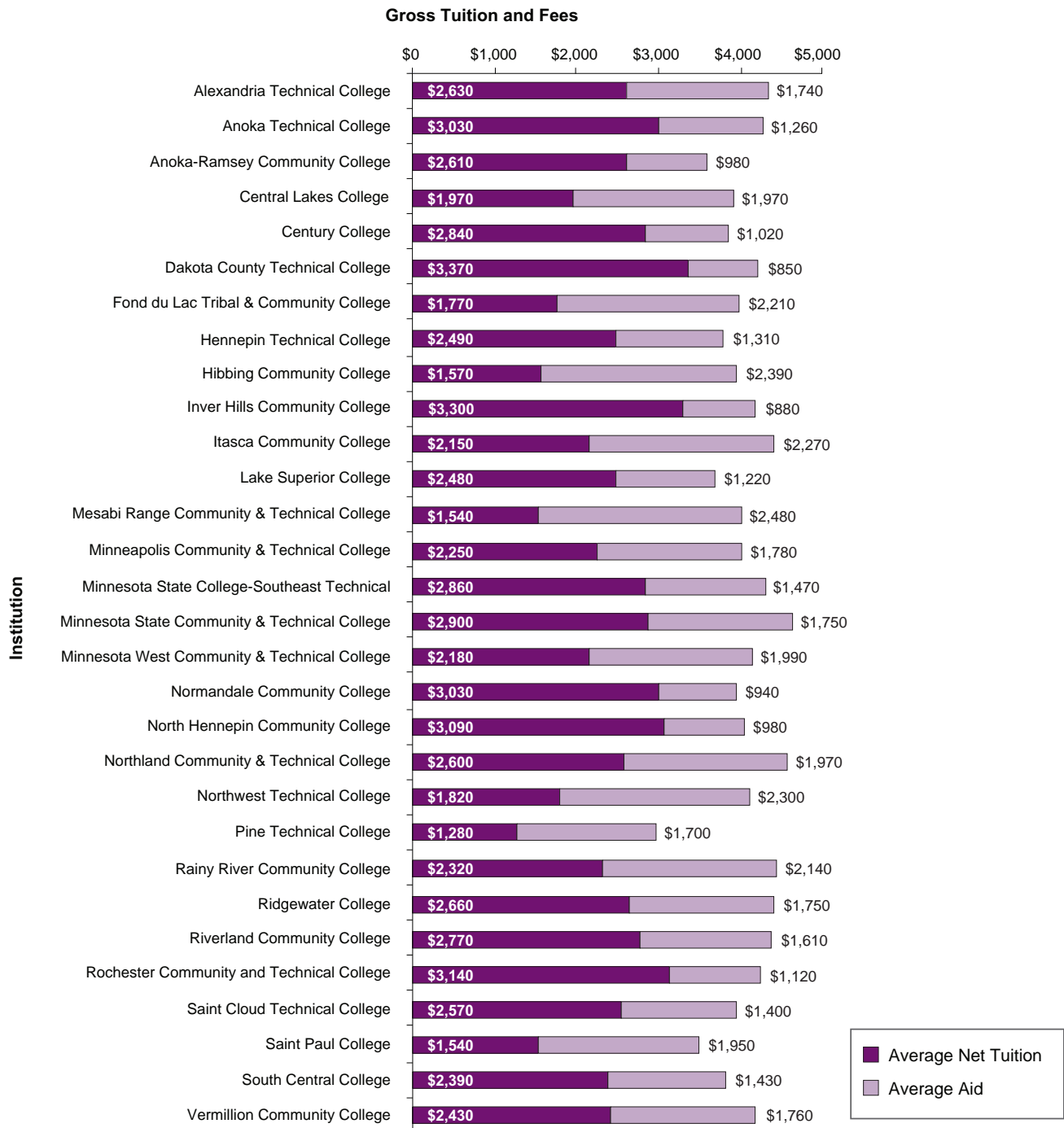


Source: Integrated Postsecondary Education Data System.

Note: Average aid includes federal, state, private and institutional grants and scholarships reported, based on a weighted average for the students attending each institution. Average need- and merit-based aid is counted. Students receiving no financial aid were included in the calculation of average aid for each institution.

Net Prices 5B continued

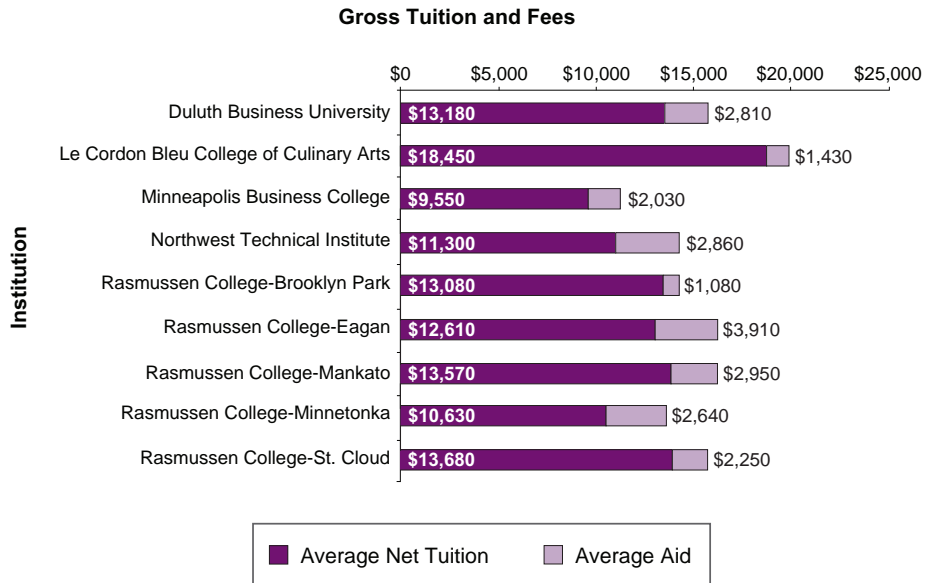
**Net Tuition and Average Aid for First-year,
First-time, Full-time Students at Public 2-year Colleges 2005 – 2006**



Source: Integrated Postsecondary Education Data System.

Note: Average aid includes federal, state, and institutional grants and scholarships, based on a weighted average for the students attending each institution. Students receiving no financial aid were included in the calculation of average aid for each institution.

**Net Tuition and Average Aid for First-year, First-time,
Full-time Students at Private 2-year For-profit Schools 2005 – 2006**



Source: Integrated Postsecondary Education Data System.
 Note: Average aid includes federal, state, private and institutional scholarships, based on a weighted average for students attending each institution.
 Students receiving no financial aid were included in the calculation of average aid for each institution.

Affordability

Indicator 5C: What is the net price of higher education in Minnesota after grants, scholarships and tax credits are factored in?

This indicator provides a refined alternative to the net tuition and fees outlined in the previous indicator. This measure takes into account more of the factors that affect the net price including: gross tuition and fees, an estimated living allowance, financial aid, employer aid and some federal tax credits. Most importantly, this indicator presents the net price in the context of student and family income.

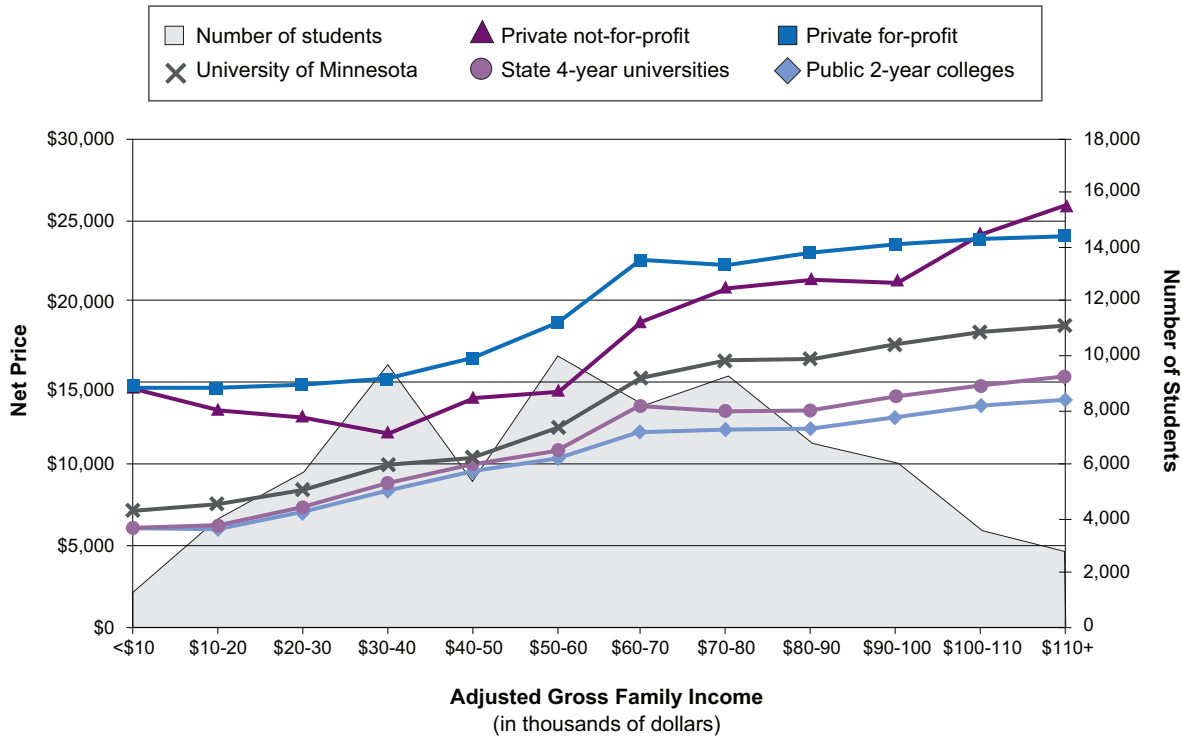
Since data is not available for individuals for many of the aid components, hypothetical families were constructed using information from a number of sources. In calculating these amounts, a “typical” student was used. The “typical” dependent student is defined as a student from a family with a household size of four, with two parents and two children, with one of the children in enrolled in postsecondary education. Net price was calculated as follows:

$$\text{Net Price} = (\text{tuition} + \text{fees} + \$10,000 \text{ living allowance}^{28}) - (\text{grants} + \text{scholarships} + \text{tax credits})$$

Grants, scholarships and tax credits are the average sum of:

- **Federal Pell and Minnesota State Grants**
- **Institutional grants and scholarships:** The average amount (including students who received no aid) for all U.S. undergraduates in 2004 by \$5,000 income bands by type of institution, adjusted to reflect differences between average institution grants to Minnesota undergraduates and national averages.²⁹
- **Private scholarships:** The average amount of private scholarships (e.g., Lions Club or Kiwanis) for U.S. undergraduates, adjusted to reflect differences between average private scholarships awarded to Minnesota undergraduates and national averages.
- **Employer aid:** The average amount for U.S. undergraduates adjusted to reflect differences between employer aid given to Minnesota undergraduates and national averages. Employer aid includes tuition reimbursement, tuition benefits to children of university staff and similar assistance.
- **Federal Hope Tax Credits:** A simulation of the federal higher education Hope Tax Credit.³⁰

Net Price by Income for Full-time, Dependent Undergraduates 2006 – 2007



Source: Minnesota Office of Higher Education.
 Note: Net price reflects tuition, fees and a \$10,000 living allowance estimate for room and board, transportation and other expenses, minus all government grants, private and institutional scholarships and tax credits. The numbers are averages for students attending each institution type at each income level.

The charts in this indicator show the average net prices students and families pay. These costs can be met in a variety of ways. Students often work, take out loans or use past savings. Similarly, the family uses current income, savings and loans. Finally, the student may reduce costs by taking fewer courses and extending the time in school or by living on less than the \$10,000 assumed in the analysis.

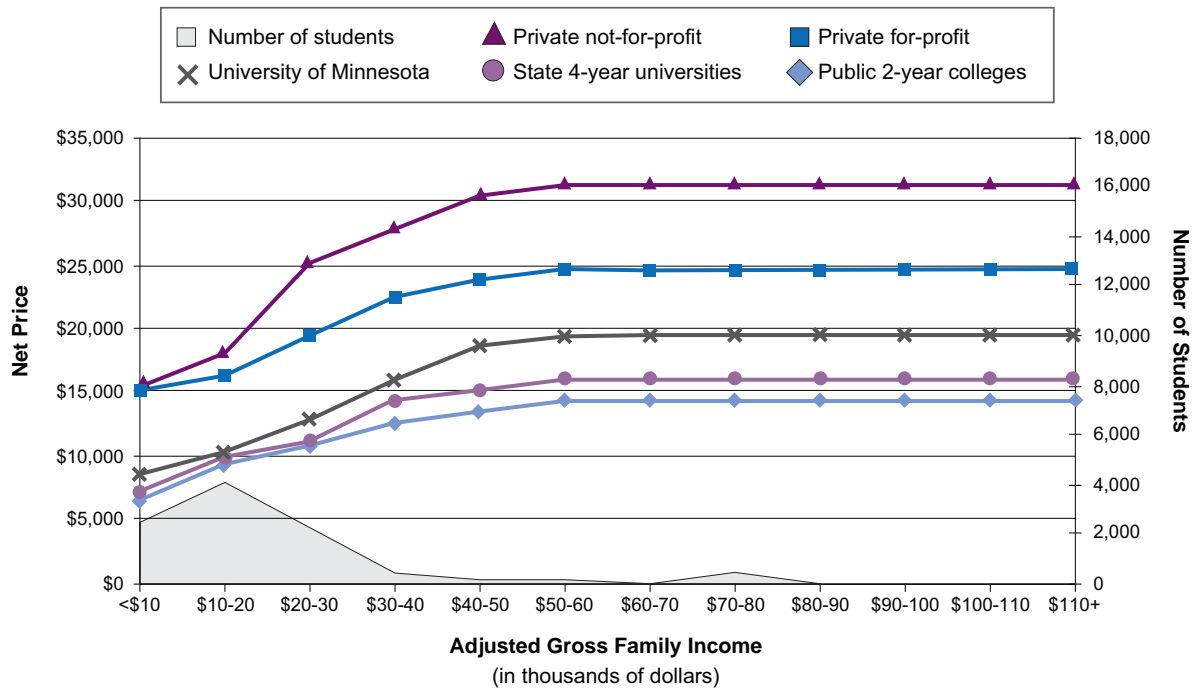
Net prices vary with income. Generally, families and students with lower incomes face lower net prices for each institution type. For example, a dependent student attending the University of Minnesota on a full-time basis and coming from a family with income between \$30,000 and \$35,000 faced a net price of about \$9,100.

Dependent Students

The first chart shows net price for dependent students, generally those who are under 24 years old. The second chart shows single, independent students, generally those who are 24 years old or older, without children.

Affordability 5C continued

Net Price by Income for Full-time, Single, Independent Undergraduates 2006 – 2007



Source: Minnesota Office of Higher Education.

Note: Net price reflects tuition, fees and a \$10,000 living allowance estimate for room and board, transportation and other expenses, minus all government grants, private scholarships and tax credits. The numbers are averages for students attending each institution type at each income level.

Independent Students

A single, independent student attending the University of Minnesota full time, for example, with an income between \$10,000 and \$15,000, faced an estimated net price of about \$10,000. A similar student with income between \$20,000 and \$25,000 faced a net price of \$11,500. While students at the lower end of the income scale have lower net prices, their net prices may be substantial compared to their income. As income increases, net prices increase dramatically, especially for single, independent students.

Borrowing Patterns

Indicator 5D: To what extent were Minnesota students borrowing to finance their education?

The educational debt of college graduates is an important concern in any discussion about affordability. The number of students with loans and the total amount borrowed provide one perspective on college affordability. If students believe they cannot complete a college education without incurring significant debt, there may be negative implications for the student, the state and the economy.

The charts below show that 67 percent of graduating seniors from Minnesota public universities had student loans in 2006. The seniors borrowed

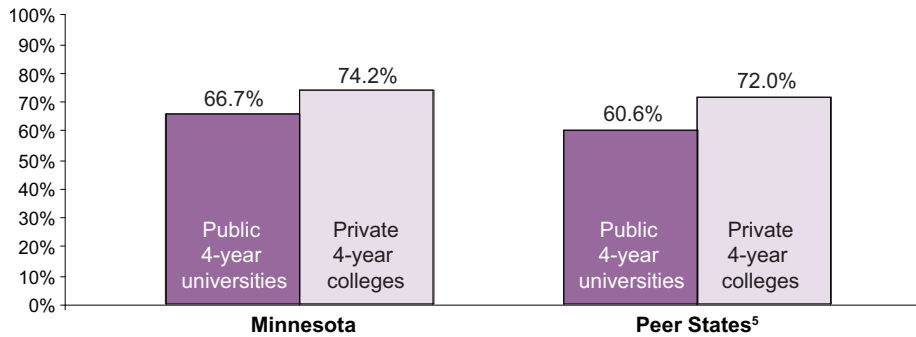
a cumulative total of \$20,933, on average. For students graduating from private colleges and universities, 74 percent had loans, and the average amount borrowed was \$25,666.

In comparison, for graduating seniors from public universities in the peer states, 61 percent had student loans in 2005, and the average amount borrowed was \$19,406. For seniors graduating from private colleges and universities, 72 percent had student loans, and the average amount borrowed was \$22,249.

More Minnesota students borrowed, and those who did borrowed greater amounts than the average for peer states. Those graduating from private colleges and universities are borrowing larger amounts than students graduating from public universities.

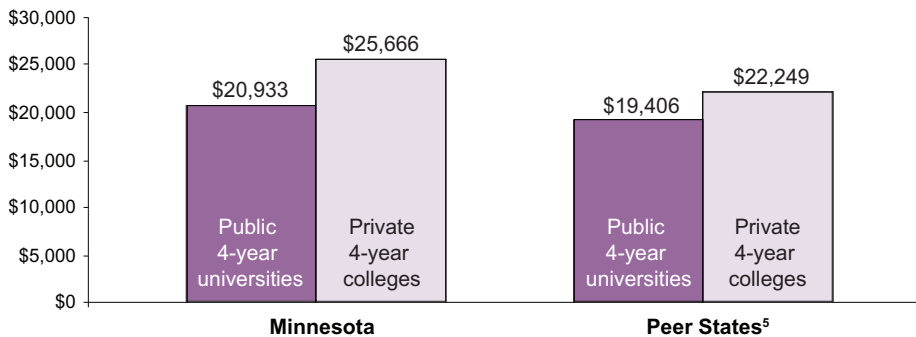
Some view borrowing for postsecondary education as a type of investment that will provide income and other benefits over a lifetime. As in the general economy, student debt may tend to increase with favorable interest rates.

Percent of Graduating Seniors with Student Loans 2006



Source: Peterson's College Guides, a Nelnet Company

Average Cumulative Debt of Graduating Seniors with Student Loans 2006



Source: Peterson's College Guides, a Nelnet Company

Minnesota Measures

A report on higher education performance

Next Steps

Minnesota Measures 2008 provides information on the performance and engagement of Minnesota's higher education system as a whole. While the report provides valuable perspective, further work in important areas is clearly indicated. In the process of developing the report, numerous issues were defined for further research; some of these are continuations from the previous report. Deeper exploration into these areas will provide a more complete and coherent picture of the progress on the five goals.

International comparisons:

One of the ongoing projects from *Minnesota Measures 2007* is the selection of appropriate metrics for comparing Minnesota's postsecondary education system to international counterparts. Based upon work from *Education at a Glance*, an annual publication of the Organisation for Economic Cooperation and Development, a set of international metrics will be prepared for a follow-up report to *Minnesota Measures 2008*.

Employer survey:

At the time of the release of *Minnesota Measures 2008*, the Office of Higher Education was in the process of developing and disseminating an employer satisfaction survey. The survey, sent to more than 1,000 Minnesota employers, focuses primarily on the general skills and attributes desired by employers and an overall assessment of the preparedness of graduates of Minnesota programs. The results will cut across all segments of higher education and all types of programs, and will be presented as part of a follow-up report.

College completion:

As a next step directive from *Minnesota Measures 2007*, The Office of Higher Education engaged in a study of existing literature on the economic returns to individuals based upon various levels of completion. This work suggests that there are economic returns to those who complete some college courses without completing a degree. The research is needed to determine how this differs by degree level. These returns are heavily dependent upon the chosen program of study.

From a policy perspective, there is also value to the state in considering issues related to the time it takes students to complete degrees. Further study will focus on factors such as tuition and other costs of attendance incurred as well as loss of income for individuals; from the institutional perspective, the focus will be on costs incurred, revenue and other resource issues.

College preparedness:

The two components of college access that impact every student are affordability and academic readiness. The first two editions of *Minnesota Measures* have covered affordability but have not addressed the readiness issue in depth. Given the increased focus on assessment at all levels of education (primary, secondary and postsecondary), the Office of Higher Education will explore work on a variety of areas related to college preparedness.

Gender analysis:

The Office of Higher Education will explore existing research and statewide enrollment data to analyze the rates at which both male and female students are participating in and succeeding in college.

Graduation and retention:

There are a number of caveats related to graduation and retention rates as collected and reported by the National Center for Education Statistics through its Integrated Postsecondary Education Data System. IPEDS data construction limits analysis to the use of first-year, first-time, full-time students in the cohorts for graduation and retention. The Office of Higher Education is exploring the use of its own enrollment database as well as other available data sources. If successful, the agency will produce reports that look at retention trends beyond first-to-second year and consider both full- and part-time retention and that assess graduation rates that consider transfer-in students and part-time students.

Workforce development:

The evaluation of workforce needs in Goal Four is limited to reports on contract training at Minnesota State Colleges and Universities. In order to develop a broader analytical context, a survey of employers will be undertaken that assesses total workforce training including programs delivered internally as well as externally. The Bureau of Labor Statistics performed similar work during the mid-1990s that will be used as a guide for this work.

End Notes

- 1 The New Economy Index was developed by the Progressive Policy Institute in the past, but is now being maintained by Ewing Marion Kaufman Foundation, based on a series of economic criteria.
- 2 ACT has determined specific benchmark scores in each subject tested as the minimum scores needed in the subject area to have a 75 per cent chance of obtaining a C or higher in corresponding credit-bearing college courses.
- 3 For additional detail, visit www.ohe.state.mn.us/tPg.cfm?pageID=764.
- 4 Computation of college participation rates is not an exact science. Three sources (NCES, NCHEMS and OECD) show three different national participation rates for the United States. The methodology used by NCHEMS most closely mirrors the methodology used by Minnesota in computing college participation numbers, so the NCHEMS data is used and referenced here. For more information, visit www.higheredinfo.org.
- 5 Iowa, Illinois, Indiana, Ohio, Pennsylvania, Michigan, Minnesota and Wisconsin. The peer states used for indicator 3B do not include Minnesota.
- 6 See the April 2006 issue of *Insight*, a newsletter published by the Office of Higher Education.
- 7 This is the case in 26 of 49 states. Wyoming does not have any private not-for-profit colleges.
- 8 At the time of this writing, much of the national data for the 2006-2007 academic year was not available.
- 9 National data for the Fall 2000 cohort was not readily available at the time of this writing.
- 10 Online providers (Capella, Phoenix and Walden) were excluded since they have few first-time, full-time, first-year students to form a graduation cohort.
- 11 Minnesota Transfer Curriculum information is available at www.mntransfer.org.
- 12 National data for the Fall 2003 cohort was not readily available at the time of this writing.
- 13 A number of private, for-profit institutions have begun offering four-year degree programs, and are no longer reporting three-year graduation rate variables to the Integrated Postsecondary Education Data System. Other private, for-profit institutions (e.g., ITT Technical Institute) are not included because they have not been offering degrees in Minnesota long enough to establish a graduation rate cohort per the IPEDS definition.
- 14 In *Minnesota Measures 2007*, total enrollment was used as the denominator, and the effect of the large part-time enrollment on this measure was considerably greater.
- 15 According to the U.S. Census, Minnesota had a net migration of almost 35,000 degreed people from 1995 and 2000. For the same period, the state had a gross in-migration of degreed people of 43,000.
- 16 The American Community Survey does not seek information about certificates.
- 17 Continuing research by the Office of Higher Education suggests that the act of taking courses without completing a credential may have economic returns to the individual.
- 18 The denominator has been changed from 20 and over to 18-64 for two reasons. First, 18-64 more accurately represents the working population and allows this indicator to be a complement to 2A. Second, states with a significant population of senior citizens were profoundly affected by the original measure.
- 19 Education degrees are difficult to track since institutions count them differently. Someone pursuing a secondary math teaching degree might be classified as: a math major with an education minor, a math education major, a math major only or a double major in math and education.
- 20 A crosswalk table of occupational codes from the U.S. Office of Management and Budget was used to align the CIP classifications with occupational codes.
- 21 In their pilot project of measuring student learning outcomes, the Voluntary System of Accountability uses two modules of the CAAP—the Critical Thinking and Writing Essay tests—and two sub-scores of the MAAP—critical thinking and written communication. The third testing option used by the VSA is the complete Collegiate Learning Assessment test.
- 22 Kuh, G. D. (2001). *The National Survey of Student Engagement: Conceptual framework and overview of psychometric properties*. Bloomington, Indiana: Indiana University, Center for Postsecondary Research.
- 23 The National Survey of Student Engagement is administered by the Center for Postsecondary Research at Indiana University in Bloomington, Indiana, www.nsse.iub.edu.
- 24 For the 2007 survey cycle, first-year Minnesota students' ratings are below those of the peer states.
- 25 More information on the Community College Survey of Student Engagement is available at www.ccse.org.
- 26 Students from private institutions make up 35 percent, 37 percent and 38 percent of the approximately 3,700 test takers in 2003, 2004 and 2005, respectively.
- 27 Arizona State University's online Center of American Research University Data provides a comprehensive set of data on more than 200 institutions. mup.asu.edu. This research was performed by The University of Florida in prior years.
- 28 The \$10,000 allowance was calculated by using U.S. Bureau of Labor Statistics data from the Consumer Expenditure Survey which analyzed interview data on expenditures of college students ages 18 to 22 who were enrolled on a full-time basis. The data was for the 1996-98 period. The data included expenses for food eaten at home, food eaten away from home, shelter and utilities, apparel and services, transportation, health care, entertainment and travel. Average total expenses for students were \$2,584 per quarter (three calendar months). This figure was multiplied by three to arrive at an estimate for the nine-month academic year. The result was adjusted from 1997 dollars to 2007 dollars using the Consumer Price Index.
- 29 For example, grants from private not-for-profit postsecondary institutions to undergraduates were 16 percent higher in Minnesota, on average, than the national average, so the national average institutional grant to students attending private not-for-profit institutions for each income category was multiplied by 1.16.
- 30 Federal Hope Tax Credits are available to taxpayers with students in their first and second years of postsecondary education. This calculation did not simulate the other federal higher education tax benefits: federal Lifetime Tax Credits and the deduction for postsecondary tuition.

Minnesota Measures

A report on higher education performance

Appendix A

Definitions, Terms and Data Sources Used in the Report

Institutions:

Four-year institutions: For purposes of this report, four-year institutions were all postsecondary institutions in Minnesota that offer bachelor's degrees as their primary undergraduate degree.

Two-year institutions: For purposes of this report, two-year institutions were all postsecondary institutions in Minnesota that offer associate degrees as their primary undergraduate degree.

University of Minnesota: References to the University of Minnesota included the state's land grant campus in the Twin Cities and its comprehensive regional institutions in Duluth, Morris and Crookston.

Minnesota State Colleges and Universities: This state-supported system comprises seven state universities and 30 community and technical colleges across Minnesota.

Private colleges: These institutions were licensed or registered by the state, and their students are generally eligible to receive state and federal financial aid. Some colleges are church affiliated; others are independent. There were many different classifications within the private colleges:

- **Not-for-profit, four-year institutions:** These schools have a tax-exempt status and are typically church affiliated. Examples are St. Olaf College, Macalester College and Augsburg College.
- **For-profit, two-year institutions:** These for-profit schools award primarily associate degrees. Examples are Brown College and Rasmussen College.
- **Private career schools:** These schools do not offer associate degrees as their primary program type and are not included in this report. These are schools with a specific expertise such as cosmetology, truck driving, massage therapy or pet grooming.

Other terms used:

Top three states: For several of the indicators, Minnesota's performance was compared to the three best performing states. In cases where trends over time were being evaluated, the best states were identified for the most recent year.

Student descriptions: Assessing the situations of students by race and ethnicity was sometimes limited due to constraints of data collection systems. Existing data do not recognize the breadth of diversity that exists within communities of color. Since most indicators draw data from the Integrated Postsecondary Education Data System, that system's terms were used throughout the report (Black, Asian or Pacific Islander, Hispanic, American Indian and white).

Per capita: This means of measuring outputs in relation to the population. For example, the number of health care degrees produced per 1,000 residents ages 18 to 64 were reported as a way to compare states with vastly different populations.

Sources:

Exam data: The Office of Higher Education obtained data on various assessments and admissions exams completed by postsecondary students:

- **ACT:** (www.act.org), provided data on the ACT, contracted with the Office of Higher Education to provide data on the Collegiate Assessment of Academic Progress.
- **Association of American Medical Colleges:** (www.aamc.org), contracted with the Office of Higher Education to provide data on the Medical College Admissions Test.
- **Community College Survey of Student Engagement:** (www.ccsse.org), data is publicly available at the Web site.
- **Educational Testing Services:** (www.ets.org), provided data on the Graduate Record Exam and the Measure of Academic Progress and Proficiency.
- **Law School Admissions Council:** (www.lsac.org), contracted with the Office of Higher Education to provide Minnesota and national data on the Law School Admissions Test.
- **Minnesota Department of Education:** (www.education.state.mn.us), provided data on the Minnesota Comprehensive Assessment Series, an integral part of the state's No Child Left Behind compliance.

- **Minnesota State Board of Nursing:** (www.state.mn.us/portal/mn/jsp/home.do?agency=NursingBoard) publishes pass-rate statistics on NCLEX, the exam used for nursing certification nationwide.

- **National Association of State Boards of Accountancy:** (www.nasba.org), publishes yearly reports on the Uniform Certified Public Accountant exam.

- **National Survey of Student Engagement:** (www.nsse.iub.edu), contracted with the Office of Higher Education to provide both Minnesota and national data on NSSE.

- **U.S. Department of Education:** data on Praxis pass rates for Minnesota teacher education students is publicly available.

Minnesota Department of Employment and Economic Development: This state agency's labor statistics staff provided employment projections for fields analyzed in Goal Two.

National Center for Education Statistics: This is a division of the U.S. Department of Education which manages the Integrated Postsecondary Education Data System.

National Science Foundation:

This is the branch of the federal government that collects information on research and development across the United States. It is recognized by higher education institutions and research agencies as the primary and official source of this data.

Office of Higher Education Student Enrollment Record Database:

The Office of Higher Education's student enrollment record database contains unit records for students enrolled during the fall term in Minnesota's public and private postsecondary education institutions. Institutions eligible to participate in a Minnesota-funded student financial aid program are required to report their student enrollment data.

Organization for Economic Cooperation and Development: This is a group of 30 countries committed to democratic government and the market economy. The OECD publication, *Education at a Glance*, provides data on a variety of measures.

U.S. Census Bureau: This is the source for the *American Community Survey* data. The survey is conducted annually by the Census Bureau. The latest incarnation of the ACS includes those living in group quarters.

Minnesota Measures

A report on higher education performance

Appendix B

Minnesota Rankings

Degrees Earned per 1,000 People Aged 18 – 64

Area	2006 National Rank
Certificates, diplomas and associate degrees	13
Bachelor's degrees	16
Master's degrees	6
Doctoral degrees	8
Total degrees	8
Certificates, diplomas and associate degrees in health	6
Bachelor's degrees in health	33
Master's degrees in health	15
Doctoral degrees in health	11
Total degrees in health	8
Certificates, diplomas and associate degrees in STEM	22
Bachelor's degrees in STEM	14
Master's degrees in STEM	26
Doctoral degrees in STEM	20
Total degrees in STEM	19

Source: Integrated Postsecondary Education Data System and American Community Survey

Rates and Ratios

Indicator	2005 National Rank
Bachelor's degrees as a proportion of FTE	23
Certificates, diplomas and associate degrees as a proportion of FTE	16
First- to second-year retention at 2-year colleges	33
First- to second-year retention at 4-year colleges	16
Six-year graduation rates (4-year colleges)	21
Four-year graduation rates (4-year colleges)	18
Three-year graduation rates (2-year colleges)	24
Participation rate (high school graduates to college within 12 months)	5

Source: Integrated Postsecondary Education Data System

Awards Conferred in Health and STEM Fields as a Proportion of All Awards Conferred at Each Degree Level

Indicator	2006 National Rank
Certificates, diplomas and associate degrees in health fields	11
Bachelor's degrees in health fields	41
Master's degrees in health fields	40
Doctoral degrees in health fields	42
Certificates, diplomas and associate degrees in STEM fields	38
Bachelor's degrees in STEM fields	18
Master's degrees in STEM fields	48
Doctoral degrees in STEM fields	39

Source: Integrated Postsecondary Education Data System

Appendix C

Enrollment and Degrees Granted

Undergraduate 2-year Institutions 2005 – 2006

Institution	Enrollment			Degrees Granted	
	Full-time	Part-time	Non-degree Seeking	Less than 2-year Certificates	Associate Degrees
Alexandria Technical College	1,515	220	381	404	387
Anoka Technical College	1,043	710	486	300	143
Anoka-Ramsey Community College	2,677	3,248	1,368	45	720
Central Lakes College	1,684	797	394	297	413
Century College	3,656	3,998	952	248	763
Dakota County Technical College	1,467	901	737	675	291
Fond du Lac Tribal and Community College	651	285	1,045	127	177
Hennepin Technical College	2,085	2,666	751	775	526
Hibbing Community College	917	368	75	118	220
Inver Hills Community College	1,975	2,485	775	250	488
Itasca Community College	758	210	232	143	218
Lake Superior College	2,170	1,123	1,661	657	569
Leech Lake Tribal College	135	47	7	-	12
Mesabi Range Community & Technical College	705	221	569	110	141
Minneapolis Community & Technical College	3,107	3,984	636	1,001	544
Minnesota State College-Southeast Technical	1,166	651	178	435	162
Minnesota State Community & Technical College	3,450	1,173	1,008	577	852
Minnesota West Community & Technical College	1,386	802	597	870	254
Normandale Community College	3,853	3,751	657	174	790
North Hennepin Community College	2,080	3,599	703	487	758
Northland Community & Technical College	1,965	1,343	346	451	500
Northwest Technical College	562	233	90	130	80
Pine Technical College	204	215	325	137	23
Rainy River Community College	249	76	86	52	63
Ridgewater College	2,276	1,081	558	888	398
Riverland Community College	1,349	1,579	678	346	349
Rochester Community and Technical College	3,040	2,193	766	321	812
Saint Cloud Technical College	2,135	908	478	416	435
Saint Paul College	1,548	2,454	698	656	260
South Central College	1,485	1,239	442	251	367
Vermilion Community College	501	38	234	36	122
Total, public 2-year	51,794	42,598	17,913	11,377	11,837
Dunwoody College of Technology	1,292	111	-	75	369
White Earth Tribal and Community College	13	35	13	-	3
Total, private not-for-profit, 2-year	1,305	146	13	75	372

Source: Integrated Postsecondary Education Data System

Minnesota Measures

A report on higher education performance

Appendix C: Enrollment and Degrees Granted continued

Undergraduate 2-year Institutions 2005 – 2006 continued

Institution	Enrollment			Degrees Granted	
	Full-time	Part-time	Non-degree Seeking	Less than 2-year Certificates	Associate Degrees
Duluth Business University	242	54	-	83	55
High-Tech Institute-Minneapolis	795	-	-	21	297
Le Cordon Bleu College of Culinary Arts	379	-	-	-	52
Minneapolis Business College	445	-	-	129	89
Northwest Technical Institute	89	-	-	-	70
Rasmussen College-Brooklyn Park	150	60	-	8	-
Rasmussen College-Eagan	204	247	-	62	72
Rasmussen College-Eden Prairie	126	145	-	57	77
Rasmussen College-Mankato	285	188	-	36	88
Rasmussen College-St Cloud	201	251	-	36	154
Total, private for-profit, 2-year	2,963	945	-	448	954

Source: Integrated Postsecondary Education Data System

Undergraduate 4-year Institutions 2005 – 2006

Institution	Enrollment			Degrees Granted		
	Full-time	Part-time	Non-degree Seeking	Less than 2-year Certificates	Associate Degrees	Bachelor's Degrees
Bemidji State University	2,614	1,503	9	-	32	928
Metropolitan State University	1,974	3,495	475	29	-	1,122
Minnesota State University-Mankato	11,260	984	439	11	99	2,259
Minnesota State University-Moorhead	6,112	742	388	24	32	1,381
Saint Cloud State University	11,382	1,761	1,353	7	104	2,470
Southwest Minnesota State University	2,307	333	2,965	-	11	545
Winona State University	6,721	591	135	-	18	1,479
Total, MnSCU 4-year	42,370	9,409	5,764	71	296	10,184
University of Minnesota-Crookston	851	202	1,081	-	29	227
University of Minnesota-Duluth	8,488	443	557	29	-	1,710
University of Minnesota-Morris	1,487	46	151	-	-	479
University of Minnesota-Twin Cities	26,189	2,768	3,860	77	-	6,921
Total, University of Minnesota	37,015	3,459	5,649	106	29	9,337

Source: Integrated Postsecondary Education Data System

Undergraduate 4-year Institutions 2005 – 2006 continued

Institution	Enrollment			Degrees Granted		
	Full-time	Part-time	Non-degree Seeking	Less than 2-year Certificates	Associate Degrees	Bachelor's Degrees
Apostolic Bible Institute Inc.	58	6	-	-	16	9
Augsburg College	2,174	492	140	-	-	533
Bethany Lutheran College	515	48	21	-	-	93
Bethel University	2,860	312	25	-	6	803
Carleton College	1,936	-	-	-	-	499
College of Saint Benedict	1,993	52	-	-	-	508
College of St. Catherine	2,358	1,153	94	36	172	510
College of Saint Scholastica	2,272	276	65	-	-	690
College of Visual Arts	171	19	-	-	-	44
Concordia College-Moorhead	2,669	33	57	-	-	722
Concordia University-Saint Paul	1,445	149	142	-	9	545
Crossroads College	150	19	4	-	8	16
Crown College	796	258	134	18	31	234
Gustavus Adolphus College	2,505	32	-	-	-	689
Hamline University	1,933	41	72	-	-	570
Macalester College	1,822	21	26	-	-	518
Martin Luther College	800	46	8	29	-	259
Mayo School of Health Sciences	197	-	-	38	-	-
Minneapolis College of Art and Design	620	45	-	-	-	136
North Central University	1,135	84	7	-	5	175
Northwestern College	1,949	414	563	8	19	744
Northwestern Health Sciences University	87	19	-	65	-	65
Oak Hills Christian College	153	14	-	2	9	6
Pillsbury Baptist Bible College	169	13	11	-	6	42
Saint John's University	1,845	30	-	-	-	420
Saint Mary's University of Minnesota	1,269	366	45	30	-	393
St. Olaf College	2,992	15	51	-	-	962
University of St. Thomas	5,132	310	142	-	-	1,303
Total, not-for-profit, 4-year and above	42,005	4,267	1,607	226	281	11,488

Source: Integrated Postsecondary Education Data System

Minnesota Measures

A report on higher education performance

Appendix C: Enrollment and Degrees Granted continued

Undergraduate 4-year Institutions 2005 – 2006 continued

Institution	Enrollment			Degrees Granted		
	Full-time	Part-time	Non-degree Seeking	Less than 2-year Certificates	Associate Degrees	Bachelor's Degrees
Academy College	193	58	-	30	45	22
Argosy University-Twin Cities	738	413	-	-	304	18
The Art Institutes International Minnesota	1,277	319	-	26	103	151
Brown College	1,891	163	-	46	363	145
Capella University	589	1,488	17	20	-	271
DeVry University-Minnesota	35	72	-	-	-	9
Globe College	533	312	26	58	136	9
Herzing College	185	156	-	141	41	4
ITT Technical Institute	234	51	-	-	15	-
McNally Smith College of Music	378	93	-	19	124	3
Minnesota School of Business-Brooklyn Center	478	283	14	44	102	23
Minnesota School of Business-Plymouth	370	272	-	48	120	20
Minnesota School of Business-Richfield	409	459	25	56	143	37
Minnesota School of Business-Shakopee	146	158	5	22	23	-
Minnesota School of Business-Waite Park	269	149	11	78	28	1
National American University-Bloomington	98	115	1	1	10	24
National American University-Brooklyn Center	89	105	-	-	20	17
National American University-Roseville	102	97	-	-	17	19
University of Phoenix-Minneapolis/St. Paul	387	-	-	-	-	4
Walden University	55	1,174	-	-	-	78
Total, for-profit, 4-year and above	8,456	5,937	99	589	1,594	855

Source: Integrated Postsecondary Education Data System

Graduate Level 2005 – 2006

Institution	Enrollment		Degrees Granted	
	Full-time Graduate	Part-time Graduate	Master's Degrees	Doctoral & First Professional Degrees
Bemidji State University	65	283	52	-
Metropolitan State University	233	320	168	-
Minnesota State University-Mankato	602	1,048	419	-
Minnesota State University-Moorhead	113	297	90	-
Saint Cloud State University	469	989	408	-
Southwest Minnesota State University	224	297	218	-
Winona State University	111	465	162	-
Total, MnSCU 4-year	1,817	3,699	1,517	-
University of Minnesota-Duluth	510	498	214	-
University of Minnesota-Twin Cities	9,006	9,352	2,962	1,536
Total, University of Minnesota	9,516	9,850	3,176	1,536

Source: Integrated Postsecondary Education Data System

Graduate Level 2005 – 2006 continued

Institution	Enrollment		Degrees Granted	
	Full-time Graduate	Part-time Graduate	Master's Degrees	Doctoral & First Professional Degrees
Adler Graduate School	-	180	45	-
Augsburg College	428	245	94	-
Bethel Seminary	482	337	86	59
Bethel University	374	286	149	-
College of St. Catherine	707	595	224	37
College of St. Scholastica	366	259	157	-
Concordia University-Saint Paul	292	41	153	-
Crown College	81	35	18	-
Hamline University	1,033	1,471	285	192
Luther Seminary	633	186	50	86
Mayo Graduate School	220	82	24	16
Mayo Medical School	166	-	-	40
Mayo School of Health Sciences	138	4	48	-
Minneapolis College of Art and Design	39	8	18	-
Northwestern Health Sciences University	751	42	34	172
Saint John's University	37	84	12	3
Saint Mary's University of Minnesota	675	2,867	1,199	13
United Theological Seminary	84	132	8	17
University of St. Thomas	1,038	4,019	1,303	157
William Mitchell College of Law	732	382	-	322
Total, not-for-profit, 4-year and above	8,276	11,255	3,907	1,114
American Academy of Acupuncture & Oriental Medicine	70	29	6	-
Argosy University-Twin Cities	413	155	88	52
Capella University	1,091	10,722	5,264	499
DeVry University-Minnesota	11	54	1	-
University of Phoenix-Minneapolis/St. Paul	138	-	14	-
Walden University	15,976	4,963	5,264	156
Total, for-profit, 4-year and above	17,699	15,923	6,613	707
Total graduate enrollment and degrees	37,308	40,727	15,213	3,357

Source: Integrated Postsecondary Education Data System

Notes

About the Minnesota Office of Higher Education

The Minnesota Office of Higher Education is a cabinet-level state agency providing students with financial aid programs and information to help them gain access to postsecondary education. The agency serves as the state's clearinghouse for data, research and analysis on postsecondary enrollment, financial aid, finance and trends.

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