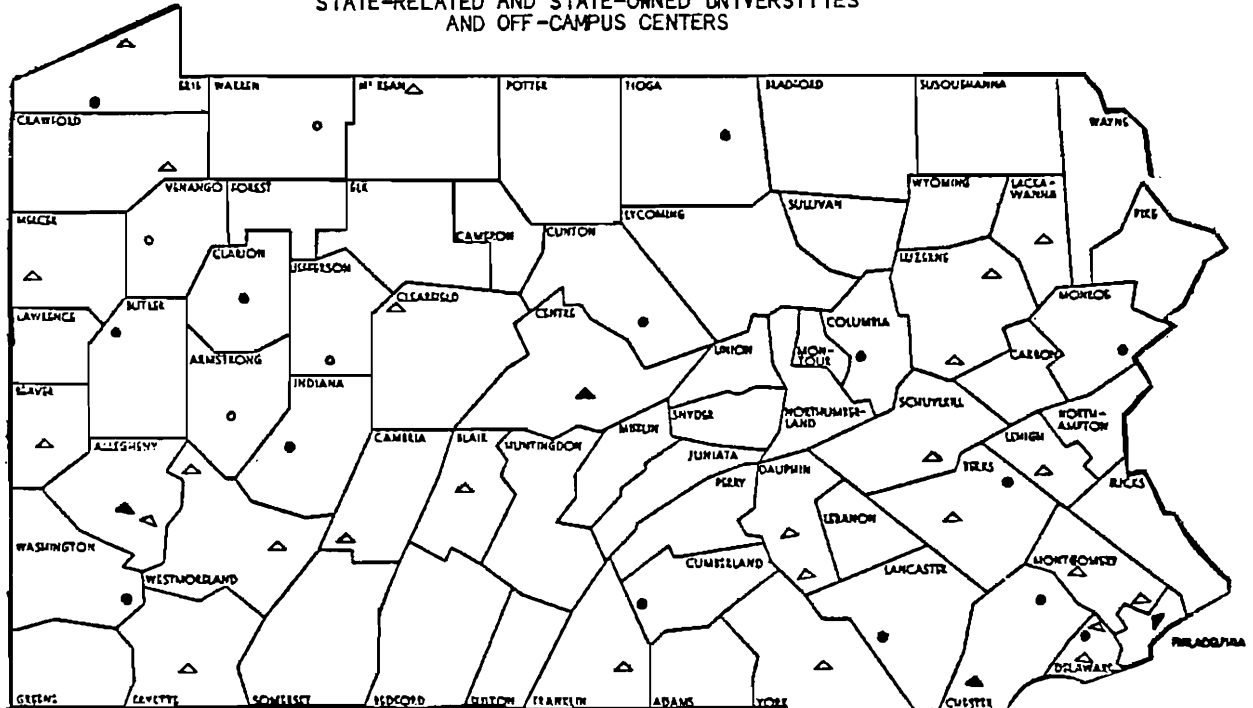


INSTRUCTIONAL OUTPUT AND FACULTY SALARY COSTS OF THE STATE-RELATED AND STATE-OWNED UNIVERSITIES

Analysis of 1982-83 Data
Reported Under 1982 Appropriations Acts
and Public School Code

Staff Report
General Assembly of the Commonwealth of Pennsylvania
JOINT STATE GOVERNMENT COMMISSION
108 Finance Building
Harrisburg, Pennsylvania
February 1984

STATE-RELATED AND STATE-OWNED UNIVERSITIES
AND OFF-CAMPUS CENTERS



- ▲ State-related university
- State-owned university
- △ Branch of State-related university
- Branch of State-owned university

State-Related Universities

- Penn State (Centre)
- Allentown Campus (Lehigh)
- Altoona Campus (Blair)
- Beaver Campus (Beaver)
- Behrend College (Erie)
- Berks Campus (Berks)
- Capitol Campus (Dauphin)
- Delaware Campus (Delaware)
- DuBois Campus (Clearfield)
- Fayette Campus (Fayette)
- Hazleton Campus (Luzerne)
- McKeesport Campus (Allegheny)
- Mont Alto (Franklin)
- New Kensington (Westmoreland)
- Ogontz Campus (Montgomery)
- Radnor Center for Graduate Studies (Delaware)
- Schuylkill Campus (Schuylkill)

- Penn State (Centre) (cont.)
- Shenango Valley Campus (Mercer)
- University Center at Harrisburg (Dauphin)
- Wilkes-Barre Campus (Luzerne)
- Worthington Scranton Campus (Lackawanna)
- York Campus (York)
- Pittsburgh (Allegheny)
- Bradford Campus (McKean)
- Greensburg Campus (Westmoreland)
- Johnstown Campus (Cambria)
- Titusville Campus (Crawford)
- Temple (Philadelphia)
- Ambler Campus (Montgomery)
- University Center at Harrisburg (Dauphin)
- Lincoln (Chester)

State-Owned Universities

- Bloomsburg (Columbia)
- California (Washington)
- Cheyney (Delaware)
- Clarion (Clarion)
- Venango Campus (Venango)
- East Stroudsburg (Monroe)
- Edinboro (Erie)
- Warren Campus (Warren)
- Indiana University (Indiana)
- Armstrong Campus (Armstrong)
- Punxsutawney Campus (Jefferson)

- Kutztown (Berks)
- Lock Haven (Clinton)
- Mansfield (Tioga)
- Millersville (Lancaster)
- Shippensburg (Cumberland)
- Slippery Rock (Butler)
- West Chester (Chester)

Foreword

To provide a sound basis for budgetary and educational decisions, these annual staff reports include uniform measurement and analysis of the instructional output and faculty salary data submitted by the State-related and State-owned universities. Since 1972-73 the State-related universities have reported under requirements first introduced as amendments to their appropriations acts by Senator Richard A. Snyder, and since 1976-77 the State-owned institutions have reported under similar school code requirements initiated by the House of Representatives. Although under the law the reported data are specifically intended for use by the appropriations and education committees of the Senate and House, these analyses should also be of considerable interest to other public officials concerned with the costs and effectiveness of higher education in the Commonwealth.

Trends based on comparable data compiled for each institution, level and area of study are now becoming apparent. Program-area data, which have been reported since 1980-81, serve as the basis for analysis providing insight into the major determinants of instructional cost and the impact of changes in these variables. In future years, these analyses will shed increasing light on the success with which administrators are

meeting the challenge of maintaining cost efficiency in a period in which enrollments are expected to decline. Cost efficiency is of particular concern to students, State officials and taxpayers because of its impact on the level of tuition and State support.

These annual Commission reports over the years have highlighted the similarities and differences in output and costs not only of the individual institutions but also of the two categories--State-related and State-owned--and have presented comparisons with institutions throughout the United States. Next year, the 1983-84 data compiled and analyzed by the staff of the Joint State Government Commission will be submitted to the General Assembly by the 14 State-owned universities under their status as members of the new State System of Higher Education. The reporting requirements were applied to the system by Act No. 316 of 1982.

DONALD C. STEELE
Research Director
Joint State Government Commission

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Summary

1. The 1982-83 full-time equivalent (FTE) student enrollment at the 18 universities totals approximately 190,000, nearly 60 percent of which is accounted for by Penn State, Pittsburgh and Temple. Reflecting demographic trends, the aggregate FTE enrollment changed little over the five-year period, 1977-78 to 1982-83. Throughout the remainder of the 1980s, enrollments are expected to drop with the predicted decline in the college-age population. While many of the universities experienced small or no enrollment growth from 1977-78 to 1982-83, FTE students increased at Kutztown by 15 percent and at Lincoln by 13 percent. FTE enrollments declined by 16 percent at Temple and by 35 percent at Cheyney.
2. Less than 10 percent of the total student credit-hour output of Penn State, Lincoln and the State-owned universities and about 25 percent of the total output of Pittsburgh and Temple are generated at the graduate level. Over the five-year period, FTE undergraduate students show an increase of about 5 percent and FTE graduate students show a decrease of about 15 percent (a 10 percent graduate-level decline at the State-related universities and an approximate

30 percent decline at the State-owned universities, where graduate instruction is centered in the area of education). The decline in graduate production undoubtedly represents a decrease in career opportunities for those with post-baccalaureate degrees.

3. Over the five-year period, the overall undergraduate credit-hour output at the State-owned universities increased about 5 percent. The aggregate lower-division (freshman and sophomore) undergraduate production, however, increased approximately 10 percent while upper-division (junior and senior) undergraduate production decreased by about 5 percent. This changing output relationship, together with the changing relationship of student credit hours to degrees, lends support to the conclusion that students at an increasing rate are either leaving school before progressing to the upper division or are advancing through the basic courses more slowly. In 1982-83, of total undergraduate student credit-hour production, 72 percent at the State-owned universities and 63 percent at the State-related are at the lower-division level.
4. The total number of undergraduate degrees granted by all universities in 1982-83 (approximately 28,000) is nearly the same as in 1977-78, and the total number of graduate degrees (about 8,700) is down 10 percent (the latter percentage represents a decrease of 5 percent at the State-related universities and of 25 percent at the State-owned). Over the five-year period, most of the universities have had either small or negative growth rates of total degrees

conferred. The exceptions are Indiana, Lincoln and Penn State, which show significant percentage increases. The number of degrees conferred at four schools--California, Cheyney, Edinboro and Mansfield--has dropped more than 20 percent from 1977-78 to 1982-83.

5. The State-related universities confer 37 percent of their undergraduate degrees in business and engineering; 23 percent of the graduate degrees are conferred in education and 53 percent are in business, engineering, health, law and public affairs/protective services. The State-owned universities confer 50 percent of their undergraduate degrees in business and education and 67 percent of their graduate degrees in these areas. Overall, the recent trend is toward an increase in business degrees and a decrease in education degrees.
6. A fall 1982 survey of the more than 9,600 full-time faculty at the State-supported universities finds the average weekly hours spent by faculty in classroom instruction is 10.7. The average classroom contact hours for the faculty at the State-owned universities is 11.5 per week and for the State-related faculty, with a heavier graduate-level instructional load, 9.9. Since 1977, average classroom contact hours have decreased 0.6 hour (6 percent) in the State-related schools and 0.3 hour (3 percent) in the State-owned schools. Faculty members report spending an average of 53 hours per week in all work-related activities.

7. Average FTE instructional faculty salaries (ranked and nonranked) for 1982-83 are \$24,400 for the State-related universities and \$27,900 for the State-owned--both 7 percent higher than those of the previous year. The higher average salaries for the State-owned institutions are due principally to the higher percentages of faculty in the top ranks at these schools. From 1980-81 to 1982-83, the average salary disparity between the two groups of universities decreased. Across departments, average salaries vary considerably. Generally, average salaries in education, life sciences, physical sciences, psychology and social sciences are higher than the university average, and salaries in business and letters are lower than this average.

8. Comparing the average salaries for full-time ranked instructional faculty of Pennsylvania's State-supported universities with those for institutions of other states presents a mixed pattern. At public institutions of similar size and composition, average salaries of other states are often higher than those of Pennsylvania's State-owned schools. Overall, however, the average faculty salaries of the State-related and State-owned institutions are higher than the U.S. averages for either public or private institutions.

9. Faculty salary cost per student credit hour is an overall measure of cost efficiency in producing instructional outputs by levels and

departments. Average salary costs per student credit hour (unit costs) generally decrease as output increases at all levels of instruction. Thus, on average, unit costs are lower for the larger State-related institutions as a group (\$35 at the undergraduate level, \$107 at the master's) than for the smaller State-owned institutions as a group (\$48 at the undergraduate level, \$116 at the master's). Penn State, with the largest undergraduate FTE enrollment, has the lowest undergraduate unit cost (\$31). Of the program area (CIP) classifications with higher volumes of output, health has by far the highest unit salary cost at all levels of instruction at the State-related universities, with the group average dominated by the higher costs at Pittsburgh. At both types of schools, education and foreign languages unit costs are well above average at the undergraduate level. The popular career fields of business and computer/information science have below-average unit costs.

10. Administrators have latitude to adjust a number of variables to reduce the salary cost per student credit hour of the various levels and departments. The variables which impact on unit salary cost and are at least partially controllable by administrators are average FTE instructional faculty salary and average class size. Average departmental salaries are determined by rank salary levels and rank mixes, and average class sizes by departmental enrollment levels and by the number of courses and sections per course.

11. An analysis of the impact on salary cost per student credit hour of two variables--average class size and average FTE instructional faculty salary--was made based on 1982-83 observations for the instructional program areas at each level of undergraduate instruction. The analysis demonstrates that for each increase of one student per class, instructional salary cost per student credit hour decreases by \$1.04 at the lower division and \$2.41 at the upper division of the State-related schools and by \$1.39 at the lower division and \$3.43 at the upper division of the State-owned schools. For each increase of \$1,000 in average instructional faculty salary, the unit salary cost increases by \$3.06 at the lower division and \$2.47 at the upper division of the State-related schools and by \$2.15 at the lower division and \$3.23 at the upper division of the State-owned schools.

12. Larger average class sizes tend to be associated with large FTE enrollments, particularly at the upper division and graduate levels. On average, lower-division classes are larger than upper-division and graduate classes in all schools. For all schools combined, the average lower-division class size is 30, and the average upper-division and master's class sizes are 21 and 12, respectively. The average undergraduate class size is largest at Penn State (31), the largest State-supported institution, and smallest at Cheyney (18), Lincoln (19) and Mansfield (18), three of the smaller institutions. Lower-division classes tend to be larger in program areas which serve general distribution areas (life, physical and social sciences and

psychology), and upper-division classes are largest in the areas of business, computer/information sciences and psychology.

13. A national study determining the 1981 total instructional cost per FTE student unit, including a number of nonsalary costs, for all public institutions of higher education in each state (including medical schools and two-year colleges) ranks Pennsylvania as having the eighth highest FTE student unit cost in the nation.
14. The predominant part of the instructional costs of the State-related and State-owned universities are covered by student tuition and fees (the student share) and State appropriations (the State share). State appropriations for educational and general purposes average \$2,550 per FTE student in 1982-83; this amount provides 54 percent of the total revenue per FTE student from tuition, fees and appropriations for instruction. Appropriations for instruction to the State-related schools average \$2,260 per FTE student, and to the State-owned schools, \$3,000. The appropriations to the various schools implicitly recognize economies of scale: State appropriations per FTE student range from \$1,790 at Penn State to \$5,960 at Cheyney.
15. From 1977-78 to 1982-83, the average tuition and fees for a full-time student increased at the average annual rate of 15.8 percent at the State-related schools and 12.4 percent at the State-owned. The average State appropriation per FTE student increased at the average

annual rate of over 6 percent at each group. As a result, the State share of the total costs for FTE student instruction has decreased from 54 to 46 percent for the State-related universities and from 71 to 66 percent for the State-owned universities.

16. The 1983-84 undergraduate tuition and fees for in-State students are approximately \$2,300 at Penn State, \$2,500 at Pittsburgh, \$2,800 at Temple, \$1,800 at Lincoln and average nearly \$1,700 at the State-owned universities. Tuition for out-of-state undergraduate students ranges from nearly \$5,000 at the large State-related universities to about \$2,800 at the State-owned schools and Lincoln. The tuition at Pennsylvania's State-supported schools is far lower than those at many private colleges and universities in the Commonwealth but is generally higher than the tuition at public institutions of similar size and composition in other states.

17. A national study compares the average 1982-83 state and local appropriation per FTE student with the average tuition in all public institutions in each state. In only four states is the per student total of tuition and appropriation higher than Pennsylvania's total of \$5,889, and in only two states is the state and local share of total revenues from tuition and appropriation lower than Pennsylvania's 61.4 percent. In dollars, however, Pennsylvania's per student appropriation (\$3,613) ranks slightly below the national average, with 20 states having total unit appropriations above the

Commonwealth's. The student share (average tuition) in Pennsylvania of \$2,276 is more than double the national average. These data support two conclusions: that public higher education in Pennsylvania is more costly than in the great majority of other states and that the higher costs are borne primarily by students in the form of higher tuition.



I. Introduction

In the broadest sense, the mission of the State-owned universities is summarized in the language of Act No. 188 of 1982, which created the new State System of Higher Education, effective July 1, 1983: "[The system's] purpose shall be to provide high quality education at the lowest possible cost to students."¹ Surely this general purpose applies as well to the State-related universities, which receive a large portion of their funding from the Commonwealth.

The quality of education at all levels is a complex matter on which there are many divergent views. Recently, the subject of "excellence in education" in this nation has been examined and questioned by a national commission.² This report does not purport to address the quality issue but instead concentrates on an analysis of the instructional costs of "producing" public higher education in Pennsylvania and of the sharing of this cost by students and the public.

¹Section 2003-A(a).

²U.S. Department of Education, National Commission on Excellence in Education, A Nation at Risk: The Imperative for Educational Reform, a report to the Nation and Secretary of Education (Washington, D.C.: April 1983). This report asserts that "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people." (p. 5)

Minimizing the costs of public higher education to students involves two separate issues. First, instructional output must be produced at the lowest possible cost--the issue of cost efficiency. Second, whatever the level of these costs, they must be divided between students (tuition and fees) and the public (State appropriations)--the issue of cost sharing. Cost sharing ultimately involves a public-sector decision concerning the private benefits of public higher education received directly by students and the public benefits received indirectly by Pennsylvania citizens.

This report analyzes the instructional output and faculty salary costs for the 1982-83 school year as well as for the past several years and examines the share of public higher education costs borne by Pennsylvania students and taxpayers during the same time. The annual analysis of cost data is of interest not only historically but for future policy decisions. If, as expected, higher education enrollments decline significantly over the next decade, the Commonwealth's public institutions of higher education will need to adopt policies which may have both quality and cost consequences.

II. Instructional Output

This report employs three measures of instructional output: full-time equivalent (FTE) students, student credit hours and degrees. Facilitating comparison of enrollments, FTE students are calculated by dividing an institution's total undergraduate student credit hours by 30 and total graduate student credit hours by 24, the standard work loads of full-time students at the respective levels during an academic year. Student credit hours also serve as the basis for comparisons and for salary-cost computations by level of instruction and by program area. Degree data measure the achievement of the principal goal of higher education, and degree trends often reflect changes in vocational interests and opportunities. Comparison of student credit hours with degrees gives an indication of student efficiency in completing courses of study.

FULL-TIME EQUIVALENT STUDENTS

As shown in table 1, total FTE students numbered 189,722 in Pennsylvania's State-related and State-owned schools during 1982-83.

Table 1

FULL-TIME EQUIVALENT STUDENTS BY LEVEL¹
1982-83, CHANGE FROM 1981-82 AND FIVE-YEAR AVERAGE ANNUAL RATE OF CHANGE (1977-78 to 1982-83)

Institution ²	Total				Undergraduate level				Graduate level ³			
	FTE students	One-year change	Percentage change		FTE students	One-year change	Percentage change		FTE students	One-year change	Percentage change	
			One year	Five-year average			One year	Five-year average			One year	Five-year average
State-related												
Penn State	58,441	568	1%	1%	53,791	566	1%	2%	4,650	2	a	a
Pittsburgh	29,294	140	a	1	21,152	185	1	1	8,142	-45	-1%	-1%
Temple	23,793	-1,615	-6	-3	16,959	-49	a	-2	6,834	-1,566	-19	-5
Lincoln	1,351	-174	-11	3	1,128	-172	-13	a	223	-2	-1	73
Total	112,879	-1,081	-1	a	93,030	530	1	1	19,849	-1,611	-8	-2
State-owned												
Indiana	12,935	66	1	2	12,264	125	1	2	671	-59	-8	-3
West Chester	8,647	295	4	1	8,018	357	5	2	629	-62	-9	-4
Bloomsburg	6,183	-131	-2	a	5,839	-105	-2	a	344	-26	-7	-6
Millersville	6,030	83	1	1	5,543	194	4	2	487	-111	-19	-6
Slippery Rock	5,654	90	2	-1	5,409	128	2	a	245	-38	-13	-6
Edinboro ⁴	5,613	6	a	-1	5,294	81	2	a	319	-75	-19	-7
Shippensburg	5,488	31	1	0	4,994	57	1	1	494	-26	-5	-5
Clarion	5,451	-42	-1	2	5,237	-53	-1	2	214	11	5	-4
Kutztown	5,295	330	7	3	5,070	361	8	4	225	-31	-12	-6
California	4,370	-171	-4	a	4,086	-107	-3	a	284	-64	-18	-6
East Stroudsburg	4,150	100	2	-1	3,891	114	3	a	259	-14	-5	-6
Mansfield	2,665	111	4	a	2,563	123	5	1	102	-12	-11	-4
Lock Haven	2,567	-8	a	2	2,567	-8	a	2	na	na	na	na
Cheyney	1,795	-285	-14	-7	1,757	-246	-12	-7	38	-39	-51	-15
Total	76,843	475	1	a	72,532	1,021	1	1	4,311	-546	-11	-6
All institutions	189,722	-606	a	a	165,562	1,551	1	1	24,160	-2,157	-8	-3

1. Data for each year represent the summer term preceding the academic year plus the academic year. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24.

2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

3. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University includes first professional (excluding medical) and/or doctoral levels.

4. Edinboro student credit-hour data for fiscal year 1977-78 from "State College and University Budgeting System Common Cost Accounting Reports."

a. Rounds to less than 1 percent.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977 to 1983.

The three large State-related universities account for nearly 60 percent of this total. FTE students decreased less than 1 percent (600 FTE students) from the previous year. While total FTE undergraduate students increased by 1 percent, total FTE graduate students decreased by 8 percent.

In 1982-83, the State-related universities had approximately 5 percent more undergraduate students and 10 percent fewer FTE graduate students than six years earlier (1977-78); while registering a 5 percent undergraduate increase, the State-owned schools had approximately 30 percent fewer graduate students. The decline in graduate production undoubtedly represents a decline in career opportunities for those with post-baccalaureate degrees.

The level of FTE enrollments varies greatly at the individual State-supported institutions in the Commonwealth. In 1982-83, three schools report more than 20,000 FTE students: Penn State (58,441), Pittsburgh (29,294) and Temple (23,793). Four report fewer than 3,000 FTE students: Lincoln (1,351), Cheyney (1,795), Lock Haven (2,567) and Mansfield (2,665).

Appendix table 1A shows FTE students by school and by academic level for the years 1977-78 to 1982-83. For most schools these data show a trend of small or no enrollment growth for the period. The major exceptions (10 percent or more) are Kutztown and Lincoln, with gains in FTE students of about 15 and 13 percent, respectively, and Temple and Cheyney, with FTE student losses of 16 and 35 percent, respectively.

STUDENT CREDIT HOURS

Level of Production

Table 2 presents by academic level the student credit hours produced by the individual institutions during 1982-83 and the one- and five-year rates of change. The data indicate that from 1981-82 to 1982-83 aggregate lower-division undergraduate student credit hours increased slightly and aggregate upper-division student credit hours remained virtually unchanged.

Over the five-year period, aggregate lower-division output increased approximately 10 percent and upper-division output decreased by about 5 percent at the State-owned universities. This relationship between lower- and upper-division output is caused by fluctuations in entry enrollments and may also indicate that students at an increasing rate are either leaving school before progressing to the upper division or are advancing through the basic courses more slowly. Further substantiating these conclusions is the changing relationship between credit hours and degrees, which is discussed later.

The student credit-hour data in table 2 also show that the proportions of undergraduate and graduate output vary considerably among the individual schools. At Pittsburgh and Temple, about one-fourth of student credit-hour production is at the graduate level (both schools have large first professional programs in law, dentistry and pharmacology). In contrast, Penn State, Lincoln and the State-owned schools report, on average, less than one-tenth of their production at the graduate level.

Table 2

STUDENT CREDIT-HOUR PRODUCTION BY LEVEL¹
 1982-83, CHANGE FROM 1981-82 AND FIVE-YEAR AVERAGE ANNUAL RATE OF CHANGE (1977-78 to 1982-83)
 (Credit hours in 000s)

Institution ²	Undergraduate level						Graduate level					
	Lower division			Upper division			Master's			First professional and doctor's ³		
	Credit hours	Percentage change		Credit hours	Percentage change		Credit hours	Percentage change		Credit hours	Percentage change	
		One year	Five-year average		One year	Five-year average		One year	Five-year average		One year	Five-year average
State-related												
Penn State	1,049	2%	3%	565	a	a	46	-7%	-3%	66	5%	2%
Pittsburgh	420	2	1	215	-1%	1%	121	a	-1	75	-1	1
Temple	273	-1	-3	236	1	-1	85	-17	-5	79	-21	-5
Lincoln	28	-13	1	6	-14	-5	5	-1	73	na	na	na
Total	1,770	1	1	1,022	a	a	257	-8	-3	220	-8	-1
State-owned												
Indiana	246	2	2	122	a	2	16	-8	-3	b	b	b
West Chester	174	5	4	67	5	-3	15	-9	-4	na	na	na
Bloomsburg	116	a	1	59	-6	-2	8	-7	-6	na	na	na
Millersville	133	4	3	34	4	-1	12	-19	-6	na	na	na
Slippery Rock	122	3	1	40	a	-2	6	-13	-6	na	na	na
Edinboro ⁴	116	4	2	43	-4	-4	8	-19	-7	na	na	na
Shippensburg	109	a	a	40	4	1	12	-5	-5	na	na	na
Clarion	116	-1	3	41	-2	a	5	5	-3	na	na	na
Kutztown	103	8	5	49	7	1	5	-12	-6	na	na	na
California	92	-3	1	31	-2	-1	7	-18	-6	na	na	na
East Stroudsburg	84	3	1	33	3	-3	6	-5	-6	na	na	na
Mansfield	57	7	2	19	a	-3	2	-10	-4	na	na	na
Lock Haven	59	-2	3	18	5	-1	na	na	na	na	na	na
Cheyney	40	-10	-6	13	-19	-7	1	-51	-15	na	na	na
Total	1,567	2	2	609	a	-1	103	-11	-6	na	na	na
All institutions	3,337	1	2	1,631	a	-1	360	-9	-4	220	-8	-1

1. Data for each year represent the summer term preceding the academic year plus the academic year.

2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

3. The first professional and doctor's level excludes medical school data at all schools.

4. Edinboro student credit-hour data for fiscal year 1977-78 from "State College and University Budgeting System Common Cost Accounting Reports."

a. Rounds to less than 1 percent.

b. Included in master's level.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977 to 1983.

Appendix table 2A presents each institution's annual student credit-hour production from 1977-78 by academic level.

Program Area Production

Table 3 presents 1982-83 student credit-hour production by type of institution and by CIP classification.³ The CIP groupings are related to the academic departments in the various schools, although in many cases the CIP classifications combine departments within individual schools. These classifications offer a standardized taxonomy enabling comparisons among schools of similar program groups.

The table shows that the State-related institutions produce relatively large amounts of student credit hours in the areas of business, education, engineering, letters, mathematics and the physical and social sciences. The State-owned institutions also produce large numbers of student credit hours in these areas with the exception of engineering. In both groups of schools, the large amounts of lower-division student credit hours in letters, mathematics and the sciences reflect the fact that courses in these areas are required of most students during their first two years. In the other areas, the substantial output at all levels is related to student majors. The departmental mix of student credit hours produced is an important determinant of faculty salary cost per student credit hour.

³A Classification of Instructional Programs was introduced by the National Center for Education Statistics in 1981 to replace the HEGIS taxonomy. The first year for which Pennsylvania institutions of higher education reported under the new classification system is 1982-83. This report utilizes an aggregation of two-digit CIPs.

Table 3
 STUDENT CREDIT-HOUR PRODUCTION BY CIP CLASSIFICATION
 BY TYPE OF INSTITUTION
 1982-83
 (Credit hours in 000s)

CIP Classification	Total			State-related institutions			State-owned institutions		
	Lower division	Upper division	Graduate ¹	Lower division	Upper division	Graduate ¹	Lower division	Upper division	Graduate ¹
Agriculture	7.3	25.1	3.9	7.3	25.1	3.9	0	0	0
Architecture and environmental design	5.5	12.1	.8	5.5	12.1	.8	0	0	0
Area and ethnic studies	4.3	6.2	.4	4.3	6.2	.4	0	0	0
Business	233.2	321.8	66.6	117.6	192.1	59.4	115.6	129.7	7.2
Communications	39.7	43.3	4.2	16.8	26.2	2.4	22.9	17.1	1.8
Computer and information sciences	108.1	40.7	12.5	72.4	29.6	11.9	35.7	11.1	.6
Education	265.0	254.2	147.2	96.4	72.4	89.8	168.6	181.8	57.4
Engineering	107.6	168.1	35.7	105.9	164.1	35.7	1.7	4.0	0
Foreign languages	120.8	23.8	6.5	68.5	17.9	5.2	52.3	5.9	1.3
Health	19.2	73.5	78.5	13.9	53.5	77.5	5.3	20.0	1.0
Home economics	21.6	22.8	3.7	13.3	13.9	3.3	8.3	8.9	.4
Industrial arts	.1	0	a	0	0	0	.1	0	a
Law	.4	.5	53.5	.4	.5	53.5	0	0	0
Letters	446.9	105.8	16.1	218.6	75.5	11.7	228.3	30.3	4.4
Liberal/general studies	4.3	1.3	a	1.5	1.1	a	2.8	.2	0
Library and archival studies	2.0	2.1	5.6	.2	.1	3.4	1.8	2.0	2.2
Life sciences	159.7	51.7	9.3	74.5	32.5	7.6	85.2	19.2	1.7
Mathematics	418.7	45.6	10.9	245.0	28.8	7.7	173.7	16.8	3.2
Military sciences	10.8	4.9	a	3.9	2.4	a	6.9	2.5	0
Multi/interdisciplinary studies	23.8	5.6	2.4	20.3	5.3	2.3	3.5	.3	.1
Parks and recreation	8.2	12.5	1.4	1.7	7.0	1.0	6.5	5.5	.4
Personal and social development	.6	0	0	0	0	0	.6	0	0
Philosophy, religion and theology	71.1	11.1	4.6	43.6	9.4	4.6	27.5	1.7	a
Physical sciences	329.4	56.3	24.3	210.5	41.8	23.1	118.9	14.5	1.2
Psychology	156.5	60.5	17.3	75.8	29.0	8.2	80.7	31.5	9.1
Public affairs and protective services	42.7	46.9	38.3	20.7	33.2	36.6	22.0	13.7	1.7
Social sciences	510.4	164.2	21.5	230.0	98.0	15.9	280.4	66.2	5.6
Trade and industrial	13.5	a	0	13.5	a	0	0	0	0
Visual and performing arts	182.6	67.6	13.6	86.9	44.0	10.3	95.7	23.6	3.3
Other	22.2	2.3	.8	a	0	a	22.2	2.3	.8
Total ²	3,336.6	1,630.4	579.9	1,769.2	1,021.7	476.4	1,567.4	608.7	103.5

1. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University includes first professional (excluding medical) and/or doctoral levels.

2. Because of rounding, CIP detail may not sum to total.

a. Rounds to less than 100 student credit hours.

SOURCE: Reports provided by the individual institutions, 1983.

Appendix tables 3A, 4A and 5A detail the total, summer and individual instruction student credit-hour production for 1982-83 by school, by program classification and by academic level. The latter two tables show that student credit-hour production by institution varies significantly both by type of instruction and by the period on the academic calendar in which the instruction occurs. On average, the percentage of student credit hours in individual instruction at the State-related schools is about 5 percent of total output (2 percent of the undergraduate total and 22 percent of the graduate total) and at the State-owned schools, about 1 percent of total output (1 percent of the undergraduate total and 3 percent of the graduate total). In total, the schools produce approximately 9 percent of their output in summer sessions. However, 18 percent of the State-related graduate production is in the summer, while summer production represents 37 percent of total State-owned graduate student credit hours. Individual instruction and small summer class sizes tend to increase instructional costs.

DEGREES CONFERRED

Undergraduate and Graduate Degrees

As shown in table 4, the total number of degrees granted by all schools at all levels increased by 1 percent over 1981-82. Undergraduate degrees increased by 3 percent, to 27,980, and graduate degrees decreased by 5 percent, to 8,689. At the State-owned schools, the total decrease in graduate degrees was 14 percent.

Table 4
DEGREES BY LEVEL¹
1982-83, CHANGE FROM 1981-82 AND FIVE-YEAR AVERAGE ANNUAL RATE OF CHANGE (1977-78 to 1982-83)

Institution ²	Total				Undergraduate level				Graduate level			
	Degrees	One-year change	Percentage change		Degrees	One-year change	Percentage change		Degrees	One-year change	Percentage change	
			One year	Five-year average			One year	Five-year average			One year	Five-year average
State-related												
Penn State	10,900	812	8%	2%	9,154	769	9%	2%	1,746	43	3%	a
Pittsburgh	6,231	78	1	a	3,500	42	1	-1	2,731	36	1	a
Temple	5,099	-273	-5	-2	2,969	-59	-2	-2	2,130	-214	-9	-2%
Lincoln	249	29	13	12	169	23	16	2	80	6	8	34 ^b
Total	22,479	646	3	a	15,792	775	5	1	6,687	-129	-2	-1
State-owned												
Indiana	2,776	206	8	3	2,421	282	13	3	355	-76	-18	-1
West Chester	1,358	-2	a	-3	1,123	13	1	-1	235	-15	-6	-7
Bloomsburg	1,317	-50	-4	a	1,141	-6	-1	2	176	-44	-20	-5
Millersville	1,124	-15	-1	a	976	16	2	1	148	-31	-17	-7
Slippery Rock	988	-78	-7	-3	862	-69	-7	-3	126	-9	-7	-2
Edinboro	937	-14	-1	-6	779	16	2	-5	158	-30	-16	-10
Shippensburg	1,247	-106	-8	-1	934	-91	-9	1	313	-15	-5	-5
Clarion	992	11	1	-1	862	3	a	a	130	8	7	-4
Kutztown	825	-44	-5	-2	723	-10	-1	-1	102	-34	-25	-8
California	715	-127	-15	-6	611	-76	-11	-5	104	-51	-33	-10
East Stroudsburg	767	57	8	-2	671	45	7	-2	96	12	14	6
Mansfield	390	-50	-11	-6	353	-28	-7	-7	37	-22	-37	4
Lock Haven	429	36	9	-2	429	36	9	-2	na	na	na	na
Cheyney	325	-15	-4	-5	303	-5	-2	-4	22	-10	-31	-8
Total	14,190	-191	-1	-2	12,188	126	1	-1	2,002	-317	-14	-5
All Institutions	36,669	455	1	-1	27,980	901	3	a	8,689	-446	-5	-2

1. Data for each year represent the summer term preceding the academic year plus the academic year. Undergraduate degrees include only bachelor's degrees. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional (excluding medical) and doctor's at Pittsburgh and Temple, and doctor's at Penn State and Indiana University.

2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

a. Rounds to less than 1 percent.

b. Four-year annual average.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1978 to 1983.

Since 1977-78, aggregate degrees have dropped by about 1 percent per year. This decline is mostly attributable to a decline in total graduate degrees during the five-year period, since aggregate undergraduate degrees are virtually unchanged since 1977-78.

Appendix table 6A details the degrees conferred by the various schools for the years 1977-78 to 1982-83. Note that over the five-year period, most of the universities have had either small or negative growth rates of total degrees conferred. The exceptions are Indiana, Lincoln and Penn State, which show significant percentage increases. The number of degrees conferred at four schools--California, Cheyney, Edinboro and Mansfield--has dropped 20 percent or more from 1977-78 to 1982-83.

Degrees Classified by Instructional Program

Table 5 gives the number and percentage distribution by CIP classification of degrees granted by level for 1982-83 and table 6, the percentage distributions of degrees granted by type of degree, in total for the Pennsylvania State-supported schools for 1982-83 and 1981-82 and in total for all U.S. institutions of higher education for 1981-82.

Table 5 shows that at the undergraduate level, 37 percent of the total degrees conferred by the State-related schools are in business and engineering and 50 percent of the total degrees conferred by the State-owned schools are in business and education. At the graduate level, 58 percent of the total degrees granted by the State-related schools are in business, education, health and public affairs/protective services, and 74 percent of the total degrees granted by the State-owned schools

Table 5

NUMBER AND PERCENTAGE DISTRIBUTION OF DEGREES CONFERRED BY LEVEL AND CIP CLASSIFICATION¹
1982-83

CIP classification	Total				State-related institutions				State-owned institutions			
	Undergraduate		Graduate		Undergraduate		Graduate		Undergraduate		Graduate	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Agriculture	599	2%	90	1%	599	4%	90	1%	--	--	--	--
Architecture and environmental design	157	1	27	a	141	1	23	a	16	a	4	a
Area and ethnic studies	35	a	13	a	30	a	13	a	5	a	--	--
Business	6,070	22	1,094	13	3,185	20	917	14	2,885	24%	177	9%
Communications	1,259	4	74	1	648	4	29	a	611	5	45	2
Computer and information sciences	1,189	4	207	2	612	4	200	3	577	5	7	a
Education	4,289	15	2,699	31	1,105	7	1,517	23	3,184	26	1,182	58
Engineering	2,877	10	583	7	2,775	17	583	9	102	1	--	--
Foreign languages	241	1	59	1	129	1	49	1	112	1	10	a
Health	1,666	6	798	9	1,056	7	729	11	610	5	69	3
Home economics	525	2	35	a	308	2	35	1	217	2	--	--
Industrial arts	--	--	--	--	--	--	--	--	--	--	--	--
Law	47	a	625	7	47	a	625	9	--	--	--	--
Letters	966	3	162	2	701	4	88	1	265	2	74	4
Liberal/general studies	312	1	9	a	277	2	9	a	35	a	--	--
Library and archival studies	39	a	129	1	--	--	85	1	39	a	44	2
Life sciences	919	3	172	2	553	3	137	2	366	3	35	2
Mathematics	272	1	72	1	149	1	56	1	123	1	16	1
Military sciences	--	--	--	--	--	--	--	--	--	--	--	--
Multi/interdisciplinary studies	332	1	59	1	230	1	46	1	102	1	13	1
Parks and recreation	278	1	45	1	121	1	42	1	157	1	3	a
Personal and social development	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology	61	a	41	a	39	a	40	1	22	a	1	a
Physical sciences	734	3	243	3	437	3	197	3	297	2	46	2
Psychology	1,006	4	276	3	577	4	131	2	429	4	145	7
Public affairs and protective services	1,167	4	693	8	695	4	632	10	472	4	61	3
Social sciences	2,050	7	270	3	1,086	7	195	3	964	8	75	4
Trade and industrial	16	a	--	--	--	--	--	--	16	a	--	--
Visual and performing arts	894	3	188	2	411	3	154	2	483	4	34	2
Total ²	28,000	100	8,663	100	15,911	100	6,622	100	12,089	100	2,041	100

1. Undergraduate degrees include only bachelor's at all institutions. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional (excluding medical) and doctor's at Pittsburgh and Temple and doctor's at Penn State and Indiana University.

2. Because of rounding, totals may not equal 100.

a. Rounds to less than 1 percent.

SOURCE: Preliminary data furnished by Pennsylvania Department of Education, Division of Education Statistics, January 1984; data gathered using U.S. Department of Education ED (NCES) Form 2300-2.1A1-1, 4/83.

Table 6

PERCENTAGE DISTRIBUTION OF DEGREES BY CIP CLASSIFICATION
 PENNSYLVANIA STATE-RELATED AND STATE-OWNED INSTITUTIONS (1981-82 and 1982-83) AND ALL U.S. INSTITUTIONS (1981-82)

CIP classification	Bachelor's degrees			Master's degrees			First professional degrees ¹			Doctor's degrees		
	PA	PA	U.S.	PA	PA	U.S.	PA	PA	U.S.	PA	PA	U.S.
	1982 -83	1981 -82	1981 -82	1982 -83	1981 -82	1981 -82	1982 -83	1981 -82	1981 -82	1982 -83	1981 -82	1981 -82
Agriculture	2%	3%	2%	1%	1%	1%	--	--	--	2%	1%	3%
Architecture and environmental design	1	a	1	a	a	1	--	--	--	a	--	a
Area and ethnic studies	a	a	a	a	a	a	--	--	--	--	--	a
Business	22	19	23	16	14	21	--	--	--	2	3	3
Communications	4	4	4	1	1	1	--	--	--	a	a	1
Computer and information sciences	4	4	2	3	3	2	--	--	--	1	1	1
Education	15	16	11	34	37	32	--	--	--	40	40	23
Engineering	10	9	8	7	5	6	--	--	--	8	6	8
Foreign languages	1	1	1	1	1	1	--	--	--	2	1	2
Health	6	6	7	7	6	6	53%	57%	40%	6	7	3
Home economics	2	3	2	a	a	1	--	--	--	1	2	1
Industrial arts	--	--	--	--	--	--	--	--	--	--	--	--
Law	a	a	a	1	1	1	47	43	50	--	--	a
Letters	4	4	4	2	3	3	--	--	--	6	6	5
Liberal/general studies	1	--	--	a	--	--	--	--	--	--	--	--
Library and archival sciences	a	a	a	2	2	2	--	--	--	1	2	a
Life sciences	3	3	4	2	2	2	--	--	--	6	5	11
Mathematics	1	1	1	1	1	1	--	--	--	1	1	2
Military sciences	--	--	a	--	--	a	--	--	--	--	--	--
Multi/interdisciplinary studies	1	2	4	1	1	2	--	--	--	1	a	1
Parks and recreation	1	--	--	1	--	--	--	--	--	1	--	--
Personal and social development	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology ²	--	--	1	--	--	1	--	--	10	--	--	4
Physical sciences	3	3	3	2	2	2	--	--	--	8	10	10
Psychology	4	4	4	3	3	3	--	--	--	5	5	8
Public affairs and protective services	4	6	4	10	11	7	--	--	--	2	3	1
Social sciences	7	8	10	3	3	4	--	--	--	6	6	9
Trade and industrial	a	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts	3	3	4	3	2	3	--	--	--	1	1	2
Total ³	100	100	100	100	100	100	100	100	100	100	100	100
Total degrees	28,000	27,034	952,998	6,768	7,147	295,546	1,235	1,157	72,032	1,064	1,084	32,707

1. Includes medical degrees.

2. Philosophy and religion included in letters.

3. Because of rounding, totals may not equal 100.

a. Rounds to less than 1 percent.

SOURCE: U.S. degrees--W. Vance Grant and Leo J. Eiden, National Center for Education Statistics, Digest of Education Statistics 1982 (U.S. Government Printing Office, Washington, D.C.: 1982). Pennsylvania degrees--"Bachelor's and Higher Degrees Conferred by Major Subject Area and Institution, 1981-82," Pennsylvania Department of Education, Division of Education Statistics, Bureau of Information Systems, December 1982; 1982-83--Preliminary data furnished by Pennsylvania Department of Education, Division of Education Statistics, January 1984; data gathered using U.S. Department of Education ED (NCES) Form 2300-2.1A1-1, 4/83.

are in business, education and psychology. A comparison of table 5 with table 9 in last year's report indicates that the most notable changes in the distribution of degrees were increases in the proportions of business degrees and decreases in the proportions of education degrees.

Appendix table 7A details the number of degrees conferred for the various CIP classifications by individual institution and level for 1982-83.

Relationship of Student Credit Hours to Degrees

In the State-supported institutions, the minimum number of total credit hours required for a bachelor's degree ranges from 120 to 128 and for a master's degree, from 24 to 54, depending on the program and institution.⁴ Average credit hours per degree in excess of those required largely reflect credits earned by students who leave school before attaining a degree or by those who must take additional courses to fulfill requirements because of insufficient pre-college preparation, inappropriate course selections, changes in majors or the necessity to repeat courses.

Table 7 shows the relationship between total student credit hours and total degrees for the two groups of institutions by academic level for the years 1977-78 to 1982-83. In 1982-83 in the State-related

⁴The most common minimum credit requirement for graduation at the undergraduate level is 120 in the State-related schools (Lincoln requires 128), and 128 in the State-owned schools (Millersville and Shippensburg require 120 and Indiana requires 124). At the master's level, a minimum of 30 credits is the typical degree requirement (Lincoln requires 54).

Table 7

RELATIONSHIP OF STUDENT CREDIT-HOUR PRODUCTION TO DEGREES¹
1977-78 to 1982-83

Year and level	Total			State-related institutions			State-owned institutions		
	Student credit hours (000s)	Degrees	Ratio	Student credit hours (000s)	Degrees	Ratio	Student credit hours (000s)	Degrees	Ratio
1982-83									
Undergraduate	4,967	27,980	177.5	2,791	15,792	176.8	2,176	12,188	178.5
Graduate	580	8,689	66.8	477	6,687	71.3	103	2,002	51.4
1981-82									
Undergraduate	4,920	27,079	181.7	2,775	15,017	184.8	2,145	12,062	177.8
Graduate	632	9,135	69.2	515	6,816	75.6	117	2,319	50.5
1980-81									
Undergraduate	4,817	26,839	179.5	2,730	14,758	185.0	2,087	12,081	172.8
Graduate	663	9,235	71.8	533	6,808	78.3	130	2,427	53.6
1979-80									
Undergraduate	4,743	a	a	2,678	15,206	176.1	2,065	a	a
Graduate	649	9,051	71.7	517	6,592	78.4	132	2,459	53.7
1978-79									
Undergraduate	4,681	28,193	166.0	2,645	15,465	171.0	2,036	12,728	160.0
Graduate	650	9,571	67.9	518	6,922	74.8	132	2,649	49.8
1977-78									
Undergraduate	4,789	28,211	169.8	2,709	15,368	176.3	2,080	12,843	162.0
Graduate	675	9,670	69.8	532	6,912	77.0	143	2,758	51.8

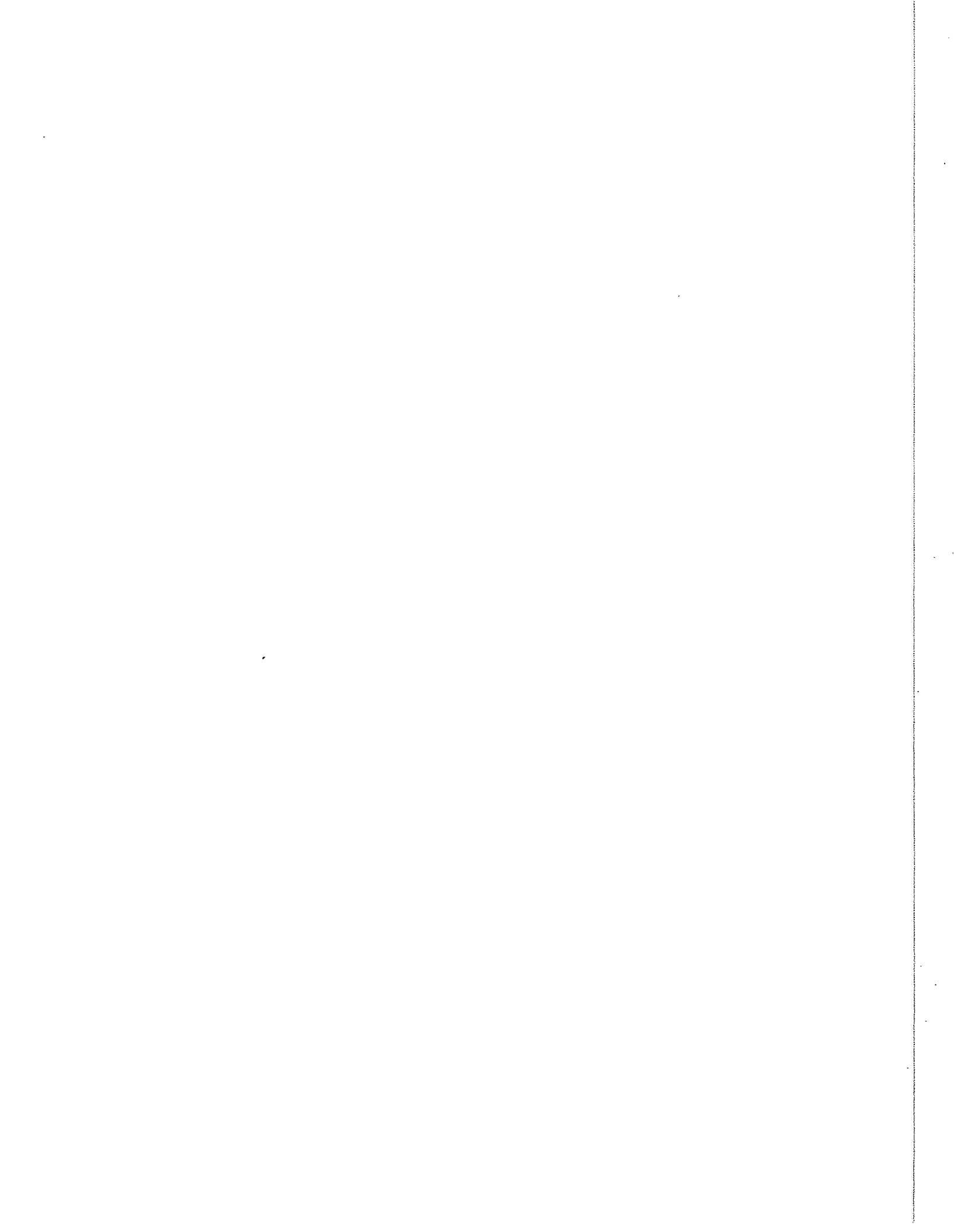
1. Data for each year represent the summer term preceding the academic year plus the academic year. Undergraduate degrees include only bachelor's degrees. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional (excluding medical) and doctor's at Pittsburgh and Temple, and doctor's at Penn State and Indiana University.

a. Data not available for all institutions.

SOURCE: Reports provided by the individual institutions, 1978 to 1983.

schools, the average number of undergraduate student credit hours per undergraduate degree is 176.8, and the average number of graduate student credit hours per graduate degree, 71.3. In the same year in the State-owned schools, these two averages are 178.5 and 51.4, respectively. The credit-hour-to-degree ratios for both the undergraduate and graduate levels in the State-related schools are lower than the corresponding ratios for the previous year and represent the second annual decline in the ratios since the peak year of 1980-81. On the other hand, the two ratios in the State-owned schools are higher than the corresponding ratios in the previous year and continue the annual increases which have occurred during most years since 1978-79.

In 1982-83, the average number of undergraduate student credit hours per undergraduate degree in the State-related schools is lower than this same average in the State-owned schools. The relationship between credit hours and degrees now mirrors the relationship between the minimum credit requirements for undergraduate students in the two types of schools (see footnote 4), a reversal from the previous year. The relative decline in the credit-hour-to-degree ratio in the State-related schools may be attributable to the growing differential in student tuition and fees between the two groups of institutions. As the State-related tuition and fees become relatively higher than those in the State-owned schools, it is likely that the credit-hour-to-degree ratios in the former schools will become relatively lower as students strive to complete their degree programs with cumulative credit hours closer to the required minimums.



III. Faculty Input

FACULTY COMPLEMENTS AND WORK LOAD

Table 8 presents the head count of full-time faculty members in each of the State-supported institutions for the fall 1982 term as well as the average hours these faculty report spending in work-related activities. The change in the total head count of full-time faculty from 1981 to 1982 is negligible. Since 1979, the aggregate number of full-time faculty has decreased by about 3 percent.

The total average workweek of faculty in all schools of 53.0 hours is nearly identical to that of the previous year; in fact, this weekly average has changed little since 1977.

From 1981, the average weekly hours in classroom instruction reported by all full-time faculty increased by 0.1 hours to 10.7 hours, a negligible percentage change. Average contact hours range from 12.0 (Lincoln) to 9.2 (Pittsburgh) in the State-related schools and from 12.4 (Mansfield) to 9.9 (Shippensburg) in the State-owned schools. Average contact hours for the State-related schools are 9.9 hours per week and for the State-owned schools, 11.5 hours per week. The division of contact hours between undergraduate and graduate levels reflects the relative sizes of the graduate programs in the two types of schools.

Table 8
 FULL-TIME FACULTY WORKWEEK ACTIVITIES
 1982-83, AND PERCENTAGE CHANGE FROM 1981-82

Institution ¹	Full-time ² faculty head count	Average weekly hours per full-time faculty member ³											
		Contact hours				Instruc- tional support	Percent- age change	Research	Percent- age change	Other university service	Percent- age change	Total work- week	Percent- age change
		Total	Percent- age change	Under- graduate	Graduate								
State-related													
Penn State	2,644	10.2	0	8.3	1.9	20.1	-2%	9.8	3%	11.8	1%	51.9	0
Pittsburgh	1,535	9.2	-5%	5.3	3.9	17.7	-3	14.9	8	10.8	-7	52.6	-1%
Temple ⁴	1,211	10.4	11	6.2	4.2	15.4	-3	8.7	-8	15.7	-9	50.2	-3
Lincoln	69	12.0	-1	10.8	1.2	17.8	11	9.0	8	11.7	18	50.5	9
Total	5,459	9.9	0	7.0	2.9	18.4	-2	11.1	4	12.3	-5	51.7	-1
State-owned													
Indiana	632	12.3	-2	11.1	1.2	18.7	1	10.3	4	18.1	3	59.4	2
West Chester	452	11.4	-5	10.3	1.1	18.5	4	9.0	-1	20.3	5	59.2	2
Bloomsburg	322	11.2	-3	10.6	.6	16.4	-1	7.6	6	16.2	1	51.4	a
Millersville	290	11.5	-3	11.1	.4	15.6	-7	8.7	12	16.7	-1	52.5	-1
Slippery Rock	319	12.0	-1	11.4	.6	18.2	2	8.5	5	16.9	-1	55.6	1
Edinboro	325	12.0	1	11.2	.8	19.0	1	7.6	-3	15.0	-3	53.6	-1
Shippensburg	293	9.9	-1	9.0	.9	17.1	-3	7.7	-7	16.2	2	50.9	-2
Clarion	310	10.9	-4	10.3	.6	17.4	2	7.0	4	15.5	-4	50.8	-1
Kutztown	284	12.2	-1	11.7	.5	17.2	2	7.8	-7	16.8	2	54.0	0
California	245	11.7	8	11.1	.6	16.8	7	6.8	-4	16.6	-8	51.9	1
East Stroudsburg	228	11.2	3	10.6	.6	18.0	0	9.6	9	18.5	3	57.3	3
Mansfield	169	12.4	18	11.9	.5	22.0	11	10.9	24	12.6	12	57.9	15
Lock Haven	170	11.3	-3	11.3	na	17.6	5	6.9	-1	17.5	-2	53.4	a
Cheyney	136	10.3	-7	9.7	.6	14.2	-7	6.1	-28	15.5	-17	46.1	-14
Total	4,175	11.5	-2	10.8	.7	17.7	1	8.4	1	17.0	1	54.6	a
All institutions	9,634	10.7	a	8.7	2.0	18.1	-1	9.9	3	14.3	-3	53.0	a

1. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

2. The number of full-time faculty for 1982-83 represents those reported by each school for the fall term.

3. Average calculated using only those full-time employed faculty in the fall who reported a complete workweek of 100 hours or less.

4. For fall 1982, 11 percent of Temple's full-time faculty did not submit a workweek report.

a. Rounds to less than 1 percent.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1982 and 1983.

Appendix table 8A presents the head count and average undergraduate and graduate classroom contact hours reported by the individual schools for the fall terms from 1977 to 1983. Since 1977, average weekly contact hours have decreased by 0.6 hour (6 percent) in the State-related schools and by 0.3 hour (3 percent) in the State-owned schools.

AVERAGE INSTRUCTIONAL FACULTY SALARIES

Rank Salaries

Table 9 presents the number, rank distribution and average salary by rank of the FTE instructional faculty in each of the State-supported schools for the total year 1982-83. The average salary increases shown in this table do not necessarily correspond with any general salary increases given to all faculty members in total or within any individual institution. The average increases reflect changes in the rank compositions of the faculties, which by themselves affect the averages independent of any overall salary increases. Average instructional salaries are computed by dividing each institution's total instructional salaries for each rank by the respective number of FTE instructional faculty.

As shown in table 9, from 1981-82 to 1982-83 the total number of FTE instructional faculty in all schools decreased by 1 percent (81 persons). This represents an average decrease of approximately one FTE faculty member for each decrease of seven FTE students during the same time (see table 1). The largest decreases in the number of FTE faculty

Table 9

AVERAGE INSTRUCTIONAL SALARIES OF FULL-TIME EQUIVALENT INSTRUCTIONAL FACULTY AND PERCENTAGE DISTRIBUTION BY RANK¹
1982-83

(Dollar amounts in 000s)

Institution ²	FTE Instructional faculty		Average Instructional salary		Professor		Associate professor		Assistant professor		Instructor		Non-ranked ³	
	Number	Percentage change 1981-82 to 1982-83	Amount	Percentage Increase 1981-82 to 1982-83	Average Instructional salary	Percentage of faculty	Average Instructional salary	Percentage of faculty	Average Instructional salary	Percentage of faculty	Average Instructional salary	Percentage of faculty	Average Instructional salary	Percentage of faculty
State-related														
Penn State	2,738	a	\$25.4	7%	\$37.1	17%	\$28.4	20%	\$22.6	29%	\$17.3	15%	\$22.6	19%
Pittsburgh	1,849	1%	24.2	7	36.1	18	25.7	27	20.4	20	14.0	11	21.1	24
Temple	1,617	-3	23.1	5	32.0	29	24.5	26	18.3	18	13.7	12	16.7	15
Lincoln	93	-4	18.4	4	23.2	16	21.0	18	17.4	41	16.0	18	13.5	7
Total	6,297	-1	24.4	7	34.8	20	26.3	24	21.1	24	15.6	13	20.8	19
State-owned														
Indiana	650	-5	27.5	9	32.9	37	26.9	31	22.7	24	19.6	7	14.7	1
West Chester	460	a	27.1	6	33.3	29	27.6	36	22.6	24	16.8	10	35.9	1
Bloomsburg	337	a	26.2	4	33.1	29	26.9	35	21.0	26	16.9	10	na	0
Millersville	321	1	26.7	6	32.1	33	26.4	39	22.0	21	16.2	7	28.6	a
Slippery Rock	301	-2	29.0	9	34.7	40	28.3	28	23.1	22	18.6	9	41.1	1
Edinboro	322	-5	29.2	8	33.9	39	28.2	35	23.5	25	17.9	1	28.4	a
Shippensburg	286	a	28.7	8	34.1	39	28.1	30	23.1	25	20.6	6	29.6	a
Clarion	293	1	26.9	5	33.5	32	27.6	32	22.0	25	15.9	11	31.1	a
Kutztown	269	a	29.0	5	35.0	37	28.8	34	23.6	19	19.2	9	10.3	1
California	240	a	29.7	4	33.4	46	27.7	40	24.1	11	19.9	2	33.0	a
East Stroudsburg	226	1	27.7	7	32.7	40	26.6	38	22.2	18	14.2	4	34.6	a
Mansfield	163	2	27.4	6	35.1	26	28.6	37	22.8	26	15.9	11	na	0
Lock Haven	149	1	29.8	8	35.0	35	28.9	44	23.0	19	19.1	2	45.9	a
Cheyney	136	-6	29.4	7	34.5	34	28.0	51	24.1	10	19.8	5	na	0
Total	4,153	-1	27.9	7	33.6	35	27.6	35	22.6	22	17.8	7	25.3	1
All Institutions	10,450	-1	25.8	7	34.2	26	26.9	28	21.7	23	16.2	11	20.9	12

1. Average instructional salary is calculated by dividing the total instructional salary paid to all staff members in the respective rank categories by their total full-time equivalency in the instructional function. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year represent the summer term preceding the academic year plus the academic year.

2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

3. The full-time equivalency of nonranked faculty members is based on the time spent in instruction of all nonranked personnel, including lecturers, administrators, librarians, research staff and graduate assistants.

a. Rounds to less than 1 percent.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1982 and 1983.

were reported by Edinboro (18), Indiana (31) and Temple (49) and the largest increase, by Pittsburgh (25).

From 1981-82 to 1982-83, average instructional salaries for all ranks in the combined State-supported schools increased by about \$1,600 (7 percent); the overall increases in the State-related and State-owned schools, respectively, were \$1,500 (7 percent) and \$1,700 (7 percent).

The percentage of faculty in the top ranks are higher in the State-owned schools as a group than in the State-related schools as a group, and the State-owned schools have higher average salaries in all rank classifications with the exception of the professor category. The overall average salary for the State-owned schools is \$27,900, and professors and associate professors constitute 70 percent of all faculty. For the State-related group, the overall average salary is \$24,400, and the overall percentage of faculty in the two highest ranks is 44 percent. Lock Haven has the highest average instructional salary (\$29,800), and California, the highest percentage of faculty in the top two ranks (86 percent). Lincoln has the lowest average instructional salary (\$18,400) as well as the lowest percentage of professors and associate professors (34 percent).

Comparable data on salaries for ranked and nonranked FTE instructional faculty are available since 1980-81 (see appendix table 9A). From 1980-81 to 1982-83, average salaries for the faculty at the State-related schools increased nearly 15 percent and at the State-owned schools, almost 13 percent. Thus, although the average instruc-

tional faculty is presently much higher at the State-owned schools, the gap between the two average salaries is diminishing.

Appendix table 9A lists average salary data for the years 1980-81 to 1982-83 for comparative purposes. As can be seen, average instructional salary increases ranged from 2 to 9 percent per year at the various schools during these years.

Salaries by Program Classification

Table 10 presents average instructional salaries for the various CIP classifications in the individual institutions for 1982-83. Because higher average salaries are positively correlated with higher faculty ranks, higher-than-average departmental salaries can imply higher-than-average departmental rank mixes.

In both groups of schools, the education, life sciences, physical sciences, psychology and social sciences classifications generally have higher-than-average salaries, while the business, letters and visual/performing arts classifications generally have lower-than-average salaries. Appendix table 10A gives a three-year history of average instructional salaries by selected program classification.⁵

Comparison with Other Institutions

Table 11 presents the rank distributions and average salaries by rank of the full-time ranked instructional faculty in the State-supported

⁵Salary data for 1980-81 and 1981-82, previously reported by HEGIS categories, have been converted into CIP categories.

Table 10

AVERAGE INSTRUCTIONAL SALARIES OF FULL-TIME EQUIVALENT INSTRUCTIONAL FACULTY BY CIP CLASSIFICATION,¹ 1982-83
(Dollar amounts in 000s)

CIP classification	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Indiana	West Chester	Bloomsburg	Millersville	Slippery Rock	Edinboro	Shippensburg	Clarion	Kutztown	California	East Stroudsburg	Mansfield	Lock Haven	Cheyney
Agriculture	\$24.6	--	\$18.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture & environmental design	28.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area & ethnic studies	27.8	\$24.0	23.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business	27.8	24.8	23.1	\$16.4	\$23.9	\$23.6	\$25.5	\$20.1	\$23.7	\$26.7	\$27.4	\$22.9	\$24.0	\$24.8	\$22.4	\$22.9	--	\$26.2
Communications	24.3	19.3	22.1	--	24.9	--	23.9	22.9	28.7	--	25.1	26.6	26.9	--	26.4	--	--	--
Computer & Information sciences	24.4	21.0	23.7	--	25.4	--	26.0	25.6	26.0	--	--	22.7	27.9	--	27.2	--	--	21.4
Education	23.3	23.4	22.8	16.8	28.6	27.7	26.5	27.1	28.7	30.0	29.4	27.9	30.1	29.6	27.8	28.6	\$29.7	30.9
Engineering	28.9	28.3	23.1	--	31.0	--	--	--	--	--	--	--	--	31.3	--	--	--	32.7
Foreign languages	22.8	23.5	20.7	16.4	29.1	24.4	28.6	25.9	31.8	27.1	30.3	27.5	30.3	30.4	31.3	20.4	31.2	26.1
Health	23.0	21.9	22.8	--	27.4	23.2	22.6	19.1	27.7	25.1	--	--	21.2	--	22.3	--	--	--
Home economics	27.5	21.3	--	--	25.6	--	--	--	--	31.2	--	--	--	--	--	23.1	--	25.9
Industrial arts	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33.9
Law	--	36.3	38.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters	20.8	22.5	20.8	20.1	27.6	27.1	24.5	24.7	28.8	28.2	30.3	26.8	30.5	31.1	24.8	26.4	30.9	29.2
Liberal/general studies	23.2	--	--	--	--	--	--	--	--	--	--	--	--	27.1	--	--	--	--
Library & archival sciences	--	23.4	--	--	--	--	--	23.4	--	--	23.1	27.7	23.5	--	--	--	--	--
Life sciences	25.9	23.9	30.5	20.9	28.5	27.8	29.3	27.4	33.9	32.0	30.5	29.8	27.5	32.1	30.6	26.5	33.2	32.7
Mathematics	24.2	25.2	21.9	18.0	30.2	24.8	26.2	26.7	29.7	29.8	26.6	27.6	29.3	29.0	27.2	29.4	29.2	24.6
Military sciences	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multi/Interdisciplinary studies	23.5	18.7	29.6	--	--	--	27.1	--	29.0	--	--	26.6	32.5	--	25.9	--	--	27.7
Parks & recreation	26.2	--	23.5	--	--	--	--	--	26.1	--	--	--	--	--	25.5	--	--	26.5
Personal & social development	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.0
Philosophy, religion & theology	25.6	28.3	23.1	21.6	31.0	--	30.5	26.7	29.3	--	--	--	--	33.8	32.9	--	--	32.0
Physical sciences	27.7	25.0	26.8	19.2	27.9	27.7	25.4	29.0	30.6	31.1	30.7	32.4	24.1	30.6	29.5	30.6	28.6	31.2
Psychology	27.2	23.1	25.0	20.0	28.3	28.2	26.8	28.1	31.8	31.4	29.6	30.0	30.2	31.8	30.6	29.7	29.5	32.4
Public affairs & protective services	27.2	25.8	23.1	18.1	--	27.1	--	26.6	29.3	23.5	25.8	--	--	27.6	--	--	--	--
Social sciences	26.6	27.1	23.9	19.1	28.6	29.0	27.0	29.0	31.2	30.7	29.6	29.8	30.0	29.2	27.7	27.6	27.7	32.4
Trade & industrial	21.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual & performing arts	23.5	23.2	20.5	a	25.7	27.7	26.1	27.3	27.3	28.2	26.8	27.6	30.3	24.5	27.5	--	31.6	28.4
Other	--	--	--	--	13.7	48.3	--	--	--	--	--	23.1	--	--	--	--	--	--
Total	25.4	24.2	23.1	18.4	27.5	27.1	26.2	26.7	29.0	29.2	28.7	26.9	29.0	29.7	27.7	27.4	29.8	29.4

1. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year represent the summer term preceding the academic year plus the academic year. Average instructional salary is calculated by dividing the total instructional salary paid to all staff members in the respective CIP classifications by their total full-time equivalency in the instructional function. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year represent the summer term preceding the academic year plus the academic year.

a. Included in education.

SOURCE: Reports provided by the individual institutions, 1983.

Table 11
 AVERAGE INSTRUCTIONAL FACULTY SALARIES¹ BY TYPE² AND RANK
 PERCENTAGE OF FULL-TIME FACULTY IN EACH RANK
 SELECTED PUBLIC AND PRIVATE INSTITUTIONS OF HIGHER EDUCATION
 ACADEMIC YEAR, 1982-83

Group	Institution	Average salary (000s)					Total ranked instructional faculty	Percentage of ranked faculty			
		All ranks	Prof.	Assoc. prof.	Asst. prof.	Instr.		Prof.	Assoc. prof.	Asst. prof.	Instr.
I. INSTITUTIONS AWARDING ONLY BACHELOR'S DEGREES											
	State-owned (Pennsylvania)										
	Lock Haven	\$29.7	\$35.6	\$29.3	\$23.8	\$17.9	167	34%	41%	20%	5%
	Private (Pennsylvania)										
	Dickinson College	25.6	34.1	26.5	20.4	18.4	113	26	33	26	15
	Franklin & Marshall College	27.6	38.2	28.9	20.3	18.1	137	29	27	34	10
	Gettysburg College	26.8	35.1	27.0	20.9	21.0	132	26	37	29	8
	Lebanon Valley College	19.1	25.2	18.0	14.7	na	72	31	30	35	4
	Swarthmore College	33.9	41.7	31.5	23.6	20.0	135	49	20	27	4
	Wilson College	20.0	24.6	19.7	16.4	na	31	32	29	39	na
	Public (other states)										
	Lake Superior St. College (MI)	21.8	27.6	24.5	20.4	10.4	102	16	43	27	14
	Mary Washington College (VA)	23.2	27.2	23.8	19.0	17.6	136	35	31	29	5
	University of N.C. at Asheville (NC)	23.7	30.2	24.4	21.4	nd	73	21	37	41	1
II. INSTITUTIONS AWARDING BACHELOR'S AND ADVANCED DEGREES											
	State-related and State-owned										
	Penn State	30.3	40.1	29.8	24.1	16.2	1,416	36	27	25	12
	Pittsburgh	31.1	42.2	30.0	23.1	16.6	1,229	33	36	25	6
	Temple	30.0	37.8	28.6	23.0	17.5	1,287	37	36	21	6
	Lincoln	20.8	28.3	21.6	18.8	15.6	76	20	24	43	13
	Bloomsburg	29.0	36.6	29.1	22.3	17.4	311	32	36	26	6
	California	31.2	35.4	29.3	24.0	nd	267	45	40	13	2
	Cheyney	29.0	35.8	27.8	23.6	19.7	171	30	49	12	9
	Clarion	28.8	33.7	29.3	23.2	19.0	255	36	36	20	8
	East Stroudsburg	29.8	35.2	28.4	23.1	na	228	39	37	24	na
	Edinboro	30.0	35.2	28.9	24.2	nd	327	38	34	27	1
	Indiana	28.5	35.6	28.9	23.0	17.7	689	34	30	26	10
	Kutztown	30.2	35.2	29.2	24.5	19.5	270	39	37	19	5
	Mansfield	28.1	35.6	29.2	23.0	17.0	191	26	38	26	10
	Millersville	27.6	33.0	26.8	21.6	17.4	286	35	40	22	3
	Shippensburg	30.2	35.5	29.2	23.8	19.2	271	42	30	25	3
	Slippery Rock	29.9	35.7	29.3	23.5	18.8	310	41	29	23	7
	West Chester	29.4	35.7	29.4	23.7	19.5	462	31	39	25	5
	Private (Pennsylvania)										
	Bryn Mawr College	30.1	36.5	28.5	22.7	na	115	47	30	23	na
	Carnegie-Mellon University	35.0	44.3	30.5	26.2	20.4	418	44	24	30	2
	Lehigh University	34.1	40.8	30.4	24.6	21.1	352	49	27	22	2
	University of Pennsylvania	38.8	48.5	33.5	27.5	nd	1,012	47	24	29	nd
	Public (other states)										
	Eastern New Mexico U.-Main (NM)	27.1	34.1	28.6	24.4	19.4	147	22	26	43	9
	Rutgers University-Camden (NJ)	31.8	48.6	33.8	24.2	19.4	202	20	41	30	9
	SUNY at Stony Brook (NY)	34.9	45.7	32.4	23.6	nd	597	43	31	26	nd
	University of Maryland at College Park (MD)	30.1	40.8	29.6	23.8	17.2	1,248	32	32	27	9
	University of Michigan at Ann Arbor (MI)	34.7	42.2	30.9	25.3	17.6	1,582	55	22	22	1
	University of North Carolina at Chapel Hill (NC)	32.3	40.6	29.3	23.1	22.3	1,005	48	27	23	2
	University of Texas at Austin (TX)	32.7	42.1	29.8	24.6	17.8	1,804	42	27	28	3
	PENNSYLVANIA AVERAGES										
	State-related institutions	30.3	39.8	29.3	23.3	16.6	4,008	35	32	24	9
	State-owned institutions	29.3	35.3	28.9	23.3	18.3	4,205	36	36	23	5
	U.S. AVERAGES										
	Public institutions	27.7	35.2	27.1	22.4	18.0	181,902	33	30	28	9
	Private institutions	26.4	35.0	25.6	20.9	16.6	78,964	32	29	31	8

1. All data include only full-time ranked faculty whose major assignment is instruction—including those with release time for research—and excludes part-time and administrative faculty and faculty for preclinical and clinical medicine. Average salaries are based on contracted salaries (adjusted to a standard academic year basis, when necessary), excluding summer teaching, extra loads, etc.

2. Institutions in group I award only the bachelor's degree or equivalent. Institutions in group II also award advanced degrees. Group I corresponds to Academic category IIB, and group II corresponds to Academic categories I plus IIA (See source below).

a. Less than 1 percent.

na. Not applicable.

nd. No data.

SOURCE: "Annual Report on the Economic Status of the Profession, 1982-83," Academic 69, Bulletin of the American Association of University Professors (Washington, D.C.: July-August 1983), pp. 22-73 and U.S. Department of Education, National Center for Education Statistics Bulletin (September 1983).

schools, of selected private colleges and universities in Pennsylvania and of selected public colleges and universities in other states. The sample of other schools was chosen to include size and geographic diversity. Since data for nonranked and part-time faculty are excluded, the set of faculty in the State-supported schools included in table 11 is different from the FTE set included in table 9. To enable meaningful comparisons, the various institutions are grouped according to the level of degrees offered (see footnote 2, table 11).

The table 11 data show that, overall, average salaries for the full-time ranked faculty in Pennsylvania's State-related and State-owned institutions are higher than those in most of the smaller private Pennsylvania colleges included in the sample (with the notable exceptions of Bryn Mawr and Swarthmore) but lower than those in the larger private Pennsylvania universities in the list. A comparison of the average salaries for specific ranks yields a similar general conclusion.

In comparison with the average salaries of other public institutions, the averages of the Pennsylvania State-supported institutions are higher than those of the selected smaller public institutions in other states but lower than those of the public institutions of similar size. In general, the average salaries in the large selected out-of-State public institutions are higher because they tend to use more high-rank faculty than do the large Pennsylvania State-related universities.

Comparing the average salaries for the State-related and State-owned Pennsylvania schools with those for the nation as a whole, however, produces a different picture. As the last rows of table 11 show, the overall average salaries for faculty in the State-related and State-owned institutions are higher than the overall average U.S. salaries in either public or private institutions. The overall average faculty salaries are higher in the Pennsylvania State-supported institutions than the U.S. averages because the Pennsylvania schools have higher average salaries for the top ranks and higher percentages of faculty in the top ranks.

IV. Cost Efficiency

SALARY COST PER STUDENT CREDIT HOUR

Instructional cost efficiency is measured by the average instructional faculty salary cost per student credit hour produced (unit cost). This measure is useful for comparing and analyzing the costs of producing instructional outputs by levels and program areas within and among schools. Of course, instructional faculty salaries are not the only costs associated with instruction. Costs of such other inputs as administrative faculty, plant, equipment, etc., must of necessity be allocated to instruction in some fairly arbitrary manner. An assumption of proportionality between salaries and other costs is not unreasonable and permits a focus entirely on salaries as an index of total instructional costs.

Cost by Level of Instruction

Table 12 presents instructional faculty salary costs by level per FTE student and per student credit hour.⁶ The data illustrate that

⁶Data on average salaries by academic level are not reported by the individual institutions. To compute these averages, it is necessary to allocate salaries to levels within departments and ranks. These allocations are made on the basis of assigned credits.

Table 12

INSTRUCTIONAL FACULTY SALARY COST BY LEVEL
PER FULL-TIME EQUIVALENT STUDENT AND STUDENT CREDIT HOUR PRODUCED
1982-83

Institution ¹	Instructional faculty salary cost per full-time equivalent student ²		Instructional faculty salary cost per student credit hour ³					
	Undergraduate level	Master's	Undergraduate level			Graduate level		
			Undergraduate level	Lower division	Upper division	Master's	First professional ⁴	Doctor's
State-related								
Penn State	\$922	\$2,358	\$31	\$24	\$42	\$98	na	\$237
Pittsburgh	1,132	2,629	38	29	55	110	44 ^a	206
Temple	1,326	2,704	44	36	54	101	139	166
Lincoln	1,259	1,290	42	34	77	54	na	na
Total	1,047	2,578	35	27	48	107	117	219
State-owned								
Indiana	1,249	3,787	42	33	60	158	na	b
West Chester	1,336	2,769	45	34	72	115	na	na
Bloomsburg	1,392	1,995	46	39	60	83	na	na
Millersville	1,376	1,907	46	39	71	80	na	na
Slippery Rock	1,483	2,841	50	42	73	118	na	na
Edinboro	1,588	3,081	53	45	74	128	na	na
Shippensburg	1,398	2,467	47	42	60	103	na	na
Clarion	1,362	3,541	45	38	66	147	na	na
Kutztown	1,441	2,224	48	36	75	93	na	na
California	1,515	3,265	51	42	76	136	na	na
East Stroudsburg	1,491	1,850	50	39	77	72	na	na
Mansfield	1,622	3,122	54	39	100	129	na	na
Lock Haven	1,732	na	58	50	85	na	na	na
Cheyney	2,107	7,389	70	59	105	308	na	na
Total	1,432	2,797	48	39	70	116	na	na
All Institutions	1,216	2,641	41	33	56	110	117	219

1. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

2. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24.

3. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, one course credit was attributed to every three student credit hours produced in individual instruction.

4. Excludes medical.

a. Excludes dental.

b. Included at the master's level.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1983.

among institutions unit costs tend to vary inversely with the magnitude of credit-hour output. Average instructional salaries per unit of output (FTE student or credit hour) generally decrease as output increases at all levels of instruction. Thus, on average, salary costs per student credit hour are lower in the larger State-related institutions as a group (\$35 at the undergraduate level, \$107 at the master's) than those in the smaller State-owned institutions as a group (\$48 at the undergraduate level, \$116 at the master's). Across individual schools, average salary costs per student credit hour vary considerably, but generally confirm the cost-size relationship. Penn State, with the largest undergraduate FTE student enrollment, has the lowest average undergraduate unit cost (\$31).

In all of the individual schools, unit costs for upper divisions and master's levels are higher than unit costs for the lower divisions. The cost differentials between levels, however, also appear to be directly related to the respective sizes of the institutions. At the graduate level, unit costs are evidently determined not only by the sizes of the various graduate programs but by the mix of these programs as well, i.e., the proportions of output at the master's, first professional and doctor's levels.

Appendix table 11A presents average salary costs per credit hour by level for the past three school years. The data show that unit costs have steadily increased in nearly all of the schools, although in a few schools costs have tended to fluctuate.

Cost by Instructional Program

Tables 13, 14 and 15 detail CIP classification unit costs by level. Table 13 shows that the low-volume areas of industrial arts at the State-owned schools and library and archival sciences at the State-related have the highest salary costs per credit hour (see table 3, p. 19). Of the higher volume areas, health has by far the highest aggregate unit cost at all levels of instruction at the State-related schools, with the group average dominated by the higher costs at Pittsburgh. The popular career fields of business and computer/information sciences have unit salary costs below average at both groups.

Education salary costs are below average only at the graduate levels at both groups; at the upper division of the State-related schools, the aggregate unit salary cost of education is nearly double the aggregate cost of engineering. Multi/interdisciplinary studies, psychology, mathematics and social sciences have below average undergraduate costs at both groups of schools, and the foreign languages unit cost is well above average at both. The life sciences undergraduate cost is below average only at the State-related universities. Tables 14 and 15 present lower- and upper-division detail of salary costs per undergraduate student credit hour by institution.

VARIABLES AFFECTING COST EFFICIENCY

Components of Unit Cost

University administrators have the latitude to adjust a number of variables to reduce salary costs per student credit hour. This discussion

Table 13

AVERAGE INSTRUCTIONAL FACULTY SALARY COST PER STUDENT CREDIT HOUR¹ BY CIP CLASSIFICATION
BY TYPE OF INSTITUTION
1982-83

CIP classification	State-related						State-owned					
	Undergraduate			Graduate			Undergraduate			Graduate		
	Total under-graduate level	Lower division	Upper division	Master's	First professional	Doctor's	Total under-graduate level	Lower division	Upper division	Master's	First professional	Doctor's
Agriculture	\$38	\$40	\$38	\$128	--	\$256	--	--	--	--	--	--
Architecture and environmental design	55	43	60	212	--	201	--	--	--	--	--	--
Area and ethnic studies	61	45	73	257	--	194	--	--	--	--	--	--
Business	29	25	31	51	\$25	225	\$31	\$26	\$36	\$78	--	--
Communications	39	26	47	141	80	173	45	39	54	114	--	--
Computer and information sciences	29	26	37	46	--	201	35	31	47	67	--	--
Education	47	30	70	81	18	151	65	50	79	99	--	--
Engineering	37	38	36	101	--	245	51	28	61	--	--	--
Foreign languages	44	36	74	147	--	187	63	55	137	103	--	--
Health	75	71	76	277	113	413	87	76	91	113	--	--
Home economics	34	13	54	108	--	253	56	41	70	190	--	--
Industrial arts	--	--	--	--	--	--	111	111	--	437	--	--
Law	23	16	29	40	48	424	--	--	--	--	--	--
Letters	36	31	43	133	--	221	47	43	81	169	--	--
Liberal/general studies	32	12	62	--	--	50	8	6	30	--	--	--
Library and archival sciences	144	129	254	73	--	165	60	54	66	92	--	--
Life sciences	27	21	41	169	100	271	53	41	105	238	--	--
Mathematics	27	23	55	94	--	293	37	35	67	110	--	--
Military sciences	--	--	--	--	--	--	--	--	--	--	--	--
Multi/interdisciplinary studies	33	28	54	87	--	183	39	36	88	143	--	--
Parks and recreation	53	40	56	142	--	307	43	35	52	179	--	--
Personal and social development	--	--	--	--	--	--	68	68	--	--	--	--
Philosophy, religion and theology	35	27	69	132	--	287	37	34	94	177	--	--
Physical sciences	27	24	44	157	--	250	58	48	145	306	--	--
Psychology	27	17	53	149	--	231	41	32	63	99	--	--
Public affairs and protective services	49	37	57	76	--	130	46	31	70	78	--	--
Social sciences	32	25	48	151	--	251	39	33	67	173	--	--
Trade and industrial	46	46	52	--	--	--	--	--	--	--	--	--
Visual and performing arts	41	27	69	146	--	242	60	47	118	236	--	--
Other	--	--	--	--	--	82	52	37	175	--	--	--
Total	35	27	48	107	117	219	48	39	70	116	na	na

1. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, one course credit was attributed to every three student credit hours produced in individual instruction.

SOURCE: Reports provided by the individual institutions, 1983.

Table 14

LOWER-DIVISION INSTRUCTIONAL SALARY COST PER LOWER-DIVISION STUDENT CREDIT HOUR BY CIP CLASSIFICATION¹
1982-83

CIP classification	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Indiana	West Chester	Bloomsburg	Millersville	Slippery Rock	Edinboro	Shippensburg	Clarion	Kutztown	California	East Stroudsburg	Mansfield	Lock Haven	Cheyney
Agriculture	\$41	--	\$39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design	43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies	29	\$55	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business	20	27	33	\$29	\$21	\$24	\$28	\$26	\$30	\$28	\$31	\$23	\$24	\$20	\$16	\$25	--	\$38
Communications	21	16	27	--	34	--	44	37	42	--	50	30	17	--	44	--	--	--
Computer and information sciences	28	22	33	--	20	--	35	37	34	--	--	28	25	--	29	--	--	41
Education	27	33	34	38	51	41	44	52	52	48	66	33	43	56	56	47	\$48	102
Engineering	37	45	33	--	17	--	--	--	--	--	--	--	--	47	--	--	--	282
Foreign languages	29	46	55	44	44	45	61	50	51	76	63	51	54	81	90	50	78	68
Health	29	82	64	--	42	40	78	--	--	126	--	--	--	--	63	--	--	--
Home economics	13	--	--	--	33	--	--	--	--	74	--	--	--	--	--	45	--	117
Industrial arts	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120
Law	--	13	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters	29	32	35	31	40	36	42	43	43	40	48	44	42	54	38	42	53	67
Liberal/general studies	12	--	--	--	--	--	--	--	--	--	--	--	--	6	--	--	--	--
Library and archival sciences	--	129	--	--	--	--	--	67	--	--	44	107	39	--	--	--	--	--
Life sciences	19	32	12	28	34	25	45	53	51	57	53	33	23	35	31	29	72	68
Mathematics	22	23	33	25	38	25	39	32	34	35	33	41	40	28	37	37	43	38
Military sciences	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multi/interdisciplinary studies	26	30	127	--	--	--	50	--	40	--	--	35	--	--	--	--	--	35
Parks and recreation	38	--	41	--	--	--	--	--	32	--	--	--	--	--	59	--	--	32
Personal and social development	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69
Philosophy, religion and theology	22	30	38	41	24	--	39	31	34	--	--	--	--	66	34	--	--	105
Physical sciences	25	21	24	41	43	36	53	32	48	57	60	73	40	73	40	53	59	61
Psychology	16	15	24	35	23	30	31	33	31	39	31	29	29	30	34	29	40	72
Public affairs and protective services	28	29	47	73	--	26	--	51	28	73	34	--	--	75	--	--	--	--
Social sciences	20	26	40	39	22	29	32	38	37	34	35	33	33	44	26	34	34	70
Trade and industrial	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts	17	36	47	--	38	49	27	41	54	59	40	54	29	47	47	--	91	82
Other	--	--	--	--	51	15	--	--	--	--	--	--	--	--	--	--	--	--
Total	24	29	36	34	33	34	39	39	42	45	42	38	36	42	39	39	50	59

1. Institutions arranged in descending order with respect to total full-time equivalent students for 1982-83. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, one course credit was attributed to every three student credit hours produced in individual instruction.

SOURCE: Reports provided by the individual institutions, 1983.

Table 15

UPPER-DIVISION INSTRUCTIONAL SALARY COST PER UPPER-DIVISION STUDENT CREDIT HOUR BY CIP CLASSIFICATION¹
1982-83

CIP classification	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Indiana	West Chester	Bloomsburg	Millersville	Slippy Rock	Edinboro	Shippensburg	Clarion	Kutztown	California	East Stroudsburg	Mansfield	Lock Haven	Cheyney
Agriculture	\$38	--	\$44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design	60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies	56	\$92	82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business	27	31	39	\$38	\$30	\$30	\$36	\$30	\$34	\$53	\$45	\$37	\$34	\$30	\$33	\$49	--	\$46
Communications	46	36	47	--	51	--	42	57	62	--	60	51	57	--	56	--	--	--
Computer and information sciences	33	29	52	--	47	--	44	46	93	--	--	28	56	--	67	--	--	89
Education	79	77	53	82	94	71	67	69	73	75	56	88	76	81	76	125	\$77	129
Engineering	33	44	42	--	56	--	--	--	--	--	--	--	--	97	--	--	--	138
Foreign languages	74	74	73	105	149	100	249	104	135	162	193	137	168	190	159	190	317	425
Health	59	83	74	--	57	118	138	58	129	76	--	--	187	--	145	--	--	--
Home economics	55	48	--	--	60	--	--	--	--	141	--	--	--	--	--	85	--	106
Industrial arts	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Law	--	20	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters	40	41	48	119	75	101	66	61	104	63	106	94	87	97	78	68	107	111
Liberal/general studies	62	--	--	--	--	--	--	--	--	--	--	--	--	30	--	--	--	--
Library and archival sciences	--	254	--	--	--	--	--	47	--	--	66	145	85	--	--	--	--	--
Life sciences	38	61	35	114	116	87	97	78	161	196	102	121	87	92	114	129	142	131
Mathematics	60	52	46	97	110	67	77	70	70	61	54	80	64	53	63	127	62	140
Military sciences	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multi/interdisciplinary studies	67	41	176	--	--	--	95	--	54	--	--	121	217	--	--	--	--	--
Parks and recreation	55	--	61	--	--	--	--	--	45	--	--	--	--	--	53	--	--	86
Personal and social development	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology	65	109	50	234	93	--	--	54	94	--	--	--	--	393	177	--	--	142
Physical sciences	38	74	38	91	135	112	132	181	166	81	143	208	152	119	196	26	209	116
Psychology	59	45	55	82	61	57	58	60	71	51	62	61	70	43	80	87	81	93
Public affairs and protective services	48	59	68	--	--	55	--	84	102	--	84	--	--	81	--	--	--	--
Social sciences	41	55	53	83	54	55	63	86	62	66	76	82	80	112	56	75	102	134
Trade and Industrial	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts	76	85	61	--	113	142	76	76	268	115	90	176	156	294	122	--	90	160
Other	--	--	--	--	73	81	--	--	--	--	--	--	--	--	--	--	--	--
Total	42	55	54	77	60	72	60	71	73	74	60	66	75	76	77	100	85	105

1. Institutions arranged in descending order with respect to total full-time equivalent students for 1982-83. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, one course credit was attributed to every three student credit hours produced in individual instruction.

SOURCE: Reports provided by the individual institutions, 1983.

highlights the components of cost and analyzes the impact of adjusting the most significant variables which can be controlled by administrators. If enrollments decrease over the next decade as expected, the issue of cost efficiency will receive increasing attention in an effort to keep unit costs in line.

Average faculty salary cost per student credit hour is calculated by dividing total FTE instructional faculty salaries by total student credit hours. The major components of this ratio can be expressed as follows:

$$\frac{\text{Instructional FTE faculty salaries}}{\text{Student credit hours}} = \left\{ \frac{\text{Number of FTE instructional faculty}}{\text{Number of courses}} \times \text{Average course credit value} \right\} \times \left\{ \frac{\text{Average FTE instructional faculty salary}}{\text{Number of classes}} \times \text{Average class size} \right\}$$

The two right-hand side terms in this equation illustrate the two different kinds of components which determine unit costs. The components in the first term are approximately constants or constant relationships. Those in the second term are control variables; these variables or relationships can be partially controlled by administrators to influence unit costs.

Constant Relationships and Control Variables

Course credit values can vary by type of course. Some courses are typically low-credit courses while others--for example, courses with labs--are usually assigned higher-course credits. Still other courses may have variable course credits, depending upon the nature of the

course. In general, however, courses in the State-supported schools average three assigned credits. The average course credit value is therefore approximately a constant.

The number of FTE instructional faculty per course is likewise approximately a constant relationship. Departmental data on the number of courses are not currently available, but aggregate course data (undergraduate plus graduate) by type of institution illustrate the observed near-constant relationship between courses and FTE faculty during the past three years:

<u>State-related</u>	<u>1982-83</u>	<u>1981-82</u>	<u>1980-81</u>
FTE faculty	6,297	6,333	6,369
Courses	8,291	8,113	8,106
FTE faculty/course	.76	.78	.79
 <u>State-owned*</u>	 <u>1982-83</u>	 <u>1981-82</u>	 <u>1980-81</u>
FTE faculty	3,563	3,612	3,596
Courses	7,374	7,333	7,191
FTE faculty/course	.48	.49	.50

*Excluding Kutztown and Millersville.

Since average course credit values and the number of FTE instructional faculty per course are approximately constant, these components cannot readily be varied by administrators to influence unit cost.

Variables which impact on unit cost and are at least partially controlled by administrators are: average FTE instructional faculty salary and average class size. Average departmental salaries are

determined by rank salary levels and rank mixes, and average class sizes by departmental enrollment levels and the number of courses and sections per course.

Quantitative Analysis

A quantitative estimate of the impact of the control variables on salary cost per student credit hour can be obtained using multiple regression analysis, based on observations for the various instructional program areas at each level of undergraduate instruction. The regression equation based on the analytic equation of the preceding section contains the following independent variables:⁷

X_1 = Average class size; and

X_2 = Average instructional faculty salary (\$000).

Using 1982-83 summer and academic-year data by institution and by CIP classification for these variables,⁸ the following regression coefficients were obtained for the undergraduate lower and upper divisions of the two types of institutions:⁹

⁷The analytic model above showed one relevant variable to be the number of classes per course. As noted earlier, data on courses by department are not currently available. Therefore, the regression equation is limited to the two remaining independent variables.

⁸The data for the independent variables used in the regressions, in this detail, are not presented in this report. These data are available upon request from the Joint State Government Commission.

⁹Total undergraduate instructional FTE faculty and salaries for schools and departments are assigned to lower and upper divisions using assigned credits by rank. The prorations enable the computation of average salaries by level. The proration method is an approximation, and the regression results should be viewed as approximations also. All of the coefficients are significant at the 95 percent confidence level.

Independent variable	State-related		State-owned	
	Lower division	Upper division	Lower division	Upper division
x_1	-1.04	-2.41	-1.39	-3.43
x_2	3.06	2.47	2.15	3.23
R^2	.50	.46	.43	.39

These coefficients demonstrate, for example, that in the lower division of the State-related group, instructional salary cost per student credit hour decreases by \$1.04 for each increase of one student per class and increases by \$3.06 for each increase of \$1,000 in average instructional faculty salary. The other coefficients have similar interpretations. Depending on the type of school and the undergraduate division, the values for R^2 show that from 39 to 50 percent of the variation in unit cost is explained by variations in average class size and average salary.

AVERAGE CLASS SIZE

As the regression analysis brings to light, average instructional faculty salary and average class size are highly significant variables which explain differences in unit costs. Average salaries and the influence of rank mix are reviewed in chapter III.

Class Size by Level

Table 16 shows 1982-83 average academic-year class sizes by level in the various State-supported schools. These data indicate that class

Table 16

AVERAGE CLASS SIZE IN CLASSROOM INSTRUCTION BY LEVEL¹
 ACADEMIC YEAR 1982-83
 PERCENTAGE CHANGE 1981-82 to 1982-83

Institution ²	Undergraduate level									Master's		
	Total			Lower division			Upper division			Class size	One-year change	Percentage change
	Class size	One-year change	Percentage change	Class size	One-year change	Percentage change	Class size	One-year change	Percentage change			
State-related												
Penn State	31	0	0	32	0	0	30	0	0	14	0	0
Pittsburgh	29	0	0	32	0	0	24	-1	-4%	18	0	0
Temple	23	1	5%	25	1	4%	20	0	0	12	-1	-7%
Lincoln	19	0	0	23	-1	-4	10	-1	-9	14	0	0
Total	29	1	4	31	1	3	26	0	0	14	-1	-7
State-owned												
Indiana	27	1	4	33	1	3	19	1	6	6	0	0
West Chester	21	0	0	28	1	4	13	0	0	7	0	0
Bloomsburg	23	-1	-4	27	-1	-4	19	0	0	11	-1	-8
Millersville	25	0	0	29	0	0	17	1	6	11	0	0
Slippery Rock	25	2	9	30	1	3	16	1	7	10	0	0
Edinboro	22	1	5	26	1	4	17	2	13	7	0	0
Shippensburg	26	0	0	28	0	0	21	0	0	11	-3	-21
Clarion	30	0	0	36	-1	-3	20	0	0	10	2	25
Kutztown	26	2	8	35	2	6	16	0	0	12	-2	-14
California	23	0	0	28	1	4	16	0	0	8	0	0
East Stroudsburg	27	1	4	32	0	0	18	1	6	12	-2	-14
Mansfield	18	-2	-10	27	-1	-4	9	-2	-18	6	-5	-45
Lock Haven	24	-1	-4	27	-1	-4	17	-1	-6	na	na	na
Cheyney	18	-1	-5	21	0	0	13	-2	-13	5	-4	-44
Total	24	0	0	29	0	0	16	0	0	8	-1	-11
All institutions	27	1	4	30	0	0	21	0	0	12	0	0

1. Average class size for each level is calculated by dividing the total classroom student credit hours by the total classroom assigned credits.

2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1982 and 1983.

sizes correlate inversely with academic levels within institutions and, to some extent, directly with the magnitude of FTE enrollment.

As shown in table 16, aggregate average undergraduate class size is largest at Penn State (31), the largest State-supported institution, and smallest at Cheyney (18), Lincoln (19) and Mansfield (18), three of the smaller institutions. This aggregate average class size in the State-related schools is 29 and in the State-owned schools, 24; the overall average undergraduate class size in all schools is 27. Only 4 of the 18 State-supported schools have overall class sizes equal to or larger than this average.

The aggregate average lower-division class size is 30, and the upper-division and master's class sizes are 21 and 12, respectively. At each academic level, the aggregate average class size in the State-related schools is larger than the aggregate average class size in the State-owned schools; however, the size differentials are greater in the undergraduate upper-division and graduate levels. Because of their much larger upper-division and graduate programs, the State-related schools enjoy cost advantages related to these differentials.

Appendix table 13A gives a history of class sizes by academic level in the various institutions. During the two-year period 1980-81 to 1982-83, undergraduate class sizes increased by an average of four students (16 percent) in the State-related schools and remained virtually unchanged in the State-owned.

Class Size by Program Classification

Appendix tables 14A and 15A present 1982-83 lower- and upper-division undergraduate class sizes in the various institutions by CIP classification. The lower-division classes are larger in program areas which serve general distribution areas (life, physical and social sciences and psychology) and some departments related mainly to student majors (business, computer/information sciences and psychology), and smaller in other departments related mainly to student majors (foreign languages, multi/interdisciplinary studies). Upper-division classes, related mostly to student majors, are small except for business, computer and information sciences and psychology.

Courses Taught

Average class size can be adjusted either by changing the number of courses taught or by changing the number of classes (sections) per course. Table 17 presents the average number of undergraduate and graduate courses taught per term, and student credit hours produced per course per term, in each of the State-supported institutions during 1982-83. The total number of course offerings changed little from 1981-82. The data in table 17 show two things. First, the number of undergraduate courses offered tends to vary in the same direction as undergraduate FTE student enrollments among schools, while the number of graduate courses offered relates more to the nature of the specific programs in the various schools. Second, except for Penn State (because of its very large size), the number of student credit hours produced per course during 1982-83 is fairly constant

Table 17

AVERAGE NUMBER OF COURSES TAUGHT AND STUDENT CREDIT HOURS PRODUCED PER COURSE PER TERM¹
ACADEMIC YEAR 1982-83 AND PERCENTAGE CHANGE FROM 1981-82

Institution ²	Undergraduate level				Graduate level ³			
	Courses taught per term		Average student credit-hour production per course taught per term		Courses taught per term		Average student credit-hour production per course taught per term	
	Average number	Percentage change	Average number	Percentage change	Average number	Percentage change	Average number	Percentage change
State-related								
Penn State	1,718	-3%	446	3%	489	1%	93	-1%
Pittsburgh	1,754	a	160	1	1,316	2	43	-2
Temple	1,650	a	141	-2	1,130	18	36	-25
Lincoln	210	11	72	-19	24	14	99	-12
State-owned								
Indiana	865	2	193	-1	250	-3	22	0
West Chester	935	3	118	1	238	0	21	-5
Bloomsburg	528	2	153	-4	65	-14	35	9
Millersville	466	-11	161	15	69	-4	37	42
Slippery Rock	550	-3	138	5	76	-7	27	-4
Edinboro	504	-3	147	5	82	-5	31	-9
Shippensburg	394	0	177	1	88	7	44	-4
Clarion	494	2	149	-3	66	-8	27	23
Kutztown	412	-1	177	9	42	-2	44	-6
California	498	2	114	-1	108	0	22	-4
East Stroudsburg	451	4	117	-2	46	24	32	-20
Mansfield	456	a	79	5	54	-4	16	-6
Lock Haven	310	-1	119	1	na	na	na	na
Cheyney	290	-1	87	-10	26	4	13	-59

1. Average student credit hours per course are calculated by dividing the average production for each term in the academic year by the average number of courses taught each term in the academic year. Penn State data adjusted to two terms.

2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.

3. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University includes the doctoral level.

a. Rounds to less than 1 percent.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1982 and 1983.

across schools. Courses rise with enrollments, but since basic requirements are somewhat similar in all of the schools, the extra courses are electives or specialty courses.

Appendix table 12A shows a history of course offerings. From 1980-81 to 1982-83, at both groups of schools total undergraduate courses increased slightly and total classes decreased--by 6 percent at the State-owned universities. Overall, the number of classes per course decreased by 7 percent at the State-owned schools and by approximately 2 percent at the State-related.

At both types of institutions, there were fewer faculty in relation to the number of courses taught in 1982-83 than in 1980-81. The faculty/course ratio declined by 4 percent at each group.

INTERSTATE COMPARISON OF INSTRUCTIONAL COSTS

Table 18 lists the total instructional cost per FTE student unit for all publicly controlled institutions of higher education (including two-year colleges) in all states for two fiscal years, 1980 and 1981. In this table, several nonsalary costs are allocated to instruction (see footnotes 1 and 2, table 18).

In 1981 as in 1980, Pennsylvania's total instructional cost per FTE student unit was eighth highest in the nation. The 1981 per student cost in Pennsylvania was \$3,323, an increase of \$116 (nearly 4 percent) over 1980. The U.S. average (mean) cost in 1981 was \$3,047 per student, an increase of \$231 (over 8 percent) over 1980.

Table 18

TOTAL INSTRUCTIONAL COST¹ PER FTE STUDENT UNIT²
ALL PUBLICLY CONTROLLED INSTITUTIONS OF HIGHER EDUCATION
FISCAL YEARS 1981 AND 1980

State	Fiscal year 1981		Fiscal year 1980		Percentage increase (-decrease)
	Rank	Cost/ student unit	Rank	Cost/ student unit	
Alaska	1	\$7,423	1	\$5,733	29%
Wyoming	2	4,808	2	3,983	21
Vermont	3	3,736	3	3,762	-1
New York	4	3,729	4	3,405	10
Delaware	5	3,713	5	3,404	9
California	6	3,378	12	2,973	14
Wisconsin	7	3,376	7	3,235	4
PENNSYLVANIA	8	3,323	8	3,207	4
Iowa	9	3,238	6	3,287	-1
South Carolina	10	3,192	10	3,045	5
Rhode Island	11	3,178	16	2,902	10
North Dakota	12	3,164	13	2,933	8
Mississippi	13	3,151	19	2,804	12
Kentucky	14	3,109	15	2,918	7
Michigan	15	3,097	9	3,053	1
Indiana	16	3,073	14	2,919	5
Washington	17	3,058	38	2,522	21
Maine	18	3,034	20	2,790	9
Maryland	19	3,032	17	2,886	5
North Carolina	20	3,029	11	3,013	1
New Jersey	21	3,005	25	2,741	10
Florida	22	2,999	28	2,688	12
Texas	23	2,966	30	2,656	12
Illinois	24	2,956	21	2,788	6
Ohio	25	2,940	23	2,779	6
Utah	26	2,935	18	2,826	4
Idaho	27	2,929	26	2,733	7
Oregon	28	2,915	22	2,781	5
Tennessee	29	2,860	32	2,611	10
Nevada	30	2,856	27	2,719	5
Alabama	31	2,833	35	2,586	10
Hawaii	32	2,826	40	2,485	14
Minnesota	33	2,796	24	2,745	2
Kansas	34	2,784	39	2,508	11
Arizona	35	2,766	44	2,415	15
Arkansas	36	2,754	37	2,539	8
Nebraska	37	2,738	34	2,595	6
Colorado	38	2,727	33	2,596	5
Georgia	39	2,690	41	2,484	8
New Mexico	40	2,681	43	2,440	10
Missouri	41	2,671	36	2,576	4
Louisiana	42	2,654	45	2,363	12
Virginia	43	2,647	42	2,472	7
South Dakota	44	2,604	31	2,617	a
West Virginia	45	2,567	29	2,685	-4
New Hampshire	46	2,556	46	2,349	9
Montana	47	2,475	48	2,313	7
Connecticut	48	2,463	47	2,319	6
Oklahoma	49	2,308	50	2,019	14
Massachusetts	50	2,270	49	2,135	6
U.S. average		3,047		2,816	8

1. Instructional costs for each state include instruction, Student Services, and Scholarships and Fellowships, plus a portion of Academic Support, Instructional Support, Plant Operation and Mandatory; the latter costs are allocated to instruction on the basis of the ratio of each state's direct instructional costs to its total costs, where total costs equal the direct instructional costs plus noninstructional Public Service and Research.

2. FTE students are converted to student units, using the weights devised by Bowen, in recognition that instructional costs vary by student levels.

SOURCE: FTE Students - National Center for Education Statistics, Fall Enrollment in Higher Education, 1980 (Washington, D.C.: July 1981), Tables 12-E, 13-E; Student Weights - Howard R. Bowen, The Costs of Higher Education (San Francisco: Jossey-Bass Publishers: 1980), p. 265; Instructional Costs - National Center for Education Statistics, worksheets (Washington, D.C.: July 1983).

Interstate differences in per student instructional costs are determined by many factors. Important causal factors may include the mix of institutional types and sizes, personal income, preference for higher education and local costs of living in the various states.

V. Cost Sharing

The total costs of higher education--instructional and noninstructional--must be borne by some group or another. Colleges and universities have a number of revenue sources--student tuition and fees, gifts from alumni and others, endowments, foundation and governmental grants and governmental appropriations. The predominant part of the instructional costs of the State-related and State-owned institutions in Pennsylvania is covered by two sources of income: student tuition and fees (the student share) and State appropriations (the public share). Of course, while tuition and fees constitute the student share of costs, this share is not necessarily borne totally by students; many receive scholarships, grants and low-interest loan guarantees from public agencies and aid from private sources.

Student Share: Tuition and Fees

Table 19 presents the 1983-84 tuition and mandated fees per full-time student in each of the State-supported schools as well as the full-time tuition and fees for selected private colleges and universities in Pennsylvania and for selected public institutions in other states. The 1983-84 tuition and required fees for full-time in-State undergraduate

Table 19
ACADEMIC YEAR TUITION AND REQUIRED FEES BY LEVEL
MAIN CAMPUSES OF SELECTED PUBLIC AND PRIVATE INSTITUTIONS
1983-84

Group	Institution	Undergraduate level ¹			Graduate level ¹		
		PUBLIC		Private	PUBLIC		Private
		In-state	Out-of-state		In-state	Out-of-state	
I. INSTITUTIONS AWARDED ONLY BACHELOR'S DEGREES							
	State-owned (Pennsylvania)						
	Lock Haven	\$1,604	\$2,714		--	--	
	Private (Pennsylvania)						
	Dickinson College			\$7,643			--
	Franklin & Marshall College			7,530			--
	Gettysburg College			7,060			--
	Lebanon Valley College			5,360			--
	Swarthmore College			8,430			--
	Wilson College			6,072			--
	Public (other states)						
	Lake Superior St. College (MI)	1,470	2,775		--	--	
	Mary Washington College (VA)	1,198	2,510		--	--	
	University of N.C. at Asheville (NC)	664	2,700		--	--	
II. INSTITUTIONS AWARDED BACHELOR'S AND ADVANCED DEGREES							
	State-related and State-owned						
	Penn State	2,312	4,644		2,464	4,926	
	Pittsburgh	2,528	4,948		2,954	5,844	
	Temple	2,802	4,986		3,048	3,864	
	Lincoln	1,830	2,830		2,200	3,700	
	Bloomsburg	1,606	2,716		1,524	1,524	
	California	1,724	2,834		1,654	1,654	
	Cheyney	1,644	2,754		1,624	1,624	
	Clarion	1,648	2,758		1,600	1,600	
	East Stroudsburg	1,654	2,764		1,500	1,500	
	Edinboro	1,648	2,758		1,648	1,648	
	Indiana	1,654	2,764		1,600	1,600	
	Kutztown	1,604	2,714		1,480	1,480	
	Mansfield	1,673	2,783		1,564	1,564	
	Millersville	1,598	2,708		1,500	1,500	
	Shippensburg	1,686	2,796		1,590	1,590	
	Slippery Rock	1,680	2,790		1,676	1,676	
	West Chester	1,606	2,716		1,500	1,500	
	Private (Pennsylvania)						
	Bryn Mawr College			8,345			7,810
	Carnegie-Mellon University			7,550			8,200
	Lehigh University			8,000			8,000
	University of Pennsylvania			8,880			9,405
	Public (other states)						
	Eastern New Mexico U.-Main (NM)	708	1,995		708	1,995	
	Rutgers University-Camden (NJ)	1,823	3,313		2,120	3,054	
	SUNY at Stony Brook (NY)	1,160	1,860		1,810	2,295	
	University of Maryland at College Park (MD)	1,332	3,726		1,776	3,192	
	University of Michigan at Ann Arbor (MI)	2,218	6,346		3,196	6,856	
	University of North Carolina at Chapel Hill (NC)	766	3,128		381	1,562	
	University of Texas at Austin (TX)	420	1,500		420	1,500	

1. In instances where charges are on a per course basis, undergraduate tuitions are determined on a 30 credit-hour, academic-year workload and graduate tuitions on a 24 credit-hour, academic-year workload.

SOURCE: Pennsylvania Department of Education, Basic Student Charges at Institutions of Higher Education 1983-84 (Harrisburg: 1983) and data furnished by individual institutions.

students range from \$2,802 (Temple) to \$1,598 (Millersville). While student charges at Pennsylvania's State-supported schools are far lower than those at many private colleges and universities in the Commonwealth, they are generally higher than the charges at public institutions of similar size in other states.

The general conclusion that public tuitions are higher in Pennsylvania is further substantiated by the fiscal 1982 data in table 22, p. 64, which include estimated average tuition for students at all levels at public institutions in each state, including four-year colleges and universities, two-year colleges, medical schools and research institutions.

Public Share: State Appropriations

Table 20 presents the 1982-83 State appropriation for educational and general purposes to each of the State-related and State-owned institutions, the appropriation as a percentage of the total revenue from tuition, fees and appropriations and the instructional appropriation per FTE student. Within each group, the schools are arranged in descending order with respect to FTE students. This arrangement shows clearly that as FTE enrollments increase, appropriations per FTE student decrease (with the notable exception of Temple). This inverse relationship indicates that the State appropriations process implicitly recognizes economies of large scale. For 1982-83, State appropriations per FTE student average \$2,550 and range from \$1,790 at Penn State to \$5,960 at Cheyney.

Table 20

APPROPRIATIONS FOR INSTRUCTION RELATED TO TUITION AND FEE REVENUES AND FTE STUDENTS¹
 1982-83, CHANGE FROM 1981-82 AND FIVE-YEAR AVERAGE ANNUAL RATE OF CHANGE
 (1977-78 to 1982-83)

Institution ²	State appropriation			Appropriation as percentage of total revenues from tuition, fees and appropriation	Appropriation per FTE student			
	Amount (millions)	Percentage change			Amount	One-year change	Percentage change	
		One year	Five-year annual average				One year	Five-year annual average
State-related								
Penn State ³	\$104.8	6%	6%	42%	\$1,790	\$80	5%	5%
Pittsburgh ³	70.3	6	7	48	2,400	130	6	6
Temple	75.1	6	6	51	3,160	370	13	11
Lincoln ⁴	4.3	9	8	59	3,180	600	23	5
Total	254.5	6	6	46	2,260	150	7	6
State-owned								
Indiana	31.9	10	10	63	2,460	210	9	8
West Chester	22.6	2	6	62	2,610	-30	-1	4
Bloomsburg	17.8	11	10	65	2,880	340	13	10
Millersville	17.4	13	7	64	2,880	290	11	5
Slippery Rock	16.2	1	4	64	2,870	-30	-1	5
Edinboro	16.6	a	3	67	2,960	0	0	4
Shippensburg	16.5	10	8	66	3,010	240	9	8
Clarion	16.4	7	7	67	3,010	220	8	5
Kutztown	15.4	9	7	64	2,910	60	2	4
California	15.1	1	3	71	3,450	160	5	3
East Stroudsburg	13.4	7	9	65	3,240	130	4	10
Mansfield	10.4	a	3	72	3,900	-150	-4	3
Lock Haven	10.0	7	9	70	3,900	250	7	6
Cheyney	10.7	3	7	77	5,960	980	20	21
Total	230.4	6	7	66	3,000	150	5	6
All Institutions	484.9	6	7	54	2,550	150	7	6

1. Appropriations include only funding for educational and general purposes.
2. Arranged in descending order with respect to total full-time equivalent students for 1982-83.
3. Includes appropriation for Titusville campus.
4. Includes appropriation for human services.
- a. Rounds to less than 1 percent.

SOURCE: Reports provided by the individual institutions, 1977 to 1983; Governor's Executive Budget, 1983-84; data furnished by Pennsylvania Department of Education, Bureau of Budget and Management, January and November 1983.

While, overall, State appropriations per FTE student have increased annually during the past five years by an average of 6 percent, appropriations per FTE student at four schools (Bloomsburg, Cheyney, East Stroudsburg and Temple) have increased by an average of 10 percent or more per year.

In the 1982-83 academic year, State appropriations account for an average of 46 percent of the total revenue received from tuition, fees and appropriations for educational and general purposes by the State-related schools and for an average of 66 percent of the total revenue received by the State-owned schools; the Commonwealth's share overall is 54 percent.

Cost-Sharing Trends

Table 21 shows the average tuition and fees per FTE student and the average State appropriation for educational and general purposes per FTE student for the two groups of State-supported institutions during the school years 1977-78 to 1982-83. Average FTE student tuitions and fees have increased annually by 15.8 percent at the State-related schools and by 12.4 percent at the State-owned schools over the five-year interval. During the same time, average State appropriations per FTE student have grown by 6.4 percent and 6.1 percent per year at the two types of institutions, respectively. As a result, the State share of the costs for educational and general purposes in the State-related group has decreased from 54 to 46 percent and in the State-owned group, from 71 to 66 percent.

Table 21

AVERAGE TUITION AND FEES AND AVERAGE STATE APPROPRIATION PER FULL-TIME STUDENT¹
 STATE APPROPRIATION AS A PERCENTAGE OF TOTAL AVERAGE REVENUE PER FTE STUDENT²
 STATE-RELATED AND STATE-OWNED UNIVERSITIES
 (1977-78 to 1982-83)

Year	Per State-related FTE student				Per State-owned FTE student			
	Average tuition and fees	Average State appropriation	Total average revenue	Appropriation as a percentage of revenue	Average tuition and fees	Average State appropriation	Total average revenue	Appropriation as a percentage of revenue
1982-83	\$2,610	\$2,260	\$4,870	46%	\$1,540	\$3,000	\$4,540	66%
1981-82	2,210	2,110	4,320	49	1,300	2,850	4,150	69
1980-81	2,000	2,030	4,030	50	1,130	2,760	3,890	71
1979-80	1,780	1,960	3,740	52	1,010	2,630	3,640	72
1978-79	1,610	1,840	3,450	53	1,010	2,460	3,470	71
1977-78	1,460	1,710	3,170	54	950	2,300	3,250	71
Average annual increase	15.8%	6.4%	10.7%		12.4%	6.1%	7.9%	

1. FTE students include in-State and out-of-State undergraduate and graduate students. Tuition and fees are based on revenues collected by the individual institutions. State appropriations include only funding for educational and general purposes.

2. Includes revenue from tuition and fees plus State appropriations for educational and general purposes.

SOURCE: State-related tuition and fee data provided by the individual institutions, 1977 to 1983; State-owned tuition and fee data furnished by Pennsylvania Department of Education, Bureau of Budget and Management, 1978 to 1983; and Governor's Executive Budget, 1983-84, 1982-83, 1981-82 and 1980-81.

Interstate Comparison of Cost Sharing

Table 22 lists by state the fiscal year 1982 estimated average tuition (for all levels) and the total state and local appropriation for current operating expenses per FTE student in all public institutions of higher education, including four-year colleges and universities, two-year colleges, medical schools and research institutions. Even though appropriations vary by the mixes of these institutions in the various states, and some appropriations are not directly related to student enrollments, per student appropriations are presented to show the State percentages of appropriations to total revenues from tuition and appropriations. The Pennsylvania data differ from those in tables 20 and 21, which include only the State-related (excluding medical) and State-owned schools and only State appropriations for educational and general purposes.

The data in table 22 show that the public shares of total revenues range from 90.9 percent in California to 38.2 percent in Vermont; the U.S. average (mean) public share is 79.4 percent. The 1982 State and local share in Pennsylvania is 61.4 percent, well below the U.S. average. Only two other states (New Hampshire and Vermont) have lower public shares than Pennsylvania.

Pennsylvania's total State and local appropriation to public higher education per FTE student (\$3,613) is slightly lower than the national average, with 20 states having total per student appropriations above the Commonwealth's. The student share (average tuition) of \$2,276,

Table 22

TUITION AND APPROPRIATIONS PER FTE STUDENT
ALL PUBLIC INSTITUTIONS OF HIGHER EDUCATION
FISCAL YEAR 1982

State	Per FTE student			Percentage of appropriations to total
	Estimated average tuition ¹	State & local appropriations ²	Total	
Alabama	\$865	\$3,205	\$4,070	78.7%
Alaska	1,525	12,712	14,237	89.3
Arizona	958	3,193	4,151	76.9
Arkansas	757	3,441	4,198	82.0
California	409	4,087	4,496	90.9
Colorado	1,667	2,874	4,541	63.3
Connecticut	850	3,862	4,712	82.0
Delaware	1,909	3,129	5,038	62.1
Florida	816	3,547	4,363	81.3
Georgia	988	4,492	5,480	82.0
Hawaii	559	4,662	5,221	89.3
Idaho	546	3,643	4,189	87.0
Illinois	882	3,676	4,558	80.6
Indiana	1,351	3,377	4,728	71.4
Iowa	1,066	4,101	5,167	79.4
Kansas	897	3,587	4,484	80.0
Kentucky	835	3,975	4,810	82.6
Louisiana	924	4,017	4,941	81.3
Maine	1,385	2,886	4,271	67.6
Maryland	1,454	3,383	4,837	69.9
Massachusetts	525	2,764	3,289	84.0
Michigan	1,287	2,993	4,280	69.9
Minnesota	999	3,330	4,329	76.9
Mississippi	999	3,842	4,841	79.4
Missouri	812	3,008	3,820	78.7
Montana	879	3,257	4,136	78.7
Nebraska	981	3,773	4,754	79.4
Nevada	725	3,154	3,879	81.3
New Hampshire	2,020	1,943	3,963	49.0
New Jersey	1,090	3,207	4,297	74.6
New Mexico	950	4,320	5,270	82.0
New York	1,438	4,795	6,233	76.9
North Carolina	665	4,156	4,821	86.2
North Dakota	934	3,890	4,824	80.6
Ohio	1,373	2,745	4,118	66.7
Oklahoma	715	3,406	4,121	82.6
Oregon	1,029	3,320	4,349	76.3
PENNSYLVANIA	2,276	3,613	5,889	61.4
Rhode Island	1,245	3,458	4,703	73.5
South Carolina	781	4,112	4,893	84.0
South Dakota	891	2,545	3,436	74.1
Tennessee	856	3,059	3,915	78.1
Texas	697	4,354	5,051	86.2
Utah	902	3,609	4,511	80.0
Vermont	3,893	2,403	6,296	38.2
Virginia	971	3,237	4,208	76.9
Washington	515	2,710	3,225	84.0
West Virginia	636	3,742	4,378	85.5
Wisconsin	994	3,314	4,308	76.9
Wyoming	991	6,608	7,599	87.0
U.S. average ³	948	3,646	4,594	79.4

1. Tuition for fiscal year 1982 is estimated using appropriations per FTE student for fiscal 1982, times the ratio of tuition to appropriations per FTE student for fiscal 1979, the latest year for which actual tuition was available. To the extent that the tuition to appropriation ratio changed since 1979, the 1982 estimates are incorrect. For each state, tuition is an average of individual institutions tuitions.

2. State and local appropriations for current operating expenses of all publicly supported institutions, including two-year colleges, four-year colleges and universities, medical schools and research institutions.

3. U.S. average includes the District of Columbia.

SOURCE: D. Kent Halstead, How States Compare in Financial Support of Higher Education (Washington, D.C.: National Institute of Education, February 1982).

however, is more than double the national average. Only four other states--Alaska, New York, Vermont and Wyoming--have a total of tuition and appropriation per FTE student which is higher than Pennsylvania's total of \$5,889. Thus the data in table 22 support the conclusion drawn from table 18, that public higher education in Pennsylvania is more costly than in the great majority of other states. Since Pennsylvania's average tuition is much higher than the U.S. average and total appropriation per student is approximately equal to this average, it would appear that the Commonwealth's higher costs are borne primarily by students in the form of higher tuition.



Appendix Table 1A
TOTAL YEAR FULL-TIME EQUIVALENT STUDENTS¹
1977-78 to 1982-83

Institution	Full-time equivalent students					
	1982-83	1981-82	1980-81	1979-80	1978-79	1977-78
State-related						
Penn State						
Total	58,441	57,873	55,994	54,550	53,824	54,498
Undergraduate	53,791	53,225	51,374	50,137	49,456	49,782
Graduate	4,650	4,648	4,620	4,413	4,368	4,716
Pittsburgh						
Total	29,294	29,154	29,011	28,276	27,828	28,537
Undergraduate	21,152	20,967	20,760	19,941	19,810	20,123
Graduate	8,142	8,187	8,251	8,335	8,018	8,414
Temple						
Total	23,793	25,408	26,987	26,562	26,957	28,201
Undergraduate	18,959	17,008	17,852	17,961	17,885	19,226
Graduate	6,834	8,400	9,135	8,601	9,072	8,975
Lincoln						
Total	1,351	1,525	1,217	1,412	1,158	1,199
Undergraduate	1,128	1,300	998	1,207	1,046	1,151
Graduate	223	225	219	205	112	48
State-owned						
Bloomsburg						
Total	6,183	6,314	6,354	6,366	6,191	6,302
Undergraduate	5,839	5,944	5,901	5,875	5,755	5,802
Graduate	344	370	453	491	436	500
California						
Total	4,370	4,541	4,226	4,068	4,208	4,473
Undergraduate	4,086	4,193	3,850	3,724	3,840	4,058
Graduate	284	348	376	344	368	415
Cheyney						
Total	1,795	2,080	2,143	2,371	2,363	2,747
Undergraduate	1,757	2,003	2,078	2,285	2,263	2,606
Graduate	38	77	65	86	100	141
Clarion						
Total	5,451	5,493	5,262	5,299	5,213	5,050
Undergraduate	5,237	5,290	5,034	5,091	4,970	4,790
Graduate	214	203	228	208	243	260
East Stroudsburg						
Total	4,150	4,050	4,090	4,096	4,045	4,276
Undergraduate	3,891	3,777	3,737	3,776	3,709	3,909
Graduate	259	273	353	320	336	367
Edinboro²						
Total	5,613	5,607	5,541	5,356	5,484	5,760
Undergraduate	5,294	5,213	5,095	4,946	5,046	5,279
Graduate	319	394	446	410	438	481
Indiana²						
Total	12,935	12,869	12,600	12,427	12,264	11,885
Undergraduate	12,264	12,139	11,805	11,601	11,469	11,080
Graduate	671	730	795	826	795	805
Kutztown						
Total	5,295	4,965	4,762	4,521	4,512	4,593
Undergraduate	5,070	4,709	4,474	4,242	4,203	4,278
Graduate	225	256	288	279	309	315
Lock Haven						
Total	2,567	2,575	2,526	2,384	2,252	2,350
Undergraduate	2,567	2,575	2,526	2,384	2,252	2,350
Graduate	na	na	na	na	na	na
Mansfield						
Total	2,665	2,554	2,451	2,539	2,400	2,618
Undergraduate	2,563	2,440	2,312	2,381	2,287	2,488
Graduate	102	114	139	158	113	130
Millersville						
Total	6,030	5,947	5,829	5,600	5,523	5,650
Undergraduate	5,543	5,349	5,189	4,956	4,863	4,934
Graduate	487	598	640	644	660	716
Shippensburg						
Total	5,488	5,457	5,467	5,500	5,405	5,488
Undergraduate	4,994	4,937	4,920	4,923	4,760	4,819
Graduate	494	520	547	577	645	669
Slippery Rock						
Total	5,654	5,564	5,460	5,536	5,504	5,815
Undergraduate	5,409	5,281	5,152	5,178	5,178	5,454
Graduate	245	283	308	358	326	361
West Chester						
Total	8,647	8,352	8,189	8,188	8,091	8,238
Undergraduate	8,018	7,661	7,417	7,449	7,335	7,436
Graduate	629	691	772	739	756	802

1. Data for each year represent the summer term preceding the academic year plus the academic year. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24.
2. Edinboro student credit-hour data for fiscal years 1977-78 and 1978-79 and Indiana University student credit-hour data for fiscal year 1979-80 from "State College and University Budgeting System Common Cost Accounting Reports."
na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977 to 1983.

Appendix Table 2A

STUDENT CREDIT-HOUR PRODUCTION BY LEVEL¹
 TOTAL YEAR AND SUMMER, 1977-78 to 1982-83
 (Credit hours in 000s)

Institution	Total year							Summer			
	Lower division	Upper division	Total undergraduate	Master's	First professional	Doctor's	Total graduate	Grand total	Under-graduate	Graduate	Total
State-related											
Penn State											
1982-83	1,049	565	1,614	46	na	66	112	1,726	82	21	103
1981-82	1,033	564	1,597	49	na	62	111	1,708	74	21	95
1980-81	1,003	538	1,541	50	na	61	111	1,652	71	23	94
1979-80	966	538	1,504	50	na	56	106	1,610	70	21	91
1978-79	908	576	1,484	49	na	56	105	1,589	77	21	98
1977-78	915	579	1,494	54	na	59	113	1,607	71	27	98
Pittsburgh											
1982-83	420	215	635	121	42	33	196	831	75	46	121
1981-82	412	217	629	121	42	33	196	825	74	47	121
1980-81	406	217	623	121	44	33	198	821	72	48	120
1979-80	386	212	598	123	43	33	199	797	65	48	113
1978-79	383	211	594	119	41	32	192	786	69	39	108
1977-78	404	200	604	130	43	29	202	806	80	44	124
Temple											
1982-83	273	236	509	85	66	13	164	673	42	18	60
1981-82	277	233	510	102	93	7	202	712	37	26	63
1980-81	295	241	536	114	97	8	219	755	46	31	77
1979-80	295	244	539	114	86	7	207	746	47	27	74
1978-79	294	242	536	113	96	9	218	754	48	25	73
1977-78	326	251	577	112	90	14	216	793	52	28	80
Lincoln											
1982-83	28	6	34	5	na	na	5	39	3	1	4
1981-82	32	7	39	5	na	na	5	44	5	1	6
1980-81	24	6	30	5	na	na	5	35	4	1	5
1979-80	28	9	37	5	na	na	5	42	5	a	5
1978-79	22	9	31	3	na	na	3	34	3	a	3
1977-78	26	8	34	1	na	na	1	35	3	na	3
State-owned											
Bloomsburg											
1982-83	116	59	175	8	na	na	8	183	14	4	18
1981-82	115	63	178	9	na	na	9	187	15	4	19
1980-81	112	65	177	11	na	na	11	188	15	5	20
1979-80	112	64	176	12	na	na	12	188	13	6	19
1978-79	106	66	172	10	na	na	10	182	12	5	17
1977-78	108	66	174	12	na	na	12	186	12	6	18
California											
1982-83	92	31	123	7	na	na	7	130	9	2	11
1981-82	95	31	126	8	na	na	8	134	14	3	17
1980-81	85	31	116	9	na	na	9	125	11	3	14
1979-80	80	32	112	8	na	na	8	120	9	3	12
1978-79	81	34	115	9	na	na	9	124	9	3	12
1977-78	89	33	122	10	na	na	10	132	12	4	16
Cheyney											
1982-83	40	13	53	1	na	na	1	54	2	a	2
1981-82	44	16	60	2	na	na	2	62	3	a	3
1980-81	46	16	62	2	na	na	2	64	3	1	4
1979-80	49	19	68	2	na	na	2	70	3	1	4
1978-79	49	18	67	2	na	na	2	69	3	1	4
1977-78	59	20	79	3	na	na	3	82	4	1	5
Clarion											
1982-83	116	41	157	5	na	na	5	162	10	1	11
1981-82	117	42	159	5	na	na	5	164	11	2	13
1980-81	112	39	151	5	na	na	5	156	9	2	11
1979-80	113	40	153	5	na	na	5	158	9	2	11
1978-79	106	43	149	6	na	na	6	155	9	2	11
1977-78	103	41	144	6	na	na	6	150	6	2	8

1982-83	84	33	117	6	na	na	6	123	11	3	14
1981-82	81	32	113	7	na	na	7	120	10	4	14
1980-81	78	34	112	9	na	na	9	121	10	5	15
1979-80	80	34	114	8	na	na	8	122	10	4	14
1978-79	77	34	111	8	na	na	8	119	8	5	13
1977-78	79	38	117	9	na	na	9	126	10	6	16
Edinboro ²											
1982-83	116	43	159	8	na	na	8	167	11	3	14
1981-82	112	45	157	9	na	na	9	166	11	4	15
1980-81	108	45	153	11	na	na	11	164	12	4	16
1979-80	104	45	149	10	na	na	10	159	10	4	14
1978-79	103	49	152	11	na	na	11	163	b	b	b
1977-78	104	54	158	12	na	na	12	170	b	b	b
Indiana ⁴											
1982-83	246	122	368	16	na	c	16	384	34	5	39
1981-82	242	122	364	18	na	c	18	382	33	6	39
1980-81	235	119	354	19	na	c	19	373	33	8	41
1979-80	236	112	348	20	na	c	20	368	b	b	b
1978-79	229	115	344	19	na	c	19	363	29	8	37
1977-78	221	112	333	19	na	c	19	352	25	7	32
Kutztown											
1982-83	103	49	152	5	na	na	5	157	6	2	8
1981-82	95	46	141	6	na	na	6	147	7	2	9
1980-81	91	43	134	7	na	na	7	141	6	3	9
1979-80	85	42	127	7	na	na	7	134	5	3	8
1978-79	83	43	126	7	na	na	7	133	5	3	8
1977-78	82	46	128	8	na	na	8	136	6	3	9
Lock Haven											
1982-83	59	18	77	na	na	na	na	77	3	na	3
1981-82	60	17	77	na	na	na	na	77	3	na	3
1980-81	60	16	76	na	na	na	na	76	3	na	3
1979-80	56	16	72	na	na	na	na	72	3	na	3
1978-79	51	16	67	na	na	na	na	67	4	na	4
1977-78	52	19	71	na	na	na	na	71	5	na	5
Mansfield											
1982-83	57	19	76	2	na	na	2	78	5	1	6
1981-82	54	19	73	3	na	na	3	76	5	1	6
1980-81	50	20	70	3	na	na	3	73	4	2	6
1979-80	51	20	71	4	na	na	4	75	4	1	5
1978-79	46	22	68	3	na	na	3	71	3	1	4
1977-78	51	23	74	3	na	na	3	77	4	1	5
Millersville											
1982-83	133	34	167	12	na	na	na	179	17	6	23
1981-82	128	32	160	14	na	na	14	174	14	9	23
1980-81	124	32	156	15	na	na	15	171	15	9	24
1979-80	116	32	148	15	na	na	15	163	13	9	22
1978-79	114	32	146	16	na	na	16	162	13	9	22
1977-78	113	35	148	17	na	na	17	165	15	9	24
Shippensburg											
1982-83	109	40	149	12	na	na	12	161	10	4	14
1981-82	109	39	148	12	na	na	12	160	10	5	15
1980-81	107	41	148	13	na	na	13	161	11	5	16
1979-80	109	39	148	14	na	na	14	162	11	6	17
1978-79	108	35	143	15	na	na	15	158	8	6	14
1977-78	107	38	145	16	na	na	16	161	8	7	15
Slippery Rock											
1982-83	122	40	162	6	na	na	6	168	11	2	13
1981-82	118	40	158	7	na	na	7	165	9	2	11
1980-81	114	41	155	7	na	na	7	162	9	3	12
1979-80	111	44	155	9	na	na	9	164	9	3	12
1978-79	111	45	156	8	na	na	8	164	9	3	12
1977-78	118	46	164	9	na	na	9	173	11	3	14
West Chester											
1982-83	174	67	241	15	na	na	15	256	19	5	24
1981-82	166	64	230	16	na	na	16	246	18	6	24
1980-81	157	66	223	18	na	na	18	241	19	7	26
1979-80	156	68	224	18	na	na	18	242	18	6	24
1978-79	151	69	220	18	na	na	18	238	17	7	24
1977-78	146	77	223	19	na	na	19	242	17	8	25

1. Data for each year represent the summer term preceding the academic year plus the academic year.
2. Edinboro student credit-hour data for fiscal years 1977-78 and 1978-79 and Indiana University data for fiscal year 1979-80 from "State College and University Budgeting System Common Cost Accounting Reports."
 - a. Rounds to less than 1,000.
 - b. Data not available by terms.
 - c. Included in master's level.
 - na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977 to 1983.

Appendix Table 3A
 TOTAL STUDENT CREDIT-HOUR PRODUCTION
 BY LEVEL AND CIP CLASSIFICATION
 1982-83
 (Credit hours in 000s)

CIP classification and level	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Agriculture																		
Lower division	4.2	--	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	24.0	--	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	3.9	--	a	--	--	7	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design																		
Lower division	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	12.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies																		
Lower division	2.1	1.5	.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	3.0	2.2	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.3	a	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business																		
Lower division	66.0	10.4	39.5	1.7	3.7	6.1	5.8	17.6	.8	11.4	18.5	11.5	--	6.5	8.5	14.9	5.1	5.1
Upper division	14.7	21.5	54.1	1.7	19.4	3.3	2.4	17.3	1.4	4.8	38.7	5.8	--	1.9	1.7	17.0	6.6	9.4
Graduate	11.9	26.2	21.4	--	.5	--	--	.9	--	.1	3.5	--	--	--	--	2.4	--	--
Communications																		
Lower division	2.0	.4	14.4	--	1.1	--	--	2.8	1.2	--	2.3	1.1	--	--	4.1	1.9	8.5	--
Upper division	10.0	.9	15.3	--	1.0	--	--	2.2	1.9	--	6.2	1.6	--	--	.5	2.3	1.4	--
Graduate	.3	--	2.1	--	.1	--	--	.6	.2	--	.3	.3	--	--	--	.2	--	--
Computer and information sciences																		
Lower division	41.9	26.9	3.6	--	6.8	--	1.3	7.1	3.0	--	6.6	1.1	--	--	5.2	--	4.6	--
Upper division	12.4	9.4	7.8	--	2.0	--	.1	1.6	1.0	--	3.2	.7	--	--	2.5	--	.2	--
Graduate	1.7	7.4	2.7	--	.1	--	a	--	a	--	.1	a	--	--	.3	--	--	--
Education																		
Lower division	57.3	9.3	24.2	5.7	13.1	11.7	3.2	7.6	12.2	10.0	16.1	10.2	9.3	12.0	16.7	8.9	17.1	20.4
Upper division	36.4	12.6	22.4	1.0	15.8	13.1	3.3	9.9	15.0	11.1	16.7	23.1	10.1	7.2	11.6	6.0	17.3	21.8
Graduate	20.3	34.6	34.9	--	7.0	5.0	.7	1.4	5.2	4.3	6.4	2.5	--	2.0	6.7	5.4	4.7	6.1
Engineering																		
Lower division	71.5	22.4	12.0	--	--	.4	a	--	--	--	1.3	--	--	--	--	--	--	--
Upper division	118.6	31.9	13.6	--	--	.4	a	--	--	--	3.6	--	--	--	--	--	--	--
Graduate	19.0	16.4	.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Foreign languages																		
Lower division	40.9	19.0	7.0	1.5	4.2	1.7	.6	3.6	2.1	2.1	12.4	3.7	2.1	1.2	5.8	2.5	3.9	6.7
Upper division	6.6	6.3	4.8	.2	.1	.1	a	.1	.2	.3	1.3	.4	.1	.1	1.6	.2	.4	1.1
Graduate	2.1	2.2	.8	--	a	--	--	--	--	--	.2	.1	--	--	.6	--	--	.4
Health																		
Lower division	2.1	9.4	2.4	--	1.3	--	--	--	.6	1.4	1.1	--	--	--	--	--	--	.9
Upper division	11.0	30.2	12.4	--	2.3	--	--	--	.9	4.0	7.6	.3	--	--	1.2	--	1.1	2.6
Graduate	.8	38.9	37.8	--	--	--	--	--	--	.3	a	--	--	--	--	--	--	.6
Home Economics																		
Lower division	13.3	--	--	--	--	--	.4	--	--	.3	5.8	--	--	1.7	--	--	--	--
Upper division	11.5	2.5	--	--	--	--	.8	--	--	.2	6.5	--	--	1.4	--	--	--	--
Graduate	2.2	1.1	--	--	--	--	--	--	--	--	.3	--	--	.1	--	--	--	--
Industrial arts																		
Lower division	--	--	--	--	--	--	.1	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	a	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Law																		
Lower division	--	.4	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	.4	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	19.7	33.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters																		
Lower division	127.0	46.1	40.4	5.2	14.6	14.0	4.9	15.6	10.4	19.6	29.2	18.6	12.5	10.0	11.4	16.3	14.2	37.1
Upper division	34.3	23.0	17.8	.4	2.1	2.0	.5	1.5	1.4	7.4	2.2	2.4	1.0	3.1	1.0	.8	.8	4.2
Graduate	4.7	3.6	3.5	--	.1	.4	a	.1	--	.1	1.2	.3	--	--	.4	.2	.4	1.1
Liberal/general studies																		
Lower division	1.5	--	--	--	--	2.8	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	1.1	--	--	--	--	.2	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Library and archival studies																			
Lower division	a	.2	--	--	--	--	--	--	.2	--	--	--	.7	--	--	.5	.4	--	--
Upper division	.1	a	--	--	--	--	--	--	.2	--	--	--	.4	--	--	1.2	.2	--	--
Graduate	a	3.4	--	--	--	--	--	--	1.4	--	--	--	.4	--	--	.1	.3	--	--
Life sciences																			
Lower division	52.8	13.9	5.6	2.2	6.3	7.9	1.7	--	6.6	7.2	17.4	4.8	2.6	3.0	6.2	6.8	7.6	7.3	
Upper division	23.8	4.5	3.9	.3	1.7	3.0	.6	--	2.4	.5	2.3	2.2	.5	.7	1.6	.9	.5	2.4	
Graduate	4.7	2.1	.8	--	.1	.3	a	--	.1	.3	.2	a	--	--	.3	.1	.2	.2	
Mathematics																			
Lower division	153.7	61.0	26.1	4.1	9.8	15.8	6.2	10.9	5.5	20.1	23.9	9.4	7.6	6.3	13.2	13.3	9.4	22.4	
Upper division	14.5	6.7	7.4	.2	.3	2.5	.1	.7	.5	.7	1.3	2.3	1.8	.4	.9	2.9	.3	2.3	
Graduate	4.8	2.2	.7	--	.1	a	--	a	--	a	.5	.2	--	--	.2	.6	--	1.6	
Military science																			
Lower division	3.1	.6	.1	--	.1	1.5	--	.8	.2	.1	3.3	.1	.1	.1	--	.1	.3	--	
Upper division	2.0	.3	.1	--	.2	.2	--	.3	.2	.2	.7	--	.1	.2	--	.1	.3	--	
Graduate	--	--	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Multi/interdisciplinary studies																			
Lower division	14.8	5.4	a	--	.2	--	1.9	--	--	--	--	--	--	--	--	--	1.4	--	
Upper division	2.5	2.7	a	--	.1	--	--	--	--	--	--	a	--	--	--	--	.2	--	
Graduate	1.9	.3	--	--	--	--	--	--	.1	--	--	--	--	--	--	--	a	--	
Parks and recreation																			
Lower division	.7	--	1.0	--	--	--	2.0	--	.8	--	--	--	--	--	--	--	3.7	--	
Upper division	5.1	--	1.8	--	--	--	.9	--	.7	--	--	--	--	--	--	--	3.9	--	
Graduate	.3	--	.7	--	--	--	--	--	--	--	--	--	--	--	--	--	.4	--	
Personal and social development																			
Lower division	--	--	--	--	--	--	.6	--	--	--	--	--	--	--	--	--	--	--	
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Philosophy, religion and theology																			
Lower division	23.5	12.2	6.7	1.2	3.8	1.6	.4	--	3.9	--	10.5	--	--	--	4.1	--	3.2	--	
Upper division	3.1	2.1	4.2	.1	--	.1	.1	--	.1	--	.4	--	--	--	.8	--	.3	--	
Graduate	.9	1.4	2.3	--	--	--	--	--	--	--	a	--	--	--	--	--	a	--	
Physical sciences																			
Lower division	133.8	58.5	16.1	2.1	9.7	4.0	2.4	5.2	8.5	15.0	18.4	4.8	4.6	4.1	14.4	4.3	9.6	14.1	
Upper division	26.6	6.7	8.1	.5	.7	.7	.3	.6	.8	1.3	2.5	1.1	.3	.5	1.3	.9	.9	2.5	
Graduate	13.3	7.7	2.1	--	a	--	--	--	--	a	.3	--	--	--	.1	1	a	.7	
Psychology																			
Lower division	33.1	29.1	12.7	1.0	9.2	6.1	1.4	5.4	3.9	7.2	8.8	7.4	4.4	3.1	5.4	6.8	4.4	7.2	
Upper division	9.2	11.2	8.1	.5	1.7	2.5	1.9	2.3	.9	3.5	4.1	2.7	.9	.9	2.7	2.7	1.4	3.3	
Graduate	2.9	2.7	2.7	--	--	.3	.1	--	--	1.8	1.2	1.3	--	.3	1.9	.5	.1	1.6	
Public affairs and services																			
Lower division	7.5	3.7	9.5	--	--	1.2	--	--	--	.2	--	--	--	--	.6	2.5	6.1	11.5	
Upper division	14.9	9.0	9.3	--	--	1.4	--	--	--	--	--	--	--	--	1.0	1.8	1.9	7.6	
Graduate	5.2	19.5	6.6	5.4	--	--	--	--	--	--	--	--	--	--	a	.3	--	1.4	
Social sciences																			
Lower division	123.8	75.6	27.5	3.0	26.3	13.0	5.5	19.6	18.0	8.8	51.8	23.3	13.3	9.4	25.5	26.5	15.5	23.9	
Upper division	49.0	26.3	21.5	1.3	8.8	1.2	1.5	2.4	5.0	5.0	18.9	5.5	1.8	3.1	1.9	3.9	2.0	5.2	
Graduate	7.1	4.9	4.0	--	.1	.8	a	--	.6	.2	1.3	.2	--	a	.5	1.6	.1	.2	
Trade and industrial																			
Lower division	13.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Upper division	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Visual and performing arts																			
Lower division	53.4	13.6	19.9	--	5.6	3.9	1.5	--	6.5	12.5	18.4	6.4	3.0	--	11.2	4.2	7.7	14.9	
Upper division	18.0	4.6	21.4	--	3.2	.2	.5	--	.5	4.1	5.4	.6	.9	--	2.4	.7	.6	4.4	
Graduate	2.5	1.1	6.7	--	.2	a	--	--	--	.5	.8	--	--	--	.6	--	--	1.3	
Other																			
Lower division	--	--	--	a	--	--	--	19.9	--	--	.2	--	--	--	--	--	--	2.1	
Upper division	--	--	--	--	--	--	--	2.0	--	--	.1	--	--	--	--	--	--	.2	
Graduate	a	--	--	--	--	--	--	.8	--	--	--	--	--	--	--	--	--	--	
Total ^c																			
Lower division	1,049.1	419.8	272.7	27.7	115.7	91.8	39.9	116.2	84.1	115.8	246.2	103.1	59.5	57.5	132.7	109.3	122.0	173.6	
Upper division	564.7	214.8	236.1	6.1	59.4	30.8	12.9	40.9	32.7	43.1	121.7	49.0	17.5	19.4	33.6	40.5	40.3	67.0	
Graduate	111.6	217.7	164.0	5.4	8.3	6.8	.9	5.1	6.2	7.7	16.1	5.4	--	2.5	11.7	11.9	5.9	15.1	

1. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University includes first professional (excluding medical) and/or doctoral levels.

2. Because of rounding, CIP detail may not sum to total.

a. Rounds to less than 100 student credit hours.

SOURCE: Reports provided by the individual institutions, 1983.

Appendix Table 4A
 SUMMER STUDENT CREDIT-HOUR PRODUCTION
 BY LEVEL AND CIP CLASSIFICATION
 1982
 (Credit hours in 000s)

CIP classification and level	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Agriculture																		
Lower division	.5	--	.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	.3	--	.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.9	--	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design																		
Lower division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies																		
Lower division	.2	.2	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	.2	.1	.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.1	a	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business																		
Lower division	2.6	1.4	3.7	.3	.2	.5	.4	1.2	.1	.6	2.2	.8	--	.4	1.1	1.4	.5	.7
Upper division	7.7	3.6	7.4	.3	2.3	.4	.1	2.0	.3	.5	3.8	.3	--	a	.1	2.1	.7	.9
Graduate	1.5	8.2	4.9	--	.1	--	--	.2	--	a	.7	--	--	--	--	.6	--	--
Communications																		
Lower division	--	.1	.7	--	.1	--	--	.1	.1	--	.1	.1	--	--	.9	--	.7	--
Upper division	.5	a	1.4	--	.1	--	--	.3	.6	--	1.0	--	--	--	a	.2	.2	--
Graduate	a	--	.2	--	a	--	--	.1	--	--	.1	a	--	--	--	.2	--	--
Computer and information sciences																		
Lower division	2.0	3.9	.5	--	.6	--	.1	.5	.4	--	.9	.1	--	--	.9	--	.6	--
Upper division	.5	1.6	1.0	--	.1	--	--	.2	.1	--	.3	.1	--	--	.1	--	--	--
Graduate	.1	1.9	.3	--	.1	--	a	--	a	--	.1	--	--	--	.2	--	--	--
Consumer, personal and misc. services																		
Lower division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Education																		
Lower division	3.3	1.4	1.2	.6	1.3	.7	a	.5	1.2	.6	2.0	.3	.3	.7	1.6	.3	.7	.9
Upper division	2.1	1.2	1.6	.1	1.1	1.6	.2	.7	.9	1.0	1.2	.9	.3	.3	.4	.7	1.0	2.3
Graduate	5.2	11.5	7.8	--	3.2	1.5	.2	.5	3.0	1.7	2.7	.8	--	.7	4.2	2.2	1.6	2.4
Engineering																		
Lower division	3.3	2.4	.5	--	--	--	a	--	--	--	.1	--	--	--	--	--	--	--
Upper division	3.2	1.9	1.5	--	--	--	--	--	--	--	.2	--	--	--	--	--	--	--
Graduate	3.5	2.9	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Foreign languages																		
Lower division	2.0	2.3	.3	.1	.1	.1	--	a	a	.1	.8	.2	a	--	.1	--	.1	.6
Upper division	.1	.8	.5	a	a	--	--	--	--	a	.1	a	--	--	.1	--	a	.1
Graduate	.3	.5	.1	--	a	--	--	--	--	--	.2	--	--	--	.5	--	--	.2
Health																		
Lower division	a	1.2	.1	--	--	--	--	--	--	.3	--	--	--	--	--	--	--	.1
Upper division	1.3	2.4	.4	--	a	--	--	--	--	--	.1	--	--	--	.1	--	--	a
Graduate	.2	3.8	1.3	--	--	--	--	--	--	--	a	--	--	--	--	--	--	.3
Home Economics																		
Lower division	.8	--	--	--	--	--	--	--	--	--	.1	--	--	--	--	--	--	--
Upper division	1.0	.4	--	--	--	--	--	--	--	--	.5	--	--	a	--	--	--	--
Graduate	.4	.3	--	--	--	--	--	--	--	--	.1	--	--	a	--	--	--	--
Law																		
Lower division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters																		
Lower division	6.2	5.6	1.6	.3	1.4	.4	.2	1.3	1.3	1.6	3.1	.5	.6	1.0	1.5	.4	1.0	2.4
Upper division	1.9	2.5	2.5	--	.1	.1	--	.2	.3	.7	.2	--	.1	.9	.1	.1	a	.3
Graduate	.7	.7	.3	--	a	.1	--	a	--	.1	.4	.1	--	--	.2	.1	.1	.5
Liberal/general studies																		
Lower division	.1	--	--	--	--	a	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

studies																
Lower division	--	a	--	--	--	--	--	--	--	--	a	--	--	a	--	--
Upper division	--	a	--	--	--	--	--	a	--	--	--	--	--	.1	--	--
Graduate	a	1.0	--	--	--	--	--	.4	--	--	--	.2	--	.1	.1	--
Life sciences																
Lower division	1.9	1.0	.3	.2	.6	.5	.1	.1	.2	.3	1.6	.3	--	.2	.7	.3
Upper division	.2	.3	.4	a	.1	.3	--	.1	.4	--	.2	.1	.1	a	.1	.4
Graduate	1.2	.7	.1	--	a	a	--	.3	.1	.1	a	--	--	.1	a	a
Mathematics																
Lower division	8.4	9.0	2.0	.4	.8	1.8	.5	.3	.5	1.8	2.0	.4	.5	.5	2.1	.8
Upper division	1.4	1.1	1.2	a	a	.2	--	a	a	--	.1	a	a	a	--	.4
Graduate	1.1	.5	.1	--	a	--	--	a	--	a	.2	a	--	--	.1	--
Military science																
Lower division	--	--	--	--	--	--	--	--	--	--	a	--	--	--	--	--
Upper division	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multi/interdisciplinary studies																
Lower division	1.2	.6	--	--	--	--	--	--	--	--	--	--	--	--	--	a
Upper division	.2	.1	--	--	.1	--	--	a	--	--	--	--	--	--	--	a
Graduate	.3	.1	--	--	--	--	--	a	--	--	--	--	--	--	--	a
Parks and recreation																
Lower division	--	--	.1	--	--	--	--	--	a	--	--	--	--	--	--	a
Upper division	.2	--	.3	--	--	--	--	--	.2	--	--	--	--	--	--	.8
Graduate	a	--	.1	--	--	--	--	--	--	--	--	--	--	--	--	a
Personal and social development																
Lower division	--	--	--	--	--	--	.1	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology																
Lower division	1.1	1.8	.3	.2	.2	.1	.1	--	.4	--	.7	--	--	--	.6	--
Upper division	.1	.2	.5	--	--	--	--	--	--	--	a	--	--	--	.1	--
Graduate	.1	.3	.2	--	--	--	--	--	--	--	--	--	--	--	--	a
Physical sciences																
Lower division	5.8	4.8	1.2	.3	.8	.3	--	.2	.8	1.1	2.4	.5	.2	.2	1.5	.5
Upper division	.8	.5	.9	a	a	a	--	--	a	a	.2	.2	a	--	a	--
Graduate	2.7	2.1	.1	--	a	--	--	--	--	a	--	--	--	a	a	a
Psychology																
Lower division	1.6	3.3	.7	.1	.5	.3	a	.2	.3	.8	1.2	.2	.2	.2	.5	.5
Upper division	.8	2.0	.9	.1	.1	.4	.5	.2	.1	.5	.4	.2	a	.1	a	.3
Graduate	.4	.8	.4	--	--	.1	a	--	--	.5	.3	.3	--	--	.6	.2
Public affairs and protective services																
Lower division	.7	.7	.3	--	--	--	--	--	--	--	--	--	--	--	.1	.5
Upper division	1.6	1.4	.8	--	--	.3	--	--	--	--	--	--	--	--	.1	.3
Graduate	.5	3.3	.4	.6	--	--	--	--	--	--	--	--	--	--	--	.1
Social sciences																
Lower division	6.9	9.9	1.9	.2	1.7	1.1	--	1.0	1.5	.3	3.5	.9	.4	--	2.7	1.0
Upper division	3.4	3.1	3.0	.2	.9	.1	.1	.1	.4	.3	2.5	.2	a	.4	a	.5
Graduate	1.0	.8	.5	--	a	.3	--	--	.1	a	.3	.1	--	--	.2	.6
Trade and industrial																
Lower division	.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts																
Lower division	3.3	1.4	.6	--	.4	.1	.1	.4	.3	.3	1.5	.1	.1	--	1.2	.4
Upper division	1.3	.4	1.0	--	.4	a	a	.2	.2	.3	.5	--	.1	--	.1	.1
Graduate	.2	.1	.5	--	a	--	--	--	--	.2	.2	--	--	--	.2	--
Other																
Lower division	--	--	--	--	--	--	--	--	--	--	.2	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	.1	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total ²																
Lower division	52.3	50.9	16.4	2.8	8.7	5.8	1.6	5.8	7.1	7.7	22.2	4.4	2.3	3.2	15.4	5.7
Upper division	29.3	23.9	25.7	.7	5.0	3.3	.9	3.9	3.7	3.4	11.3	2.0	.8	1.8	1.3	4.7
Graduate	20.6	39.7	18.1	.6	3.7	2.0	.2	1.5	3.3	2.6	5.2	1.7	--	.7	6.6	4.1

1. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University includes first professional (excluding medical) and/or doctoral levels.

2. Because of rounding, CIP detail may not sum to total of all areas.

a. Rounds to less than 100 student credit hours.

SOURCE: Reports provided by the individual institutions, 1983.

INDIVIDUAL INSTRUCTION¹ STUDENT CREDIT-HOUR PRODUCTION
 BY INSTITUTION, CIP CLASSIFICATIONS AND LEVELS²
 1982-83
 (Credit hours in 000s)

CIP classification and level ²	State-related							State-owned										
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Agriculture																		
Lower division	a	--	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	1.1	--	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design																		
Lower division	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies																		
Lower division	--	a	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	a	.3	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	.1	a	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business																		
Lower division	.1	a	a	a	--	--	--	--	a	--	a	--	--	--	a	--	--	--
Upper division	2.1	.1	.1	a	.1	--	--	.5	.4	.2	.5	--	--	--	a	.2	a	--
Graduate	2.0	1.1	.5	--	--	--	--	.1	--	a	.1	--	--	--	a	a	--	--
Communications																		
Lower division	--	--	.1	--	--	--	--	--	--	--	--	a	--	--	a	a	--	--
Upper division	.5	.3	.7	--	.1	--	--	.1	.3	--	1.0	.4	--	--	a	.1	a	--
Graduate	.1	--	.3	--	--	--	--	.1	--	--	.1	--	--	--	--	a	--	--
Computer and information sciences																		
Lower division	.2	a	a	--	--	--	a	--	--	--	--	a	--	--	.1	--	--	--
Upper division	.1	.3	.5	--	--	--	--	--	.2	--	.3	.2	--	--	a	--	a	--
Graduate	.4	1.4	.1	--	--	--	--	--	--	--	a	--	--	--	a	--	--	--
Education																		
Lower division	.3	.3	.3	a	a	--	a	--	--	.3	--	a	a	--	a	.1	a	a
Upper division	8.9	3.1	2.9	a	.1	--	a	a	.1	.2	.1	.5	a	a	a	a	.1	.1
Graduate	7.2	8.6	6.1	--	.1	--	a	--	a	.1	.2	.1	--	a	a	.1	.1	--
Engineering																		
Lower division	a	a	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	3.1	1.3	.1	--	--	--	--	--	--	--	2.0	--	--	--	--	--	--	--
Graduate	11.5	3.2	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Foreign languages																		
Lower division	a	1.1	a	a	a	--	--	.2	--	a	a	--	a	--	a	a	a	.1
Upper division	.6	1.3	.1	a	a	--	a	--	--	a	a	a	a	--	a	a	a	--
Graduate	.5	.7	.1	--	a	--	--	--	--	--	--	a	--	--	--	--	--	--
Health																		
Lower division	a	.9	a	--	--	--	--	--	--	a	--	--	--	--	--	--	--	a
Upper division	1.0	2.5	.9	--	a	--	--	--	--	.3	--	a	--	--	--	--	a	--
Graduate	.3	4.9	6.2	--	--	--	--	--	--	a	--	--	--	--	--	--	--	--
Home Economics																		
Lower division	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	1.4	.5	--	--	--	--	--	--	--	--	.4	--	--	a	--	--	--	--
Graduate	1.4	.4	--	--	--	--	--	--	--	--	a	--	--	--	--	--	--	--
Industrial arts																		
Lower division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	a	--	--	--	--	--	--	--	--	--	--	--
Law																		
Lower division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	.1	.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters																		
Lower division	.2	a	.2	--	a	--	a	--	--	a	--	--	a	--	a	a	--	a
Upper division	1.2	1.0	.2	a	a	--	--	a	.1	.6	a	.1	.1	--	a	a	a	--
Graduate	1.9	1.3	.3	--	a	--	--	a	--	a	.1	a	--	--	a	a	a	--
Liberal/general studies																		
Lower division	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Library and archival studies																		
Lower division	--	a	--	--	--	--	--	--	--	--	--	--	--	a	--	--	--	--
Upper division	--	a	--	--	--	--	--	a	--	--	--	a	--	--	--	--	--	--
Graduate	a	.7	--	--	--	--	--	--	--	--	--	a	--	--	a	--	--	--
Life sciences																		
Lower division	2	a	a	--	--	--	--	--	--	a	--	a	a	--	a	--	--	a
Upper division	1.3	.3	.2	--	.1	--	a	--	.3	a	.2	.1	a	--	a	a	--	--
Graduate	3.5	1.6	.2	--	a	--	--	--	a	a	a	a	--	a	a	a	--	--
Mathematics																		
Lower division	a	a	.1	a	a	--	a	--	.5	--	--	a	--	a	a	a	a	a
Upper division	.2	.1	a	--	a	--	--	--	a	a	a	.1	a	--	a	.2	a	--
Graduate	1.0	.6	.1	--	a	--	--	--	--	a	a	--	--	a	a	--	--	--
Military science																		
Lower division	--	a	--	--	--	--	--	--	--	--	--	.1	--	--	a	--	--	--
Upper division	--	a	--	--	--	--	--	--	--	--	--	--	a	--	a	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multi/dis. studies																		
Lower division	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	a	--
Upper division	.2	.1	--	--	.1	--	--	--	--	--	--	--	--	--	--	--	a	--
Graduate	.5	.1	--	--	--	--	--	--	a	--	--	--	--	--	--	--	a	--
Parks and recreation																		
Lower division	a	--	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	1.2	--	.1	--	--	--	--	--	.2	--	--	--	--	--	--	--	a	--
Graduate	.2	--	.1	--	--	--	--	--	--	--	--	--	--	--	--	--	a	--
Personal and social development																		
Lower division	--	--	--	--	--	--	a	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy/religion/theology																		
Lower division	--	--	.2	a	--	--	--	--	--	--	a	--	--	--	--	--	a	--
Upper division	.1	a	.1	--	--	--	--	--	--	--	a	--	--	--	--	--	a	--
Graduate	.6	.7	.4	--	--	--	--	--	--	--	a	--	--	--	--	--	--	--
Physical sciences																		
Lower division	.1	a	.1	--	--	--	--	--	a	--	a	a	--	a	a	a	a	a
Upper division	.7	.2	.2	--	a	--	--	a	.1	a	.2	a	--	.1	a	a	a	--
Graduate	10.0	5.3	.6	--	a	--	--	--	--	a	--	--	--	a	a	a	a	--
Psychology																		
Lower division	.1	a	.1	a	a	--	a	--	a	--	a	a	--	a	a	--	--	--
Upper division	.9	1.4	.2	a	a	--	--	--	.1	a	.2	.1	a	a	.1	a	--	--
Graduate	1.7	1.6	.2	--	--	--	--	--	--	--	.1	a	--	a	a	--	--	--
Public affairs and services																		
Lower division	.6	--	a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	a
Upper division	3.3	1.0	.4	--	--	--	--	--	--	--	--	--	--	a	.2	.1	--	--
Graduate	.7	4.1	.1	--	--	--	--	--	--	--	--	--	--	a	--	--	--	--
Social sciences																		
Lower division	a	a	.4	a	--	--	--	--	a	a	a	a	--	a	a	--	a	--
Upper division	1.2	1.0	.7	a	.3	--	a	a	.4	.4	1.8	.3	.2	a	a	.4	a	--
Graduate	3.2	2.0	.6	--	a	--	a	--	.1	a	.2	a	--	a	.1	a	--	--
Trade and industrial																		
Lower division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper division	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual & performing arts																		
Lower division	.5	.3	1.4	--	a	--	a	--	.5	a	a	.1	--	.2	--	a	.3	--
Upper division	2.2	.3	1.6	--	.1	--	a	--	a	.3	.2	.1	a	--	a	.1	--	--
Graduate	1.3	.5	1.2	--	a	--	--	--	--	a	.1	--	--	a	--	--	--	--
Other																		
Lower division	--	--	--	--	--	--	--	a	--	--	--	--	--	--	--	--	--	a
Upper division	--	--	--	--	--	--	--	.1	--	--	--	--	--	--	--	--	--	--
Graduate	a	--	--	--	--	--	--	.1	--	--	--	--	--	--	--	--	--	--
Total																		
Lower division	2.6	2.7	3.0	.1	a	--	a	.3	--	1.4	a	.2	.2	--	.4	.1	.1	.5
Upper division	33.1	15.1	9.1	.1	1.1	--	.1	.7	2.1	2.1	7.1	1.8	.5	a	.4	1.3	.5	--
Graduate	50.9	38.9	17.4	--	.3	--	a	.2	.1	.2	1.0	.2	--	a	.2	.3	.2	--

1. Individual instruction encompasses all instruction which, because of its nature, is not delivered in a group situation. This activity may include independent study and research (both thesis and nonthesis), internship or field work, teaching or clinical practicum and individual instruction in the fine arts.

2. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University includes first professional (excluding medical) and/or doctoral levels.

3. Because of rounding, CIP detail may not sum to total.

a. Rounds to less than 100 student credit hours.

SOURCE: Reports provided by the individual institutions, 1983.

Appendix Table 6A

DEGREE PRODUCTION¹
1977-78 to 1982-83

Institution	Degrees					
	1982-83	1981-82	1980-81	1979-80	1978-79	1977-78
State-related						
Penn State						
Total	10,900	10,088	9,766	9,931	10,318	10,017
Undergraduate	9,154	8,385	8,024	8,319	8,588	8,251
Graduate	1,746	1,703	1,742	1,612	1,730	1,766
Pittsburgh						
Total	6,231	6,153	6,156	6,064	6,264	6,366
Undergraduate	3,500	3,458	3,485	3,460	3,555	3,603
Graduate	2,731	2,695	2,671	2,604	2,709	2,763
Temple						
Total	5,099	5,372	5,395	5,587	5,588	5,742
Undergraduate	2,969	3,028	3,101	3,246	3,139	3,359
Graduate	2,130	2,344	2,294	2,341	2,449	2,383
Lincoln						
Total	249	220	249	216	217	155
Undergraduate	169	146	148	181	183	155
Graduate	80	74	101	35	34	na
State-owned						
Bloomsburg						
Total	1,317	1,367	1,327	1,311	1,339	1,286
Undergraduate	1,141	1,147	1,088	1,074	1,118	1,057
Graduate	176	220	239	237	221	229
California						
Total	715	842	825	851	950	1,029
Undergraduate	611	687	664	700	780	822
Graduate	104	155	161	151	170	207
Cheyney						
Total	325	340	369	348	359	428
Undergraduate	303	308	343	318	316	390
Graduate	22	32	26	30	43	38
Clarion						
Total	992	981	961	1,001	1,118	1,046
Undergraduate	862	859	834	881	997	881
Graduate	130	122	127	120	121	165
East Stroudsburg						
Total	767	710	767	766	770	838
Undergraduate	671	626	677	686	692	765
Graduate	96	84	90	80	78	73
Edinboro						
Total	937	951	1,012	1,074	1,253	1,363
Undergraduate	779	763	797	837	978	1,053
Graduate	158	188	215	237	275	310
Indiana						
Total	2,776	2,570	2,657	2,673	2,657	2,461
Undergraduate	2,421	2,139	2,217	2,255	2,254	2,090
Graduate	355	431	440	418	403	371
Kutztown						
Total	825	869	835	895	919	921
Undergraduate	723	733	708	762	773	747
Graduate	102	136	127	133	146	174
Lock Haven						
Total	429	393	401	395	388	464
Undergraduate	429	393	401	395	388	464
Graduate	na	na	na	na	na	na
Mansfield						
Total	390	440	462	497	548	562
Undergraduate	353	381	400	448	510	531
Graduate	37	59	62	49	38	31
Millersville						
Total	1,124	1,139	1,085	1,082	1,238	1,148
Undergraduate	976	960	917	894	1,002	914
Graduate	148	179	168	188	236	234
Shippensburg						
Total	1,247	1,353	1,384	1,389	1,274	1,315
Undergraduate	934	1,025	1,017	1,018	835	899
Graduate	313	328	367	371	439	416
Slippery Rock						
Total	988	1,066	1,063	1,152	1,008	1,164
Undergraduate	862	931	955	1,003	872	1,023
Graduate	126	135	108	149	136	141
West Chester						
Total	1,358	1,360	1,360	a	1,556	1,576
Undergraduate	1,123	1,110	1,063	a	1,213	1,207
Graduate	235	250	297	296	343	369

1. Data for each year represent the summer term preceding the academic year plus the academic year. Undergraduate degrees include bachelor's degrees only. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional (excluding medical) and doctor's at Pittsburgh and Temple, and doctor's at Penn State and Indiana University.

a. Noncomparable data reported.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1978 to 1983.

Appendix Table 7A
DEGREES CONFERRED BY CIP CLASSIFICATION AND LEVEL¹
1982-83

CIP classification and level	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Agriculture																		
Undergraduate	599	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design																		
Undergraduate	141	--	--	--	--	--	--	--	--	--	16	--	--	--	--	--	--	--
Graduate	23	--	--	--	--	--	--	--	--	4	--	--	--	--	--	--	--	--
Area and ethnic studies																		
Undergraduate	12	7	11	--	--	--	--	--	--	--	--	3	--	--	--	--	--	2
Graduate	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business																		
Undergraduate	2,199	251	692	43	403	127	88	290	28	100	790	160	43	35	196	311	118	196
Graduate	150	448	319	--	10	3	--	23	--	--	102	--	--	--	--	39	--	--
Communications																		
Undergraduate	288	21	339	--	71	11	--	83	26	50	121	50	22	17	13	94	52	1
Graduate	10	--	19	--	8	3	--	17	--	--	7	--	--	--	--	10	--	--
Computer and information sciences																		
Undergraduate	220	255	135	2	91	20	11	83	39	45	75	20	49	20	49	37	20	18
Graduate	33	127	40	--	--	--	--	--	--	--	--	--	--	--	5	--	--	2
Education																		
Undergraduate	561	236	284	24	282	207	79	140	275	176	415	190	183	92	329	97	300	419
Graduate	407	564	546	--	143	77	30	26	74	101	141	55	--	31	105	146	105	148
Engineering																		
Undergraduate	1,912	616	247	--	--	15	11	--	--	--	73	--	--	--	3	--	--	--
Graduate	342	233	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Foreign languages																		
Undergraduate	88	28	13	--	3	2	1	7	1	8	27	8	3	2	23	3	4	20
Graduate	13	28	8	--	--	--	--	--	--	--	4	--	--	6	--	--	--	--
Health																		
Undergraduate	352	367	327	--	86	9	--	46	23	99	151	22	4	3	42	3	45	77
Graduate	20	453	256	--	--	--	--	10	--	16	29	--	--	--	--	--	--	14
Home economics																		
Undergraduate	254	44	10	--	--	--	6	--	--	--	178	--	--	33	--	--	--	--
Graduate	32	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Industrial arts																		
Undergraduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Law																		
Undergraduate	30	13	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	231	394	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters																		
Undergraduate	315	293	88	5	7	17	9	11	20	7	21	11	16	10	37	22	13	64
Graduate	44	33	11	--	3	1	--	3	--	6	25	8	--	8	8	11	4	5
Liberal/general studies																		
Undergraduate	184	45	48	--	--	4	--	--	--	6	--	--	12	8	--	--	--	5
Graduate	--	--	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Library and archival studies																		
Undergraduate	--	--	--	--	--	--	--	10	--	3	--	10	--	--	5	6	5	--
Graduate	--	85	--	--	--	--	--	27	--	--	--	6	--	--	11	--	--	--
Life sciences																		
Undergraduate	379	112	50	12	27	15	18	37	50	13	38	16	12	22	37	37	16	28
Graduate	114	12	11	--	3	--	--	2	7	6	4	1	--	--	2	5	5	--
Mathematics																		
Undergraduate	63	68	17	1	3	3	4	6	8	7	25	4	8	7	13	24	3	8
Graduate	28	23	5	--	--	--	--	2	--	6	6	2	--	3	3	--	--	--
Military science																		
Undergraduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Multi/interdisciplinary studies																		
Undergraduate	155	71	4	--	--	18	3	1	31	12	7	10	2	--	--	3	13	2
Graduate	39	6	1	--	--	--	--	--	--	--	10	--	--	--	--	--	--	3
Parks and recreation																		
Undergraduate	89	--	32	--	--	11	15	--	18	--	--	--	--	--	--	--	113	--
Graduate	17	--	25	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--
Personal and social development																		
Undergraduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology																		
Undergraduate	17	13	8	1	--	2	--	--	1	--	4	--	--	1	5	--	--	9
Graduate	12	9	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Physical sciences																		
Undergraduate	240	146	35	16	20	18	3	16	20	34	28	15	9	11	30	48	28	17
Graduate	107	63	27	--	3	13	--	--	--	--	8	--	--	--	2	12	--	8
Psychology																		
Undergraduate	154	295	116	12	36	20	18	28	30	34	38	22	11	19	56	53	17	47
Graduate	35	28	68	--	--	--	--	--	--	20	45	23	--	5	17	6	5	24
Public affairs and protective services																		
Undergraduate	320	143	225	7	--	26	--	--	--	66	1	44	19	41	27	103	28	117
Graduate	127	311	114	80	--	--	--	--	--	--	--	--	--	--	52	--	--	9
Social sciences																		
Undergraduate	409	438	193	46	85	52	23	12	87	34	318	29	32	14	60	88	78	52
Graduate	76	70	49	--	5	7	--	--	15	5	23	3	--	--	2	4	4	7
Trade and industrial																		
Undergraduate	--	--	--	--	--	16	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts																		
Undergraduate	163	38	210	--	27	6	8	29	14	85	69	115	1	20	11	7	41	
Graduate	35	19	100	--	1	--	--	--	--	4	14	--	--	1	--	--	--	14
Total																		
Undergraduate	9,154	3,500	3,088	165	1,141	599	297	799	671	779	2,395	726	429	355	975	940	860	1,123
Graduate	1,767	2,746	2,029	80	176	104	30	110	96	156	418	102	--	37	145	304	126	235

1. Undergraduate degrees include only bachelor's at all institutions. Graduate degrees include master's degrees at all institutions except Lock Haven, which does not have a master's program, first professional (excluding medical) and doctor's at Pittsburgh and Temple and doctor's at Penn State and Indiana University.

SOURCE: Preliminary data furnished by Pennsylvania Department of Education, Division of Education Statistics, January 1984; data gathered using U.S. Department of Education ED (NCES) Form 2300-2.1A1-1, 4/83.

Appendix Table 8A

AVERAGE WEEKLY CLASSROOM CONTACT HOURS REPORTED BY FULL-TIME FACULTY IN FALL TERM¹
1977 to 1982

Institution	Full-time faculty head count						Undergraduate level contact hours ²						Graduate level contact hours ²					
	1982	1981	1980	1979	1978	1977	1982	1981	1980	1979	1978	1977	1982	1981	1980	1979	1978	1977
State-related																		
Penn State	2,644	2,660	2,602	2,621	a	a	8.3	8.3	8.4	8.5	a	a	1.9	1.9	1.9	1.9	a	a
Pittsburgh	1,535	1,499	1,530	1,546	1,608	1,612	5.3	5.5	5.2	5.1	5.3	5.3	3.9	4.2	4.3	4.2	4.2	4.4
Temple ³	1,211	1,232	1,248	1,310	1,330	1,339	6.2	5.6	6.5	6.5	6.2	6.3	4.2	3.8	4.0	3.9	3.8	3.9
Lincoln	69	71	76	72	78	76	10.8	11.0	10.2	10.7	11.1	11.2	1.2	1.1	1.3	1.1	.7	na
Total	5,459	5,462	5,456	5,549	a	a	7.0	6.9	7.1	7.1	a	a	2.9	3.0	3.0	3.0	a	a
State-owned																		
Bloomsburg	322	312	312	308	307	291	10.6	10.9	11.0	11.8	11.6	12.0	.6	.7	.8	.8	.6	.8
California	245	266	284	299	307	313	11.1	10.0	10.2	8.8	8.8	8.7	.6	.8	.9	.8	1.0	1.0
Cheyney ⁴	136	166	167	177	181	185	9.7	10.5	11.5	10.8	10.5	11.2	.6	.6	.6	.8	1.1	1.4
Clarion	310	288	302	306	308	298	10.3	10.8	10.5	9.5	9.4	10.5	.6	.5	.6	.6	.6	.7
East Stroudsburg	228	224	220	219	218	222	10.6	10.3	10.5	11.0	10.9	10.9	.6	.6	.6	.6	.5	.5
Edinboro	325	342	341	383	384	403	11.2	10.9	11.3	11.9	12.0	12.1	.8	1.0	1.0	1.0	1.0	.8
Indiana	632	613	599	603	574	560	11.1	11.5	11.8	11.7	11.5	11.6	1.2	1.1	1.0	1.2	1.1	1.0
Kutztown	284	282	283	295	294	293	11.7	11.9	11.7	12.2	11.1	11.3	.5	.4	.5	.5	.6	.6
Lock Haven	170	161	161	168	159	167	11.3	11.7	11.7	11.7	11.7	11.9	na	na	na	na	na	na
Mansfield	169	162	158	187	191	193	11.9	10.1	10.2	10.2	10.4	10.4	.5	.4	.5	.4	.3	.4
Millersville	290	289	291	296	292	296	11.1	11.1	10.8	10.7	10.6	10.8	.4	.7	.7	.7	.7	.7
Shippensburg	293	289	292	294	298	298	9.0	9.2	9.2	9.4	9.1	9.0	.9	.8	1.0	1.0	1.1	1.0
Slippery Rock	319	323	315	334	339	323	11.4	11.5	a	a	a	a	.6	.6	a	a	a	a
West Chester	452	453	467	484	483	449	10.3	10.9	10.9	11.4	10.7	11.8	1.1	1.1	1.1	1.1	1.1	1.2
Total	4,175	4,170	4,192	4,353	4,335	4,291	10.8	10.9	10.9	10.9	10.7	11.0	.7	.8	.8	.8	.8	.8
All Institutions	9,634	9,632	9,648	9,902	a	a	8.7	8.6	8.8	8.8	a	a	2.0	2.0	2.0	2.0	a	a

1. Average calculated using only those full-time employed faculty in the fall who reported a complete workweek of 100 hours or less.

2. Totals for State-owned universities and all institutions exclude Slippery Rock for each year before 1981.

3. Due to changes in workload data collection procedures at the school, Temple's contact hour data for 1981 and 1982 may not be fully comparable to previous years. For fall 1982, 11 percent of Temple's full-time faculty did not submit a workweek report.

4. For the fall terms 1977 to 1980 at least 25 percent of Cheyney's full-time faculty each year did not submit a report of hours spent in work-related activities.

a. Noncomparable data reported.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1978 to 1983.

Appendix Table 9A

AVERAGE INSTRUCTIONAL SALARY OF FULL-TIME EQUIVALENT INSTRUCTIONAL FACULTY AND PERCENTAGE DISTRIBUTION BY RANK¹
1980-81, 1981-82 and 1982-83
(Dollar amounts in 000s)

Institution	FTE instructional faculty	Average instructional salary		Professor		Associate professor		Assistant professor		Instructor		Nonranked ²	
		Amount	Percentage increase	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty
State-related													
Penn State													
1982-83	2,738	\$25.4	7%	\$37.1	17%	\$28.4	20%	\$22.6	29%	\$17.3	15%	\$22.6	19%
1981-82	2,746	23.8	9	34.9	17	26.7	20	21.0	30	15.9	14	20.4	19
1980-81	2,701	21.9		32.2	17	24.8	21	19.1	30	14.2	14	19.1	18
Pittsburgh													
1982-83	1,849	24.2	7	36.1	18	25.7	27	20.4	20	14.0	11	21.1	24
1981-82	1,824	22.7	9	33.6	18	24.4	27	19.0	20	13.1	12	20.3	23
1980-81	1,832	20.8		30.8	18	22.2	26	17.5	21	12.4	11	18.4	24
Temple													
1982-83	1,617	23.1	5	32.0	29	24.5	26	18.3	18	13.7	12	16.7	15
1981-82	1,666	22.0	4	34.7	25	25.6	24	19.6	20	11.6	14	9.7	17
1980-81	1,741	21.3		33.6	26	24.9	23	17.9	21	10.3	14	10.3	16
Lincoln													
1982-83	93	18.4	4	23.2	16	21.0	18	17.4	41	16.0	18	13.5	7
1981-82	97	17.7	2	26.0	16	19.9	16	16.0	38	15.2	18	13.1	12
1980-81	95	17.3		22.7	16	19.0	19	16.7	35	14.2	20	13.5	10
State-owned													
Bloomsburg													
1982-83	337	26.2	4	33.1	29	26.9	35	21.0	26	16.9	10	na	0
1981-82	336	25.1	6	30.9	30	25.6	37	20.0	26	15.5	7	na	0
1980-81	335	23.6		29.0	30	24.0	40	18.4	25	13.9	5	na	0
California													
1982-83	240	29.7	4	33.4	46	27.7	40	24.1	11	19.9	2	33.0	a
1981-82	241	28.5	6	32.3	44	26.4	42	22.8	12	18.6	1	30.7	1
1980-81	264	26.8		30.4	43	25.3	42	20.7	13	16.9	1	27.4	1
Cheyney													
1982-83	136	29.4	7	34.5	34	28.0	51	24.1	10	19.8	5	na	0
1981-82	144	27.5	b	32.5	30	26.8	55	22.8	8	18.2	7	9.6	a
1980-81	163	c		c	31	c	54	c	8	c	7	c	a
Clarion													
1982-83	293	26.9	5	33.5	32	27.6	32	22.0	25	15.9	11	31.1	a
1981-82	289	25.5	5	31.7	31	25.6	34	21.0	25	16.8	10	28.5	a
1980-81	288	24.4		30.1	31	24.3	37	20.2	22	15.2	10	30.1	a
East Stroudsburg													
1982-83	226	27.7	7	32.7	40	26.6	38	22.2	18	14.2	4	34.6	a
1981-82	223	25.8	7	30.5	39	25.1	37	20.5	19	14.1	5	31.9	a
1980-81	216	24.2		29.3	37	23.5	38	19.2	21	10.5	4	35.0	a
Edinboro													
1982-83	322	29.2	8	33.9	39	28.2	35	23.5	25	17.9	1	28.4	a
1981-82	340	27.0	7	31.8	36	26.2	37	22.0	25	18.2	2	na	0
1980-81	334	25.3		29.4	37	24.8	36	20.5	25	19.1	2	23.9	a
Indiana													
1982-83	650	27.5	9	32.9	37	26.9	31	22.7	24	19.6	7	14.7	1
1981-82	681	25.3	5	29.9	38	25.0	31	20.6	23	18.6	8	20.0	a
1980-81	649	24.0		28.7	38	23.1	34	19.4	23	15.8	5	17.5	a
Kutztown													
1982-83	269	29.0	5	35.0	37	28.8	34	23.6	19	19.2	9	10.3	1
1981-82	268	27.7	6	32.8	37	27.0	38	22.1	18	18.2	7	25.0	a
1980-81	265	26.1		30.7	35	26.2	39	21.2	19	16.3	7	28.8	a
Lock Haven													
1982-83	149	29.8	8	35.0	35	28.9	44	23.0	19	19.1	2	45.9	a
1981-82	147	27.6	7	32.9	33	26.8	46	22.3	17	17.0	4	32.9	a
1980-81	146	25.7		31.0	31	25.1	47	20.5	18	15.6	4	na	0
Mansfield													
1982-83	163	27.4	6	35.1	26	28.6	37	22.8	26	15.9	11	na	0
1981-82	160	25.9	3	33.1	26	27.0	37	22.0	25	16.0	12	na	0
1980-81	154	25.2		31.4	28	26.5	36	20.8	26	15.0	10	na	0
Millersville													
1982-83	321	26.7	6	32.1	33	26.4	39	22.0	21	16.2	7	28.6	a
1981-82	318	25.1	b	30.2	32	24.8	41	20.3	21	14.9	6	16.2	a
1980-81	b	b		b	b	b	b	b	b	b	b	b	b
Shippensburg													
1982-83	286	28.7	8	34.1	39	28.1	30	23.1	25	20.6	6	29.6	a
1981-82	287	26.5	6	31.6	38	25.9	31	21.3	25	17.5	6	na	0
1980-81	284	25.0		30.0	37	24.5	33	20.2	26	16.5	4	23.8	a
Slippery Rock													
1982-83	301	29.0	9	34.7	40	28.3	28	23.1	22	18.6	9	41.1	1
1981-82	306	26.7	7	31.7	40	26.8	29	21.6	21	17.2	10	23.4	a
1980-81	295	24.9		30.0	39	24.9	30	19.9	21	16.2	10	22.4	a
West Chester													
1982-83	460	27.1	6	33.3	29	27.6	36	22.6	24	16.8	10	35.9	1
1981-82	458	25.5	6	31.3	29	25.9	39	21.0	23	15.7	8	27.0	1
1980-81	468	24.0		29.4	29	24.4	39	19.8	23	15.0	9	25.7	a

1. Average instructional salary is calculated by dividing the total instructional salary paid to all staff members in the respective rank categories by their total full-time equivalency in the instructional function. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year represent the summer term preceding the academic year plus the academic year.

2. The full-time equivalency of nonranked faculty members is based on the time spent in instruction of all nonranked personnel, including lecturers, administrators, librarians, research staff and graduate assistants.

- a. Rounds to less than 1 percent.
- b. Noncomparable data reported.
- c. Incomplete salary data submitted.
- na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1981 to 1983.

Appendix Table 10A

AVERAGE INSTRUCTIONAL SALARIES OF FULL-TIME EQUIVALENT INSTRUCTIONAL FACULTY¹
 BY SELECTED CIP CLASSIFICATION
 1980-81, 1981-82 and 1982-83
 (Dollar amounts in 000s)

CIP classification and year	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Business																		
1982-83	\$27.8	\$24.8	\$23.1	\$16.4	\$25.5	\$24.8	\$26.2	\$22.9	\$22.4	\$26.7	\$23.9	\$24.0	--	\$22.9	\$20.1	\$27.4	\$23.7	\$23.6
1981-82	26.3	22.1	25.9	17.3	25.0	25.0	26.7	22.5	20.5	23.7	22.2	23.5	--	22.0	21.7	24.6	20.4	22.6
1980-81	22.7	24.7	23.5	17.9	23.1	23.0	nd	21.1	16.8	20.7	21.6	21.4	--	20.0	a	23.2	23.0	20.3
Education																		
1982-83	23.3	23.4	22.8	16.8	26.5	29.6	30.9	27.9	27.8	30.0	28.6	30.1	\$29.7	28.6	27.1	29.4	28.7	27.7
1981-82	22.0	22.4	22.7	14.9	25.0	28.5	27.9	25.3	25.4	28.0	25.3	27.6	27.2	26.2	25.1	26.9	27.1	25.9
1980-81	20.4	20.1	21.8	15.2	23.8	26.3	nd	24.2	23.6	25.5	23.8	25.9	25.4	25.2	a	25.3	25.6	24.1
Foreign languages																		
1982-83	22.8	23.5	20.7	16.4	28.6	30.4	26.1	27.5	31.3	27.1	29.1	30.3	31.2	20.4	25.9	30.3	31.8	24.4
1981-82	21.2	23.6	17.0	22.0	27.9	29.0	27.9	25.2	29.4	26.4	26.3	28.7	28.8	26.2	25.5	27.6	26.8	23.5
1980-81	18.9	20.9	17.9	17.1	27.6	26.7	nd	27.3	27.8	24.3	24.7	27.7	26.9	24.7	a	25.9	28.0	21.6
Letters																		
1982-83	20.8	22.5	20.8	20.1	24.5	31.1	29.2	26.8	24.8	28.2	27.6	30.5	30.9	26.4	24.7	30.3	28.8	27.1
1981-82	19.8	21.6	16.6	20.7	23.6	28.4	27.4	24.8	25.3	26.0	27.1	29.9	28.7	24.4	22.0	28.0	26.7	26.7
1980-81	17.1	19.6	17.9	17.9	22.8	26.6	nd	24.3	23.9	24.5	25.5	27.8	26.7	25.1	a	27.1	24.9	25.5
Life sciences																		
1982-83	25.9	23.9	30.5	20.9	29.3	32.1	32.7	29.8	30.6	32.0	28.5	27.5	33.2	26.5	27.4	30.5	33.9	27.8
1981-82	24.3	22.2	31.7	24.1	27.6	33.5	28.5	28.4	27.2	30.1	27.0	27.9	32.2	27.2	26.1	28.0	27.5	27.0
1980-81	23.0	20.8	30.7	20.1	26.5	29.1	nd	26.1	26.2	28.5	25.7	26.7	29.2	25.4	a	26.6	25.3	25.7
Mathematics																		
1982-83	24.2	25.2	21.9	18.0	26.2	29.0	24.6	27.6	27.2	29.8	30.2	29.3	29.2	29.4	26.7	26.6	29.7	24.8
1981-82	23.5	24.1	16.4	15.5	25.7	27.9	25.4	26.7	26.4	26.6	28.9	27.5	27.6	26.7	26.5	25.3	26.4	23.7
1980-81	20.4	21.9	19.6	15.4	23.4	27.2	nd	25.1	25.5	25.7	27.5	26.8	25.9	25.3	a	24.3	24.5	22.2
Philosophy, religion and theology																		
1982-83	25.6	28.3	23.1	21.6	30.5	33.8	32.0	--	32.9	--	31.0	--	--	--	26.7	--	29.3	--
1981-82	b	b	b	b	b	b	b	--	b	--	b	--	--	--	b	--	b	--
1980-81	b	b	b	b	b	b	b	--	b	--	b	--	--	--	a	--	b	--
Physical sciences																		
1982-83	27.7	25.0	26.8	19.2	25.4	30.6	31.2	32.4	29.5	31.1	27.9	24.1	28.6	30.6	29.0	30.7	30.6	27.7
1981-82	27.2	24.0	23.2	16.4	25.9	30.2	27.8	29.6	27.9	28.8	26.0	27.2	26.5	29.2	26.2	28.4	29.4	25.8
1980-81	25.1	21.3	28.7	17.8	24.2	28.9	nd	27.7	25.6	26.9	25.7	26.5	25.5	28.0	a	26.1	27.5	24.0
Psychology																		
1982-83	27.2	23.1	25.0	20.0	26.8	31.8	32.4	30.0	30.6	31.4	28.3	30.2	29.5	29.7	28.1	29.6	31.8	28.2
1981-82	25.8	21.7	22.0	18.4	25.5	30.6	29.4	27.6	28.6	29.5	27.2	29.9	28.8	26.8	26.5	27.0	29.9	26.2
1980-81	22.8	20.0	24.3	19.6	23.0	27.9	nd	27.8	23.1	27.0	24.4	27.6	26.4	26.5	a	25.1	28.0	24.8
Social sciences																		
1982-83	26.6	27.1	23.9	19.1	27.0	29.2	32.4	29.8	27.7	30.7	28.6	30.0	27.7	27.6	29.0	29.6	31.2	29.0
1981-82	25.1	25.1	20.0	17.2	26.2	30.1	28.7	27.5	26.0	27.9	25.4	27.5	25.5	28.6	27.0	27.4	27.4	27.0
1980-81	22.5	22.9	21.5	17.5	24.6	27.8	nd	26.0	24.7	26.1	24.5	26.2	23.7	26.9	a	25.7	25.4	25.3
Visual and performing arts																		
1982-83	23.5	23.2	20.5	c	26.1	24.5	28.4	27.6	27.5	28.2	25.7	30.3	31.6	--	27.3	26.8	27.3	27.7
1981-82	22.5	21.5	17.2	17.7	26.3	25.8	26.9	25.5	26.2	26.2	23.9	29.4	29.0	--	25.0	25.4	25.4	26.3
1980-81	19.8	19.3	20.1	17.9	24.0	24.7	nd	24.7	26.2	24.5	22.6	26.7	26.8	--	a	23.7	22.2	24.4
Total²																		
1982-83	25.4	24.2	23.1	18.4	26.2	29.7	29.4	26.9	27.7	29.2	27.5	29.0	29.8	27.4	26.7	28.7	29.0	27.1
1981-82	23.8	22.7	22.1	17.7	25.1	28.5	27.5	25.5	25.8	27.0	25.3	27.7	27.6	25.9	25.1	26.5	26.7	25.5
1980-81	21.9	20.8	21.3	17.3	23.7	26.8	nd	24.4	24.2	25.3	24.0	26.1	25.7	25.2	a	25.0	24.9	24.0

1. Average instructional salary is calculated by dividing the total instructional salary paid to all staff members in the respective CIP classifications by their total full-time equivalency in the instructional function. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year represent the summer term plus the academic year.

2. Includes all CIP classifications.

a. Noncomparable data reported.

b. Included in letters.

c. Included in education.

nd. No data.

SOURCE: Reports provided by the individual institutions, 1981 to 1983.

Appendix Table IIA

INSTRUCTIONAL FACULTY SALARY¹ COST PER STUDENT CREDIT HOUR BY LEVEL
1980-81, 1981-82 and 1982-83

Institution	Undergraduate level									Graduate level								
	Total undergraduate			Lower division			Upper division			Master's			First professional			Doctor's		
	1982- 83	1981- 82	1980- 81	1982- 83	1981- 82	1980- 81	1982- 83	1981- 82	1980- 81	1982- 83	1981- 82	1980- 81	1982- 83	1981- 82	1980- 81	1982- 83	1981- 82	1980- 81
State-related																		
Penn State	\$31	\$29	\$27	\$24	\$23	\$22	\$42	\$39	\$37	\$98	\$94	\$83	na	na	na	\$237	\$232	\$220
Pittsburgh	38	35	32	29	25	24	55	53	48	110	104	96	44 ^a	32 ^a	32 ^a	206	188	175
Temple	44	41	41	36	32	33	54	51	50	101	95	88	139	52	36	166	196	208
Lincoln	42	38	46	34	31	38	77	67	78	54	48	48	na	na	na	na	na	na
Total	35	33	31	27	25	24	48	45	43	107	98	89	117	49	35	219	215	204
State-owned																		
Bloomsburg	46	44	41	39	37	36	60	55	49	83	75	62	na	na	na	na	na	na
California	51	47	53	42	39	46	76	70	72	136	117	107	na	na	na	na	na	na
Cheyney	70	61	nd	59	55	nd	105	78	nd	308	157	nd	na	na	na	na	na	na
Clarion	45	42	42	38	36	37	66	60	57	147	146	120	na	na	na	na	na	na
East Stroudsburg	50	47	43	39	37	34	77	73	62	72	65	52	na	na	na	na	na	na
Edinboro	53	52	49	45	44	41	74	73	66	128	107	96	na	na	na	na	na	na
Indiana	42	40	38	33	31	29	60	59	56	158	146	112	na	na	na	b	b	b
Kutztown	48	49	47	36	36	34	75	75	75	93	82	79	na	na	na	na	na	na
Lock Haven	58	53	50	50	46	42	85	77	78	na	na	na	na	na	na	na	na	na
Mansfield	54	54	53	39	39	39	100	94	88	129	85	68	na	na	na	na	na	na
Millersville	46	43	42	39	37	35	71	69	68	80	71	60	na	na	na	na	na	na
Shippensburg	47	44	41	42	38	37	60	58	52	103	91	79	na	na	na	na	na	na
Slippery Rock	50	47	43	42	39	37	73	71	61	118	105	96	na	na	na	na	na	na
West Chester	45	43	43	34	33	34	72	69	64	115	104	91	na	na	na	na	na	na
Total	48	46	44 ^c	39	37	36 ^c	70	67	62 ^c	116	102	86 ^c	na	na	na	na	na	na
All Institutions	41	38	36 ^c	33	31	30 ^c	56	53	50 ^c	110	99	88 ^c	117	49	35	219	215	204

1. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, one course credit was attributed to every three student credit hours produced in individual instruction.

- a. Excludes dental.
- b. Included at the master's level.
- c. Excludes Cheyney.
- na. Not applicable.
- nd. No data.

SOURCE: Reports provided by the individual institutions, 1983.

Appendix Table 12A

AVERAGE NUMBER OF COURSES TAUGHT PER TERM
ACADEMIC YEARS 1977-78 to 1982-83

Institution	Undergraduate level ¹						Graduate level ¹					
	1982-83	1981-82	1980-81	1979-80	1978-79	1977-78	1982-83	1981-82	1980-81	1979-80	1978-79	1977-78
State-related												
Penn State	1,718	1,768	1,751	1,707	1,703	1,679	489	482	477	487	480	488
Pittsburgh	1,754	1,752	1,748	1,704	a	a	1,316	1,296	1,320	1,308	a	a
Temple	1,650	1,648	1,650	1,687	1,693	1,660	1,130	957	972	952	951	a
Lincoln	210	189	170	191	165	163	24	21	18	12	10	8
State-owned												
Bloomsburg	528	516	520	516	503	491	65	76	78	68	59	55
California	498	490	492	530	474	464	108	108	87	95	98	85
Cheyney	290	294	321	359	358	370	26	25	31	35	43	48
Clarion	494	482	468	454	451	425	66	72	73	68	68	76
East Stroudsburg	451	432	431	426	437	423	46	37	40	40	39	37
Edinboro	504	517	526	528	582	590	82	86	86	89	97	96
Indiana	865	850	831	pd	779	754	250	258	244	215	200	183
Kutztown	412	416	a	460	450	430	42	43	a	56	47	50
Lock Haven	310	314	310	301	295	283	na	na	na	na	na	na
Mansfield	456	455	424	409	425	411	54	56	39	27	27	30
Millersville	466	522	520	566	456	448	69	72	79	99	65	67
Shippensburg	394	394	391	406	386	390	88	82	82	86	79	78
Slippery Rock	550	565	533	525	542	530	76	82	79	80	79	79
West Chester	935	904	872	853	a	a	238	238	233	222	a	a

1. In addition to the master's level, the graduate level for Penn State, Pittsburgh, Temple and Indiana University also includes the doctoral levels.

a. Noncomparable data reported.

na. Not applicable.

pd. Poor data.

SOURCE: Reports provided by the individual institutions, 1978 to 1983.

Appendix Table 13A

AVERAGE CLASS SIZE IN CLASSROOM INSTRUCTION BY LEVEL¹
ACADEMIC YEARS 1979-80 to 1982-83

Institution	Undergraduate level															
	Total				Lower division				Upper division				Master's			
	1982- 83	1981- 82	1980- 81	1979- 80	1982- 83	1981- 82	1980- 81	1979- 80	1982- 83	1981- 82	1980- 81	1979- 80	1982- 83	1981- 82	1980- 81	1979- 80
State-related																
Penn State	31	31	31	30	32	32	32	31	30	30	29	27	14	14	14	13
Pittsburgh	29	29	29	28	32	32	31	31	24	25	25	23	18	18	17	17
Temple	23	22	a	a	25	24	a	a	20	20	a	a	12	13	a	a
Lincoln	19	19	16	18	23	24	20	22	10	11	9	12	14	14	14	18
State-owned																
Bloomsburg	23	24	24	24	27	28	28	28	19	19	20	19	11	12	11	13
California	23	23	20	20	28	27	25	22	16	16	15	16	8	8	9	9
Cheyney	18	19	18	18	21	21	25	23	13	15	11	12	5	9	6	6
Clarion	30	30	29	25	36	37	34	29	20	20	21	17	10	8	9	8
East Stroudsburg	27	26	26	23	32	32	32	32	18	17	19	14	12	14	14	10
Edinboro	22	21	21	19	26	25	24	25	17	15	16	14	7	7	8	8
Indiana	27	26	25	a	33	32	33	a	19	18	17	a	6	6	7	a
Kutztown	26	24	24	22	35	33	33	30	16	16	15	14	12	14	13	12
Lock Haven	24	25	24	23	27	28	28	26	17	18	16	15	na	na	na	na
Mansfield	18	20	20	18	27	28	27	24	9	11	12	11	6	11	14	12
Millersville	25	25	24	25	29	29	29	29	17	16	15	17	11	11	11	13
Shippensburg	26	26	27	a	28	28	28	a	21	21	22	a	11	14	12	a
Slippery Rock	25	23	25	22	30	29	29	28	16	15	17	14	10	10	10	10
West Chester	21	21	a	a	28	27	a	a	13	13	a	a	7	7	a	a

1. Average class size for each level is calculated by dividing the total classroom student credit hours by the total classroom assigned credits.

a. Noncomparable data reported.

na. Not applicable.

SOURCE: Reports provided by the individual institutions, 1980 to 1983.

Appendix Table 14A

LOWER-DIVISION AVERAGE CLASS SIZE¹
BY INSTITUTION AND BY CIP CLASSIFICATION
ACADEMIC YEAR 1982-83

CIP classification	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Agriculture	19	--	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies	37	11	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business	44	19	32	25	33	50	29	37	47	35	43	42	--	33	32	35	34	40
Communications	49	18	30	--	26	--	--	48	21	--	19	40	--	--	25	20	28	--
Computer and information sciences	38	32	25	--	32	--	23	44	33	--	40	31	--	--	26	--	31	--
Education	25	20	22	20	23	21	13	39	22	22	25	25	27	18	24	22	25	24
Engineering	24	32	28	--	--	31	--	--	--	--	23	--	--	--	--	--	--	--
Foreign languages	20	13	12	17	19	14	18	26	15	15	22	22	18	18	24	20	23	15
Health	30	54	22	--	15	--	--	--	22	12	24	--	--	--	--	--	--	25
Home economics	52	--	--	--	--	--	10	--	--	17	29	--	--	24	--	--	--	--
Industrial arts	--	--	--	--	--	--	11	--	--	--	--	--	--	--	--	--	--	--
Law	--	31	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters	24	21	23	26	25	22	18	29	28	26	26	31	24	25	23	26	27	28
Liberal/general studies	19	--	--	--	--	98	--	--	--	--	--	--	--	--	--	--	--	--
Library and archival sciences	3	6	--	--	--	--	--	14	--	--	--	22	--	--	18	25	--	--
Life sciences	43	37	87	33	32	45	20	58	59	28	59	87	35	55	24	25	37	71
Mathematics	37	37	27	31	17	43	29	31	32	37	31	35	28	34	38	30	36	32
Military sciences	14	23	7	--	6	37	--	19	9	5	39	--	12	10	--	18	14	--
Multi/interdisciplinary studies	29	25	9	--	18	--	33	36	--	--	--	--	--	--	--	--	25	--
Parks and recreation	21	--	21	--	--	--	34	--	21	--	--	--	--	--	--	--	27	--
Personal and social development	--	--	--	--	--	--	16	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology	42	34	24	23	34	20	12	--	46	--	56	--	--	--	38	--	35	--
Physical sciences	32	59	44	19	24	26	22	26	43	25	40	65	31	37	43	23	37	32
Psychology	53	53	40	25	37	47	19	59	39	34	39	42	31	34	34	38	40	34
Public affairs and protective services	29	26	18	16	--	15	--	--	--	14	--	--	--	--	18	27	39	36
Social sciences	49	42	26	21	35	26	20	48	46	29	47	37	32	30	30	32	35	39
Trade and industrial	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts	43	24	18	--	32	15	17	31	27	17	20	47	20	--	26	28	24	16
Other	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129
Total	32	32	25	23	27	28	21	36	32	26	33	35	27	27	29	28	30	28

1. Average class size was calculated by dividing classroom student credit hours by classroom assigned credits.

SOURCE: Reports provided by the individual institutions, 1983.

Appendix Table 15A

UPPER-DIVISION AVERAGE CLASS SIZE¹
 BY INSTITUTION AND BY CIP CLASSIFICATION
 ACADEMIC YEAR 1982-83

CIP classification	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
Agriculture	32	--	21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Architecture and environmental design	18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Area and ethnic studies	23	10	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Business	43	28	28	20	32	34	26	36	29	22	36	30	--	18	23	30	28	33
Communications	25	19	21	--	24	--	--	32	26	--	21	24	--	--	17	16	17	--
Computer and information sciences	41	35	24	--	26	--	10	39	29	--	29	18	--	--	20	--	16	--
Education	17	18	17	9	17	15	11	14	17	15	13	14	18	8	18	22	18	13
Engineering	36	37	24	--	--	11	10	--	--	--	21	--	--	--	--	--	--	--
Foreign languages	16	11	10	6	7	7	--	6	9	6	6	8	6	4	13	7	9	6
Health	20	54	18	--	9	--	--	--	10	30	15	7	--	--	15	--	9	8
Home economics	28	22	--	--	--	--	10	--	--	5	18	--	--	8	--	--	--	--
Industrial arts	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Law	--	25	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Letters	25	23	18	7	18	12	12	12	16	24	17	19	15	13	18	14	14	11
Liberal/general studies	19	--	--	--	--	99	--	--	--	--	--	--	--	--	--	--	--	--
Library and archival sciences	7	--	--	--	--	--	--	10	--	--	--	8	--	--	21	5	--	--
Life sciences	41	22	42	9	16	17	11	16	26	8	21	23	13	13	17	10	12	19
Mathematics	26	20	22	9	15	25	8	17	21	22	12	22	22	11	19	24	20	12
Military sciences	13	10	8	--	7	13	--	13	15	7	19	--	17	9	--	14	12	--
Multi/interdisciplinary studies	19	20	7	--	--	--	--	--	--	--	--	3	--	--	--	--	19	--
Parks and recreation	28	--	11	--	--	--	13	--	18	--	--	--	--	--	--	--	16	--
Personal and social development	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Philosophy, religion and theology	21	10	17	4	--	4	10	--	8	--	14	--	--	--	23	--	12	--
Physical sciences	28	21	30	8	11	10	11	10	11	20	15	16	10	8	8	12	11	10
Psychology	31	25	22	11	20	29	14	29	20	29	18	19	18	10	21	22	18	18
Public affairs and protective services	25	19	15	--	--	12	--	--	--	--	--	--	--	--	12	14	9	16
Social sciences	33	21	20	9	19	10	10	19	27	20	22	17	14	11	16	18	19	20
Trade and industrial	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Visual and performing arts	18	13	15	--	9	2	9	7	9	7	7	9	18	--	14	14	5	5
Other	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11
Total	30	24	20	10	19	16	13	20	18	17	19	16	17	9	17	21	16	13

1. Average class size was calculated by dividing classroom student credit hours by classroom assigned credits.

SOURCE: Reports provided by the individual institutions, 1983.

