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An Analysis of Class Size, Teaching Load, and Instructional Salary Costs in Utah State-Supported Collegiate Institutions of Higher Education

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AN ANALYSIS OF CLASS SIZE, TEACHING LOAD, AND INSTRUCTIONAL SALARY COSTS IN UTAH STATE-SUPPORTED COLLEGIATE INSTITUTIONS OF HIGHER EDUCATION

by

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Don K. Richards

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CHAPTER I

INTRODUCTION

It is generally recognized that the State of Utah attempts to provide schooling to a higher proportion of youth than other states in the nation. Utah has the largest proportion of high school graduates (50 per cent) in its adult population, and also the highest median school years completed (12.2 years) by adults 25 years old and older. These are some of the highlights of the 1961 edition of the "Rankings of the States," an annual publication in which the National Education Association compares all 50 states in terms of educational effort and achievement.

It is further acknowledged that Utah leads the nation in the proportion of its population attending college.

> Here is seen the total number of students enrolled in both publicly controlled and privately controlled colleges in Utah, in each of the other 10 Western states, and in the United States during the fall term of 1957. . . . It is seen in the table and Chart 8 that for each 10,000 people in the State, Utah had almost as many students enrolled in publicly controlled colleges as the two highest states (California and Arizona) and far more than other Western states in privately controlled institutions. Thus Utah had a total enrollment in both publicly controlled and privately controlled colleges of 337 students per 10,000 population as compared with 274 in the next highest state (California), a national average of 182, and only 92 in Nevada.[1]

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[1] A Proposed Coordinating Council of Higher Education for Utah (Salt Lake City: Utah Coordinating Board of Higher Education, 1958), p. 32.

The Utah public institutions of higher education have been surveyed many times over the years. In each instance, the survey staff has commended the institutions on their accomplishments, especially in view of the limited finances.

> Probably no state in the Union has greater pride in its institutions of higher learning than Utah. This pride is demonstrated in a number of ways, including (1) the high percent of its youth who attend college, and (2) the extent to which its wealth has been dedicated to the support of institutions of higher learning. At regular intervals the United States Office of Education has released statistics indicating that Utah has the highest percentage of its youth of college age enrolled in its institutions of higher learning of all the states of the Union. Moreover, studies indicate that Utah, although raising less money per student from taxes than most of its neighboring states, makes a greater financial effort in the cause of higher education than most of them. The fact that it has so many students in attendance at its institutions of higher learning, as compared with other states, has forced Utah to the herculean task of sustaining them on rather limited resources, especially when compared to the many states with comparatively fewer students in proportion to population and far greater wealth and income per student. Various authorities have concluded that Utah is putting forth great effort in supporting its institutions of higher learning.[1]

This task of sustaining the Utah institutions of higher education on rather limited resources has faced each session of the Legislature. To help with this problem and with the problem of lack of coordination among the various colleges and universities in the State, the 1959 Legislature established a Coordinating Council of Higher Education with the passage of Senate Bill Number 54. Included among the specific duties and responsibilities of this Council in the Enabling Act are the following:

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[1] Ibid., p. 9.

1. Requests for state appropriations of whatever nature by the governing boards of the several public post-high school educational institutions in the state shall be prepared in accordance with uniform procedures prescribed by the council, and the requests shall be submitted first to the council. After studying the total budget of each institution and after consultations with the various institutions, the council shall make any adjustments it deems appropriate in the requests for state appropriations and shall recommend a combined appropriation for inclusion in the state budget as required by Sections 63-2-18 and 67-1-7, Utah Code Annotated 1953, or as amended, and for the legislature with a schedule showing the recommended amount for each respective institution including branches or divisions thereof. The recommendations of the council to the governor and to the legislature shall be accompanied by full explanations and supporting data, including the requests submitted to the council by the respective institutions. The appropriations recommended by the council shall be made with the dual objective of (a) justifying for public post-high school educational institutions appropriations consistent with their needs, and (b) determining an equitable distribution of funds for public post-high school education among the respective institutions. The council shall request a hearing or hearings with the governor relative to the recommended state appropriations. After the governor's budget message has been delivered to the legislature, the council shall request hearings on the recommended appropriations with the appropriate committees of the legislature. If either the total amount of the state appropriations or the allocation thereof among the institutions as proposed by the Legislature or its committees for public post-high school education is substantially different from the recommendations of the council, the council shall request further hearings with the legislature or the appropriate committees thereof to reconsider both the total amount and the allocation of the proposed state appropriations among the various institutions.

2. The council shall make continuing studies of the financial needs of public post-high school education and shall make recommendations to the governor and to the legislature covering all phases of public post-high school educational finance.

3. The council, after consultation with the respective institutions, shall establish a uniform and standardized system of reporting statistical and financial information for public post-high school educational institutions, and any statistical or financial information requested by the council from the various

institutions shall be prepared and submitted in accordance with the established system of reporting.

4. To attain a well integrated system of public post-high school education and maximum efficiency in the expenditure of appropriations therefor, the council shall, without imposing operational control, exercise leadership in and give direction to (a) state-wide planning of public post-high school education in Utah, including the definition of its aims, purposes, and objectives; (b) defining the role and program of each public post-high school educational institution; (c) establishing criteria for determining operating budget and capital budget needs of all public post-high school educational institutions; (d) establishing criteria for determining the needs for new programs or new public post-high school educational institutions or eliminating or curtailing or coordinating existing programs in public post-high school educational institutions; (e) studying new methods of instruction and new techniques for increasing efficiency of manpower and use of educational facilities; (f) defining standards and regulations for the recruitment and admission of students; and (g) determining standards for plant utilization. Recommendations of the council shall be in harmony with such studies, definitions, criteria, and standards.[1]

Very early in the deliberations of the Coordinating Council it was recognized that studies needed to be made concerning instructional programs in Utah institutions of higher education. As a graduate student at Utah State University, the writer was fortunate to be asked to assist with these studies. In particular, he was asked to cooperate in a study to deal with class size, teaching load, and instructional salary costs. At this time, the matter was discussed with the writer's graduate committee and agreement was reached that this proposed study would provide excellent material for a dissertation. The specific dissertation

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[1]Utah, Laws of the State of Utah (1959), c. 75, sec. 5.

problem then emerged with the help of the writer's graduate committee and in cooperation with the Director and the Research Assistant of the Utah Coordinating Council of Higher Education.

The Problem

The purpose of this study was to provide an analysis of class size, teaching load, and instructional salary costs in the State-supported collegiate institutions of higher education in Utah for the regular academic years 1959-60 and 1960-61 and, in so far as possible, to compare the two years with respect to the above factors.

In order to deal with this problem the study was structured to obtain answers to the following questions by institution, by subject-matter area, and by level of instruction for each of the 1959-60 and 1960-61 regular academic years.

1. What is the scope of course offerings?
2. What is the volume of teaching and instructional service to students?
3. What is the size of the instructional staff?
4. What are the variations in class size?
5. In terms of college credits, what is the instructional productivity?
6. What is the instructional salary expenditure?

Importance of the Study

It is axiomatic that the teaching-learning process is the key factor in any educational enterprise. It primarily involves teachers and students and is embodied in an institution's instructional program. There is no substitute for the teacher, whether in the pattern of administration, the form of organization, the course of study, the type of teaching machine, or the mechanics of instruction. Furthermore, the basic values and ideals of our system of government emphasize the worth of the individual student and foster the concept that the enhancement of his life is the goal of all institutions of higher education.

An institution of higher education exists, then, primarily to render instructional service to students. As has been previously stated, the basic purpose of this study is to provide an analysis of this important instructional area in each of the state-supported collegiate institutions in Utah. This analysis is accomplished primarily by considering a number of interrelated factors such as class size and teaching load which generally account for or have the greatest impact upon variations in the cost of instructional programs. The attempt is made to analyze the instructional programs in terms that provide some measures of the financial effectiveness with which instructional time and resources are being used. Imminent expansions in the number of students to be served will bring great pressures on the supporting resources

of the colleges and universities in Utah. Faced with this era of mounting student enrollments and mounting costs, it is imperative that every Utah college and university fully understand its own operations and make maximum use of its teaching and financial resources. Any adjustments that can be made in institutional programs by wise administrators to provide a more effective use of faculty time and financial resources, without impairing the quality of instruction, might be of help in meeting the situation.

In one form or another, the university as a social institution has existed in our Western world for about 800 years. When these universities of the modern type first began to be developed in the Western world some 800 years ago, the instruction of students was their only function. The early colleges that were established in what is now the United States, beginning with Harvard in 1636, were established for the instruction of students. This continued to be their exclusive function until the latter part of the nineteenth century.

In recent decades institutions of higher education in the United States have added certain other functions to the basic responsibility of instructing students.

> . . . these (college and university functions) can be categorized under three main headings: (1) raison d'etre functions, (2) auxiliary functions, and (3) self-continuity functions.
>
> The raison d'etre functions of higher education institutions seem to be only two--teaching students and investigating the nature of the world and man, that is,

education and research.

To perform these sovereign functions or to meet social needs, however, colleges and universities undertake a number of auxiliary functions such as maintaining collections of books and works of art; providing for the physical and social well-being of students' conferring degrees and certificates upon those who have satisfactorily completed courses of instruction; honoring distinguished people by means of honorary degrees, and other such supplemental activities.

Finally come the self-continuity functions, the activities in which colleges and universities engage for the purpose of continuing in operation. These include the innumerable things that people generally call administration--raising money for buildings and maintaining the academic plant, searching for and nurturing various kinds of workers from presidents to plumbers; recruiting students; setting up schedules of course offerings; purchasing supplies and equipment; and so on through the long list of jobs that must be done if the institution is to survive, never mind to thrive.[1]

Research for the advancement of knowledge has come to be recognized as an important function, especially in universities and institutes of technology. John Dale Russell has stated, "Research in the whole field of education is relatively new and developed principally during the twentieth century."[2] A past president of Columbia University has the same feeling.

A third similarity is the universal belief that a true university has as much of an obligation to carry on research as to teach generations of young people all that is known of existing truth. Although the research

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[1]W. H. Cowley, "Two and a Half Centuries of Institutional Research," College Self Study Lectures on Institutional Research, ed. Richard G. Axt and Hall T. Sprague (Colorado: Western Interstate Commission for Higher Education, 1959), p. 9.

[2]John Dale Russell, "The Purpose and Organization of Institutional Research," College Self Study Lectures on Institutional Research, ed. Richard G. Axt and Hall T. Sprague (Colorado: Western Interstate Commission for Higher Education, 1959), p. 17.

> emphasis is particularly noted in scientific fields, it permeates every department of a modern American university. From public coffers, private donors, industrial corporations, great foundations, and the general income of the universities, millions of dollars flow annually into university channels to support a bewildering variety of research projects.[1]

The entire development of the student, not solely the cultivation of his intellect, is now almost universally accepted as a responsibility of the college and university, and for this purpose the institutions have taken on a whole series of activities commonly grouped under the term "student personnel services." In response to insistent demands of the outside world, institutions of higher education now commonly provide a broad range of public services to many different kinds of industrial, governmental, religious, and other social organizations in their regions.

> Finally, most of our universities accept a kind of implicit responsibility for the general dissemination of culture. Lectures, concerts, art exhibits, publication of books and magazines--all are familiar media for this spreading of learning and culture to the general public. A few universities operate their own radio stations; a few are experimenting with the new medium of television. Many maintain museums open to the public as well as to students. University libraries frequently are available for the use of persons not officially connected with the university.[2]

Although the institutions of higher education have taken on other functions beyond that of instructing students, the instructional program still remains as the central core of

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[1]Grayson Kirk, "The Idea of a University," Man's Right to Knowledge, First Series: Tradition and Change, ed. Herbert Muschel (New York: Columbia University Press, 1954), p. 98.

[2]Ibid.

activities. In a typical institution of higher education, the item of faculty salaries and the associated direct costs of instruction constitutes the largest single item in an institution's budget for educational and general purposes.

> Within the category of educational and general expenditures, we find, as a general rule, the following percentage distribution among the various functions to be used as a guide, although deviation from it can be justified:
>
> Administration, 15 per cent or less
> Plant operation andmaintenance, 16 per cent or less
> Library, 5 to 6 per cent
> Instruction, 60 per cent
> The remaining 3 or 4 per cent for extension and research depending on institutional purposes.[1]

The total picture of expenditures for higher education in the United States during a recent year is seen in the following quotation:

> In 1959-60, expenditures of institutions of higher education totaled $5.6 billion: 32.0 percent for instruction and organized research; 10.4 percent for administration and general expense; 8.4 percent for physical plant; 2.4 percent for libraries; 16.3 percent for auxiliary enterprises and activities, the remainder for miscellaneous expenditures.[2]

Expenditures for instruction in Utah institutions of higher education are contained in the following table taken from a recent publication of the Utah Coordinating Council of Higher Education.

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[1]John Dale Russell, "Budgetary Analysis," College of Self Study Lectures on Institutional Research, ed. Richard G. Axt and Hall T. Sprague (Colorado: Western Interstate Commission for Higher Education, 1959), p. 106.

[2]National Education Association, NEA Research Bulletin, A Bulletin Published by the Research Division of the National Education Association (Washington: National Education Association, 1963), p. 8.

COORDINATING COUNCIL OF HIGHER EDUCATION[a]
Analysis of Institutional Budgets
1960

Expenditures for Instruction: Percentage of Total Educational and General Expenditures

Period	Univ. of Utah	Utah S. Univ.	Coll. of So. Utah	Weber Coll.	Carbon Coll.	Snow Coll.	Dixie Coll.	Total
59-60 Actual	57.3	60.1	53.0	58.9	64.2	54.7	58.9	58.2
60-61 Budget	56.6	60.5	53.0	59.2	63.5	56.3	57.8	58.0
61-62 Est.	55.2	61.1	53.1	59.6	65.3	57.6	56.1	57.5
62-63 Est.	55.2	61.8	54.4	61.6	64.9	58.1	56.9	57.9

[a]An Analysis of the Budgets of Utah State Supported Institutions of Higher Education (Salt Lake City: Coordinating Council of Higher Education, 1960), Table 18.

In most colleges and universities the function of instruction is recognized as the central purpose for which most other services are organized and maintained. The institution must operate and maintain a physical plant, but the purpose of the plant facilities is primarily to provide a convenient and suitable setting in which the instructional processes can be carried on effectively. Similarly the institution must maintain an administrative staff and organization, but administration can be viewed as a facilitating service for the effective maintenance of the instructional

program.

From a budgetary point of view, it would seem appropriate to hold the supplementary services, such as administration and plant operation and maintenance, at the lowest possible level of expenditure consistent with good service to the instructional program, in order that a maximum share of the funds available may be used for the direct instructional operations.

The concept of the central importance of the instructional program in a college or university might lead to the conclusion that the more money an institution can devote to this function, the better its service will be.

> A basic policy should be to put the maximum amount of expenditures for education and general purposes into the directly productive functions of instruction and library, and the least possible amounts, consistent with good service, into the "overhead" functions of administration and plant operation and maintenance.[1]

If a sufficient number of adequately qualified people are to be recruited and retained on instructional staffs, the need for some improvements in faculty salaries is always great. There is a need for more competent teachers in our colleges.

> Elementary and secondary-school teachers, caught between rising living costs and diminishing tax resources to support the public schools, are being joined in a similar bind by a growing number of teachers in universities, colleges, and junior colleges. A report released by the NEA Research Division last June showed that most institutions of higher education are being forced, year by year, to employ a growing percent of their new teachers with inadequate preparation. Now a nationwide NEA Research Division study presents a comprehensive picture

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[1]Russell, "Budgetary Analysis," College Self Study, p. 104.

> of the salary structure of higher education. Despite numerous encouraging spots, the general over-view casts doubt on whether the present quality of instruction can be maintained.[1]

Funds for faculty salaries are needed by practically every institution of higher education in the country and those in Utah are no exception.

The urgency of the need for funds for the improvement of salaries for capable faculty members does not necessarily mean that all funds now expended or that might be expended in the support of an instructional program in a college or university are wisely used. It is possible that some of the funds so urgently needed for the improvement of faculty salaries might be found in a wiser use of the resources at present devoted to the support of the instructional program. As a feature of the appeal for larger supporting funds to provide adequate salaries for faculty members, each institution needs assurance that it is making the best possible use of the funds now spent on its instructional program. Such assurance requires an analysis of such aspects of the instructional program as the size of classes, the teaching loads of faculty members, and the unit costs of instruction.

Higher education, as mentioned earlier in this section, is currently experiencing a rapid expansion in the numbers of students served. This expansion seems almost certain to

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[1]National Education Association, NEA Research Bulletin, A Bulletin Published by the Research Division of the National Education Association (Washington: National Education Association, 1960), p. 35.

continue, probably at an accelerating rate, for at least the next two decades.

> In 1970, the college-age group (18-21) is expected to be more than half again as large as it was in 1960, with every state having an increase. In four states this group is expected to double: Nevada, Arizona, California, and Flordia. At the other end of the scale will be West Virginia with an increase of only 8 percent.[1]

In terms of total population, the following statement is indicative of the type of projections being made.

> . . . if we continue with birth rates as at present, make some further small improvement in mortality rates, and keep net immigration at approximately its present level, the total population of the United States will increase from 180 million in 1960 to about 214 million in 1970, and 260 million in 1980.[2]

Some examples of projected enrollment increases made with respect to Utah are given below:

> It is expected that the number of Utahns seeking college admission will increase from 19,183 in 1958 to 27,300 in 1965, 33,400 in 1970, and 37,900 in 1975.[3]

> A projection of fall term resident enrollment (full-time and part-time students) in the publicly controlled colleges and universities in Utah, on a basis of the number of expected high school graduates and assuming no change in the per cent of high school graduates actually enrolled in the years 1955, 1956, and 1957, indicates that this enrollment will nearly double by 1975, increasing from 17,930 in 1957 to some 34,500 in 1975.

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[1]National Education Association, NEA Research Bulletin, A Bulletin Published by the Research Division of the National Education Association (Washington: National Education Association, 1961), p. 91.

[2]Ibid., p. 102.

[3]Utah Foundation, Planning for Higher Education in Utah, A Research Report Prepared by the Utah Foundation (Salt Lake City: Utah Foundation, 1960), p. 217.

> On this same basis, the projected full-time equivalent enrollment will increase from 16,360 in 1957 to about 29,900 in 1975. The institutions themselves estimate a total enrollment in 1975 of some 39,300 full-time equivalent students which is about one-third greater than the projected figure for that year. Part of this difference may be due to the fact that the projections make no allowance for an increase in the 1955-57 per cent of high school graduates going to college. If this ratio increases, as it might easily do, the projected enrollments will be too low and the institutional estimates will be closer to reality.[1]

To find the necessary supporting resources for such a rapidly expanding program is proving difficult, to say nothing of the resources required for the improvement of faculty salaries and other institutional services that would be needed even if enrollments were not increasing.

Even more difficult than the provision of adequate financial resources will be the recruitment of competent personnel for college teaching staffs. The supply of well prepared instructors currently being produced is hardly sufficient for normal replacement, and furnishes almost no personnel to meet the needs for the constantly increasing number of students attending college. The following words highlight the findings of the NEA Research Division's fourth biannual study of teacher supply and demand in universities, colleges, and junior colleges.

> At this moment the evidence indicates that institutions of higher education cannot be staffed with the needed

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[1] A Proposed Coordinating Council of Higher Education for Utah, 1958, p. 18.

> number of competent teachers . . . The employing officer has no alternative but to choose between an insufficient number and an inferior quality of new teachers.[1]

Unless improvement is made then in the efficiency with which the time and energy of capable instructors are used, it seems highly probable that the general quality of the instructional program may be reduced under the pressures of increasing numbers of students. In such circumstances it is very important for institutions to analyze their instructional programs to make sure that the most effective use is being made of the available faculty manpower and the supporting financial resources.

In summary, then, the purpose of this present study was to provide an analysis of the instructional programs in Utah collegiate State-supported institutions of higher education through consideration of the variation of some selected, interrelated factors associated with instruction. This study is important, it is believed, since instruction is recognized as the oldest, and still the basic, function of most institutions of higher education. It constitutes the central core of institutional activities and embodies the teaching-learning process, the primary business of faculty relationships with students. Also, instruction is normally the largest single item in an institution's budget and, therefore, the financial aspects of the instructional program are of prime importance

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[1]National Education Association, NEA Research Bulletin, 1961, p. 77.

in a study of institutional efficiency.

Definition of Terms Used

It is fundamental to any statistical analysis that the data be classified into categories that are clearly defined and reasonably comparable among the reporting units. The data received from each institution for the present study included the pertinent facts about each course taught and about each faculty member who was teaching any course or courses in the academic years 1959-60 and 1960-61. Two basic systems of categories were used in classifying the data, one with respect to subject-matter field, and the other with respect to the level of the course. These and other terms used in this analysis are defined as indicated below for the purposes of this study.

Subject-matter classification

Like most colleges and universities in the United States, Utah institutions have courses and course titles that differ widely. An attempt was made to classify courses and departments under some major subject-fields or subject-areas. Thus, for the purpose of this study, subject-matter classification refers to these 70 to 80 subject-fields or subject-areas.

The necessity for an analysis of the data on instructional programs according to subject-matter fields

arises from the probability that the teaching situation differs from one subject-matter area to another. For example, the size of class thought to be maximum for effective teaching in introductory courses in mathematics, foreign languages, and English composition is likely to be different from the acceptable maximum in elementary courses of the lecture type in subjects such as psychology, American history, or sociology. If some comparisons are to be made among institutions and among departments within institutions, the nature of the subject-matter must be taken into account. The comparisons are sharpened by limiting them to specific fields of subject-matter and to clearly defined instructional levels. Thus the average size of lower division classes in chemistry in one institution can be compared with the average for lower division chemistry classes in all other institutions. It is for such a purpose that the data of this study have been classified according to subject-matter fields.

One possible approach to the problem of classification lies in using very broad and general categories, such as humanities, social sciences, physical sciences, and so on. The opposite plan is to use a considerably more detailed classification. Advantages and disadvantages can be cited for both plans, but the fact that a broad and too general classification might obscure some findings of possible importance led to a rather detailed subject-matter classification for this study. As finally set up, the subject-matter

classification used for analytical purposes consisted of approximately 75 categories depending upon the year in question.

In general, the classifications of subject-matter used in this study coincide with the usual departmental titles. In many cases, however, the decision to use a relatively finely divided subject-matter classification meant that departmental groupings in an institution had to be subdivided. Appendix B contains the classification of subject-fields and the departments included under each grouping.

Level of instruction

Each course offering listed by the institution was not only classified according to subject-area, but was classified according to the level of instruction. Three categories of levels were used.

Lower division. Lower division courses include all those normally designed for freshmen and sophomores and so designated by the course numbering system of the institution concerned.

Upper division. Upper division courses are those arranged for juniors and seniors but not ordinarily open to freshmen or sophomores.

Graduate. Graduate courses are those that are generally open only to students who have completed requirements for the bachelor's degree. Simply stated, the analysis was

carried out in terms of the designated level of the courses, as determined by institutional faculties and shown in catalog listings, not by the academic level of the students actually enrolled in the courses. No distinction was made between graduate courses at the master's level and the doctorate level. It must be noted that the category "graduate" is rather strictly defined in this analysis. In both institutions with graduate enrollments--the University of Utah and Utah State University--students are permitted to meet part of the course requirements for the master's degree through upper-division courses; therefore, the tabulations dealing with graduate level courses do not include all the courses that may be taken by graduate students. It includes only those courses designated by graduate numbers.

Course

The course is normally the smallest unit of subject-matter recognized in the official records of a college or university. It is one of a series of instructional units or "packages of subject-matter" maintained in a given departmental field, such as economics or geology. The institution customarily gives each course a unique title, intended to be indicative of the content it covers, and a number distinguishing the course from all others in the department. Normally the institutional catalog provides for each course a few lines describing its content more explicitly than the

title of the course does. Each course is customarily assigned a credit value indicating the number of points it carries toward degree requirements.

Class

A class, for the purpose of this study, is defined as a group of students meeting at the same time under an instructor in a given place. Normally each course will require the teaching of at least one class. Courses with large enrollments frequently are taught in several different groups meeting at different times and possibly under different instructors. These are sometimes called course "sections," and each of them is considered a "class" for the purpose of this study. In some subjects, such as art, in which much of the instruction is on an individual basis, an instructor may meet the students of several different courses in one room at the same hours during the week. Such a grouping is called a class for the purposes of this study, even though it may represent two or more different courses of instruction.

Course credit

The analyses of this study are made in terms of "credit-hours" and "student-credit-hours." Data of most other similar studies are expressed in these terms. Such measures as "clock hours" or "contact hours" are not used because institutional graduation requirements are not expressed in those terms.

Student-credit-hour

In the analysis of instructional programs it is necessary to speak in terms of some unit of educational productivity. In this study, the student-credit-hour is used as such a unit. Simply stated, a student-credit-hour represents one student taking a one-credit course for a given quarter. A class of 25 students in a three-credit course would represent 75 student-credit-hours. Similarly, three students registered for a four-credit course would produce 12 student-credit-hours. This study uses the student-credit-hour to express the scope of course offerings, to show instructional productivity in terms of student-credit-hours produced per full-time-equivalent faculty member, and to calculate the instructional salary cost of producing a student-credit-hour.

Weighted average class size

Some method is needed to summarize the data for size of classes, to get averages for the various levels of instruction, for the different subject-matter fields, for an entire institution, and for various groupings of institutions. The simple arithmetic mean or average of class size, obtained by summing the total enrollments in all classes and dividing by the number of classes, fails to give a true picture because classes carry different amounts of credit. For this reason it is necessary to compute an average in which the size of each class is weighted according to the number of credits it carries. For example, if an instructor were teaching a five-credit course with an enrollment of forty students and a

one-credit course with an enrollment of four students, the simple arithmetic average for the size of his two classes would be 22. The weighted average class-size in this case is 34. In actual practice the weighted average size of class for any grouping of classes is calculated by dividing the total student-credit-hours produced in the group of classes by the total number of credits for which the classes were given.

Full-time-equivalent faculty member

A faculty member is defined for the purpose of this study as any person who has full responsibility for the teaching of a class. Such responsibility usually involves not only the actual teaching but also the evaluation of the work of the students and the reporting of grades and credits earned to the central records office of the institution. Excluded from the definition of "faculty member" are teaching assistants, who may help with laboratory instruction or who may read papers or perform other instructional services under the direction of a faculty member who has the responsibility for the class. If a person, who may be designated as "assistant" or "teaching fellow," does have full responsibility for the teaching of the class and for reporting marks and credits earned to the central records office, such a person is considered as a faculty member for the purpose of this study.

The analyses in which instructional data are related to numbers of faculty members are in terms of full-time-equivalent

faculty members. A full-time faculty member is defined for the purposes of this study as one who is devoting full time to the service of the institution and whose full salary is charged to the instructional budget. Each institution provided data for this study showing the percentage of each faculty member's salary charged in the budget to instruction. Each person who was reported as giving full-time service to the institution but less than full time to instruction, and each one who for any reason was considered as being less than a full-time staff member, were counted into the total at the appropriate fraction of full time. The sum of the full-time faculty members, plus the fractions of time for those not devoting full time to instruction, provides the figure for full-time-equivalent faculty members for a department or institution. For example, if in a given department there are three faculty members whose entire salary is charged to instruction, plus one lecturer reported as giving half-time to the institution, and another faculty member serving on the full-time staff of the institution but devoting only one-fourth of his time to instruction and the other three-fourths to other responsibilities, the report for this department would show 3.75 full-time-equivalent faculty members.

It should be made clear that institutional totals for the number of full-time-equivalent faculty, as calculated in this study, may differ from statistics on full-time-equivalent instructors submitted by the individual institutions for other

purposes or to other agencies. In this study all members of the institutional staff, whether their salary came from instruction or from another part of the institutional budget, were counted, if they taught at all. That is, if an administrator, whose total salary was charged to the administrative budget, taught a three-credit course, he was counted as the appropriate fraction of a full-time-equivalent faculty member. This is necessary because the summaries in the study contain data on all classes taught, and the productivity of every person who teaches any class is included even though that person's salary may be charged to some budget item other than instruction. Similarly, staff members whose entire salary may be charged to research but who taught one or more classes, are counted into the full-time-equivalent teaching staff at the appropriate fraction of their full time.

Instructional salaries

The institutional and departmental instructional salary expenditures were obtained by summing the total salaries paid, from the instructional budget, to all members of the staff including department heads but excluding deans who perform no instructional duties. Specifically, it should be kept in mind that if a faculty member obtained all his salary from the instructional budget of the institution, this total amount was included regardless of how few or how many credit hours he taught, except that staff members who taught no classes were not included even though part or all of their salary was

derived from the instructional budget of the institution. In the case of personnel whose salaries are not charged to the instructional budget but who do some teaching, an appropriate fraction of their salary has been included in the instructional salary cost data in this study, as previously explained.

Scope of the Study

The purpose of this section is to delimit the study. The data in this study cover only college-level instructional programs maintained on the main campuses of the seven Utah state-supported institutions of higher education. Excluded from consideration in this study are extension and correspondence programs, instruction in military science, courses offered under the auspices of religious organizations, non-credit courses, and courses offered by the College of Medicine at the University of Utah.

Although studies of class size, teaching loads, and instructional salary costs per unit taught result in data which are useful in the understanding of instructional programs, they have very definite limitations. These data do not, for one thing, purport to indicate the quality of instruction, which is extremely difficult to determine objectively. Although small classes and light teaching loads are frequently viewed as indications of high quality instruction, these conditions do not guarantee high quality

instruction within an institution. In fact, some studies show that class size, per se, is not related significantly to student achievement of subject matter. True, given two institutions with an equally dedicated and equally competent faculty, one could deduce that the institution with smaller classes and lighter teaching loads would offer greater opportunity for increased attention to individual student development and learning. Nevertheless, many other modifying factors could determine the realization of this potential. This study does not pretend even to touch upon such intangibles.

In this study the subject-matter classifications used are broad, and the fact that two or more institutions are offering courses in the same subject-field should not be interpreted to mean that they are engaged in teaching identical courses or programs. To determine the extent of duplication accurately, one would have to make a comparative analysis of each course offered by the several institutions. No such attempt has been made in this study. These data, then, are not intended to constitute a study of duplication of work among institutions.

Like most colleges and universities in the United States, Utah institutions have courses and course titles that differ widely. The lack of uniformity of courses, course titles, and departmental organization proved to be a complication in this study. This handicap was particularly noticeable during an attempt to classify departments under the major

subject-fields used in this report. For example, a course that one institution offered in its department of business might be identical to a course that another institution offered in a department of secretarial science. These two departments were separate subject-fields in the tabulations of this report. Thus, for a correct picture of the complete business offering in any institution, the totals under the subject-fields of business and secretarial science in each of the tables must be combined. The same condition holds for the general area of home economics. In order to obtain a complete institutional offering, the subject-fields of child development and family living, clothing and textiles, foods and nutrition, and home economics must be combined. Although a few other subject areas may be similarly affected, generally the departmental classifications are sufficiently uniform to be useful.

Like most studies involving a number of institutions, each differing to some degree in purpose, programs, and size and scope of operations, the data presented in this study do not readily lend themselves to easy interpretations. The reader is cautioned to exercise care in drawing broad conclusions without further knowledge of actual conditions within the institutions. The writer believes that those best able to interpret and use these data are the deans, department heads, and faculty committees directly concerned with the management of instructional programs. This study seeks to provide, among other things, useful data for instructional

officers, thus aiding the participating institutions in offering to the people of the State of Utah instructional programs which are managed efficiently and operated economically.

This study represents only a partial application of the kinds of statistical analysis that can be made of instructional programs. For example, a further analysis which could be made is to compare the credit hours of courses actually taught during an academic year with the number of credit hours of courses listed in the catalog. Such a study could reveal considerable deadwood in catalog offerings and listings. Certainly, useful applications of these data could be found beyond the limited areas of concern in this study.

Although an attempt has been made to verify these data, the probability of error in such a large volume of information should be recognized. If any inaccuracies remain, however, it is believed that they are not of sufficient magnitude to change the general findings and interpretations. If subsequent similar studies are made the writer believes that they would no doubt result in improved accuracy of data and refinement of techniques and processes.

Procedure

As has been mentioned earlier, the writer, while a graduate student at Utah State University, was asked by Dr. H. Grant Vest to work as a research analyst for the Utah Coordinating Council of Higher Education. The possibility of

using some of the data to be collected as a source of material for a dissertation was advanced. At this time, the matter was discussed with the writer's graduate committee and agreement was reached that this proposed work would probably result in some very useful data for a thesis.

Very early in the deliberations of the Coordinating Council it was recognized that studies needed to be made concerning instructional programs in Utah institutions of higher education. In particular, the writer was asked to cooperate in a study to deal with class size, teaching loads, and instructional salary cost.

The kinds of information needed in this study and the forms and procedure necessary for obtaining it were developed through close cooperation among Dr. H. Grant Vest and Dr. E. A. Jacobson of the Coordinating Council, the writer, and the graduate committee. Pertinent suggestions were provided by all of these interested parties.

Two reporting forms were developed and identified by number as Form 1 and Form 2. The information called for on Form 1 for each class included: department in which taught, course number and title, section number, the instructional level of the course, name of the instructor, the number of credits for which the course was given, and the number of students enrolled in the class. On Form 2 was listed each instructor who taught any of the reported classes on Form 1 with an indication of his salary for the academic year and

the percentage of his time and salary chargeable to instruction. These two forms appear in the Appendixes of this study.

The presidents of each institution were provided with the two reporting forms. The responsibility for completing them was usually assigned to other appropriate persons at each institution. Generally, the data needed to complete Form 1 originated from the registrar's records and the salary data needed for Form 2 from the business or finance office.

Personal visits were made by the writer to each participating institution both years to meet with the persons completing the forms in order to clarify any questions that they encountered regarding the completion of them.

This survey involving the two reporting forms was made of college-level classes taught on the campuses of each state-supported collegiate institution of higher education during the 1959-60 regular academic year. Then, some refinements and slight modifications of the two forms and the listing of subject-areas were made as a result of the first year's experience. The complete survey was then done again for the following, or 1960-61, school year. All three quarters of both school years were included in this study.

Finally, the completed forms were processed under contract with the IBM Service at the University of Colorado. A summary and analysis of this large body of original data make up this present study. A total of some 10,064 classes and 908 full-time-equivalent faculty members were involved in the data

for the 1960-61 regular academic year with only a slightly lower total processed for the previous year.

The data were analyzed for each institution according to instructional levels (lower-division, upper-division, and graduate) and according to subject-matter areas. A chapter is devoted to answering each of the posed questions dealing with different phases of the instructional program.

A review of related literature makes up Chapter II. Chapter III discusses the scope of course offerings. The volume of teaching and instructional services to students are set forth in Chapter IV. Chapter V is devoted to the instructional staff. Consideration of class size is the concern of Chapter VI. A treatment of instructional productivity in Chapter VII is followed by an analysis of instructional salary costs in Chapter VIII. Finally, the study is summarized and conclusions are drawn in Chapter IX.

CHAPTER II

REVIEW OF RELATED LITERATURE

In response to the desire to place this study in its proper perspective, a survey of the literature on instructional programs and their costs was made. This review gave helpful suggestions for the formulation and designing of this study and assured it of making a unique contribution to the chosen area. The present chapter is the result of this survey. Those studies which included all three topics--class size, teaching load, and instructional salary costs--were surveyed first. Then, recent important studies and articles having to do with each of these three factors considered separately were reviewed.

Factors Affecting Instructional Costs Considered Collectively

Many of the terms and techniques involved in this present analysis of class size, teaching load and instructional salary costs are primarily attributable to Dr. John Dale Russell, Director of the Office of Institutional Research at New York University. He is the chief architect of this type of analysis and over a period of many years has developed, or helped to develop, many of the concepts and procedures involved. The writer's present study is modeled after reports

Russell made on the instructional programs in the institutions of higher education in New Mexico[1] and Michigan,[2] and the studies of Colorado colleges and universities[3] conducted by Dr. James I. Doi. The Colorado study has been prepared annually since 1955-56 but the New Mexico report has been prepared annually since the 1952-53 regular academic year. Many of the same techniques used in the above mentioned studies have also been applied in the analyses of instructional programs for the 1956 study of higher education in Florida,[4] the 1955 restudy of the needs of California higher education,[5] the 1959 study of Texas higher education[6] by the Texas

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[1]Board of Educational Finance, State of New Mexico, Analysis of Scope of Course Offerings, Class Size, Teaching Loads, and Instructional Salary Cost Per Student Credit Hour, New Mexico State Institutions (Santa Fe: Board of Educational Finance, State of New Mexico, 1953).

[2]John Dale Russell and others, Instructional Programs in Michigan Institutions of Higher Education (Lansing: The Survey of Higher Education in Michigan, 1958).

[3]James I. Doi, An Analysis of Class Size, Teaching Loads, and Instructional Salary Cost for the Regular Academic Year 1958-59 (Boulder: The Association of State-supported Institutions of Higher Education in Colorado, 1960).

[4]Council for the Study of Higher Education in Florida, Tabulation of Data Concerning Instructional Program in Florida Institutions of Higher Learning for the Academic Year 1953-54 (Gainesville: The Council for the Study of Higher Education in Florida, 1956).

[5]California State Department of Education, A Restudy of the Needs of California in Higher Education (Sacramento: California State Department of Education, 1955).

[6]Texas Commission on Higher Education, Report to the Honorable Price Daniel, Governor of Texas, and the Legislature of the State of Texas (Austin: The Texas Commission on Higher Education, 1958).

Commission on Higher Education, and others. The analyses of instructional programs made for the institutions of higher education in these states are mentioned because the resulting data were published. Institutions in a number of other states have made similar analyses, but, for the most part, the results have not been made available to persons outside of the institutions, except on a personal and confidential basis. Since the formation of the Utah Coordinating Council of Higher Education, Utah has joined the ranks of those states conducting and publishing an analysis of instructional programs in its state-supported collegiate institutions of higher education.[1]

A number of studied, then, are now under way on a continuous or periodic basis both statewide, as far as publicly supported institutions are concerned, and by individual institutions both publicly and privately supported. Some of these studies are conducted on a voluntary basis as a result of agreement among the publicly supported institutions of higher education. This had been the situation in Indiana. Several institutions have also made attempts to study instructional programs and their costs in specific subject-matter fields. The cost of medical education is one such area being studied on a pilot basis.

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[1]Coordinating Council of Higher Education, An Analysis of Class Size, Teaching Loads, and Instructional Salary Cost for the Regular Academic Year 1959-60 (Salt Lake City: Coordinating Council of Higher Education, 1960).

Individual universities and some colleges in increasing numbers are undertaking institutional research that includes a study of their instructional programs. The University of Illinois, the University of Minnesota, and Michigan State University are among those institutions which conduct fairly comprehensive studies of this type for internal use in planning. There appears to be a trend toward a more detailed study of the instructional program and the impact that faculty productivity has upon instructional costs in these studies even though most of them still involve statistical analyses of the several functions of the institution. Most of the institutions use these data in planning and budgetary development. Few, it seems, are actually using program or cost accounting as a part of their regular budgetary operation and accounting procedure.

In order to provide some details on the manner in which studies of class size, teaching load, and instructional salary costs generally have been conducted, it seemed wise to select a representative state, in addition to Utah which is covered in the writer's present study, and describe its analysis of instructional programs.

California was selected for this purpose since it has recently published a report of just such a study made there during the 1954-55 school year. This important and complex analysis was called the California-Western Conference Cost

and Statistical Study[1] and the report of the study was published in 1960.

All expenditures of each institution participating in this study were reported in order that they might be reconciled with annual financial reports. Three major areas of institutional activity, however, were analyzed in greater detail. These were: (1) administration, general expense and libraries; (2) instruction; and (3) operation and maintenance of the physical plant. The portion of the study which deals with instruction is similar to the writer's present study.

The instructional program data for the California study were reported in terms of the college or school and department in which the course was taught, the subject field of the course, levels of instruction, credit value and enrollment, type of instruction, the class hours per week and enrollment for each class or section of the course, and the instructor for each class or section. No detailed analysis was made of programs in medicine, nursing and public health.

A quick review of the forms used to accumulate data for the instructional phase of this study will serve to illustrate the procedure used and the type of information obtained.

The first form (L-1) was used for both instruction and physical plant analyses. Separate sets of these forms were

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[1]California and Western Conference, The California and Western Conference Cost and Statistical Study: 1954-55 (Berkeley: University of California Printing Department, 1960).

completed for each semester or quarter of the academic year. The data were separately reported for each campus of each institution, for each school or college within a campus, for each department and for each subject within a department. Every course taught during the academic year was reported; and for each course, the level of instruction, credit-value, enrollment, and number of classes or sections. The type of instruction, the class hours per week, the section enrollment, and the instructor or instructors were also reported on this form. The data from this first form were used to calculate student-credit-hours, student class hours per week, the distribution of classes by subject, average class sizes, and so forth. Note the similarity between this first California form and Form 1 of the present study. Form 1 involves considerably less detail.

The second form used in the California study (L-2) was used to distribute the time of each faculty member among his teaching and nonteaching activities and to report actual salary expenditure. Thus, an attempt was made to analyze and distribute time which is frequently budgeted or charged in total as a teaching cost. This meant a time distribution among actual teaching, departmental research, departmental administration, and public and professional services, as well as a distribution of time for activities usually budgeted separately, such as organized research or general administration.

A brief comparison of the second California form and Form 2 of the writer's present study can be made. The division of the faculty members' time among the various activities or services of the California institutions was based upon the judgment of the head of the department, school, or college to which the individual faculty member was assigned. It would seem possible that a department head might have difficulty in making this division of an individual's time. Certain activities such as teaching and departmental research could be so closely related that arbitrary decision might become necessary which, in turn, could tend to destroy the validity and usefulness of such time distribution. In the writer's present study, budget (salary) data were used to determine the fraction of full-time devoted to instruction to assure some uniformity within each institution. Most budget offices, as a regular procedure, carefully prorate a professor's salary among several functions. It was assumed that the budgetary proration was reasonably representative of the actual time devoted to each of the several budgeted functions.

Finally, departmental expenditures for purposes other than teaching salaries were reported in the California study on a third form (L-3). These included expenses for non-faculty wages, supplies, and expense. This form was also used to show the distribution of expenditures between the academic year and the summer session, and the distribution of the academic year expenditures among the levels of instruction in

the teaching program and among nonteaching functions of departmental research, departmental administration, and public and professional services.

As would be expected, the departmental expenditures reported for purposes other than teaching salaries were, in general, substantially less than those reported on Form L-2. However, there were significant variations because of the requirements of certain fields of discipline. Nonfaculty salaries and equipment purchases tended to be somewhat higher in scientific fields.

These three forms, then, were the basic ones used to accumulate information regarding the instructional program in the California study. The first two have their modified counterparts in the present study but the added detail and complexity of the third form was not attempted in Utah. The amount of data available from these three instructional forms used in California was tremendous. A complete tabulation of it was provided for each campus of each participating institution. The general report published in 1960 was relatively brief but was sufficient to indicate procedures and techniques used and the results which were obtained when such techniques were followed.

There was no agreement as to whether student-credit-hours or weekly student-class-hours were most appropriate in the California study. Both were used. Also, it might be pointed out that the California-Western Conference Study made

no attempt to evaluate quality.

In examining studies, similar to his own and to the one discussed above in California, that have been conducted in other states, the writer found that generally the details regarding their construction, procedures, and techniques were very much alike. Evidently they were all reflecting the early influence in this whole area of men like Dr. John Dale Russell.

The present study has relied upon the Colorado and Michigan studies for much of its organizational pattern and design; therefore, some brief consideration of these studies would seem applicable. Since most of the procedures and techniques used in the studies in these two states are similar to those used in the present study and to those just discussed in connection with the California-Western Cost and Statistical Study, more detail will not be given regarding their general construction. Instead, this section will confine itself to some statements regarding some of the findings of the Colorado and Michigan studies with respect to class size, teaching load, and instructional salary costs.

Michigan reported that their state-controlled institutions compared favorably with similar institutions in Colorado and New Mexico on the economy of their instructional programs, as measured by the size of classes.[1] The weighted average size of classes for all subjects and all levels of

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[1]Russell, p. 188.

instruction combined was found to be about 23 students in all three types of institutions studied--state-controlled, privately controlled, and community colleges. At the lower division level the state-controlled institutions had the largest average class size of about 28 students followed by the private institutions with about 27 and the community colleges with about 24. Again, at the upper division level, the state-controlled institutions had the largest average class size with about 22 students as compared with about 18 in the private institutions. The private institutions averaged about one more student per class at the graduate level with about 11 students per class as compared with 10. A few specific instances were pointed out in which the average class size was lower than it needed to be. A calculation was made to determine the number of additional students that might have been accommodated if all of the Michigan state-controlled institutions had maintained an average size of class as large as the average for the entire group. The calculation showed that more than 2,000 additional students might have been accommodated in the institutions of the state with the same instructional staff.

Very little difference was found in the average credit hours of teaching per term per faculty member in the various instructional levels in Michigan institutions.[1] Looking,

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[1] Ibid., p. 189.

then, at the average credit hour load of teaching per faculty member when all subjects and all levels of instruction were combined, the group of community colleges had the largest average teaching load with 13.3 credit hours per term. The average of 12.3 for the group of privately-controlled institutions was one credit hour less than in the group of community colleges. In the state-controlled institutions the average credit hour load was 10.4 or about two credits less than in the privately-controlled institutions and about three credits less than in the community colleges.

In the Michigan study the instructional salary expenditure for all subjects and all levels of instruction combined was found to be $12.87 in the state-controlled institutions, $7.57 in the privately-controlled institutions, and $8.98 in the community colleges.[1] The data of this study showed that, so far as instructional salary expenditure per student-credit-hour produced was concerned, there was very little difference between the average unit expenditure in the community colleges and the average for the degree-granting state-controlled institutions at the lower division level. The average unit costs were $8.98 per student-credit-hour in the community colleges compared with $9.16 in the state-controlled four year colleges and universities. They concluded that it was probable that programs of equal quality, administered with equal efficiency, would have about the same expenditure per

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[1] Ibid., p. 170.

per student-credit-hour in any kind of a publicly-controlled institution.[1] However, the lower division level costs in the privately-controlled institutions proved to be somewhat lower at $6.32 per student-credit-hour produced. This same condition was true at the upper division level where the average cost was $9.93 per student-credit-hour produced in the private institutions as compared with $14.36 in the state institutions. The graduate level cost was also computed for the state institutions. It was $38.25 per student-credit-hour produced. The private institutions evidently had no graduate programs.

Looking now at the Colorado studies, it was stated that their pattern of average class size was similar to that found in other institutions where this kind of study had been made.[2] There was a wide range in class size among the different subject-matter fields. In such areas as music and the classical languages the average class size tended to be small in every institution. In other subject-areas such as history and psychology, the average class size tended to be relatively large. The average size of class in small Colorado institutions, those with enrollments of less than a thousand students, generally ran smaller than in the larger institutions. The average size of lower division classes was larger than for either upper division or graduate classes. The average size of graduate classes was considerably smaller than either upper division or lower division undergraduate classes.

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[1] Ibid., p. 191.

[2] Doi, p. 14.

A review of the data collected in Colorado from 1955 to 1959 showed that several of the state-supported institutions had made substantial increases in their average class size. As a result of these increases, the range in average class size among the seven participating institutions was much smaller in 1958-59 than it was in 1955-56. In 1955-56, the averages for all levels combined ranged from 14.1 to 27.1; in 1958-59, the averages ranged from 18.5 to 25.5.

The average credit hour teaching load each term or semester per full-time-equivalent faculty member in each subject-field at each institution in Colorado during the regular academic year 1958-59 ranged from 7.9 to 15.9. Their report on teaching load concluded that in weighing the significance of differences in teaching loads among institutions and among the various subject-fields, one should also take into account several other factors such as level of instruction, administrative practices with respect to granting of credit for certain types of activity, the nature of the subject-matter taught, the amount of research and committee work expected of faculty members, and others.[1]

Instructional salary data in the Colorado studies demonstrated that at each of the institutions the average instructional salary cost per student-credit-hour produced tended to be considerably higher at the graduate level than at either of the two undergraduate levels, and the average

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[1]Ibid., p. 18.

unit cost at the lower division level was the lowest of the three levels. This same pattern reported here in Colorado institutions was noted in practically every other institution or state-wide study of instructional programs. These, then, are some of the findings taken from studies made in the states of Michigan and Colorado.

At this point, it might be appropriate to mention that apparently this present study of instructional programs in Utah, patterned after the analyses just reviewed, is the first study of its kind made on a state-wide basis in Utah. It should be stated, however, that the content of this study pertaining to the 1959-60 school year did appear in modified form in a Utah Coordinating Council of Higher Education publication.[1] The writer helped to gather, tabulate, and analyze the data used in the Council's earlier publication with the understanding that he could use it later for the purposes of this study.

Now that a review has been made of some of the major studies dealing collectively with the factors of class size, teaching load, and instructional salary costs, it might be desirable to look more closely at some studies pertaining to each of these major factors considered separately. There has been so much published about the various elements considered in this study that it was divided into the following sections

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[1]Coordinating Council of Higher Education, An Analysis of Class Size, Teaching Loads, and Instructional Salary Cost, 1960.

devoted to each, to review a limited number of the articles, studies, surveys, and other literature citations which are representative.

In making these reviews, the writer sought to locate all pertinent articles. Recourse was made to library sources including Psychological Abstracts and the Education Index throughout their more recent periods of publication. All articles pertinent to class size or teaching load or to instructional salary costs were followed up. Some of them proved useless for the purposes of this study and others were unavailable. However, such a large number of studies were examined that in the writer's opinion, further references would not alter the general findings.

Class Size

Two major factors appear to have the greatest impact upon instructional program costs--the size of the class and the teaching load. Or, stated another way, instructional costs are largely determined by the productivity of the faculty. The purpose of this present section is to review some representative studies from the literature which are concerned with the first of these two important factors, class size.

Class size analyses and attempts to objectively study this element of an instructional program are not particularly new insofar as institutions of higher education are concerned. One of the first factual investigations of instructional

programs was started in 1902 by the Committee on Improving Instruction in Harvard College and during the course of their efforts to acquire accurate and detailed knowledge of the methods and the efficiency of instruction they made the first recorded canvass of class size.[1]

A great deal of planning has been done in colleges and universities during recent years to meet the problems of increasing student enrollments. Generally, the planning has taken the form of provision for more classrooms, laboratories, office space, and other physical facilities. Of course, this attack on the problem is necessary but it is not sufficient. Of even more vital concern is the need for sufficient numbers of competent staff members to teach the increasing volume of students. As a consequence of this obvious nation-wide discrepancy between faculty supply and demand, the idea of finding ways to teach larger numbers of students without any corresponding loss of quality becomes a means of meeting this need for more college teachers. Such a course of action would produce immediate returns from the existing faculty supply. This may be one of the factors which accounts for the increasing interest during the past decade relative to experimental studies of teaching methods and class size.

Most of the studies of class size have investigated its effect on achievement. The general consensus of objective and

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[1]W. H. Cowley, "Two and a Half Centuries of Institutional Research," College Self Study Lectures on Institutional Research, ed. Richard G. Axt and Hall T. Sprague (Colorado: Western Interstate Commission for Higher Education, 1959), p. 6.

experimental studies reviewed is that size of class as such has little if any effect on the degree to which the student can acquire a knowledge of facts as measured by his performance on an objective examination.

Rohrer[1] reported an experiment performed at the University of Oklahoma in regard to large versus small sections in college classes. An attempt was made to evaluate objectively some measured changes in college students who completed a beginning course in American Government. The two experimental variables operating in this situation were size of class and lecture versus discussion method of presentation. Two criteria were used in the evaluation of the variables manipulated in this experiment: the students measured attitudes toward the difficulty of the course material and their interest in it, and the measured achievement of the students. It was pointed out in the report of this study that these criteria do not measure the only desired goals to which college course work may be directed, nor do they measure all the possible outcomes of higher education. However, the experimenters believed that they did measure those outcomes which are used by the majority of college instructors in evaluating the accomplishment of students in a course designed to serve as an introduction to a subject-matter area. Three instructors took part in this experiment. "A" had a large

[1]J. H. Rohrer, "Large and Small Sections in College Classes," Journal of Higher Education, XXVIII (May, 1957), 275-79.

and small class, "B" had a large and a small class, and "C" had two small classes--one devoted to lecture and the other devoted to discussion methods. Seven additional variables were either equated or controlled.

The most significant finding of this study was that the amount of achievement as measured by standardized tests, and the attitudes of students toward American Government, varied as a function of the course instructor and did not vary as a function of the size of class. This suggested that the differential skills and abilities of the instructors to present materials to large and to small classes was the critical variable. No statistically significant differences were observed between the small classes taught by the lecture or discussion methods but differences were revealed in the achievement of matched students when taught by different instructors. There was interaction between the teacher and the size of class on the felt difficulty of the course and the interest aroused in the course. These latter differences were interpreted as being a function of the instructor rather than the size of class.

Interpretations of the results of this experiment might take into consideration the characteristics of the course used. It was an introductory rather than an advanced course, and necessarily tended to require the students to learn general principles and processes rather than to require them to develop skill in manipulating these principles and processes.

Teaching efficiency and class size were investigated by Fordham College, New York City, during the 1956-57 regular academic year.[1] The project was directed by a committee of social science faculty members and was conducted in the social science curriculum. The stated objective was to learn whether a well-qualified teacher might not teach just as effectively in class sections considerably larger, even double, the traditional 30 students.

The experiment was conducted with college freshmen in Principles of Economics and with college sophomores in Introduction to American Government and Introductory Sociology. The students were in the middle range of ability and had in the past achieved academic ratings of high "C" or low "B."

Statistical examination of the data derived from the experiment supported its basic hypothesis that a large class with good quality students would equal the achievement of a small class with the same quality pupils. It was recognized that the Fordham project did not demonstrate irrefutably that increased class size was the solution for the expected "bulge" in college enrollment. As was pointed out, it was restricted to middle-range students, basic courses, social science curriculum, dynamic teachers, and the limitation of having been but a single trial run. It did, however, help to replace guess work with some limited knowledge.

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[1]J. R. Cammarosano and F. A. Santopolo, "Teaching Efficiency and Class Size," School and Society, LXXXVI (September, 1958), 338-41.

Perry[1] reported a teaching experiment in geography conducted at Miami University in Ohio. It was designed primarily to determine whether or not a professor can handle more students per class than at present without any loss in teaching effectiveness. The Department of Geography involved six sections of its beginning course, Essentials of Geography, in the study. Three of these were small "control" sections, limited to 30 students, which met for three one-hour periods per week. The other three sections were large "lecture" sections, limited to 125 students, which met for two one-hour lectures per week. For their third weekly meeting these large sections were divided into four "recitation" sections of approximately 35 students. Some of these recitation sections were taught by graduate teaching assistants, others by the lecturing professor.

Sophomore students were used in the experimental study, and their final examination results were the basis of comparison. Students of the small control groups were matched with those of the lecture groups on the following: (1) the results of Cooperative English and Mathematics Tests, both of which were given prior to entrance; (2) total score on the American Council on Education examination given after a few weeks on campus; (3) grade-point average for the first year; and (4) I.Q. Each of three professors taught one of these

[1]R. F. Perry, "Teaching Experiment in Geography," Journal of Geography, LVI (March, 1957), 133-35.

lecture groups and one of the control groups.

The following results were obtained on the final examination, which was the same for all students taking the course regardless of section or instructor:

	Average of All Control Sections	Average of All Lecture Sections
Students with high ability (upper 50 per cent of class)	81.59%	83.81%
Students with low ability (lower 50 per cent of class)	75.63%	76.11%
Total	78.54%	79.83%

Statistically, there was no significant difference between the examination results of the students in the large lecture groups and the students in the small control groups.

At the conclusion of the course, a questionnaire from each student was obtained to gain his or her attitude toward the course, the instructor, and the large versus small class. The results showed that:[1]

1. Although students did about as well in one section as they did in the other, they thought that they learned more in the small control sections.
2. The small classes were preferred by the majority of the students. They felt that there they had closer contact with the professor.
3. Attention in class as well as attendance was better in the small classes.
4. The professors engaged in the experiment were above average in teaching ability (student opinion, based on comparing these professors with their other professors).

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[1] Ibid., p. 135.

The three experimental studies reviewed above are typical of those found in the literature. Research in this area of class size has been extensively reviewed by others. Probably the most complete published summary on the subject is that of Henry J. Otto and Fred Von Borgersrode.[1]

These writers pointed out that the subject has had at least 267 separate treatments, one-half of which represented studies which had been semi-scientific or experimental in nature. There was some evidence, they noted, that teachers and pupils rather consistently preferred that to which they were accustomed, while administrators were willing to make a change. Of the 73 studies that attempted to measure effects on pupils and used objective evidence to check results, the outcomes were reported by Otto to favor the large groups 39.7 per cent of the time, neither large nor small 38.4 per cent of the time, and the small group in 21.9 per cent of the cases. Of the 24 controlled experiments, the results favored the large group in 50 per cent of the cases, neither in 29.2 per cent, and the small class in 20.8 per cent of the studies.

Continuing the above summary, bright pupils were shown to do better in large groups by five investigators, while five others indicated that they did better in small classes. Dull pupils did better in large classes according to one investigator, while three found no relationship, and eight found

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[1]Henry J. Otto and Fred Von Borgersrode, "Class Size," Encyclopedia of Educational Research (1950), pp. 212-15.

that they did better in small classes. Student attention was reported to be better in the large groups by seven investigators, with four neutral, and two favoring the small group in this respect. Discipline appeared to be more difficult in large groups in four of the experiments, while five were neutral, and one indicated that the small group produced greater disciplinary problems. Greater pupil self-reliance was claimed for the large groups in six of the studies, while no similar claims were registered for the small groups. Of the three studies which attempted to measure attitudes, one claimed a significant difference in favor of the small group. Conclusions of the summary were as follows:[1]

1. Great variation in class size exists and much of it is probably undesirable.
2. Under typical teaching procedures mere size of class has little significant influence on educational efficiency as judged by measurable pupil outcomes.
3. The weight of experimental evidence places the burden of proof squarely upon the proponents of small classes.
4. There is urgent need for scientific establishment of optimum class sizes in terms of the fundamental objectives of education. This may necessitate the establishment of several standards to fit varied conditions.
5. Future class-size research should be carefully planned to insure rigid experimental control, a limited field of attack, and specific rather than general objectives.
6. On the whole, statistical findings definitely favor the large classes at every level of instruction except the kindergarten.

Wilkinson,[2] of the Brigham Young University, recently

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[1] Ibid., p. 215.

[2] F. R. Wilkinson, "Class Size in Higher Education," Journal of Higher Education, XXIX (March, 1958), 149-57.

surveyed the published literature on class size and its effect on student achievement at the university or college level. The general consensus of objective and experimental studies, as reported by him, was that mere size of class as such has little if any effect on the degree to which the student can acquire a knowledge of facts as measured by his performance on an objective examination. In the final summary of his survey, Wilkinson concluded:[1]

> In summary, there seems to be no doubt that the size of the class has little if any effect upon student performance on objective-type examinations. Due to a lack of agreement, however, on just what objectives are to be met in various classes, there would seem to be no evidence that will justify the removal of all restraints from class size in all subjects. Most educators are in agreement, without evidence therefor, that there are a number of valuable intangibles that the student will fail to acquire in a large class and that these are the main objectives of education rather than the acquisition of facts. Probably this view comes from the prevailing beliefs with regard to the aims of education on the elementary-school level which are: to socialize the individual, to provide him with skills for living (not necessarily mental skills), and to provide a situation in which he may work out his conflicts and develop healthy attitudes toward life and his fellow men. Without suggesting anything about the foregoing as proper objectives of elementary-school education, we might profitably reconsider their relevance to the process of higher education. At any rate, judging by the actual practices of marking and such activities in the college and university setting, they are more or less pious matters of faith largely ignored in the processes of teaching and evaluating the student.
>
> I should like to suggest that the following outline be used in making a proper evaluation of the whole problem of class size and teaching method:
>
> 1. Establish an agreed-upon set of objectives for higher education.
> 2. Engage in extensive experimentation involving the manipulation of class size, teaching method,

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[1] Ibid., p. 154.

subject-matter, and teacher differences in such a way as to get at the interrelationships between all of these variables (viewed as dimensions rather than discrete all-or-none factors) to see what conditions or set of conditions best meet the objectives. (Of course, if the objectives should be stated exclusively in terms of the acquisition of facts, then much of the work has been done already).

3. Assess student achievement through a multiple battery of tests including objective, factual knowledge tests, personality inventories, attitude scales, special measuring devices to quantify the less tangible items of achievement such as ability to judge clearly and the critical attitude in thinking as related to the subject-matter, and so on.

4. Assess all the results in light of the economic and practical necessities of the particular university or college--the teacher load, degree of assistance available to the teacher, the proper role of the teacher in teaching, the attitudes of the teacher, the subject-matter, and others, before any final application of the results can be made to the actual practice of any given college or university.

Kidd[1] concluded that it appears futile to him to attempt to isolate and assess the merits of mere size. It seemed to him that those who raise the question of class size as a separate factor of significance in student gains were, at least subconsciously, aware of variations in method and procedure commonly associated with different class sizes and, instead of claiming that the advantages lay with certain of these different methods, had attempted to cloak the small class, per se, with magical properties. He stated that the magical properties may be there, but only because the small class permitted or induced a more favorable situation.

Kidd also believed that the issue of class size must be

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[1]John W. Kidd, "The Question of Class Size," The Journal of Higher Education, XXIII (November, 1952), 440-44.

settled on the basis of such factors as student-teacher ratio; teacher load including paper work and records; the desirability of student participation in class; the teacher's personal acquaintance with the students and its desirability; and research on teaching methods adaptable to various subjects and circumstances. His article concluded with these statements:[1]

> There has been much talk about the "intangibles;" proponents of the small class glibly claim that it tends to produce more or less remarkable pupil gains of a kind which cannot be measured, and often it appears, cannot be named. These claims are neither admitted nor denied at this point, but when, as is so often the case the advocates of small classes base their claims primarily upon these kinds of supposed advantages, they should realize the weak nature of their case.
>
> To the question previously stated--what are the differences on pupil outcomes in large and small classes which may be attributed to those differences which tend to accompany one or the other for the typical instructor--class situation--the answer seems to have been provided by the more than 200 studies which clearly reveal that there are no consistent differences.

Eurich[2] asked the question, "Is our choice deterioration with small classes through employment of a large number of inadequately prepared faculty members as against deterioration with large classes taught by only qualified faculty members?" To resolve this dilemma, he looked at the problem of class size historically, reviewed the existing evidence on the effectiveness of large classes, and finally pointed out the various modern means of communication that might

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[1] Ibid., p. 444.

[2] A. C. Eurich, "Better Instruction with Fewer Teachers," The Journal of Higher Education, XXVII (May, 1956), 239-44.

improve instruction. With reference to this last point:[1]

> The issue is no longer one of class size. In fact, the concept of class size is archaic. The issue instead is one of how the whole range of possibilities can be used to bring the best instruction to the student; independent study, individual instruction and counsel, laboratory work and practice, small class discussions, large class demonstrations and lectures, television with the ablest professors reaching thousands of students, and motion pictures which will bring the greatest teachers to successive generations of students.

Teaching Load

As has been mentioned earlier, two major factors appear to have the greatest impact upon instructional program costs--the size of the class and the teaching load. The purpose of this present section is to review some representative studies from the literature which are concerned with the second of these two important factors, teaching load.

The measure of teaching load used in this study is the number of credit hours of teaching per full-time-equivalent faculty member per quarter. This measure showed considerable variation among institutions reported in the literature. The largest average teaching load, as might have been anticipated, was reported in the junior colleges. In the liberal arts colleges and teachers colleges the averages tended to run from 12 to 15 credit hours per quarter per full-time faculty member. The average teaching load at university-type institutions and technical institutes tended to be somewhat lower than 12 credit hours per quarter in reported studies, perhaps because

[1] Ibid., p. 244.

of their larger volume of laboratory-type instruction and thesis supervision. Thus, the survey of the literature seemed to indicate that the role played by an institution determined in some measure what could be expected in terms of average credit hours of teaching per faculty member.

The data on loads presented in this study pertain only to class instruction and should be differentiated from data on "total service load." A good proportion of the literature reviewed pertained to total service load which ordinarily included time devoted to research, preparation for class work, student counseling, departmental and institutional committee work, community and public service and participation in professional organizations. Distinction should also be made between "contact hour load" and average credit hours of teaching. The contact hours, when reported, were the time an instructor spent in actual contact with students in a class meeting. In most lecture and recitation-type courses, the number of contact hours was equal to the number of credit hours but in laboratory-type courses, the number of contact hours was generally larger than the number of credit hours. Many of the studies which were reviewed, report contact hour load rather than credit hour load.

Liberty was taken by the writer, when appropriate, to adjust semester hours to quarter hours in reporting studies. This was done so that comparisons could be made between the literature and the Utah institutions of higher education

which operate on a quarter system.

In December 1955, a committee of the economics department of the University of Illinois undertook a study of typical teaching hour-loads in other institutions.[1] The study was confined to the following larger institutions, including particularly those offering substantial graduate programs in economics, but also a few which did not: Northwestern Michigan, Michigan State, Ohio State, Wisconsin, Minnesota, Indiana, Purdue, Yale, Harvard, Princeton, Columbia University Graduate Faculty, Columbia College of Columbia University, Pennsylvania, Cornell, New York University, Carnegie Institute of Technology, Duke, Virginia, Texas, Louisiana State, Stanford, California at Berkeley and at Los Angeles, plus Illinois itself. Several conclusions were made following the study.[2]

> 1. For the professorial rank, and to a somewhat lesser extent for that of associate professor, an 8- to 9-hour teaching load is the standard in a high percentage of the institutions covered. The 8-hour figure is found particularly in the schools using the quarter system, and in the case of faculty members teaching two undergraduate courses and one graduate course.
> 2. There is a definite tendency to place a somewhat higher hour-load on assistant professors, in large measure because of the greater percentage of repeated courses taught. Even at this rank, however, a majority of the institutions surveyed required a 10-hour load or less.
> 3. The most common teaching load of instructors is 12 hours. In most institutions this rank is now

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[1] J. F. Due, "Teaching Hour-load Assignments in Economics Departments in Larger Institutions," American Economic Review, XLVI (December, 1956), 970-71.

[2] Ibid., p. 971.

primarily a predoctoral rank, and in some is equivalent to the assistantship rank in other institutions. The usual teaching load for half-time assistants is 6 hours.

4. In many departments adjustments are made in certain circumstances. It is not uncommon for some professors to teach 6 hours when the typical load for this rank is 8 or 9 hours.

5. At least half of the institutions surveyed follow a policy of placing limited numbers of faculty members on part-time or full-time research for temporary periods. In some instances this policy is followed only if outside funds are available to cover the research portion of the time; in others this is not required. It is very rare for economics departments to make full-time permanent research appointments.

DeVinney[1] reported the results of a teacher-load survey in Pennsylvania institutions of higher education. This survey of English teachers was made by the Pennsylvania Council of Teachers of English for one of its service projects. There were 84 approved colleges and universities involved. Of this total, 14 were state-owned, 12 were state-aided, and 58 were independent. Only the bachelor's degree was offered by 46, 23 offered the first degree plus the master of arts or second professional degree, and 15 had offerings through the doctor of philosophy. There were also 12 junior colleges involved.

The questionnaire used in the study in Pennsylvania considered separately the fall and spring semesters of the academic year 1957-58, during which time the average work week of the full-time college English teacher was reported to be about 48 hours. He carried an average teaching load of about

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[1]R. N. DeVinney, "Pennsylvania Survey," College English, XXI (January, 1960), 227.

13 hours (the range here was from 8 to 18 hours) with an average student load of 108. An average of 15 hours per week was spent in preparation, 10 hours in evaluation of students, 5 hours in individual counseling, and 5 hours in service to the institution.

To discover practices in public junior colleges nationwide both in teaching load and in class size in English composition, a questionnaire survey was made by Laser.[1] The questionnaire was sent to the head of the English department in each of the 315 existing accredited public junior colleges in the continental United States listed in Bogue's American Junior Colleges. Responses were obtained from 127, or 40.3 per cent, of the colleges. The author stated that distribution both geographically and by size suggested that the data were fairly representative for all 315 schools.

Extremely wide variations in teaching loads were shown nationwide in this survey. Considering first the total teaching load of English teachers in public junior colleges (including literature or other courses as well as composition), the range for full-time teaching programs ran from a low of none to a high of 25 hours per week. By far the most typical load was 15 hours (found in 42.5 per cent of the colleges). Differences among small, medium-sized, and large colleges did not seem to be very significant with these exceptions:

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[1]Marvin Laser, "Teaching Load and Class Size in English Composition," Junior College Journal, XXV (January, 1955), 253-60.

among the smaller colleges almost 50 per cent exceeded the typical 15 hour load; and a load of less than 15 hours was more common in both small and medium-sized colleges than in large ones. A composition load of nine hours was the most typical in 29.9 per cent of the responding colleges. Only 18.1 per cent of the colleges assigned a lighter load to English teachers than to teachers of other subjects, and particularly was this so in the larger junior colleges.

In June 1956, Compton College conducted a telephone survey of junior colleges in California[1] to determine how its teaching loads and extra compensation salary schedule compared with those of other two-year institutions of higher education in the State. All 66 of the junior colleges in California were contacted.

Conversations indicated that junior colleges in the State of California were continuously attempting to improve teaching loads and extra-compensation salary schedules. In order to achieve this, many districts reported having resorted to elaborate formula techniques. However, almost invariably, the size of the district determined to a great degree the teacher-load formula, with the need for flexibility more apparent in the smaller districts. Even where a seemingly firm formula existed, there was a flexibility necessitated by class size fluctuations and other variables of which the

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[1]F. Davidoff, "Compton College Teaching Load Survey," Junior College Journal, XXVII (March, 1957), 377-80.

administrations reported they had to be constantly aware.

The normal hour load most frequently reported in lecture areas such as English, social studies, and psychology was 15 hours. A modal load in the fields of biological science, physical science, and other combination lecture-laboratory type courses was 20 hours.

The deans of the schools or colleges of education in seventeen large universities (California, Illinois, Indiana, Michigan, Minnesota, New York University, Ohio State, George Peabody, Pennsylvania State, Pennsylvania, Pittsburgh, Southern California, Syracuse, Teachers College-Columbia, Texas, Virginia, and Wisconsin) were invited to participate in a study of practices and procedures in regard to determination of the total service load of staff members. An article by Yeager[1] gave a summary of the findings.

There seemed to be no general pattern prevailing among the schools of education studied as to a reliable method of determining the total service load of staff members. In practice, the program of a staff member was generally determined in consultation with the head of the division and with the approval of the dean. In most schools of education the equitable distribution of the total service load of most staff members was found to rarely exist.

There was, however, a universal recognition of the

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[1]W. A. Yeager, "Total Service Load in Schools of Education," The Journal of Higher Education, XXVII (March, 1956), 150-55.

problem and a serious desire to do something about it. Based on this review of prevailing practice, Yeager[1] proposed that eight factors be given consideration in a technique he suggested as a means of determining the total service load of staff members. These eight factors included: teaching assignments (including off-campus assignments), student advisement, part-time administrative assignments, committee membership assignments, direction of research, participation in research, office routines, and community (public) and professional services. He further proposed that the total service load of each staff member should be predicated on a credit load of 15 semester-hours on the under-graduate level and 12 semester-hours on the graduate level. Using this credit load as a base, then credit allowance was recommended for certain of the eight factors appropriate in each case.

Reports on the class loads of faculty members have come to be routine procedure at Clark College, Vancouver, Washington. They have been prepared each term for the president by the instructional deans. Putting them down on paper has had these following reported advantages:[2]

1. The dean can tell the president concisely what appears to have happened once registration is over.
2. He can double-check for the inequities he has

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[1]W. A. Yeager, "Service Load of Faculty Members of Education," Educational Research Bulletin, XXXV (February, 1956), 39-46.

[2]L. D. Cannell, "Apportioning Straws to Camel's Backs," Junior College Journal, XXX (September, 1959), 3-5.

tried to guard against.

3. He can detect trends which might lead to future inequities.

4. He has a guide for shifts in assignment during the year.

5. He has a guide for the refinement of the time schedule.

6. He has a guide to increases in the number of sections in various courses and for increases in the staff for the following year.

7. He has a precise measure of educational output with which to support his budget.

A study of college teaching loads in Connecticut was undertaken by Wermuth[1] of Central Connecticut State College. He prepared a simple questionnaire which he mailed to the 16 accredited colleges in Connecticut. All the English department chairmen to whom he wrote replied. His reasons for making this study were stated as follows:[2]

> In the approaching enrollment situation, when ever-greater numbers of students are expected to swell class size, it is useful to know present teaching conditions in order to prepare for the future. Knowledge of present loads, before they get out of hand, offers some sort of comparative scale by which one may judge his own department; it may also supply ammunition with which to resist the encroachments that are sure to come if enrollment predictions are accurate.

The feeling that faculty load assignments were an important part of faculty morale was expressed by Ellison.[3]

> Assessment of faculty load assignments as fair and reasonable can very positively influence the morale of faculty

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[1]P. C. Wermuth, "College English Department Teaching Loads in Connecticut," College English, XXI (January, 1960), 222-26.

[2]Ibid., p. 226.

[3]A. Ellison, "Faculty Load in a School of Education," School and Society, LXXXVI (February, 1958), 87-89.

> members. Similarly, high general morale of a faculty operates to define as satisfactory that faculty load which exists, and low morale due to other causes can be revealed through a feeling that any amount of load is oppressive. Consequently it is extremely difficult to separate those facets of a professor's professional life which may stem directly from load factors.

The idea expressed was that a small load was a big load if you were not interested in what you were doing, felt underpaid, or frustrated in doing what you wanted most to do. Similarly, a big load did not necessarily feel oppressive if other factors were satisfactory.

This connection between teaching load and faculty morale was reinforced in another report by Mayer.[1]

> Among the many factors that constitute the working conditions of the academic teacher, probably none is more important in determining his morale and satisfaction than the factor of the teaching load.

In a report prepared for the Eastern Sociological Society's Committee on Salaries and Working Conditions of Sociology Teachers, the topic of teaching load was treated.[2] A detailed questionnaire had been mailed to the 418 members. Of the 418 mailed, 268 were returned. The basis of the findings reported in this article were 149 of the questionnaires.

The hours per week spent in classroom teaching by the 111 respondents who held no official administrative position

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[1] K. B. Mayer, Salaries and Working Conditions of Sociology Teachers, A Report Prepared for Eastern Sociological Society's Committee on Salaries and Working Conditions of Sociology Teachers, American Association of University Professors Bulletin, XLIII (March, 1957), 43-55.

[2] Ibid.

were reported in one table. The modal number clearly fell into the 10 to 12 hour category. Forty-three per cent of the respondents taught 10 to 12 hours per week and in practice this almost always meant 12 hours, the article indicated, because of the many marginal comments included on the questionnaires. The heaviest teaching loads, of 13 hours or more per week, were reported most frequently by instructors rather than by those with professorial rank; by teachers in publicly-supported four-year colleges rather than in universities, and by those who taught in institutions of less than 5,000 students rather than those in larger institutions.

In addition to the number of hours spent in the classroom, the size of the classes also constituted a major aspect of the investigation reported in this article. The number of students per teacher varied widely, from less than 20 to over 200, but more than half of the respondents (54 per cent) usually taught more than 100 students each term. The student load was inversely correlated with rank.

Besides the time spent directly in preparing and teaching a course the hours devoted to counseling and supervising students, as well as to committee and administrative work, were considered an integral part of the teaching load under investigation in this study. Of the 111 respondents without official administrative duties, 10 per cent reported 15 hours or more a week on these additional duties; 30 per cent 6 to 15 hours; and 51 per cent less than six hours. This load

weighed heavier on departmental chairmen and deans, of whom nearly one-half devoted upwards of 15 hours per week to administrative and supervisory duties. Fifteen of the chairmen got some teaching credit for these activities, but 23 others received no teaching credit.

Instructional Salary Costs

Cost analyses and attempts to develop unit costs are not particularly new insofar as institutions of higher education are concerned. There was some experimentation with unit cost study techniques before World War I. A number of articles on cost analyses were written in the twenties, and the financial reports of a few institutions at that time indicated costs per student. One of these first basic publications, that came to be used by most of the later writers on the subject, was written by Stevens and Elliott.[1]

Numerous attempts to measure instructional costs have been made during the past three decades or more. In 1932 the National Committee on Standard Reports for Institutions of Higher Education published a bulletin which discussed some methods used in conducting studies of unit costs.[2] In 1935,

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[1]Edwin B. Stevens and Edward C. Elliott, Unit Costs of Higher Education, Reviewed and Presented by the Educational Finance Inquiry Commission under the Auspices of the American Council on Education (New York: The Macmillan Co., 1925).

[2]National Committee on Standard Reports for Institutions of Higher Education, A Study of Methods Used in Unit Cost Studies in Higher Education, Bulletin No. 3 (Chicago: University of Chicago Press, 1932).

this same Committee published a volume which has come to be considered one of the classics in this area.[1] This volume contained a detailed plan for unit cost computations. The plan included a method of allocating overhead or indirect costs as well as a method for handling the analysis of direct instructional costs. The plan proposed that instructional costs be computed for departments on a student-credit-hour basis, for divisions on a student-credit-hour or a full-time student equivalent basis, and for the institutions as a whole on a full-time student equivalent basis. It was suggested that these costs be computed after there had been a distribution of faculty time based upon instruction, departmental administration, divisional administration, institutional administration, research, public services, and so forth. This proposed plan was quite comprehensive with costs analyzed by levels of instruction as well as by division and department. The following quotation from this reference points out some possible values of cost studies and some of the factors which determine costs.[2]

> If properly conducted, cost studies should be of value in the internal administration of educational institutions. The determination of costs may well be considered one of the first steps in a complete analysis of the administrative and financial practices within an

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[1]National Committee on Standard Reports for Institutions of Higher Education, Financial Reports for Colleges and Universities (Chicago: University of Chicago Press, 1935).

[2]Ibid., p. 177.

> institution. Variations in costs between departments of instruction, schools and colleges, curriculums, and levels of student achievement, or variations in costs for the institution as a whole over a period of years, should lead at once to further examination of the factors that determine cost. Chief among these factors are the following: size of enrollment, size of class, number of faculty members, teaching loads, salary schedule of faculty members, curricular offerings, and efficiency in the use of the facilities of the educational plant.
>
> Unit-cost studies, furthermore, may be of value in the determination of the rates of student fees, in the preparation of the budget, in educational surveys, in the accreditation of educational institutions and in the determination of desirable reorganization within an institution or within systems of higher education.

In 1938, the United States Office of Education published the results of a study based on the plan of cost computation proposed by the National Committee in their 1935 book.[1] Nine large universities participated in this study. Wide variations were found among institutions with respect to costs per student-credit-hour for the same subjects or fields of study. Attention was directed, in this study, to the need for caution in interpreting results and in attempting to compare one institution with another.

The U.S. Office of Education study revealed major differences in student-credit-hour costs among the different fields of study within the same institution. One part of the study, however, showed substantial uniformity with respect to student-credit-hour costs. This was the portion that demonstrated that for the institution as a whole, graduate level costs

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[1]John H. McNeely, University Unit Costs, U.S. Office of Education Bulletin No. 21 (Washington: U.S. Government Printing Office, 1938).

were the highest instructional costs followed by upper division and finally lower division costs. Also, the differences in costs per student-credit-hour between the lower division and graduate level ranged from approximately twice as large in one institution to approximately five times as large in another. This progressive increase in costs from one level to another was not necessarily true, however, for all individual fields of discipline.

It appeared from the literature that a widespread use of unit cost analysis had not taken place as a result of these early beginnings, but that farily recently there had been a marked resurgence of interest in cost study techniques in higher education. Perhaps, World War II accounted, in part, for the period during which unit cost studies were seemingly forgotten. Following the war, when the dollar began to shrink in value and a coming tidal wave of students was predicted, serious questions were again raised relative to the future support of higher education. About this time the Commission on Financing Higher Education published an impressive volume by John D. Millett.[1] It has chapters dealing with factors in educational costs and program analysis of educational costs. The Commission noted in this volume that faculty salaries are important as a cost factor, but that they are not necessarily the controlling factor in determining instructional costs.

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[1]John D. Millett, Financing Higher Education in the United States (New York: Columbia University Press, 1952).

It was pointed out that high salaries which go along with a relatively high student-faculty ratio and a fairly high teaching load can make for low instructional costs. Thus, faculty productivity was considered a major factor in determining the unit costs of instruction.

In 1954, the American Association of Colleges for Teacher Education, through its Studies and Standards Committee, sponsored a doctoral investigation into techniques for the study of unit costs in higher education.[1]

In the surveyed literature, there appears to be no middle ground in dealing with the study of unit costs in higher education. Those who favor the use of some form of unit cost analysis believe such procedures, whatever their weaknesses, to be necessary, sound, and helpful. Those who frown upon the techniques labeled them unnecessary, dangerous, and misleading.

A very recent article by Hull[2] dealt with pitfalls in the use of unit cost studies. It was pointed out that all cost-study data are quantitative and not qualitative in nature and that the quantitative measures of performance currently utilized are not accurate. Hull thought that the

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[1]Lowell H. Brammer, "A Technique for the Study of Unit Costs of Higher Education in Colleges for Teacher Education" (unpublished Doctor's dissertation, School of Education, Indiana University, 1954).

[2]L. E. Hull, "Pitfalls in the Use of Unit-cost Studies," The Journal of Higher Education, XXXII (October, 1961), 371-76.

use of cost studies might imply that cost was the most important aspect of the educational climate and that the nature of cost-study data might lead to faulty interpretations, misuses, and the establishment of improper relationships. He concluded that the availability of cost-study data might lead to abuses resulting from excessive zeal to reduce costs.

Based on his study, Brammer expressed the opposite view. He stated that the stress upon the financial aspects of college administration today highlights the need for unit cost studies to provide:[1]

> 1. A source of immediately available facts and figures concerning direct and indirect costs of instruction;
> 2. A sound and accurate basis for the preparation of budgets;
> 3. A basis for reviewing program costs and results in the light of institutional policies and objectives;
> 4. A basis for analyzing program changes with a view to justifying such action; and
> 5. A guide for long-range planning involving possible expansion or curtailment of programs, expenditure estimates based on predicted enrollments, and projected income estimates, together with anticipated sources of such income.

This same article discussed the value of unit costs. It considered the values for presidents, deans, program chairmen, and concluded with a section on the computation of unit costs.

Middlebrook[2] reported on a cooperative attack on the

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[1]L. H. Brammer, "Unit Costs in Teacher Education," The American Association of Colleges for Teacher Education, Eighth Yearbook of the American Association of Colleges for Teacher Education (Chicago, Ill.: American Association of Colleges for Teacher Education, 1955), pp. 47-59.

[2]W. T. Middlebrook, "Survey of Unit Costs in State Universities," Transactions and Proceedings of the National Association of State Universities in the United States of America (New York, N.Y.: 1955), pp. 79-83.

problem of university cost studies. In the late spring of 1953, President Sproul of the University of California met with the presidents of the Western Conference institutions in Chicago. Out of this meeting, as a result of a common airing of miseries on this problem of costs, emerged a study known as the California-Western Conference Cost and Statistical Study. The general plan of approach and details on how this study was conducted have already been reviewed earlier in this chapter. Certainly, this California study has been one of the most important recent efforts in a long series of efforts or attempts to study university costs.

CHAPTER III

SCOPE OF COURSE OFFERINGS

One important kind of data concerning the instructional program of an institution of higher education is the scope of the subject-matter offered. It gives an indication of the menu from which the student may choose his subjects for study.

Too wide a scope of subject-matter offering in an institution could result in the maintenance of classes for which there is relatively small demand. This, in turn, could cause a loss of efficiency in the instructional program by the use of faculty time and energy in the teaching of classes that are indefensibly small. Over-proliferation of course offerings is frequently characteristic of poorly managed instructional programs.

Measures of Scope of Offerings

The scope of subject-matter offerings is sometimes expressed in terms of the number of different departments in which instruction is given or in the number of courses offered in each subject and in the entire institution. These measures are not entirely satisfactory. There is no standard definition of a department and departments in different subject-matter fields differ greatly in the range of their content. Individual courses also differ in their credit value. Some

are given for as little as one credit while others may carry five or more credits. For these reasons, it seems desirable to measure the scope of course offerings in terms of hours of credit. As in all other cases throughout this study, the quarter-hour is used as the unit of credit value.

The measure for the scope of course offerings in a subject or in an entire institution is obtained by summing the number of quarter hours assigned each of the "different" courses offered. This measure, then, disregards duplicate sections of courses. Thus, a three-credit course in "English 10, Freshman Basic Communication," counts for just three credit hours in the scope of offerings, in the lower division of the subject-area of English, even though 30 sections of this course may have been taught in a given year. Similarly, if "Journalism 156, Principles of Advertising," was given in both the fall and the spring quarters, each time as a five-credit hour course, it counts for just five credits in the scope of offerings.

It might be helpful to the reader to think of the scope of course offerings as the total number of credits a student might accumulate, theoretically, if he took all of the different courses taught without repeating any course. As explained previously, the identification of "different" courses is by means of the numbers assigned them. Thus, a course listed as "English 163, Shakespeare" is counted as a different course from one listed in the same institution as

"English 164, Shakespeare."

Quarter Hours of Different Courses Taught

The 1 and 2 series of Tables summarize the data on quarter hours of different classes taught in the Utah institutions of higher education during the 1959-60 and 1960-61 regular academic years. These Tables give the totals for each institution included in the study at each instructional level, and the totals for all levels combined.

The scope of subject-matter taught in the academic year 1959-60 in the different institutions of higher education in Utah ranged from a low of 611 quarter hours at Dixie Junior College to a high of 6,663 quarter hours at the University of Utah. In the academic year 1960-61 the range was from 579 to 6,992 quarter hours and involved the same two institutions at the two extremes. The great variation in the scope of course offerings is shown graphically in Figure 1, page 86.

Some idea of the meaning of the data for scope of course offerings can be obtained by relating them to the fact that a full-time student normally completes 45 to 48 quarter hours of credit in an academic year. Thus, in 1960-61, at the institution having the smallest scope of course offerings, a student could remain in residence carrying a full program of studies for about 12 years without once repeating a course he had previously taken. At the University of Utah it would take about 150 years of full-time study to cover all the

TABLE 1. SCOPE OF SUBJECT-MATTER TAUGHT, ALL LEVELS COMBINED, EXPRESSED IN TERMS OF NUMBER OF QUARTER HOURS OF DIFFERENT COURSES, AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-1960

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		393			30	28	27
ANTHROPOLOGY	85				6		16
ARCHITECTURE	144	72				6	
ARTS & CRAFTS	190	140	35	33	35	36	101
AUTO MECHANICS		78	60		45	27	125
BACTERIOLOGY		35		5	5	5	12
BIOLOGY	98		17	10	5	5	18
BOTANY	50	64		10	15	15	15
BUSINESS	397	205	117	101	27	46	63
CHEMISTRY	170	149	36	25	30	45	62
C.D. & F.L.	24	68			27	8	45
CLOTHING & TEXTILES	49	49				20	
COSMETOLOGY							60
ECONOMICS	178	70	17	10	10	12	14
EDUCATION	315	182	4	2	3	49	11
ENGINEERING			12	1	29		55
AERONAUTICAL ENGR		88					
AGRICULTURAL ENGR		51					
CERAMIC ENGR	55						
CHEMICAL ENGR	85						
CIVIL ENGR	124	175				23	
ELECTRICAL ENGR	159	137	15	4		12	81
MECHANICAL ENGR	196	91					
METALLURGICAL ENGR	85						
MINING & GEOL ENGR	73						
TOOL ENGR		55				10	
ENGLISH	224	233	33	26	52	53	95
FOODS & NUTRITIONS	52	45				14	
FORESTRY		238			3	3	4
GEOGRAPHY	90	2			8		13
GEOLOGY	221	91	14	10	5	13	19
HEALTH EDUCATION	21	20	2	2	2		5
HISTORY	181	102	37	40	21	31	47
HOME ECONOMICS	43	43	27	41		1	
HONORS		6					
HUMANITIES	9					3	9
INDUSTRIAL ARTS EDUC		122		56	26	23	
JOURNALISM	87	44		10	9	3	
LANGUAGE	53	17					
ARABIC	15						
DUTCH	10						
FRENCH	102	51			24	15	15
GERMAN	99	47	24	15	24		25
GREEK	45						
ITALIAN	22						
JAPANESE	11						
LATIN	51						
PORTUGUESE	6						
RUSSIAN	34	39					
SCANDINAVIAN	10						
SPANISH	77	42		15		15	25
TURKISH	15						
LAW	160						
LIBRARY SCIENCE	26	27					
MATHEMATICS	246	108	34	32	38	36	85
MEDICAL TECHNOLOGY		49					
MUSIC	173	116	21	49	22	30	40
NURSING	188		30				43
PHARMACY	144						
PHILOSOPHY	109		10				17
PHYSICAL EDUCATION	268	183	39	17	37	45	32
PHYSICAL SCIENCE			9		10	12	9
PHYSICS	366	121	15	25	30	20	47
PHYSIOLOGY		47	5	5	5	5	5
POLITICAL SCIENCE	160	89	14	13	11	25	25
PSYCHOLOGY	193	99	11	5	12	14	23
SECRETARIAL SCIENCE		69			39	41	43
SOCIAL STUDIES	85	49				5	9
SOCIOLOGY	134	59	13	10	8	15	27
SPEECH & DRAMA	231	181	27	27	36	23	36
VETERINARY SCIENCE		14				5	
VOCATIONAL-TECHNICAL	98		72				216
WELDING		42	30		9	10	4
ZOOLOGY	127	145	20	12	16	15	25
TOTAL	6,663	4,640	802	611	715	822	1,648

TABLE 1A. SCOPE OF SUBJECT-MATTER TAUGHT, EXPRESSED IN TERMS OF NUMBER OF QUARTER HOURS OF DIFFERENT COURSES[1] AT EACH ACADEMIC LEVEL AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-1960.

	Lower Division Undergraduate							Upper Division Undergraduate							Graduate	
	University of Utah	Utah State University	Carbon College	Dixie College	Snow College	College of Southern Utah	Weber College	University of Utah	Utah State University	Carbon College	Dixie College	Snow College	College of Southern Utah	Weber College	University of Utah	Utah State University
AGRICULTURE		61			30	28	27		216							116
ANTHROPOLOGY	16				6		16	41							28	
ARCHITECTURE	43	26				6		101	41							5
ARTS & CRAFTS	52	63	35	33	35	33	101	93	67				3		45	10
AUTO MECHANICS		57	60		45	25	125		21							
BACTERIOLOGY		11		5	5	5	12		10							14
BIOLOGY	24		17	10	5		18	69							5	
BOTANY	10	20		10	15	15	15	38	31						2	13
BUSINESS	50	31	117	101	27	66	63	249	146						98	28
CHEMISTRY	43	43	36	25	30	45	62	65	52						62	54
C.D. & F.L.	10	13			27	8	45	14	39							16
CLOTHING & TEXTILES	8	19				20		41	30							
COSMETOLOGY							60									
ECONOMICS	29	10	17	10	10	12	14	96	53						53	7
EDUCATION	10	2	4	2	3	3	11	148	96				46		157	84
ENGINEERING			12	1	29		55									
AERONAUTICAL ENGR		55							33							
AGRICULTURAL ENGR		9							33							9
CERAMIC ENGR	2							42							11	
CHEMICAL ENGR	8							49							28	
CIVIL ENGR	15	20				19		82	107				4		28	48
ELECTRICAL ENGR	16	17	15	4		12	81	106	69						44	31
MECHANICAL ENGR	3	21						131	70						63	
METALLURGICAL ENGR								83							3	
MINING & GEOL ENGR	6							44							23	
TOOL ENGR		16				10			39							
ENGLISH	61	81	33	26	52	49	95	130	120				4		33	32
FOODS & NUTRITIONS	11	14				14		41	19							12
FORESTRY		4			3	3	4		164							70
GEOGRAPHY	17		2		9		13	50							23	
GEOLOGY	32	16	14	10	5	13	19	116	51						73	24
HEALTH EDUCATION	8	7	2	2	2		5	8	11						5	2
HISTORY	54	45	37	40	21	28	47	108	43				3		19	14
HOME ECONOMICS	9	4	27	41		1		35	30							9
HONORS									6							
HUMANITIES	9					3	9									
INDUSTRIAL ARTS EDUC.		33		56	26	23			71							18
JOURNALISM	18	25		10	9	3		40	19						29	
LANGUAGE	19	8						34	9							
ARABIC	15															
DUTCH								10								
FRENCH	27	30			24	15	15	72	21						3	
GERMAN	37	30	24	15	24		25	60	17						2	
GREEK	10							35								
ITALIAN	20							2								
JAPANESE	11															
LATIN	25							25							1	
PORTUGUESE								6								
RUSSIAN	25	30						9								
SCANDINAVIAN								10								
SPANISH	27	30		15		15	25	50	12							
TURKISH	15															
LAW								34							127	
LIBRARY SCIENCE	2	5						15	23						9	
MATHEMATICS	47	48	34	32	33	31	85	129	47			5	5		70	13
MEDICAL TECHNOLOGY									49							
MUSIC	57	39	21	49	22	27	40	62	71				3		54	6
NURSING	34		30				43	107							47	
PHARMACY	4							104							36	
PHILOSOPHY	29		10				17	76							4	
PHYSICAL EDUCATION	88	81	39	17	37	42	32	126	85				3		54	17
PHYSICAL SCIENCE			9		10	12	6									
PHYSICS	43	43	15	25	30	20	47	194	59						129	19
PHYSIOLOGY		8	5	5	5	5	5		28							11
POLITICAL SCIENCE	24	22	14	13	11	13	25	108	53				12		28	14
PSYCHOLOGY	12	10	11	5	12	5	23	80	44				9		101	45
SECRETARIAL SCIENCE		43			39	41	43		26							
SOCIAL STUDIES		17				2	6		27				3		85	5
SOCIOLOGY	20	16	13	10	8	10	27	97	36				3		17	7
SPEECH & DRAMA	83	62	27	27	36	20	36	115	98				3		33	21
VETERINARY SCIENCE		5				5			7							2
VOCATIONAL-TECHNICAL			72				216	30							68	
WELDING		27	30		9	10	4		15							
ZOOLOGY	29	22	20	12	16	10	25	93	91				5		5	32
TOTALS 1959-1960	1,261	1,299	802	611	710	714	1,648	3,703	2,524			5	108		1,705	808

TABLE 2. SCOPE OF SUBJECT-MATTER TAUGHT, ALL LEVELS COMBINED, EXPRESSED IN TERMS OF NUMBER OF QUARTER HOURS OF DIFFERENT COURSES, AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		310	13		17	43	35
AGRI ECONOMICS		43			9	9	
ANTHROPOLOGY	85		5				14
APPLIED ARTS		84					4
ARCHITECTURE	160						
ARTS & CRAFTS	202	105	39	27	41	27	88
BACTERIOLOGY		41	5		5	5	12
BIOLOGY	116		13	20	5	5	17
BOTANY	52	85	5	10	15	15	23
BUSINESS	340	212	41	51	30	46	64
CHEMISTRY	181	130	28	30	41	45	50
C.D. & F.L.	17	75				26	
CLOTHING & TEXTILES	39	45					
ECONOMICS	186	76	20	5	10	10	14
EDUCATION	226	249	3	2	3	55	9
EDUCATIONAL PSYCHOLOGY	108	35					26
AGRICULTURAL ENGR		52					
CERAMIC ENGINEERING	59						
CHEMICAL ENGINEERING	89						
CIVIL ENGINEERING	155	188				23	
ELECTRICAL ENGR	161	137		4		12	
FUEL ENGINEERING	47						
GENERAL ENGINEERING			12	6			36
MECHANICAL ENGR	207	176					
METALLURGICAL ENGR	135						
MINING & GEOLOGICAL	165						
ENGLISH	249	256	27	35	43	61	100
FOODS & NUTRITION	56	60				14	
FORESTRY		265			3	5	4
GENERAL PSYCHOLOGY	212	86	16	5	10	14	
GENERAL SCIENCE	8					8	9
GEOGRAPHY	97		3		9		13
GEOLOGY	275	94	18	10	8	16	13
HEALTH EDUCATION	22	69		4	2		5
HISTORY	163	113	33	38	21	42	49
HOME ECONOMICS	27		33	38	34		42
INDUSTRIAL ARTS				16	25		2
JOURNALISM	72	46	12		6	9	
LANGUAGE	307	61					
FRENCH	107	45	15		24	20	25
GERMAN	105	52	30	15	23		30
SPANISH	96	45	15	24	3	25	27
LAW	157						
LIBRARY SCIENCE	49	22					
MATH & STATISTICS	236	170	34	31	35	36	90
MUSIC	171	122	31	34	22	38	34
NURSING	192		45				66
PHARMACY	164						
PHILOSOPHY	81		7				14
PHYSICAL EDUCATION	285	162	39	16	36	42	34
PHYSICS	201	111	18	35	38	19	52
PHYSIOLOGY		49			5	5	5
POLITICAL SCIENCE	164	91	16	10	11	28	28
SECRETARIAL SCIENCE	71	58	66	29	44	37	71
SOCIAL SCIENCE		14					9
SOCIAL WORK	120	35					
SOCIOLOGY	140	60	11	10	8	23	24
SPEECH & DRAMA	291	192	15	30	43	35	34
TRADE TECHNOLOGY		325	145	24	128	85	573
ZOOLOGY	134	158	15	20	15	24	25
UNCLASSIFIED	10	4	1		3	6	4
TOTAL	6992	4808	829	579	775	913	1774

TABLE 2A. SCOPE OF SUBJECT-MATTER TAUGHT, EXPRESSED IN TERMS OF NUMBER OF QUARTER HOURS OF DIFFERENT COURSES, LOWER DIVISION UNDERGRADUATE, AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		61	13		17	39	35
AGRI ECONOMICS		6			9	9	
ANTHROPOLOGY	13		5				14
APPLIED ARTS		31					4
ARCHITECTURE	38						
ARTS & CRAFTS	60	39	39	27	41	24	88
BACTERIOLOGY		16	5		5	5	12
BIOLOGY	28		13	20	5	5	17
BOTANY	15	20	5	10	15	15	23
BUSINESS	21	36	41	51	30	46	64
CHEMISTRY	46	33	28	30	41	30	50
C.D. & F.L.	10	11				26	
CLOTHING & TEXTILES	8	18					
ECONOMICS	24	10	20	5	10	10	14
EDUCATION	8	5	3	2	3	3	9
EDUCATIONAL PSYCHOLOGY	4						26
AGRICULTURAL ENGR		9					
CERAMIC ENGINEERING	2						
CHEMICAL ENGINEERING	11						
CIVIL ENGINEERING	15	16				19	
ELECTRICAL ENGR	10	16		4		12	
FUEL ENGINEERING							36
GENERAL ENGINEERING			12	6			
MECHANICAL ENGR	3	38					
METALLURGICAL ENGR							
MINING & GEOLOGICAL	26						
ENGLISH	73	93	27	35	43	25	100
FOODS & NUTRITION	11	14				14	
FORESTRY		6			3	5	4
GENERAL PSYCHOLOGY	12	10	16	5	10	5	
GENERAL SCIENCE	4					8	9
GEOGRAPHY	12		3		9		13
GEOLOGY	16	15	18	10	8	16	13
HEALTH EDUCATION	8	5		4	2		5
HISTORY	39	45	33	38	21	42	49
HOME ECONOMICS	6		33	38	34		42
INDUSTRIAL ARTS				16	25		2
JOURNALISM	18	19	12		6	9	
LANGUAGE	91	43					
FRENCH	27	30	15		24	20	25
GERMAN	37	30	30	15	23		30
SPANISH	26	30	15	24	3	25	27
LAW							
LIBRARY SCIENCE	2	3					
MATH & STATISTICS	40	49	34	31	35	31	90
MUSIC	58	41	31	34	22	35	34
NURSING	35		45				66
PHARMACY	4						
PHILOSOPHY	39		7				14
PHYSICAL EDUCATION	87	75	39	16	36	38	34
PHYSICS	35	34	18	35	38	19	52
PHYSIOLOGY		13			5	5	5
POLITICAL SCIENCE	19	16	16	10	11	13	28
SECRETARIAL SCIENCE	26	27	66	29	44	37	71
SOCIAL SCIENCE		14					9
SOCIAL WORK		3					
SOCIOLOGY	20	16	11	10	8	18	24
SPEECH & DRAMA	94	67	15	30	43	29	34
TRADE TECHNOLOGY		175	145	24	128	85	573
ZOOLOGY	24	20	15	20	15	10	25
UNCLASSIFIED	10		1		3	6	4
TOTAL	1215	1258	829	579	775	738	1774

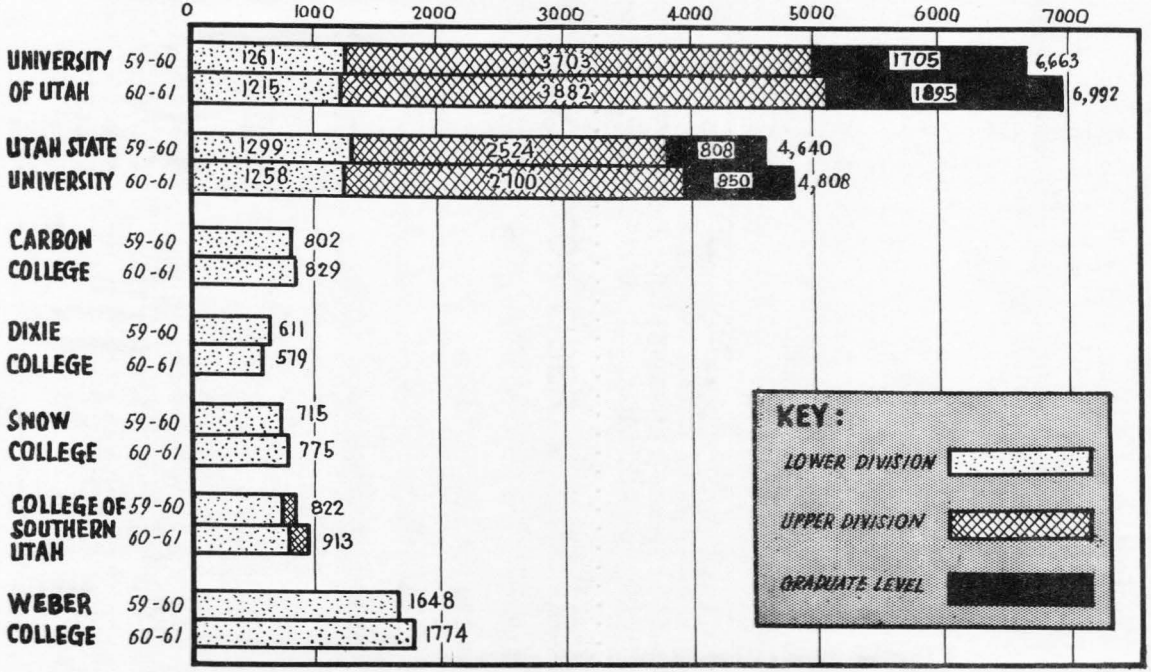
TABLE 28. SCOPE OF SUBJECT-MATTER TAUGHT, EXPRESSED IN TERMS OF NUMBER OF QUARTER HOURS OF DIFFERENT COURSES, UPPER DIVISION UNDERGRADUATE, AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		186				4	
AGRI ECONOMICS		16					
ANTHROPOLOGY	42						
APPLIED ARTS		53					
ARCHITECTURE	122						
ARTS & CRAFTS	89	56				3	
BACTERIOLOGY		19					
BIOLOGY	73						
BOTANY	30	38					
BUSINESS	212	142					
CHEMISTRY	65	52				15	
C.D. & F.L.	7	59					
CLOTHING & TEXTILES	31	14					
ECONOMICS	102	60					
EDUCATION	101	140				52	
EDUCATIONAL PSYCHOLOGY	23	20					
AGRICULTURAL ENGR		35					
CERAMIC ENGINEERING	41						
CHEMICAL ENGINEERING	49						
CIVIL ENGINEERING	82	107				4	
ELECTRICAL ENGR	104	89					
FUEL ENGINEERING	33						
GENERAL ENGINEERING							
MECHANICAL ENGR	129	123					
METALLURGICAL ENGR	80						
MINING & GEOLOGICAL	90						
ENGLISH	145	128				36	
FOODS & NUTRITION	38	31					
FORESTRY		201					
GENERAL PSYCHOLOGY	81	27				9	
GENERAL SCIENCE	4						
GEOGRAPHY	62						
GEOLOGY	171	54					
HEALTH EDUCATION	7	63					
HISTORY	107	58					
HOME ECONOMICS	21						
INDUSTRIAL ARTS							
JOURNALISM	45	27					
LANGUAGE	211	18					
FRENCH	76	15					
GERMAN	63	22					
SPANISH	70	15					
LAW	35						
LIBRARY SCIENCE	29	19					
MATH & STATISTICS	125	94				5	
MUSIC	63	69				3	
NURSING	109						
PHARMACY	108						
PHILOSOPHY	42						
PHYSICAL EDUCATION	149	75				4	
PHYSICS	93	44					
PHYSIOLOGY		28					
POLITICAL SCIENCE	118	63				15	
SECRETARIAL SCIENCE	38	31					
SOCIAL SCIENCE							
SOCIAL WORK		26					
SOCIOLOGY	99	36				5	
SPEECH & DRAMA	165	108				6	
TRADE TECHNOLOGY		134					
ZOOLOGY	103	101				14	
UNCLASSIFIED		4					
TOTAL	3882	2700				175	

TABLE 20. SCOPE OF SUBJECT-MATTER TAUGHT, EXPRESSED IN TERMS OF NUMBER OF QUARTER HOURS OF DIFFERENT COURSES, GRADUATE LEVEL, AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		63					
AGRI ECONOMICS		21					
ANTHROPOLOGY	30						
APPLIED ARTS							
ARCHITECTURE							
ARTS & CRAFTS	53	10					
BACTERIOLOGY		6					
BIOLOGY	15						
BOTANY	7	27					
BUSINESS	107	34					
CHEMISTRY	70	45					
C.D. & F.L.		5					
CLOTHING & TEXTILES		13					
ECONOMICS	60	6					
EDUCATION	117	104					
EDUCATIONAL PSYCHOLOGY	81	15					
AGRICULTURAL ENGR		8					
CERAMIC ENGINEERING	16						
CHEMICAL ENGINEERING	29						
CIVIL ENGINEERING	58	65					
ELECTRICAL ENGR	47	32					
FUEL ENGINEERING	14						
GENERAL ENGINEERING							
MECHANICAL ENGR	75	15					
METALLURGICAL ENGR	55						
MINING & GEOLOGICAL	49						
ENGLISH	31	35					
FOODS & NUTRITION	7	15					
FORESTRY		58					
GENERAL PSYCHOLOGY	119	49					
GENERAL SCIENCE							
GEOGRAPHY	23						
GEOLOGY	88	25					
HEALTH EDUCATION	7	1					
HISTORY	17	10					
HOME ECONOMICS							
INDUSTRIAL ARTS							
JOURNALISM	9						
LANGUAGE	5						
FRENCH	4						
GERMAN	5						
SPANISH							
LAW	122						
LIBRARY SCIENCE	18						
MATH & STATISTICS	71	27					
MUSIC	50	12					
NURSING	48						
PHARMACY	52						
PHILOSOPHY							
PHYSICAL EDUCATION	49	12					
PHYSICS	73	33					
PHYSIOLOGY		8					
POLITICAL SCIENCE	27	12					
SECRETARIAL SCIENCE	7						
SOCIAL SCIENCE							
SOCIAL WORK	120	6					
SOCIOLOGY	21	8					
SPEECH & DRAMA	32	17					
TRADE TECHNOLOGY		16					
ZOOLOGY	7	37					
UNCLASSIFIED							
TOTAL	1895	850					

FIGURE 1, **SCOPE OF SUBJECT MATTER OFFERED IN THE STATE-SUPPORTED INSTITUTIONS IN UTAH EXPRESSED IN TERMS OF QUARTER HOURS OF DIFFERENT COURSES TAUGHT DURING REGULAR ACADEMIC YEARS, 1959-60 AND 1960-61.**



courses offered in the academic year 1960-61 in the subjects included in this analysis.

It is of particular interest to note changes from 1959-60 to 1960-61 in the extent of offering as indicated in total quarter credit hours. These changes are shown in Table 3.

It should be noted that both universities decreased in the number of lower division credit hours of different courses taught and increased in the upper division and graduate offerings. All Utah institutions, with the exception of Dixie Junior College, showed increased curricular offerings during the two-year period. Some of the greatest increases percentagewise appeared in the lower division at Snow College, the upper division at the College of Southern Utah, and in the graduate curriculum at the University of Utah.

Lower division programs

A wide range in the scope of lower division offerings was noted among the institutions listed in the Tables 1A and 2A. Some of the junior colleges offered fewer than 800 quarter hours of different courses at the lower division level, while the two universities offered more than 1,200 quarter hours of different courses that were open to freshmen or sophomores.

It is generally agreed among educators that students expecting to take the bachelor's degree should, in their first

Table 3. Quarter credit hours of different courses taught

Institution	Scope of subject matter taught			
	Lower division	Upper division	Graduate	Total
University of Utah				
1959-60	1,261	3,703	1,705	6,669
1960-61	1,215	3,882	1,895	6,992
Per cent change	-3.6	4.8	11.1	4.8
Utah State University				
1959-60	1,299	2,524	808	4,631
1960-61	1,258	2,700	850	4,808
Per cent change	-3.2	7.0	5.2	3.8
Coll. of So. Utah				
1959-60	714	108		822
1960-61	738	175		913
Per cent change	3.4	62.0		11.0
Weber College				
1959-60	1,648			1,648
1960-61	1,774			1,774
Per cent change	7.6			7.6
Carbon College				
1959-60	802			802
1960-61	829			829
Per cent change	3.4			3.4
Snow College				
1959-60	710	5		715
1960-61	775			775
Per cent change	9.1			8.4
Dixie College				
1959-60	611			611
1960-61	579			579
Per cent change	-5.2			-5.2
All Institutions[a]				
1959-60	7,045	6,340	2,513	15,898
1960-61	7,168	6,757	2,745	16,670
Per cent change	1.7	6.6	9.2	4.9

[a]These totals are significant only for comparative purposes. They are in no sense indicative of the total breadth of offering in the state.

two years of college, take principally courses that are broad in nature and that are designed to provide a good general education. Such courses will be much the same for all students regardless of their ultimate goals for specialization in the bachelor's degree program. Under such a plan the institution does not need to offer a wide range of subject-matter courses that are open to lower division students.

Two kinds of exceptions may be stated to the generalization that students need only a limited range of subject-matter in their freshman and sophomore years. In certain professional fields the program of specialization begins at the lower division level. This is true of such fields as engineering, agriculture, home economics, business administration, music, nursing, and pharmacy. The curriculum in such fields is in rather sharp contrast to that in most other professional fields, such as medicine, law, theology, social work, and education, where students are usually expected to have had two years or more of a broad, general education, sometimes with a limited orientation to the professional field, before entering upon specialized studies at the upper division or post-baccalaureate level. To the extent that a university offers curricula in preparation for professions in which specialization is encouraged in the freshman and sophomore years, the institution may be justified in offering a larger number of lower division courses than would otherwise be necessary.

A second exception to the generalization that students need to be exposed to only a limited range of subject-matter in their freshmen and sophomore years is found in the case of the so-called terminal occupational curriculums. In these programs of study the complete preparation for an occupation is provided in curriculums of less than bachelor's degree length, involving usually only one or two years of study. Examples of such curriculums are those preparing office secretaries, beauty parlor operators, automobile mechanics, draftsmen, and printers. The curriculums for preparation for such occupations must include a minimum of general education subjects, but they must also provide the specialized preparation necessary for effective performance in the occupation. To the extent that such curriculums are offered, an institution may be expected to have a larger than usual scope of offerings at the lower division level. This sort of an exception applies particularly to Weber College and, to a more limited degree, to some of the other state institutions.

In some of the institutions and subject-areas for which data are shown in the 1 and 2 series of Tables, the specialized nature of the professional and occupational curriculums offered may justify the extent of the courses available to lower division students. In several of the institutions and some of the subject-fields, however, such a justification cannot be made. It would seem advisable for the faculties in some of the areas to review their course offerings, to see if

too many courses are open to lower division students. Perhaps the situation could be met in many cases by reclassifying a number of courses, and by moving some of the more specialized offerings to the upper division level rather than listing them with lower division course numbers. It is probable that such a reclassification would encourage freshman and sophomore students to spend their efforts more wisely on broad, general courses, rather than on highly specialized courses that are more appropriate to a later stage in the students' academic development.

Upper division programs

At the upper division level of the undergraduate program, the University of Utah led in the number of quarter hours of different courses offered. Both the University of Utah and Utah State University offered a relatively wide scope of courses at the upper division level. In both institutions, the scope of course offerings at the upper division undergraduate level was much larger than that at the lower division level.

For many of the subject-fields listed in this study, the data were too gross to measure satisfactorily the real scope of courses taught in a subject-field major in the upper division program. For example, "business" was not, at several of the larger Utah institutions, one major. It represented a general area consisting of such specialized fields as accounting, banking and finance, management, marketing, and others.

"Education," as another example, had within it such specialized fields as elementary education, secondary education, school administration, curriculum, and so on. Thus, education was not a single major but rather a combination of many majors.

Although an analysis of the kind attempted in the 1 and 2 series of Tables was not sufficiently accurate to clearly identify the existence of course proliferation in a given subject-field major, the rate of increase in the scope of courses taught in certain areas between the two years suggested the possibility of overly rapid expansion.

As a group, the seven Utah institutions offered 772 more quarter credit hours of different courses in 1960-61 than they did in 1959-60. The greatest increase in actual number of credit hours took place at the upper division level although, the greatest increase on a percentage basis took place at the graduate level.

Graduate-level programs

Tables 1A and 2C show that the only opportunity for graduate study in the state-supported institutions of higher education is at the University of Utah or at Utah State University. The scope of graduate course offerings at the University of Utah was about twice the size of that at Utah State University. At the University of Utah the total quarter hours of different courses taught at the graduate

level both years was greater than the total at the lower division undergraduate level.

Instruction at the graduate level is, by its very nature, highly specialized. Any institution that undertakes to offer a graduate program, particularly at the doctor's level or in an substantial range of subjects for the master's degree, must of necessity offer a large number of courses at this level of study. Although the dispersion of a relatively small number of graduate students among a large number of highly specialized graduate courses inevitably means a small average size of class and a high expenditure per unit of credit produced, this is one of the inherent costs of a graduate program.

The scope of course offerings in a subject-field and in an institution needs to be a matter of paramount concern to faculty members and academic administrators. The decision to add a new course, or to discontinue one, or to combine two or more courses requires intimate knowledge of the subject-matter field, the needs of the students, and principles of curriculum planning. It is the writer's hope that the scope of course offering tables presented in this chapter will serve to focus some attention on this important facet of instructional programs in Utah institutions of higher education.

CHAPTER IV

VOLUME OF TEACHING AND INSTRUCTIONAL SERVICE

In the preceding chapter consideration was given to the scope of course offerings as indicated by the number of quarter hours of different courses taught. The present chapter is concerned with the volume of teaching and instructional service to students. The measures of this function are the total number of quarter hours of classes taught and the number of student-credit-hours produced in the individual institutions, at the several levels of instruction, and in the various subject-matter areas for the institutions of higher education in Utah for the 1959-60 and 1960-61 regular academic years.

Quarter Hours of Classes Taught

The number of quarter hours of classes taught, as a measure of the "volume" of instruction, differs from the quarter hours of different courses taught, the measure used for "scope" of course offerings, in that for the volume of instruction the total number of credit hours represents the sum of all credit values for every class which is taught. For example, a three credit hour course in English is counted only once as three hours in the scope of offerings, but if this course in English is offered in ten different sections,

each section is considered a separate class carrying three credits, and the volume of instruction represented by these classes in English would amount to 30 quarter hours.

Tables 4 and 5 indicate the quarter credit hours of classes taught in each subject-matter field in each Utah institution. Tables 5A, 5B, and 5C, pages 98 through 100, respectively, show the quarter credit hours of classes taught in each subject-area at each institution for the lower division, the upper division, and the graduate level. The complete 4 and 5 series of tabulations show a count of the quarter credit hours of different classes, as opposed to quarter credit hours of different courses. A course may be taught in several different sections or repeated several times during the regular academic year. Thus, if a three-quarter-hour course is taught in five different class sections during the academic year, it is counted as 15 in Tables 4 and 5. In some cases the instructor meets the students of two or more different courses at the same hour and in the same classroom. An example is painting in the department of fine arts. Such cases are tabulated in these Tables as a single class.

The data in Tables 4 and 5 are used primarily to show the volume of teaching maintained in each subject-matter area at each institution. These data constitute the bases from which certain later tabulations are derived. The quarter credit hours of classes taught also show in a general way

TABLE 4. TOTAL CREDIT HOURS OF CLASSES TAUGHT, UNDERGRADUATE AND GRADUATE COMBINED, IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		631.0			35.0	28.0	27.0
ANTHROPOLOGY	122.1				6.0		21.0
ARCHITECTURE	200.0	91.0				6.0	
ARTS & CRAFTS	403.2	329.0	35.0	36.0	55.0	42.0	164.0
AUTO MECHANICS		96.0	60.0		45.0	27.0	130.0
BACTERIOLOGY		92.0		5.0	10.0	10.0	27.0
BIOLOGY	410.2		22.0	25.0	10.0	20.0	74.0
BOTANY	125.9	120.0		10.0	15.0	15.0	25.0
BUSINESS	874.4	302.0	125.0	101.0	27.0	56.0	180.0
CHEMISTRY	239.5	201.0	46.0	35.0	37.0	65.5	125.0
C.D. & F.L.	48.2	147.4			33.0	8.0	112.0
CLOTHING & TEXTILES	78.8	69.5				35.0	
COSMETOLOGY							60.0
ECONOMICS	480.4	183.0	17.0	10.0	10.0	32.0	60.0
EDUCATION	1,183.8	602.0	5.0		6.0	112.0	68.0
ENGINEERING			15.0	1.0	32.0		106.0
AERONAUTICAL ENGR		100.0					
AGRICULTURAL ENGR		61.0					
CERAMIC ENGR	72.5						
CHEMICAL ENGR	103.2						
CIVIL ENGR	358.0	280.0				39.0	
ELECTRICAL ENGR	360.1	174.0	15.0	4.0		12.0	132.0
MECHANICAL ENGR	508.2	197.0					
METALLURGICAL ENGR	93.0						
MINING & GEOL ENGR	117.5						
TOOL ENGR		78.0				10.0	
ENGLISH	1,182.3	841.2	87.0	82.0	126.0	186.0	410.0
FOODS & NUTRITIONS	74.0	94.8				17.0	
FORESTRY		375.3			3.0	3.0	4.0
GEOGRAPHY	140.5		2.0		9.0		13.0
GEOLOGY	316.3	130.0	14.0	20.0	5.0	38.0	35.0
HEALTH EDUCATION	59.0	38.0	8.0	10.0	2.0		33.0
HISTORY	240.7	117.0	37.0	40.0	21.0	37.0	50.0
HOME ECONOMICS	72.0	85.0	27.0	44.0		1.0	
HONORS		6.0					
HUMANITIES	39.0					9.0	102.0
INDUSTRIAL ARTS EDUC		199.0		56.0	26.0	23.0	
JOURNALISM	90.0	53.0		8.0	9.0	3.0	
LANGUAGE	72.0	23.0					
ARABIC	15.0						
DUTCH	10.0						
FRENCH	324.5	91.0			24.0	15.0	15.0
GERMAN	298.0	102.0	24.0	15.0	24.0		25.0
GREEK	45.0						
ITALIAN	22.0						
JAPANESE	11.0						
LATIN	54.0						
PORTUGUESE	6.0						
RUSSIAN	73.3	30.0					
SCANDINAVIAN	10.0						
SPANISH	168.4	57.0		15.0		15.0	30.0
TURKISH	15.0						
LAW	210.8						
LIBRARY SCIENCE	53.1	34.0					
MATHEMATICS	1,070.5	569.0	55.0	37.0	68.0	95.0	343.0
MEDICAL TECHNOLOGY		49.0					54.0
MUSIC	379.3	260.0	29.0	49.0	27.0	49.0	69.0
NURSING	388.8		30.0				180.0
PHARMACY	201.2						
PHILOSOPHY	174.0		10.0				21.0
PHYSICAL EDUCATION	539.4	400.0	52.0	21.0	49.0	65.0	70.0
PHYSICAL SCIENCE			9.0		20.0	20.0	69.0
PHYSICS	715.0	162.2	15.0	30.0	30.0	20.0	85.0
PHYSIOLOGY		72.0	5.0	5.0	11.0	20.0	15.0
POLITICAL SCIENCE	235.2	122.0	14.0	13.0	11.0	40.0	45.0
PSYCHOLOGY	349.4	225.0	16.0		14.0	33.0	69.0
SECRETARIAL SCIENCE		145.0			49.0	55.0	110.0
SOCIAL STUDIES	176.2	71.0				5.0	27.0
SOCIOLOGY	284.5	156.0	13.0	10.0	8.0	15.0	71.0
SPEECH & DRAMA	641.6	320.0	31.0	27.0	43.0	34.0	63.0
VETERINARY SCIENCE		14.0				5.0	
VOCATIONAL-TECHNICAL	127.1		98.0				267.0
WELDING		72.0	46.0		9.0	15.0	6.0
ZOOLOGY	214.6	218.0	20.0	12.0	16.0	15.0	35.0
TOTAL	14,877.7	8,885.4	982.0	721.0	926.0	1,350.5	3,627.0

TABLE 5. TOTAL CREDIT HOURS OF CLASSES TAUGHT, UNDERGRADUATE AND GRADUATE COMBINED, IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		472.0	13.0		18.0	45.0	37.0
AGRI ECONOMICS		77.0			9.0	9.0	
ANTHROPOLOGY	117.8		5.0				16.0
APPLIED ARTS		113.0					4.0
ARCHITECTURE	193.0						
ARTS & CRAFTS	385.9	330.0	36.5	33.0	55.0	33.0	119.8
BACTERIOLOGY		86.0	5.0		10.0	10.0	27.0
BIOLOGY	433.4		21.0	30.0	10.0	35.0	68.0
BOTANY	119.1	104.0	5.0	10.0	15.0	20.0	43.0
BUSINESS	727.8	327.0	51.0	30.0	30.0	61.0	192.0
CHEMISTRY	343.8	169.0	57.0	35.0	49.0	70.0	120.0
C.D. & F.L.	39.3	209.0				49.0	
CLOTHING & TEXTILES	65.4	87.0					
ECONOMICS	533.1	184.0	20.0	10.0	10.0	30.0	75.0
EDUCATION	939.4	695.0	3.0	2.0	6.0	132.0	18.0
EDUCATIONAL PSYCHOLOGY	231.1	71.0					68.0
AGRICULTURAL ENGR		72.0					
CERAMIC ENGINEERING	73.7						
CHEMICAL ENGINEERING	104.3						
CIVIL ENGINEERING	390.4	301.0				35.0	
ELECTRICAL ENGR	287.9	145.0		4.0		12.0	
FUEL ENGINEERING	59.6						83.0
GENERAL ENGINEERING			15.0	6.0			
MECHANICAL ENGR	464.6	300.0					
METALLURGICAL ENGR	160.2						
MINING & GEOLOGICAL	249.2						
ENGLISH	1,275.6	842.0	66.0	95.0	136.0	176.0	485.0
FOODS & NUTRITION	79.0	113.0				14.0	
FORESTRY		368.0			3.0	5.0	4.0
GENERAL PSYCHOLOGY	389.5	133.0	21.0	10.0	17.0	30.0	
GENERAL SCIENCE	16.0					16.0	46.0
GEOGRAPHY	147.5		3.0		9.0		18.0
GEOLOGY	385.9	148.0	18.0	20.0	11.0	28.0	33.0
HEALTH EDUCATION	83.0	94.0		10.0	2.0		33.0
HISTORY	224.3	172.0	33.0	38.0	21.0	48.0	50.0
HOME ECONOMICS	54.0		42.0	38.0	34.0		119.0
INDUSTRIAL ARTS				10.0	9.0		2.0
JOURNALISM	99.0	48.0	12.0		5.0	9.0	
LANGUAGE	364.0	54.0					
FRENCH	341.6	96.0	15.0		24.0	20.0	40.0
GERMAN	311.8	118.0	30.0	15.0	23.0		37.0
SPANISH	184.5	72.0	15.0	24.0	3.0	5.0	23.0
LAW	205.9						
LIBRARY SCIENCE	70.8	29.0					
MATH & STATISTICS	1,273.1	631.0	63.0	36.0	65.0	103.0	335.0
MUSIC	389.0	273.0	30.0	38.0	30.0	54.0	104.0
NURSING	422.3		45.0				60.2
PHARMACY	206.2						
PHILOSOPHY	171.5	33.0	7.0				21.0
PHYSICAL EDUCATION	542.5	379.0	57.0	26.0	50.0	54.0	67.0
PHYSICS	514.5	134.0	18.0	25.0	27.0	19.0	95.0
PHYSIOLOGY		59.0			10.0	25.0	15.0
POLITICAL SCIENCE	256.1	137.0	16.0	10.0	11.0	38.0	48.0
SECRETARIAL SCIENCE	159.0	135.0	58.0	59.7	50.0	47.0	92.0
SOCIAL SCIENCE		26.0					27.0
SOCIAL WORK	184.0	42.0					
SOCIOLOGY	304.0	145.0	11.0	10.0	8.0	23.0	50.0
SPEECH & DRAMA	692.0	289.0	35.0	30.0	55.0	40.0	55.0
TRADE TECHNOLOGY		390.0	157.0	24.0	147.6	88.0	508.2
ZOOLOGY	221.5	229.0	15.0	20.0	15.0	24.0	35.0
UNCLASSIFIED	81.0	4.0	23.0		3.0	41.0	62.0
TOTAL	15,568.1	8,935.0	1,021.5	698.7	980.6	1,448.0	3,335.2

TABLE 5A. TOTAL LOWER DIVISION UNDERGRADUATE CREDIT HOURS OF CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING THE REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		73.0	13.0		18.0	41.0	37.0
AGRI ECONOMICS		9.0			9.0	9.0	
ANTHROPOLOGY	38.0		5.0				16.0
APPLIED ARTS		50.0					4.0
ARCHITECTURE	71.0						
ARTS & CRAFTS	157.9	168.0	36.5	33.0	55.0	33.0	119.8
BACTERIOLOGY		45.0	5.0		10.0	10.0	27.0
BIOLOGY	305.0		21.0	30.0	10.0	35.0	68.0
BOTANY	65.0	45.0	5.0	10.0	15.0	20.0	43.0
BUSINESS	119.0	81.0	51.0	30.0	30.0	61.0	192.0
CHEMISTRY	86.0	61.0	57.0	35.0	49.0	55.0	120.0
C.D. & F.L.	24.0	69.0				49.0	
CLOTHING & TEXTILES	24.0	48.0					
ECONOMICS	252.0	95.0	20.0	10.0	10.0	30.0	75.0
EDUCATION	44.0	12.0	3.0	2.0	6.0	15.0	18.0
EDUCATIONAL PSYCHOLOGY	24.0						68.0
AGRICULTURAL ENGR		9.0					
CERAMIC ENGINEERING	2.0						
CHEMICAL ENGINEERING	16.5						
CIVIL ENGINEERING	111.5	40.0				31.0	
ELECTRICAL ENGR	17.5	10.0		4.0		12.0	
FUEL ENGINEERING							83.0
GENERAL ENGINEERING			15.0	6.0			
MECHANICAL ENGR	9.0	108.0					
METALLURGICAL ENGR							
MINING & GEOLOGICAL	34.0						
ENGLISH	1,012.0	618.0	66.0	95.0	136.0	136.0	485.0
FOODS & NUTRITION	33.0	58.0				14.0	
FORESTRY		4.0			3.0	5.0	4.0
GENERAL PSYCHOLOGY	41.0	54.0	21.0	10.0	17.0	15.0	
GENERAL SCIENCE	12.0					16.0	46.0
GEOGRAPHY	56.0		3.0		9.0		18.0
GEOLOGY	80.0	56.0	18.0	20.0	11.0	28.0	33.0
HEALTH EDUCATION	52.0	5.0		10.0	2.0		33.0
HISTORY	94.0	81.0	33.0	38.0	21.0	48.0	50.0
HOME ECONOMICS	18.0		42.0	38.0	34.0		119.0
INDUSTRIAL ARTS				10.0	9.0		2.0
JOURNALISM	33.0	19.0	12.0		5.0	9.0	
LANGUAGE	130.0	54.0					
FRENCH	247.0	81.0	15.0		24.0	20.0	40.0
GERMAN	235.0	96.0	30.0	15.0	23.0		37.0
SPANISH	111.0	55.0	15.0	24.0	3.0	5.0	23.0
LAW							
LIBRARY SCIENCE	24.0	3.0					
MATH & STATISTICS	878.0	477.0	63.0	36.0	65.0	98.0	335.0
MUSIC	220.0	153.0	30.0	38.0	30.0	48.0	104.0
NURSING	67.0		45.0				60.2
PHARMACY	4.0						
PHILOSOPHY	74.0	15.0	7.0				21.0
PHYSICAL EDUCATION	302.0	243.0	57.0	26.0	50.0	50.0	67.0
PHYSICS	297.0	42.0	18.0	25.0	27.0	19.0	95.0
PHYSIOLOGY		23.0			10.0	25.0	15.0
POLITICAL SCIENCE	72.0	51.0	16.0	10.0	11.0	23.0	48.0
SECRETARIAL SCIENCE	98.0	81.0	58.0	59.7	50.0	47.0	92.0
SOCIAL SCIENCE		26.0					27.0
SOCIAL WORK		3.0					
SOCIOLOGY	145.0	86.0	11.0	10.0	8.0	18.0	50.0
SPEECH & DRAMA	447.0	122.0	35.0	30.0	55.0	34.0	55.0
TRADE TECHNOLOGY		221.0	157.0	24.0	147.6	88.0	508.2
ZOOLOGY	81.0	65.0	15.0	20.0	15.0	10.0	35.0
UNCLASSIFIED	81.0		23.0		3.0	41.0	62.0
TOTAL	6,344.4	3,715.0	1,021.5	698.7	980.6	1,198.0	3,335.2

TABLE 5B. TOTAL UPPER DIVISION UNDERGRADUATE CREDIT HOURS OF CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING THE REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		203.0				4.0	
AGRI ECONOMICS		33.0					
ANTHROPOLOGY	41.8						
APPLIED ARTS		63.0					
ARCHITECTURE	122.0						
ARTS & CRAFTS	149.4	133.0					
BACTERIOLOGY		19.0					
BIOLOGY	102.9						
BOTANY	41.1	43.0					
BUSINESS	467.8	198.0					
CHEMISTRY	81.0	54.0				15.0	
C.D. & F.L.	15.3	132.0					
CLOTHING & TEXTILES	41.4	26.0					
ECONOMICS	211.0	79.0					
EDUCATION	745.3	533.0				117.0	
EDUCATIONAL PSYCHOLOGY	90.0	56.0					
AGRICULTURAL ENGR		46.0					
CERAMIC ENGINEERING	45.5						
CHEMICAL ENGINEERING	50.0						
CIVIL ENGINEERING	212.0	185.0				4.0	
ELECTRICAL ENGR	210.7	92.0					
FUEL ENGINEERING	35.7						
GENERAL ENGINEERING							
MECHANICAL ENGR	374.0	177.0					
METALLURGICAL ENGR	86.5						
MINING & GEOLOGICAL	92.0						
ENGLISH	217.5	175.0				40.0	
FOODS & NUTRITION	39.0	38.0					
FORESTRY		207.0					
GENERAL PSYCHOLOGY	141.0	21.0				15.0	
GENERAL SCIENCE	4.0						
GEOGRAPHY	65.0						
GEOLOGY	184.0	57.0					
HEALTH EDUCATION	21.0	86.0					
HISTORY	107.0	70.0					
HOME ECONOMICS	36.0						
INDUSTRIAL ARTS							
JOURNALISM	57.0	29.0					
LANGUAGE	225.0						
FRENCH	85.0	15.0					
GERMAN	66.8	22.0					
SPANISH	73.5	17.0					
LAW	52.3						
LIBRARY SCIENCE	28.5	26.0					
MATH & STATISTICS	318.0	116.0				5.0	
MUSIC	77.0	103.0				6.0	
NURSING	300.5						
PHARMACY	124.7						
PHILOSOPHY	97.5	18.0					
PHYSICAL EDUCATION	182.0	112.0				4.0	
PHYSICS	130.0	51.0					
PHYSIOLOGY		28.0					
POLITICAL SCIENCE	121.0	70.0				15.0	
SECRETARIAL SCIENCE	53.0	54.0					
SOCIAL SCIENCE							
SOCIAL WORK		26.0					
SOCIOLOGY	133.0	38.0				5.0	
SPEECH & DRAMA	195.7	139.0				6.0	
TRADE TECHNOLOGY		158.0					
ZOOLOGY	125.1	110.0				14.0	
UNCLASSIFIED		4.0					
TOTAL	6,475.5	3,862.0				250.0	

TABLE 50. TOTAL GRADUATE CREDIT HOURS OF CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING THE REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		196.0					
AGRI ECONOMICS		35.0					
ANTHROPOLOGY	38.0						
APPLIED ARTS							
ARCHITECTURE							
ARTS & CRAFTS	78.6	29.0					
BACTERIOLOGY		22.0					
BIOLOGY	25.5						
BOTANY	13.0	16.0					
BUSINESS	141.0	48.0					
CHEMISTRY	176.8	54.0					
C.D. & F.L.		8.0					
CLOTHING & TEXTILES		13.0					
ECONOMICS	70.1	10.0					
EDUCATION	150.1	150.0					
EDUCATIONAL PSYCHOLOGY	117.1	15.0					
AGRICULTURAL ENGR		17.0					
CERAMIC ENGINEERING	26.2						
CHEMICAL ENGINEERING	37.8						
CIVIL ENGINEERING	66.9	76.0					
ELECTRICAL ENGR	59.7	43.0					
FUEL ENGINEERING	23.9						
GENERAL ENGINEERING							
MECHANICAL ENGR	81.6	15.0					
METALLURGICAL ENGR	73.7						
MINING & GEOLOGICAL	123.2						
ENGLISH	46.1	49.0					
FOODS & NUTRITION	7.0	17.0					
FORESTRY		157.0					
GENERAL PSYCHOLOGY	207.5	58.0					
GENERAL SCIENCE							
GEOGRAPHY	26.5						
GEOLOGY	121.9	35.0					
HEALTH EDUCATION	10.0	3.0					
HISTORY	23.3	21.0					
HOME ECONOMICS							
INDUSTRIAL ARTS							
JOURNALISM	9.0						
LANGUAGE	9.0						
FRENCH	9.6						
GERMAN	10.0						
SPANISH							
LAW	153.6						
LIBRARY SCIENCE	18.3						
MATH & STATISTICS	77.1	38.0					
MUSIC	92.0	17.0					
NURSING	54.8						
PHARMACY	77.5						
PHILOSOPHY							
PHYSICAL EDUCATION	58.5	24.0					
PHYSICS	87.5	41.0					
PHYSIOLOGY		8.0					
POLITICAL SCIENCE	63.1	16.0					
SECRETARIAL SCIENCE	8.0						
SOCIAL SCIENCE							
SOCIAL WORK	184.0	13.0					
SOCIOLOGY	26.0	21.0					
SPEECH & DRAMA	49.3	28.0					
TRADE TECHNOLOGY		11.0					
ZOOLOGY	15.4	54.0					
UNCLASSIFIED							
TOTAL	2,748.2	1,358.0					

the staffing needs in each subject-field. A simple division of the figures in the 4 and 5 series of Tables by the number of quarter credit hours of class teaching that the institution normally expects a full-time faculty member to carry in a particular subject-matter area and level of instruction, indicates the number of instructors needed to staff the instructional program in question.

Of the total number of quarter credit hours taught in the institutions reporting, 54 per cent were at the lower division level, 33 per cent at the upper division level, and 13 per cent at the graduate level. Obviously, all of the hours taught in the junior colleges, with the exception of the College of Southern Utah, are contained in the lower division category. At the lower division level, Utah State University and the University of Utah, together, taught 58 per cent of the state's total. At the upper division level, the University of Utah taught 61 per cent of the state's total, while at the graduate level, it accounted for 67 per cent of the total. In addition to producing 61 per cent of the state's total number of credit hours at the upper division level, the University of Utah taught more credit hours of classes at this level than at either of the other two levels of instruction in their institution during the 1960-61 academic year.

The data of Tables 5A, 5B, and 5C were the basis for comparisons of the volume of instruction in each subject-area

commonly taught at the three levels of instruction. In certain subjects the volume of quarter hours taught was greatest at the lower division level, while in other subject-areas, the largest number of hours of teaching were found at the upper division and the graduate levels. From these Tables it appeared that the major portion of instruction in subject-fields such as biology, English, foreign languages, and mathematics tended to be in the lower division program. Agriculture, anthropology, arts and crafts, business, chemistry, education, all types of engineering, forestry, geology, law, nursing, pharmacy, political science, psychology, and zoology were examples of subject-areas that were large in volume primarily at the upper division or graduate levels. The subject-areas of greatest instructional volume at the lower division level were usually general education subjects whereas those that were high in instructional volume at the upper or the graduate levels were, in the main, professional or pre-professional in nature.

Table 6 presents data drawn from Table 5 for the 1960-61 academic year. This Table indicates the grouping of subject-areas and the rank of each group on the basis of the total number of quarter credit hours of classes taught at all of the institutions, all levels of instruction combined.

There was much similarity among the institutions as to the top-ranking subject-areas and subject-area groups. Engineering, English, education, mathematics, fine and

Table 6. Subject-areas ranked on the basis of the total quarter hours of classes taught--all levels and all institutions combined

Subject	Number of quarter hours	Rank
English	3,248.6	1
Fine and applied arts	3,224.2	2
Social science (basic & applied)	3,028.3	3
Education	2,970.9	4
Engineering (all types)	2,762.9	5
Mathematics & statistics	2,506.1	6
Physical science	2,398.2	7
Business & commerce	2,019.5	8
Foreign language & literature	1,815.9	9
Biological sciences	1,720.0	10
Trade & industrial	1,335.8	11
Psychology	970.6	12
Health	955.7	13
Home economics	942.7	14
Agriculture	585.0	15
Forestry	380.0	16
Philosophy	232.5	17
Unclassified	214.0	18
Law	205.9	19
Architecture	193.0	20
Geography	177.5	21
Library science	99.8	22
	31,987.1	

applied arts, and social science ranked foremost in the number of quarter hours of classes taught in the two universities. As noted in Table 7, these six subject-areas made up the top six ranks in the University of Utah and in Utah State University.

Student-credit-hour Production

The best measure of instructional volume, in terms of actual instructional service to students, was the number of student-credit-hours produced. One student-credit-hour represented one student taking a one-credit course for one quarter. Total student-credit-hour production for any class was obtained by multiplying the number of students enrolled in the class by the credit value of that class. For example, a three-credit class in which there were 20 students yielded 60 student-credit-hours.

The 8 and 9 series of Tables show the number of student-credit-hours taught in each subject-field in each institution, during the regular academic years 1959-60 and 1960-61. Tables 8A and 9A, 8B and 9B, and 8C and 9C, respectively show the student-credit-hours produced in each subject-field at each institution, for the lower division undergraduate level, the upper division undergraduate level, and the graduate level. Figure 2, page 114, summarizes the data in graphical form for the two-year period. The student-credit-hour is the best available measure of the "production" of

Table 7. Subject-areas ranked on the basis of the total quarter hours of classes taught--all levels combined

Subject	University of Utah		Utah State University	
	No. of qtr.-hours	Rank	No. of qtr.-hours	Rank
Engineering (all types)	1,789.9	1	818.0	4
Social Science (Basic & Applied)	1,619.3	2	783.0	5
Education	1,481.9	3	1,074.0	1
Fine & Applied Arts	1,466.9	4	1,005.0	2
English	1,374.6	5	890.0	3
Mathematics & Statistics	1,273.1	6	631.0	6
Physical Science	1,260.2	7	451.0	10
Foreign Language & Literature	1,201.9	8	340.0	14
Business & Commerce	886.8	9	462.0	9
Biological Science	774.0	10	478.0	7
Health	711.5	11	94.0	16
Psychology	620.6	12	204.0	15
Home Economics	237.7	13	409.0	11
Law	205.9	14	0.0	20
Architecture	193.0	15	0.0	20
Philosophy	171.5	16	33.0	17
Geography	147.5	17	0.0	20
Unclassified	81.0	18	4.0	19
Library Science	70.8	19	29.0	18
Agriculture	0.0	20	472.0	8
Trade & Industrial	0.0	20	390.0	12
Forestry	0.0	20	368.0	13
Total	15,568.1		8,935.0	

TABLE 8. TOTAL STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS), UNDERGRADUATE AND GRADUATE COMBINED, IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		8,411.0			301.0	507.0	239.0
ANTHROPOLOGY	2,952.0				39.0		396.0
ARCHITECTURE	2,528.0	1,373.0				30.0	
ARTS & CRAFTS	7,945.0	4,616.0	229.0	605.0	559.0	630.0	1,262.0
AUTO MECHANICS		1,260.0	795.0		411.0	384.0	1,572.0
BACTERIOLOGY		2,828.0		70.0	181.0	295.0	728.0
BIOLOGY	14,842.0		687.0	1,105.0	400.0	770.0	2,353.0
BOTANY	2,891.0	4,758.0		65.0	455.0	485.0	855.0
BUSINESS	21,094.0	9,555.0	1,557.0	1,109.0	393.0	1,113.0	4,040.0
CHEMISTRY	15,212.0	9,943.0	737.0	535.0	805.0	1,410.0	2,948.0
C.D. & F.L.	1,149.0	3,292.0			360.0	130.0	2,035.0
CLOTHING & TEXTILES	1,186.0	899.0				459.0	
COSMETOLOGY							790.0
ECONOMICS	12,509.0	6,492.0	210.0	145.0	265.0	1,190.0	1,397.0
EDUCATION	24,765.0	12,504.0	187.0		150.0	2,358.0	1,836.0
ENGINEERING			279.0	22.0	271.0		1,887.0
AERONAUTICAL ENGR		1,421.0					
AGRICULTURAL ENGR		881.0					
CERAMIC ENGR	663.0						
CHEMICAL ENGR	1,521.5						
CIVIL ENGR	5,239.0	6,949.0				776.0	
ELECTRICAL ENGR	9,326.0	4,404.0	110.0	16.0		120.0	2,342.0
MECHANICAL ENGR	8,474.0	3,680.0					
METALLURGICAL ENGR	1,100.0						
MINING & GEOL ENGR	778.0						
TOOL ENGR		1,405.0				105.0	
ENGLISH	21,987.0	23,711.0	2,217.0	1,924.0	2,689.0	4,968.0	9,442.0
FOODS & NUTRITIONS	976.0	1,310.0				179.0	
FORESTRY		7,214.0			66.0	87.0	131.0
GEOGRAPHY	4,030.0		14.0		183.0		385.0
GEOLOGY	5,825.0	3,134.0	345.0	460.0	140.0	1,030.0	711.0
HEALTH EDUCATION	2,541.0	1,742.0	276.0	210.0	18.0		1,261.0
HISTORY	9,886.0	6,257.0	678.0	1,125.0	867.0	1,120.0	1,612.0
HOME ECONOMICS	1,182.0	1,083.0	102.0	529.0		9.0	
HONORS		34.0					
HUMANITIES	1,233.0					276.0	3,435.0
INDUSTRIAL ARTS EDUC		3,615.0		764.0	120.0	188.0	
JOURNALISM	858.0	282.0		110.0	30.0	30.0	
LANGUAGE	1,034.0	666.0					
ARABIC	75.0						
DUTCH	94.0						
FRENCH	4,941.0	1,753.0			205.0	200.0	350.0
GERMAN	5,149.0	2,378.0	230.0	110.0	281.0		350.0
GREEK	195.0						
ITALIAN	134.0						
JAPANESE	66.0						
LATIN	234.0						
PORTUGUESE	12.0						
RUSSIAN	1,043.0	534.0					
SCANDINAVIAN	206.0						
SPANISH	1,957.0	1,240.0		275.0		265.0	185.0
TURKISH	45.0						
LAW	6,598.0						
LIBRARY SCIENCE	1,118.0	276.0					
MATHEMATICS	23,716.0	20,076.0	1,098.0	737.0	1,869.0	2,361.0	8,482.0
MEDICAL TECHNOLOGY		309.0					655.0
MUSIC	10,472.5	6,183.0	327.0	659.0	270.0	770.0	1,019.0
NURSING	3,732.0		240.0				1,665.0
PHARMACY	4,146.0						
PHILOSOPHY	6,224.0		140.0				433.0
PHYSICAL EDUCATION	9,740.0	10,206.0	655.0	349.0	836.0	1,277.0	2,105.0
PHYSICAL SCIENCE			264.0		645.0	456.0	1,776.0
PHYSICS	16,491.0	5,372.0	195.0	325.0	275.0	565.0	1,984.0
PHYSIOLOGY		2,892.0	110.0	235.0	525.0	770.0	515.0
POLITICAL SCIENCE	5,453.0	5,545.0	172.0	335.0	384.0	827.0	1,247.0
PSYCHOLOGY	10,760.5	11,356.0	881.0		559.0	1,069.0	2,214.0
SECRETARIAL SCIENCE		3,626.0			441.0	1,052.0	2,169.0
SOCIAL STUDIES	3,678.0	2,977.0				76.0	892.0
SOCIOLOGY	11,779.0	5,590.0	232.0	400.0	277.0	425.0	2,198.0
SPEECH & DRAMA	9,924.1	4,197.5	272.0	462.0	519.0	612.0	818.0
VETERINARY SCIENCE		298.0				80.0	
VOCATIONAL-TECHNICAL	1,299.0		1,553.0				2,062.0
WELDING		989.0	335.0		96.0	200.0	76.0
ZOOLOGY	5,712.0	7,693.0	335.0	109.0	505.0	340.0	1,040.0
TOTAL	328,720.6	227,209.5	15,462.0	12,790.0	16,390.0	29,994.0	73,892.0

TABLE 8A. TOTAL LOWER-DIVISION UNDERGRADUATE STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS) IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		2,826.0			301.0	507.0	239.0
ANTHROPOLOGY	2,330.0				39.0		396.0
ARCHITECTURE	1,320.0	1,009.0				30.0	
ARTS & CRAFTS	5,840.5	3,402.0	229.0	605.0	559.0	630.0	1,262.0
AUTO MECHANICS		927.0	795.0		411.0	384.0	1,572.0
BACTERIOLOGY		2,609.0		70.0	181.0	295.0	728.0
BIOLOGY	12,920.0		687.0	1,105.0	400.0	770.0	2,353.0
BOTANY	1,870.0	3,417.0		65.0	455.0	485.0	855.0
BUSINESS	7,275.0	3,413.0	1,557.0	1,109.0	393.0	1,113.0	4,040.0
CHEMISTRY	10,378.0	8,206.0	737.0	535.0	805.0	1,410.0	2,948.0
C.D. & F.L.	766.0	1,931.0			360.0	130.0	2,035.0
CLOTHING & TEXTILES	525.0	587.0				459.0	
COSMETOLOGY							790.0
ECONOMICS	9,149.0	4,125.0	210.0	145.0	265.0	1,190.0	1,397.0
EDUCATION	3,593.0	408.0	187.0		150.0	303.0	1,836.0
ENGINEERING			279.0	22.0	271.0		1,887.0
AERONAUTICAL ENGR		930.0					
AGRICULTURAL ENGR		189.0					
CERAMIC ENGR	6.0						
CHEMICAL ENGR	336.5						
CIVIL ENGR	1,901.0	1,430.0				776.0	
ELECTRICAL ENGR	1,909.5	1,161.0	110.0	16.0		120.0	2,342.0
MECHANICAL ENGR	225.0	2,148.0					
METALLURGICAL ENGR							
MINING & GEOL ENGR	111.0						
TOOL ENGR		506.0				105.0	
ENGLISH	18,140.0	19,249.0	2,217.0	1,924.0	2,689.0	4,968.0	9,442.0
FOODS & NUTRITIONS	739.0	950.0				179.0	
FORESTRY		409.0			66.0	87.0	131.0
GEOGRAPHY	2,985.0		14.0		183.0		385.0
GEOLOGY	3,170.0	2,630.0	345.0	460.0	140.0	1,030.0	711.0
HEALTH EDUCATION	2,363.0	197.0	276.0	210.0	18.0		1,261.0
HISTORY	6,302.0	4,339.0	678.0	1,125.0	867.0	1,066.0	1,612.0
HOME ECONOMICS	681.0	206.0	102.0	529.0		9.0	
HONORS							
HUMANITIES	1,233.0					276.0	3,435.0
INDUSTRIAL ARTS EDUC		913.0		764.0	120.0	188.0	
JOURNALISM	357.0	196.0		110.0	30.0	30.0	
LANGUAGE	655.0	369.0					
ARABIC	75.0						
DUTCH							
FRENCH	4,050.0	1,695.0			205.0	200.0	350.0
GERMAN	4,443.0	2,242.0	230.0	110.0	281.0		350.0
GREEK	110.0						
ITALIAN	130.0						
JAPANESE	66.0						
LATIN	170.0						
PORTUGUESE							
RUSSIAN	1,000.0	534.0					
SCANDINAVIAN							
SPANISH	1,474.0	1,181.0		275.0		265.0	185.0
TURKISH	45.0						
LAW							
LIBRARY SCIENCE	884.0	71.0					
MATHEMATICS	16,715.0	17,710.0	1,098.0	737.0	1,824.0	2,361.0	8,482.0
MEDICAL TECHNOLOGY							655.0
MUSIC	8,495.5	4,255.5	327.0	659.0	270.0	665.0	1,019.0
NURSING	1,111.0		240.0				1,665.0
PHARMACY	182.0						
PHILOSOPHY	4,865.0		140.0				433.0
PHYSICAL EDUCATION	7,151.0	6,158.0	655.0	349.0	836.0	1,226.0	2,105.0
PHYSICAL SCIENCE			264.0		645.0	456.0	1,776.0
PHYSICS	11,140.0	4,433.0	195.0	325.0	275.0	565.0	1,984.0
PHYSIOLOGY		2,428.0	110.0	235.0	525.0	770.0	515.0
POLITICAL SCIENCE	2,809.0	3,461.0	172.0	335.0	384.0	662.0	1,247.0
PSYCHOLOGY	5,657.0	6,118.0	881.0		559.0	745.0	2,214.0
SECRETARIAL SCIENCE		3,192.0			441.0	1,052.0	2,169.0
SOCIAL STUDIES		2,429.0				46.0	892.0
SOCIOLOGY	7,976.0	4,248.0	232.0	400.0	277.0	350.0	2,198.0
SPEECH & DRAMA	7,205.1	2,147.5	272.0	462.0	519.0	561.0	818.0
VETERINARY SCIENCE		195.0				80.0	
VOCATIONAL-TECHNICAL			1,553.0				2,062.0
WELDING		806.0	335.0		96.0	200.0	76.0
ZOOLOGY	2,985.0	5,069.0	335.0	109.0	505.0	220.0	1,040.0
TOTAL	185,819.1	137,055.0	15,462.0	12,790.0	16,345.0	26,964.0	73,892.0

TABLE 8B. TOTAL UPPER-DIVISION UNDERGRADUATE STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS) IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		4,392.0					
ANTHROPOLOGY	464.0						
ARCHITECTURE	1,208.0	354.0					
ARTS & CRAFTS	1,649.5	1,155.0					
AUTO MECHANICS		333.0					
BACTERIOLOGY		155.0					
BIOLOGY	1,907.0						
BOTANY	982.0	1,124.0					
BUSINESS	12,773.0	5,889.0					
CHEMISTRY	3,570.0	1,454.0					
C.D. & F.L.	383.0	1,283.0					
CLOTHING & TEXTILES	661.0	312.0					
COSMETOLOGY							
ECONOMICS	2,780.0	2,311.0					
EDUCATION	18,514.0	11,203.0				2,055.0	
ENGINEERING							
AERONAUTICAL ENGR		491.0					
AGRICULTURAL ENGR		618.0					
CERAMIC ENGR	433.0						
CHEMICAL ENGR	831.0						
CIVIL ENGR	3,201.0	4,985.0					
ELECTRICAL ENGR	6,857.5	2,878.0					
MECHANICAL ENGR	7,680.0	1,532.0					
METALLURGICAL ENGR	1,082.0						
MINING & GEOL ENGR	503.0						
TOOL ENGR		899.0					
ENGLISH	3,528.0	4,099.0					
FOODS & NUTRITIONS	237.0	284.0					
FORESTRY		6,106.0					
GEOGRAPHY	906.0						
GEOLOGY	2,130.0	462.0					
HEALTH EDUCATION	155.0	1,539.0					
HISTORY	3,446.0	1,872.0				54.0	
HOME ECONOMICS	501.0	862.0					
HONORS		34.0					
HUMANITIES							
INDUSTRIAL ARTS EDUC		2,585.0					
JOURNALISM	409.0	86.0					
LANGUAGE	379.0	297.0					
ARABIC							
DUTCH	94.0						
FRENCH	884.0	58.0					
GERMAN	704.0	136.0					
GREEK	85.0						
ITALIAN	4.0						
JAPANESE							
LATIN	63.0						
PORTUGUESE	12.0						
RUSSIAN	43.0						
SCANDINAVIAN	206.0						
SPANISH	483.0	59.0					
TURKISH							
LAW	2,320.5						
LIBRARY SCIENCE	195.0	205.0					
MATHEMATICS	6,349.0	2,214.0			45.0		
MEDICAL TECHNOLOGY		309.0					
MUSIC	1,536.0	1,909.5				105.0	
NURSING	2,277.0						
PHARMACY	3,853.0						
PHILOSOPHY	1,350.0						
PHYSICAL EDUCATION	2,274.0	3,875.0				51.0	
PHYSICAL SCIENCE							
PHYSICS	4,298.0	877.0					
PHYSIOLOGY		419.0					
POLITICAL SCIENCE	2,484.0	1,997.0				165.0	
PSYCHOLOGY	3,441.0	4,526.0				324.0	
SECRETARIAL SCIENCE		434.0					
SOCIAL STUDIES		491.0				30.0	
SOCIOLOGY	3,714.0	1,299.0				75.0	
SPEECH & DRAMA	2,466.0	1,969.0				51.0	
VETERINARY SCIENCE		95.0					
VOCATIONAL-TECHNICAL	314.0						
WELDING		183.0					
ZOOLOGY	2,546.0	2,260.0				120.0	
TOTAL	119,165.5	82,909.5			45.0	3,030.0	

TABLE 8C. TOTAL GRADUATE STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS) IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		1,193.0					
ANTHROPOLOGY	158.0						
ARCHITECTURE		10.0					
ARTS & CRAFTS	455.0	59.0					
AUTO MECHANICS							
BACTERIOLOGY		64.0					
BIOLOGY	15.0						
BOTANY	39.0	217.0					
BUSINESS	1,046.0	253.0					
CHEMISTRY	1,264.0	283.0					
C.D. & F.L.		78.0					
CLOTHING & TEXTILES							
COSMETOLOGY							
ECONOMICS	580.0	56.0					
EDUCATION	2,658.0	893.0					
ENGINEERING							
AERONAUTICAL ENGR							
AGRICULTURAL ENGR		74.0					
CERAMIC ENGR	224.0						
CHEMICAL ENGR	354.0						
CIVIL ENGR	137.0	534.0					
ELECTRICAL ENGR	559.0	365.0					
MECHANICAL ENGR	569.0						
METALLURGICAL ENGR	18.0						
MINING & GEOL ENGR	164.0						
TOOL ENGR							
ENGLISH	319.0	363.0					
FOODS & NUTRITIONS		76.0					
FORESTRY		699.0					
GEOGRAPHY	139.0						
GEOLOGY	525.0	42.0					
HEALTH EDUCATION	23.0	6.0					
HISTORY	138.0	46.0					
HOME ECONOMICS		15.0					
HONORS							
HUMANITIES							
INDUSTRIAL ARTS EDUC		117.0					
JOURNALISM	92.0						
LANGUAGE							
ARABIC							
DUTCH							
FRENCH	7.0						
GERMAN	2.0						
GREEK							
ITALIAN							
JAPANESE							
LATIN	1.0						
PORTUGUESE							
RUSSIAN							
SCANDINAVIAN							
SPANISH							
TURKISH							
LAW	4,277.5						
LIBRARY SCIENCE	39.0						
MATHEMATICS	652.0	152.0					
MEDICAL TECHNOLOGY							
MUSIC	441.0	18.0					
NURSING	344.0						
PHARMACY	111.0						
PHILOSOPHY	9.0						
PHYSICAL EDUCATION	315.0	173.0					
PHYSICAL SCIENCE							
PHYSICS	1,053.0	62.0					
PHYSIOLOGY		45.0					
POLITICAL SCIENCE	160.0	87.0					
PSYCHOLOGY	1,662.5	712.0					
SECRETARIAL SCIENCE							
SOCIAL STUDIES	3,678.0	57.0					
SOCIOLOGY	89.0	43.0					
SPEECH & DRAMA	253.0	81.0					
VETERINARY SCIENCE		8.0					
VOCATIONAL-TECHNICAL	985.0						
WELDING							
ZOOLOGY	181.0	364.0					
TOTAL	23,736.0	7,245.0					

TABLE 9. TOTAL STUDENT-CREDIT HOURS PRODUCED (QUARTER HOURS), UNDERGRADUATE AND GRADUATE COMBINED, IN EACH SUBJECT FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		5,525.4	134.0		197.0	531.0	563.0
AGRI ECONOMICS		1,665.0			48.0	114.0	
ANTHROPOLOGY	3,759.0		375.0				486.0
APPLIED ARTS		2,009.0					32.0
ARCHITECTURE	3,109.0						
ARTS & CRAFTS	9,631.5	5,171.0	425.0	518.0	487.0	459.0	2,907.0
BACTERIOLOGY		3,259.0	110.0		226.0	210.0	794.0
BIOLOGY	16,158.0		705.0	920.0	335.0	1,275.0	2,359.0
BOTANY	2,625.0	4,494.0	155.0	45.0	240.0	550.0	1,279.0
BUSINESS	18,420.6	11,443.0	929.0	466.0	397.0	1,222.0	4,471.0
CHEMISTRY	15,876.0	7,648.0	850.0	905.0	1,217.0	1,595.0	3,183.0
C.D. & F.L.	689.0	4,953.0				597.0	
CLOTHING & TEXTILES	1,011.0	1,119.0					
ECONOMICS	14,693.0	6,519.0	330.0	205.0	350.0	915.0	1,813.0
EDUCATION	17,840.0	14,637.0	87.0	64.0	144.0	2,351.0	504.0
EDUCATIONAL PSYCHOLOGY	4,571.0	3,795.0					2,292.0
AGRICULTURAL ENGR		745.0					
CERAMIC ENGINEERING	571.0						
CHEMICAL ENGINEERING	1,556.5						
CIVIL ENGINEERING	5,276.0	6,676.0				667.0	
ELECTRICAL ENGR	8,713.5	3,490.0		12.0		32.0	
FUEL ENGINEERING	473.0						1,403.0
GENERAL ENGINEERING			216.0	90.0			
MECHANICAL ENGR	8,131.5	5,613.0					
METALLURGICAL ENGR	2,019.5						
MINING & GEOLOGICAL	1,675.0						
ENGLISH	25,226.0	23,954.0	1,620.0	2,119.0	3,021.0	4,633.0	11,822.0
FOODS & NUTRITION	1,290.0	1,348.0				175.0	
FORESTRY		6,093.7			42.0	97.0	172.0
GENERAL PSYCHOLOGY	11,677.0	4,955.0	907.0	465.0	616.0	978.0	
GENERAL SCIENCE	2,016.0					372.0	1,302.0
GEOGRAPHY	4,647.0		141.0		168.0		770.0
GEOLOGY	6,861.0	3,869.0	430.0	615.0	377.0	849.0	674.0
HEALTH EDUCATION	2,946.0	2,513.0		314.0	14.0		1,419.0
HISTORY	10,583.0	8,290.0	1,008.0	1,245.0	1,061.0	1,495.0	1,779.0
HOME ECONOMICS	1,293.0		222.0	533.0	344.0		2,192.0
INDUSTRIAL ARTS				122.0	33.0		16.0
JOURNALISM	856.0	414.0	75.0		25.0	45.0	
LANGUAGE	3,152.0	683.0					
FRENCH	5,605.0	2,150.0	400.0		161.0	295.0	588.0
GERMAN	5,660.0	2,743.0	240.0	260.0	251.0		722.0
SPANISH	2,371.0	1,246.0	185.0	239.0	18.0	225.0	369.0
LAW	6,496.2						
LIBRARY SCIENCE	1,362.0	254.0					
MATH & STATISTICS	27,667.0	21,554.0	1,142.0	861.0	1,540.0	2,295.0	7,875.0
MUSIC	10,961.0	5,522.0	597.0	630.0	297.0	831.0	2,962.0
NURSING	3,712.0		330.0				1,133.2
PHARMACY	3,186.0						
PHILOSOPHY	6,754.0	873.0	65.0				584.0
PHYSICAL EDUCATION	10,221.0	9,782.0	884.0	385.0	883.0	1,047.0	2,326.0
PHYSICS	13,453.0	4,404.0	349.0	315.0	712.0	425.0	2,140.0
PHYSIOLOGY		3,159.0			485.0	965.0	600.0
POLITICAL SCIENCE	7,675.0	5,534.0	285.0	400.0	425.0	775.0	1,612.0
SECRETARIAL SCIENCE	3,321.0	3,749.0	1,094.0	1,292.0	524.0	735.0	2,104.0
SOCIAL SCIENCE		2,047.0					821.0
SOCIAL WORK	3,774.0	907.0					
SOCIOLOGY	13,246.0	6,303.0	278.0	510.0	241.0	675.0	1,679.0
SPEECH & DRAMA	11,020.0	4,213.0	519.0	474.0	694.0	867.0	751.0
TRADE TECHNOLOGY		5,037.5	1,690.0	400.0	1,139.0	938.0	6,970.0
ZOOLOGY	6,069.0	9,351.0	160.0	446.0	375.0	577.0	1,025.0
UNCLASSIFIED	3,704.0	24.0	227.0		15.0	1,369.0	1,784.0
TOTAL	353,603.3	229,733.6	17,164.0	14,850.0	17,102.0	31,181.0	78,277.2

TABLE 9A. TOTAL LOWER-DIVISION UNDERGRADUATE STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS) IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		1,949.0	134.0		197.0	515.0	563.0
AGRI ECONOMICS		606.0			48.0	114.0	
ANTHROPOLOGY	3,068.0		375.0				486.0
APPLIED ARTS		1,318.0					32.0
ARCHITECTURE	1,677.0						
ARTS & CRAFTS	7,098.5	4,140.0	425.0	518.0	487.0	459.0	2,907.0
BACTERIOLOGY		2,887.0	110.0		226.0	210.0	794.0
BIOLOGY	13,938.0		705.0	920.0	335.0	1,275.0	2,359.0
BOTANY	1,900.0	3,245.0	155.0	45.0	240.0	550.0	1,279.0
BUSINESS	5,445.0	4,203.0	929.0	466.0	397.0	1,222.0	4,471.0
CHEMISTRY	10,259.0	5,574.0	850.0	905.0	1,217.0	1,425.0	3,183.0
C.D. & F.L.	658.0	2,407.0				597.0	
CLOTHING & TEXTILES	501.0	843.0					
ECONOMICS	9,584.0	4,055.0	330.0	205.0	350.0	915.0	1,813.0
EDUCATION	1,458.0	518.0	87.0	64.0	144.0	393.0	504.0
EDUCATIONAL PSYCHOLOGY	602.0						2,292.0
AGRICULTURAL ENGR		187.0					
CERAMIC ENGINEERING	6.0						
CHEMICAL ENGINEERING	278.5						
CIVIL ENGINEERING	1,688.0	1,119.0				643.0	
ELECTRICAL ENGR	994.5	308.0		12.0		32.0	
FUEL ENGINEERING							1,403.0
GENERAL ENGINEERING			216.0	90.0			
MECHANICAL ENGR	216.0	2,443.0					
METALLURGICAL ENGR							
MINING & GEOLOGICAL	362.0						
ENGLISH	21,084.0	19,138.0	1,620.0	2,119.0	3,021.0	3,928.0	11,822.0
FOODS & NUTRITION	846.0	860.0				175.0	
FORESTRY		215.0			42.0	97.0	172.0
GENERAL PSYCHOLOGY	5,882.0	3,665.0	907.0	465.0	616.0	705.0	
GENERAL SCIENCE	1,948.0					372.0	1,302.0
GEOGRAPHY	3,534.0		141.0		168.0		770.0
GEOLOGY	3,404.0	3,447.0	430.0	615.0	377.0	849.0	674.0
HEALTH EDUCATION	2,658.0	122.0		314.0	14.0		1,419.0
HISTORY	7,034.0	5,736.0	1,008.0	1,245.0	1,061.0	1,495.0	1,779.0
HOME ECONOMICS	726.0		222.0	533.0	344.0		2,192.0
INDUSTRIAL ARTS				122.0	33.0		16.0
JOURNALISM	339.0	163.0	75.0		25.0	45.0	
LANGUAGE	1,928.0	683.0					
FRENCH	4,633.0	2,046.0	400.0		161.0	295.0	588.0
GERMAN	4,779.0	2,477.0	240.0	260.0	251.0		722.0
SPANISH	1,710.0	1,061.0	185.0	239.0	18.0	225.0	369.0
LAW							
LIBRARY SCIENCE	1,138.0	66.0					
MATH & STATISTICS	20,378.0	17,675.0	1,142.0	861.0	1,540.0	2,240.0	7,875.0
MUSIC	9,163.0	3,804.0	597.0	630.0	297.0	735.0	2,962.0
NURSING	778.0		330.0				1,133.2
PHARMACY	145.0						
PHILOSOPHY	5,251.0	540.0	65.0				584.0
PHYSICAL EDUCATION	7,601.0	6,480.0	884.0	385.0	883.0	1,025.0	2,326.0
PHYSICS	9,101.0	3,420.0	349.0	315.0	712.0	425.0	2,140.0
PHYSIOLOGY		2,739.0			485.0	965.0	600.0
POLITICAL SCIENCE	4,049.0	3,194.0	285.0	400.0	425.0	602.0	1,612.0
SECRETARIAL SCIENCE	2,354.0	2,749.0	1,094.0	1,292.0	524.0	735.0	2,104.0
SOCIAL SCIENCE		2,047.0					821.0
SOCIAL WORK		69.0					
SOCIOLOGY	9,065.0	4,761.0	278.0	510.0	241.0	550.0	1,679.0
SPEECH & DRAMA	8,751.0	2,384.0	519.0	474.0	694.0	786.0	751.0
TRADE TECHNOLOGY		3,128.0	1,690.0	400.0	1,139.0	938.0	6,970.0
ZOOLOGY	2,929.0	6,075.0	160.0	446.0	375.0	310.0	1,025.0
UNCLASSIFIED	3,704.0		227.0		15.0	1,369.0	1,784.0
TOTAL	204,645.5	134,546.0	17,164.0	14,850.0	17,102.0	27,216.0	78,277.2

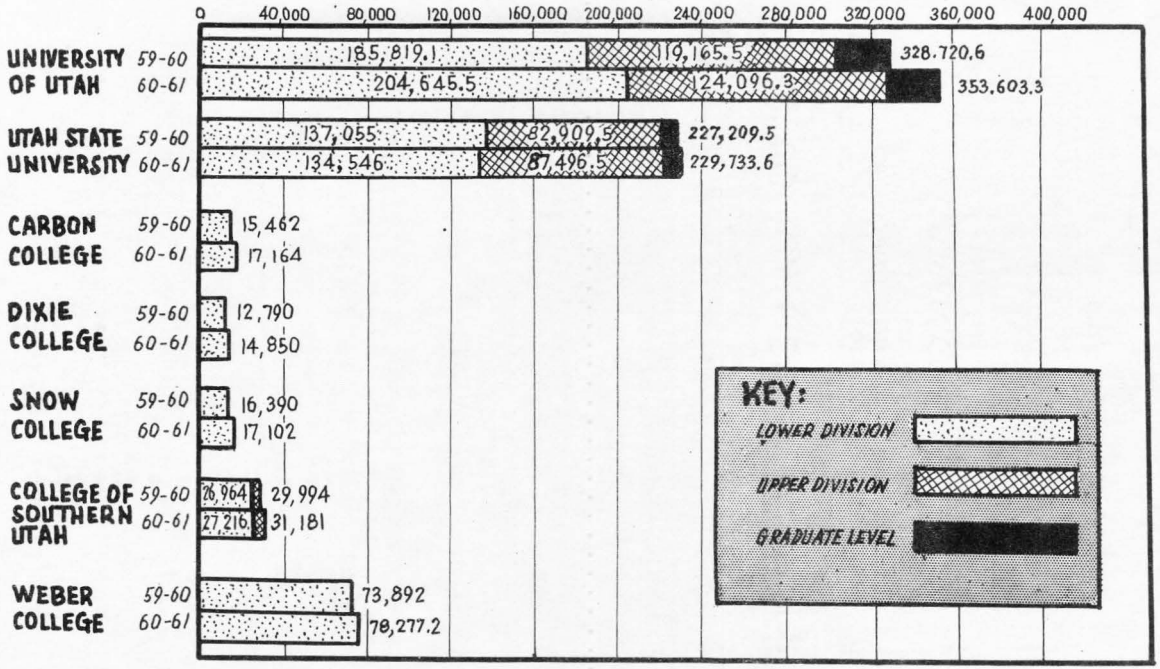
TABLE 9B. TOTAL UPPER-DIVISION UNDERGRADUATE STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS) IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		2,889.0				16.0	
AGRI ECONOMICS		875.0					
ANTHROPOLOGY	531.0						
APPLIED ARTS		691.0					
ARCHITECTURE	1,432.0						
ARTS & CRAFTS	2,087.0	945.0					
BACTERIOLOGY		326.0					
BIOLOGY	2,173.0						
BOTANY	712.0	1,089.0					
BUSINESS	11,804.0	6,796.0					
CHEMISTRY	3,663.0	1,682.0				170.0	
C.D. & F.L.	31.0	2,473.0					
CLOTHING & TEXTILES	510.0	263.0					
ECONOMICS	4,512.0	2,427.0					
EDUCATION	15,097.0	13,011.0				1,958.0	
EDUCATIONAL PSYCHOLOGY	2,859.0	3,525.0					
AGRICULTURAL ENGR		506.0					
CERAMIC ENGINEERING	299.0						
CHEMICAL ENGINEERING	1,103.0						
CIVIL ENGINEERING	3,433.0	4,975.0				24.0	
ELECTRICAL ENGR	7,214.0	2,902.0					
FUEL ENGINEERING	332.0						
GENERAL ENGINEERING							
MECHANICAL ENGR	7,282.5	3,131.0					
METALLURGICAL ENGR	1,000.5						
MINING & GEOLOGICAL	850.0						
ENGLISH	3,919.0	4,431.0				705.0	
FOODS & NUTRITION	437.0	454.0					
FORESTRY		5,189.0					
GENERAL PSYCHOLOGY	3,575.0	825.0				273.0	
GENERAL SCIENCE	68.0						
GEOGRAPHY	973.0						
GEOLOGY	2,676.0	311.0					
HEALTH EDUCATION	269.0	2,388.0					
HISTORY	3,435.0	2,484.0					
HOME ECONOMICS	567.0						
INDUSTRIAL ARTS							
JOURNALISM	508.0	251.0					
LANGUAGE	1,215.0						
FRENCH	944.0	104.0					
GERMAN	861.0	266.0					
SPANISH	661.0	185.0					
LAW	2,916.3						
LIBRARY SCIENCE	168.0	188.0					
MATH & STATISTICS	6,307.0	3,521.0				55.0	
MUSIC	1,423.0	1,662.0				96.0	
NURSING	2,722.0						
PHARMACY	2,916.0						
PHILOSOPHY	1,503.0	333.0					
PHYSICAL EDUCATION	2,403.0	3,203.0				22.0	
PHYSICS	3,241.0	853.0					
PHYSIOLOGY		378.0					
POLITICAL SCIENCE	3,424.0	2,214.0				173.0	
SECRETARIAL SCIENCE	959.0	1,000.0					
SOCIAL SCIENCE							
SOCIAL WORK		766.0					
SOCIOLOGY	4,080.0	1,489.0				125.0	
SPEECH & DRAMA	2,096.0	1,765.0				81.0	
TRADE TECHNOLOGY		1,847.5					
ZOOLOGY	2,905.0	2,859.0				267.0	
UNCLASSIFIED		24.0					
TOTAL	124,096.3	87,496.5				3,965.0	

TABLE 9C. TOTAL GRADUATE STUDENT-CREDIT-HOURS PRODUCED (QUARTER HOURS) IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		687.4					
AGRI ECONOMICS		184.0					
ANTHROPOLOGY	160.0						
APPLIED ARTS							
ARCHITECTURE							
ARTS & CRAFTS	446.0	86.0					
BACTERIOLOGY		46.0					
BIOLOGY	47.0						
BOTANY	13.0	160.0					
BUSINESS	1,171.6	444.0					
CHEMISTRY	1,954.0	392.0					
C.D. & F.L.		73.0					
CLOTHING & TEXTILES		13.0					
ECONOMICS	597.0	37.0					
EDUCATION	1,285.0	1,108.0					
EDUCATIONAL PSYCHOLOGY	1,110.0	270.0					
AGRICULTURAL ENGR		52.0					
CERAMIC ENGINEERING	266.0						
CHEMICAL ENGINEERING	175.0						
CIVIL ENGINEERING	155.0	582.0					
ELECTRICAL ENGR	505.0	280.0					
FUEL ENGINEERING	141.0						
GENERAL ENGINEERING							
MECHANICAL ENGR	633.0	39.0					
METALLURGICAL ENGR	1,019.0						
MINING & GEOLOGICAL	463.0						
ENGLISH	223.0	385.0					
FOODS & NUTRITION	7.0	34.0					
FORESTRY		689.7					
GENERAL PSYCHOLOGY	2,220.0	465.0					
GENERAL SCIENCE							
GEOGRAPHY	140.0						
GEOLOGY	781.0	111.0					
HEALTH EDUCATION	19.0	3.0					
HISTORY	114.0	70.0					
HOME ECONOMICS							
INDUSTRIAL ARTS							
JOURNALISM	9.0						
LANGUAGE	9.0						
FRENCH	28.0						
GERMAN	20.0						
SPANISH							
LAW	3,579.9						
LIBRARY SCIENCE	56.0						
MATH & STATISTICS	982.0	358.0					
MUSIC	375.0	56.0					
NURSING	212.0						
PHARMACY	125.0						
PHILOSOPHY							
PHYSICAL EDUCATION	217.0	99.0					
PHYSICS	1,111.0	131.0					
PHYSIOLOGY		42.0					
POLITICAL SCIENCE	202.0	126.0					
SECRETARIAL SCIENCE	8.0						
SOCIAL SCIENCE							
SOCIAL WORK	3,774.0	72.0					
SOCIOLOGY	101.0	53.0					
SPEECH & DRAMA	173.0	64.0					
TRADE TECHNOLOGY		62.0					
ZOOLOGY	235.0	417.0					
UNCLASSIFIED							
TOTAL	24,861.5	7,691.1					

FIGURE 2, **TOTAL STUDENT-CREDIT-HOURS PRODUCED IN ALL SUBJECT-FIELDS AT ALL INSTITUTIONS AND EDUCATIONAL LEVELS : REGULAR ACADEMIC YEARS 1959-60 AND 1960-61.**



instructional services in an institution or a department of instruction. The student-credit-hour is derived by multiplying the number of students in each class by the number of credit hours the class carries, and then adding these products for all the classes taught.

The grand total of student-credit-hours produced in an institution is directly related to the total number of full-time equivalent students, as each full-time student normally earns 45 to 48 quarter hours of credit in an academic year.

The number of student-credit-hours produced in a given field is a good index of student demand for instruction in the field. The data in these student-credit-hour production Tables could be carefully scrutinized for subject-fields in which the number of student-credit-hours taught suggests limited student interest.

It is recognized, of course, that student demand or interest is not the sole educational criterion for maintaining instruction in a subject-field. Such factors as a balanced curriculum, the special needs of students pursuing a program of specialization, and program experimentation need to be considered. Nevertheless, student demand, as indicated by the number of student-credit-hours produced, could be weighed in acting on proposals to expand course offerings in a subject-field.

From the academic year 1959-60 to 1960-61, the Utah institutions experienced some changes in the proportion of

student-credit-hours produced at each of the three academic levels. The data in Table 10 show the extent of these changes.

In the state-supported institutions, the student-credit-hours produced at the lower division accounted for 66.6 per cent of the total for 1960-61; the student-credit-hours produced at the upper division accounted for 29.1 per cent of the total; and the graduate level for 4.4 per cent of the total. This ratio between levels was very consistent for the two-year period as noted in Table 10. The percentage of the total at each of the three levels for all the schools combined did not change. This was true despite the slight changes found between the three levels at the two universities. The University of Utah accounted for 41 per cent of the entire total of student-credit-hours produced at the lower division level by the state-supported institutions of higher education in Utah in 1960-61, while the combination of the University of Utah and Utah State University accounted for 69 per cent. At the upper division level, the University of Utah produced 58 per cent of the state total, while the University of Utah and Utah State University together produced 98 per cent. This was what one would expect since the only other state-supported institution offering some upper division level courses was the College of Southern Utah. At the graduate level, the University of Utah produced 76 per cent of the total student-credit-hours.

Table 10. Changes in number and percentage of student-credit-hours taught at each of the three academic levels, between 1959-60 and 1960-61

Institution and division		Number of student-credit-hours		Percentage at each level	
		1959-60	1960-61	1959-60	1960-61
University of Utah	Lower	185,819.1	204,645.5	56.5	57.9
	Upper	119,165.5	124,096.3	36.3	35.1
	Grad.	23,736.0	24,861.5	7.2	7.0
	Total	328,720.6	353,603.3	100.0	100.0
Utah State University	Lower	137,055.0	134,546.0	60.3	58.6
	Upper	82,909.5	87,496.5	36.5	38.1
	Grad.	7,245.0	7,691.1	3.2	3.3
	Total	227,209.5	229,733.6	100.0	100.0
Carbon College	Total	15,462.0	17,164.0	100.0	100.0
Dixie College	Total	12,790.0	14,850.0	100.0	100.0
Snow College	Total	16,390.0	17,102.0	100.0	100.0
College of Southern Utah	Lower	26,964.0	27,216.0	89.9	87.3
	Upper	3,030.0	3,965.0	10.1	12.7
	Total	29,994.0	31,181.0	100.0	100.0
Weber College	Total	73,892.0	78,277.2	100.0	100.0
All Schools	Lower	468,372.1	493,800.7	66.5	66.6
	Upper	205,105.0	215,557.8	29.1	29.1
	Grad.	30,981.0	32,552.6	4.4	4.4
	Total	704,458.1	741,911.1	100.0	100.0

The analysis of the volume of instructional service to students in the commonly taught subject-areas, by level of instruction and type of institution as summarized in Tables 8 and 9, 8A and 9A, 8B and 9B, and 8C and 9C revealed some interesting facts. It confirmed the observation made previously, that in certain subject-areas a major portion of the student-credit-hours was produced at the lower division level, while in other areas the major portion was produced at the upper division or the graduate level. The former was true for areas like biology, chemistry, English, the foreign languages, mathematics, physics, social science, and speech and drama. The latter was true of areas such as education, engineering, forestry, agriculture, law, nursing, pharmacy, business, and others. Again the latter group represented generally the professional or pre-professional areas. This represented an excellent balance in terms of curriculum since it was very likely that students in these areas had taken their previous work in the general educational areas before coming into their areas of specialty.

Table 11 presents the subject-areas ranked on the basis of the student-credit-hours produced in the state-supported institutions with all levels combined. For each subject-area this Table gives the percentage its student-credit-hour production is of the total produced in all institutions, and the rank this subject-area had on the basis of the total quarter hours taught. (See Table 6, page 103.) A comparison

Table 11. Subject-areas ranked on the basis of the total number of student-credit-hours produced in state-supported institutions--all levels and institutions combined

Subject-areas	Total SCH produced 1960-61	Per cent of total SCH production	Rank order on basis of: SCH prod.	Cr.-hrs. taught
Social Science (Basic & Applied)	103,920.0	14.0	1	3
English	73,810.0	9.9	2	1
Physical Science	70,810.0	9.5	3	7
Mathematics & Statistics	62,934.0	8.5	4	6
Fine & Applied Arts	61,977.5	8.4	5	2
Education	61,155.0	8.2	6	4
Biological Sciences	58,951.0	7.9	7	10
Business & Commerce	50,167.6	6.8	8	8
Engineering (all types)	47,360.0	6.4	9	5
Psychology	30,256.0	4.1	10	12
Foreign Language & Literature	27,563.0	3.7	11	9
Trade & Industrial	16,345.5	2.2	12	11
Home Economics	15,766.0	2.1	13	14
Health	15,567.2	2.1	14	13
Philosophy	8,276.0	1.1	15	17
Unclassified	7,123.0	1.0	16	18
Agriculture	6,950.4	.9	17	15
Law	6,496.2	.9	18	19
Forestry	6,404.7	.9	19	16
Geography	5,726.0	.8	20	21
Architecture	3,109.0	.4	21	20
Library Science	1,616.0	.2	22	22
	741,911.1	100.0		

of this latter number with the ranking in student-credit-hours produced will give an indication of the student demand for the subject-area in relation to the total number of quarter hours of courses taught. For example, physical science ranks third on the number of student-credit-hours produced, while its rank on the total number of quarter hours taught was seventh. This means that, even though the Utah institutions offered more quarter hours of classes in six other areas, only two subject-areas, social science and English, produced more student-credit-hours.

Table 12 presents the subject-areas ranked on the basis of the number of student-credit-hours produced at the graduate level in the two Utah institutions offering graduate courses. This Table, like the one that precedes it, shows that subjects such as social science and physical science, rank high in the list with respect to total student-credit-hour production.

Table 12. Subject-areas ranked on the basis of the total number of student-credit-hours produced at the graduate level

Subject areas	Total SCH produced	Per cent of total SCH production	Rank order
Social science (basic & applied)	5,490	16.9	1
Physical science	4,480	13.8	2
Engineering (all types)	4,310	13.2	3
Psychology	4,065	12.5	4
Law	3,579	11.0	5
Education	2,709	8.3	6
Business	1,623	5.0	7
Mathematics & statistics	1,340	4.1	8
Fine and applied arts	1,200	3.7	9
Biological sciences	960	2.9	10
Forestry	689	2.1	11
Agriculture	687	2.1	12
English	617	1.9	13
Health	359	1.1	14
Geography	140	0.4	15
Home economics	127	0.4	16
Trade & industrial	62	0.2	17
Foreign language & literature	57	0.2	18
Library science	56	0.2	19
Architecture	0	0.0	20
Philosophy	0	0.0	20
Unclassified	0	0.0	20
Total	32,552	100.0	

CHAPTER V

INSTRUCTIONAL STAFF

Basic to any consideration of instructional programs is the staff for carrying out the instructional responsibilities. In this chapter statistics are presented showing the number of faculty members in terms of what is called a full-time-equivalent faculty member. Also summarized are the instructional salary expenditures. The data for numbers of faculty members and for instructional salary expenditures have only limited significance, except as they are related to certain other fundamental measures of instructional production. Most of these relationships are to be presented in later chapters of this study.

The term "full-time-equivalent faculty member" was defined in Chapter I. Each participating institution submitted a report showing the percentage of time and salary charged to the instructional budget for each staff member reported as teaching any course during the 1959-60 and the 1960-61 regular academic years. Staff members teaching one or more courses whose salaries were not charged to the instructional budget were included in the count of faculty members at the appropriate fraction of full time, and an allotment of this same fraction of their total salary was made to the faculty expenditure item for the subjects and

levels in which they were teaching. The sum total of these staff members rendering full-time or part-time service in instruction constitutes the total number of full-time-equivalent faculty members at a given institution. This total was computed for the entire institution and for each of the subject-matter fields.

The distribution of the service and salary of each faculty member among the various courses taught was generally made by dividing the credit-hour load of the instructor in a given course by his total credit-hour load, thus obtaining a decimal equivalent of the staff member's total teaching load and total salary for that course. The reader might like to refer to the Appendix for the specific instruction section given for the completion of Form 2, for further details in this regard. By adding these decimal equivalents for each course taught, it was possible to obtain a total of full-time-equivalent faculty and a total faculty salary expenditure for each subject-matter area and for each level of instruction.

In the first chapter of this study it was pointed out that the number of full-time-equivalent faculty members computed in this study for any institution may vary from the number reported for other purposes in Utah, because of the manner in which the statistics are reported. It might be recalled that for the present purposes, the study considered as a member of the instructional staff any person who taught a course for which he was responsible to the point of giving

the grade and authorizing the granting of credits to the students enrolled in the course. Faculty members in fields such as medicine and military science, which were excluded from this study, are also omitted from the tabulations. Thus, the total instructional staff members as reported in this study for institutions having such programs will differ from the total reported for other purposes in Utah.

In the present study no consideration is given to the educational qualifications, academic ranks, or characteristics of faculty members other than the subject-matter field of teaching, the level of courses taught, and the salary received during the 1959-60 and the 1960-61 regular academic years.

Number of Full-time-equivalent Instructional Faculty Members

Tables 13 and 14 show the total number of full-time-equivalent faculty teaching in each subject-field in each institution during the 1959-60 and 1960-61 regular academic years. A full-time-equivalent instructor represents one person who devotes full time to the instructional program. Some faculty members, especially in the smaller Utah institutions, teach in two or three different subject-fields. For the purposes of this study, their time is prorated to each of the different subject-fields in accordance with information furnished by the institution. In several of the institutions, certain faculty members devote a part of their time to

TABLE 13. TOTAL FULL-TIME-EQUIVALENT FACULTY TEACHING IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		16.90			.92	.75	.61
ANTHROPOLOGY	3.23				.12		.47
ARCHITECTURE	7.59	2.00				.21	
ARTS & CRAFTS	11.04	6.98	.79	1.20	1.14	1.11	1.78
AUTO MECHANICS		2.84	1.00		.83	.50	2.68
BACTERIOLOGY		2.12		.15	.23	.28	.60
BIOLOGY	20.92		.47	.92	.26	.57	1.62
BOTANY	3.13	3.54		.31	.39	.60	.57
BUSINESS	24.06	7.99	2.40	2.68	.63	1.65	3.93
CHEMISTRY	14.88	8.66	.99	.97	.76	1.65	2.90
C.D. & F.L.	1.03	4.15			1.00	.29	3.00
CLOTHING & TEXTILES	2.09	1.75				1.07	
COSMETOLOGY							1.00
ECONOMICS	12.30	4.64	.35	.32	.23	.76	1.37
EDUCATION	30.01	13.24	.13		.19	2.74	1.53
ENGINEERING			.42	.03	.37		2.32
AERONAUTICAL ENGR		3.00					
AGRICULTURAL ENGR		1.82					
CERAMIC ENGR	1.78						
CHEMICAL ENGR	4.57						
CIVIL ENGR	13.21	9.44				.95	
ELECTRICAL ENGR	12.03	6.94	.20	.12		.32	2.93
MECHANICAL ENGR	15.05	6.99					
METALLURGICAL ENGR	2.74						
MINING & GEOL ENGR	2.79						
TOOL ENGR		3.00				.35	
ENGLISH	35.68	22.57	2.21	2.92	2.98	3.87	10.02
FOODS & NUTRITIONS	2.82	3.70				.60	
FORESTRY		12.77			.07	.14	.09
GEOGRAPHY	3.30		.05		.28		.25
GEOLOGY	10.60	2.85	.33	.67	.06	.73	.67
HEALTH EDUCATION	1.24	.94	.25	.63	.09		.72
HISTORY	6.56	4.30	.77	1.20	.30	.85	1.13
HOME ECONOMICS	2.37	3.19	.90	2.00		.04	
HONORS		.14					
HUMANITIES	.98					.26	2.23
INDUSTRIAL ARTS EDUC		5.88		1.94	.74	.89	
JOURNALISM	2.58	1.21		1.08	.23	.07	
LANGUAGE	1.41	.58					
ARABIC	.37						
DUTCH	.19						
FRENCH	6.78	1.88			.35	.33	.24
GERMAN	6.42	2.30	.45	1.00	.36		.46
GREEK	.68						
ITALIAN	.45						
JAPANESE	.20						
LATIN	.80						
PORTUGUESE	.17						
RUSSIAN	1.44	.67					
SCANDINAVIAN	.20						
SPANISH	3.95	1.52		.88		.34	.47
TURKISH	.33						
LAW	8.88						
LIBRARY SCIENCE	1.20	1.03					
MATHEMATICS	28.78	11.47	1.22	1.04	.98	2.03	7.75
MEDICAL TECHNOLOGY		.28					1.14
MUSIC	13.87	6.30	1.00	2.00	1.27	1.66	2.36
NURSING	12.25		2.00				7.00
PHARMACY	5.44						
PHILOSOPHY	4.36		.25				.46
PHYSICAL EDUCATION	14.01	10.15	1.75	1.49	2.03	2.79	1.94
PHYSICAL SCIENCE			.21		.37	.47	1.47
PHYSICS	24.23	7.55	.36	.96	.36	.52	1.74
PHYSIOLOGY		2.10	.11	.16	.26	.44	.33
POLITICAL SCIENCE	6.48	2.76	.31	1.32	.16	.93	1.03
PSYCHOLOGY	8.94	5.47	.34		.40	.76	1.59
SECRETARIAL SCIENCE		3.67			1.14	1.48	2.07
SOCIAL STUDIES	10.19	1.83				.11	.64
SOCIOLOGY	8.88	3.87	.33	.38	.25	.35	1.60
SPEECH & DRAMA	23.55	6.03	.64	1.00	1.03	.80	1.64
VETERINARY SCIENCE		1.13				.11	
VOCATIONAL-TECHNICAL	3.19		1.95				4.96
WELDING		1.91	1.00		.17	.54	.11
ZOOLOGY	5.90	6.60	.42	.46	.39	.42	.78
TOTAL	452.12	242.65	23.60	27.83	21.34	35.33	82.20

TABLE 14. TOTAL FULL TIME-EQUIVALENT FACULTY TEACHING IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		14.35	.26		.51	1.07	.66
AGRI ECONOMICS		3.08			.24	.22	
ANTHROPOLOGY	3.80		.08				.37
APPLIED ARTS		3.40					.10
ARCHITECTURE	7.76						
ARTS & CRAFTS	10.24	7.05	.84	.67	1.12	1.00	2.85
BACTERIOLOGY		2.69	.10		.20	.26	.60
BIOLOGY	12.64		.46	.39	.20	.81	1.50
BOTANY	3.13	3.88	.10	.18	.30	.58	.95
BUSINESS	18.70	10.27	.98	.52	.62	1.75	4.33
CHEMISTRY	20.77	9.17	1.35	.65	.94	1.67	2.83
C.D. & F.L.	.96	6.65				1.48	
CLOTHING & TEXTILES	1.82	3.49					
ECONOMICS	15.23	4.73	.41	.21	.20	.75	1.71
EDUCATION	22.57	17.07	.07	.05	.16	3.33	.40
EDUCATIONAL PSYCHOLOGY	7.24	2.27					1.78
AGRICULTURAL ENGR		2.45					
CERAMIC ENGINEERING	1.94						
CHEMICAL ENGINEERING	4.11						
CIVIL ENGINEERING	13.44	9.57				.82	
ELECTRICAL ENGR	10.98	5.77		.27		.26	
FUEL ENGINEERING	.95						2.06
GENERAL ENGINEERING			.47	.16			
MECHANICAL ENGR	13.40	10.34					
METALLURGICAL ENGR	4.56						
MINING & GEOLOGICAL	5.75						
ENGLISH	36.53	23.05	1.76	2.53	3.38	4.20	12.16
FOODS & NUTRITION	2.81	3.84				.52	
FORESTRY		11.18			.06	.15	.09
GENERAL PSYCHOLOGY	8.38	4.40	.39	.25	.47	.89	
GENERAL SCIENCE	.61					.56	1.11
GEOGRAPHY	4.17		.09		.24		.39
GEOLOGY	13.66	2.88	.48	.43	.17	.74	.81
HEALTH EDUCATION	4.95	1.51		.31	.08		.75
HISTORY	5.99	4.84	.65	.62	.30	1.41	1.07
HOME ECONOMICS	2.11		.98	1.34	1.00		3.18
INDUSTRIAL ARTS				.49	.18		.05
JOURNALISM	2.61	1.14	.43		.12	.25	
LANGUAGE	6.80	1.35					
FRENCH	7.82	1.64	.23		.34	.69	1.00
GERMAN	7.44	2.69	.46	.17	.34		.84
SPANISH	4.59	1.66	.41	.67	.04	.18	.61
LAW	8.86						
LIBRARY SCIENCE	1.20	.53					
MATH & STATISTICS	32.31	15.76	1.61	.66	.97	2.28	7.83
MUSIC	11.75	6.84	.76	1.34	1.25	1.64	3.66
NURSING	14.73		2.00				6.67
PHARMACY	4.85						
PHILOSOPHY	4.78	.65	.20				.46
PHYSICAL EDUCATION	18.47	9.97	1.90	1.16	1.98	2.29	1.93
PHYSICS	17.66	5.87	.47	.51	.42	.47	2.02
PHYSIOLOGY		1.72			.21	.55	.33
POLITICAL SCIENCE	6.28	3.64	.38	.20	.28	.93	1.15
SECRETARIAL SCIENCE	4.44	3.78	1.24	1.28	1.12	1.32	2.07
SOCIAL SCIENCE		.72					.63
SOCIAL WORK	9.99	1.01					
SOCIOLOGY	9.42	3.64	.23	.19	.21	.70	1.11
SPEECH & DRAMA	21.90	6.51	.91	.64	1.00	1.07	1.22
TRADE TECHNOLOGY		12.35	3.46	.67	2.37	2.87	11.80
ZOOLOGY	6.13	7.48	.32	.32	.30	.55	.78
UNCLASSIFIED	1.97	.05	.59		.06	1.03	1.58
TOTAL	463.20	256.93	25.07	16.88	21.38	39.29	85.44

organized research or to administrative duties as deans of colleges or division heads. Only the portion of their time spent on instruction is shown in Tables 13 and 14. The chairman or head of a subject-field unit, such as music, geology, or history, is recorded as a full-time faculty member. No separate allowance is made in this study for the time that a faculty member devotes to non-budgeted research that is connected with his instructional activities.

The chief purpose of the data in Tables 13 and 14 is to derive statistics pertaining to teaching loads and student-credit-hours taught per full-time-equivalent faculty member. It should be noted that this count of faculty members includes the regular full-time instructional staff and those devoting only part-time to teaching. Also included are graduate assistants and lecturers.

Although the data are not shown in this report, the time of each faculty member is prorated to each of the three academic levels--lower-division, upper-division, and graduate--on the basis of the percentage distribution of the total credit hours he teaches among these three levels. For example, if a faculty member taught a total of 36 credit hours of classes during the academic year of which 18 were at the lower-division level, 9 at the upper-division level, and 9 at the graduate level, his time would be prorated as follows--0.50 to lower-division, 0.25 to upper-division, and 0.25 to graduate. This distribution of time is necessary in

computing the average student-credit-hours taught per full-time-equivalent faculty member at each of the academic levels and in prorating salaries to each level and subject-field for the computation of unit cost.

It should be noted that the data produced by this method of prorating a faculty member's time to classes at each of the three academic levels do not represent the actual amount of time he devoted to those classes. He may, for example, have devoted a great deal more time to a three-credit hour course that he has taught for the first time, than to a five-credit course that he has taught before. This particular study does not attempt to take into account such factors in prorating a faculty member's time to the courses he has taught.

Table 15 summarizes the data on full-time-equivalent faculty members at the Utah institutions included in this study. It gives a two-year picture of the total number of faculty teaching at each of the institutions.

During this same two-year period, student-credit-hour production increased by 5.0 per cent from 704,481.1 to 741,911.1 student-credit-hours produced. Thus, there was a slightly greater increase in production than in number of faculty.

The rank order of subject-matter areas, according to number of instructional staff members, is very similar to that shown in previous chapters for scope of course offerings and

volume of instructional service. Excluding the medical college, six subject-areas at the University of Utah contain one-third of the total number of full-time-equivalent faculty members in the 1960-61 school year. They are in order of rank: English, mathematics, education, speech and drama, chemistry, and business.

Table 15. Total full-time-equivalent faculty teaching at the institutions of higher education in Utah during the 1959-60 and 1960-61 regular academic years.

Institution	1959-60	1960-61	Percentage increase
University of Utah	452.12	463.20	2.5
Utah State University	242.65	256.93	5.9
Carbon Junior College	23.60	25.07	6.2
Dixie Junior College	27.83[a]	16.88	-9.0
Snow Junior College	21.34	21.38	0.2
College of Southern Utah	35.33	39.29	11.2
Weber College	82.20	85.44	3.9
Total	875.79	908.19	3.7

[a]The time devoted to teaching high school classes was not deducted in this instance. Two-thirds of 27.83 or 18.55 was therefore used in computing the total and the percentage increase.

Six subject-areas at Utah State University contain thirty-six per cent of their total number of full-time-equivalent faculty. They are in order of rank: English,

education, mathematics, agriculture, trade technology, and forestry.

Instructional Salary Expenditures per Full-time-equivalent Faculty Member

In the analysis for this study, as previously explained, a proportionate amount of each instructor's salary was allocated to each course he taught. This amount was considered as the instructional salary expenditure for that particular course. The sum total of these amounts, under any one of the subject-matter areas or instructional levels, was the total instructional salary for that subject-matter area or instructional level. The basic data on total instructional salary expenditures for each institution, by subject-matter areas, are shown in Tables 16 and 17. The data in these Tables are used to derive other figures such as the average salary per full-time-equivalent instructor (not shown in this study) and the average instructional salary cost per student-credit-hour produced.

The salary of a faculty member teaching in two or more subject-fields was prorated to each subject-field in accordance with the way in which his teaching load, as measured by credit hours of classes taught, was distributed among the two or more fields. Although the data are not shown in this study, his salary was also prorated to each of the three academic levels in accordance with the distribution of his teaching among the three levels.

TABLE 16. TOTAL INSTRUCTIONAL SALARY COST IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		123,267			4,486	4,320	2,792
ANTHROPOLOGY	24,775				577		3,477
ARCHITECTURE	57,125	15,000				1,214	
ARTS & CRAFTS	71,156	44,027	3,859	5,286	5,966	7,300	12,075
AUTO MECHANICS		17,221	5,400		4,125	2,700	17,906
BACTERIOLOGY		13,731		524	1,402	1,343	4,633
BIOLOGY	109,856		3,440	3,717	1,410	3,149	10,800
BOTANY	25,373	26,450		1,047	2,116	3,394	3,807
BUSINESS	175,952	55,980	14,971	12,019	3,008	9,654	25,829
CHEMISTRY	105,625	56,510	5,686	3,679	4,584	10,568	20,458
C.D. & F.L.	6,278	27,639			4,700	1,400	18,450
CLOTHING & TEXTILES	11,909	9,705				6,050	
COSMETOLOGY							4,950
ECONOMICS	84,250	36,189	2,054	1,448	1,114	5,029	9,716
EDUCATION	214,731	91,049	955		1,134	18,595	10,660
ENGINEERING			2,875	105	2,975		14,368
AERONAUTICAL ENGR		17,171					
AGRICULTURAL ENGR		13,235					
CERAMIC ENGR	12,039						
CHEMICAL ENGR	38,030						
CIVIL ENGR	95,465	68,356				6,039	
ELECTRICAL ENGR	85,400	52,559	939	524		1,745	17,479
MECHANICAL ENGR	104,100	44,343					
METALLURGICAL ENGR	21,911						
MINING & GEOL ENGR	24,263						
TOOL ENGR		22,900				2,322	
ENGLISH	208,279	130,412	13,998	10,747	17,585	20,390	65,239
FOODS & NUTRITIONS	19,915	21,957				2,975	
FORESTRY		91,659			421	817	616
GEOGRAPHY	22,347		210		1,702		1,775
GEOLOGY	73,946	19,608	1,467	2,992	464	3,937	4,779
HEALTH EDUCATION	13,025	7,405	1,300	2,286	438		5,445
HISTORY	56,498	26,296	3,739	5,419	2,064	4,728	8,729
HOME ECONOMICS	14,926	17,491	5,760	7,135		175	
HONORS		940					
HUMANITIES	6,146					1,853	14,510
INDUSTRIAL ARTS EDUC		39,202		7,345	4,457	5,682	
JOURNALISM	21,418	8,157		3,255	1,385	440	
LANGUAGE	10,516	4,103					
ARABIC	3,125						
DUTCH	810						
FRENCH	37,428	11,521			2,365	2,200	1,324
GERMAN	41,546	13,043	2,762	529	2,364		3,298
GREEK	5,232						
ITALIAN	2,346						
JAPANESE	1,080						
LATIN	5,984						
PORTUGUESE	1,473						
RUSSIAN	6,600	2,987					
SCANDINAVIAN	810						
SPANISH	24,240	9,399		3,605		2,200	2,648
TURKISH	1,500						
LAW	101,817						
LIBRARY SCIENCE	8,300	4,664					
MATHEMATICS	178,630	66,625	6,800	4,394	6,223	12,761	46,084
MEDICAL TECHNOLOGY		1,895					7,927
MUSIC	98,575	42,620	6,500	8,307	6,390	11,947	13,229
NURSING	79,468		4,680				39,190
PHARMACY	35,891						
PHILOSOPHY	35,924		1,987				3,476
PHYSICAL EDUCATION	90,199	56,004	9,401	5,501	10,337	16,836	11,503
PHYSICAL SCIENCE			1,016		2,200	3,052	9,606
PHYSICS	158,291	49,751	1,571	3,745	2,788	3,498	12,130
PHYSIOLOGY		15,285	782	524	1,545	2,345	2,574
POLITICAL SCIENCE	51,454	20,579	1,707	3,130	1,026	4,837	6,796
PSYCHOLOGY	67,585	37,062	2,221		2,296	5,098	11,463
SECRETARIAL SCIENCE		21,979			7,238	7,709	11,953
SOCIAL STUDIES	73,002	12,041				727	4,919
SOCIOLOGY	65,695	27,239	2,484	1,591	1,513	2,113	10,215
SPEECH & DRAMA	147,013	39,585	4,355	3,684	5,468	4,010	9,842
VETERINARY SCIENCE		9,385				722	
VOCATIONAL-TECHNICAL	28,826		11,008				30,627
WELDING		11,826	6,350		825	3,482	671
ZOOLOGY	46,516	44,785	3,128	1,991	2,252	2,708	5,604
TOTAL	3,114,614	1,600,837	133,405	104,529	121,143	212,064	523,572

TABLE 17. TOTAL INSTRUCTIONAL SALARY COST IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		102,768	1,375		2,756	6,479	3,234
AGRI ECONOMICS		23,388			1,300	1,552	
ANTHROPOLOGY	26,337		485				2,737
APPLIED ARTS		23,889					615
ARCHITECTURE	59,750						
ARTS & CRAFTS	69,290	45,842	4,238	3,249	6,296	7,150	19,062
BACTERIOLOGY		17,371	543		1,246	1,269	4,783
BIOLOGY	91,154		2,277	2,213	1,160	5,178	10,264
BOTANY	27,437	28,380	543	935	1,740	3,425	7,100
BUSINESS	144,569	69,985	6,335	3,276	3,213	10,883	29,503
CHEMISTRY	110,730	59,654	7,828	3,573	6,415	10,510	20,815
C.D. & F.L.	5,709	42,729				8,504	
CLOTHING & TEXTILES	10,156	18,365					
ECONOMICS	108,131	37,398	2,449	1,092	1,072	5,175	12,610
EDUCATION	173,298	120,271	472	335	998	23,516	3,197
EDUCATIONAL PSYCHOLOGY	54,388	15,411					13,347
AGRICULTURAL ENGR		18,307					
CERAMIC ENGINEERING	16,370						
CHEMICAL ENGINEERING	37,100						
CIVIL ENGINEERING	99,771	69,358				6,518	
ELECTRICAL ENGR	79,134	47,373		1,694		1,461	
FUEL ENGINEERING	9,520						14,370
GENERAL ENGINEERING			3,282	854			
MECHANICAL ENGR	95,398	70,377					
METALLURGICAL ENGR	42,212						
MINING & GEOLOGICAL	49,349						
ENGLISH	208,685	130,744	11,132	12,254	21,338	24,225	78,716
FOODS & NUTRITION	21,691	25,735				2,696	
FORESTRY		87,198			348	930	656
GENERAL PSYCHOLOGY	66,750	32,474	2,820	1,675	2,908	9,096	
GENERAL SCIENCE	4,861					3,185	7,472
GEOGRAPHY	31,800		381		1,496		2,940
GEOLOGY	109,814	21,494	2,287	2,682	1,236	4,569	5,594
HEALTH EDUCATION	23,660	10,106		1,793	429		5,688
HISTORY	53,175	33,627	3,268	3,949	2,134	8,570	8,454
HOME ECONOMICS	12,501		6,251	7,238	5,300		20,060
INDUSTRIAL ARTS				3,078	1,085		330
JOURNALISM	19,579	8,777	2,807		762	1,733	
LANGUAGE	45,799	8,517					
FRENCH	43,255	11,638	1,454		2,383	4,793	4,500
GERMAN	39,388	18,284	2,908	529	2,283		4,908
SPANISH	28,118	10,612	2,453	3,966	298	1,198	3,616
LAW	94,741						
LIBRARY SCIENCE	8,160	2,528					
MATH & STATISTICS	205,685	97,554	9,867	4,035	6,548	15,112	49,711
MUSIC	84,309	45,893	4,971	7,015	6,750	12,381	26,031
NURSING	88,643		9,100				36,180
PHARMACY	36,489						
PHILOSOPHY	39,734	4,489	1,527				3,593
PHYSICAL EDUCATION	109,668	54,615	10,556	5,906	10,497	16,001	11,677
PHYSICS	113,647	40,439	2,355	2,993	3,131	2,920	14,456
PHYSIOLOGY		13,302			1,448	3,992	2,657
POLITICAL SCIENCE	53,122	26,267	2,536	1,202	1,632	5,052	6,022
SECRETARIAL SCIENCE	28,410	22,545	7,876	7,643	7,343	7,115	11,133
SOCIAL SCIENCE		5,244					4,991
SOCIAL WORK	74,640	7,066					
SOCIOLOGY	71,661	25,919	1,730	1,202	1,330	4,392	7,677
SPEECH & DRAMA	136,878	43,588	6,624	3,533	5,250	5,988	7,700
TRADE TECHNOLOGY		78,821	20,404	3,249	14,267	17,613	75,141
ZOOLOGY	51,301	51,098	1,628	1,788	1,740	3,836	5,282
UNCLASSIFIED	13,828	344	3,520		340	6,337	10,385
TOTAL	3,229,798	1,729,781	148,282	92,951	128,472	253,354	557,208

The total expenditures shown in Tables 16 and 17 for each subject-field and for each institution will not in all instances be identical with the amounts actually budgeted for faculty salaries for each institution or for each subject-field department. For one reason the subject-fields identified in this study are not consistent with the departmental organization of each institution. Also, this study is based on a rather rigorous allocation of time and salaries of faculty members. For example, if a faculty member in the department of chemistry teaches a class in biology, the procedures used in this study require his time and salary to be prorated between chemistry and biology. In preparing departmental budgets, an institution usually either cannot anticipate each and every interdepartmental shift in manpower or cannot afford to maintain the kind of accounting system required to reflect such shifts. This rigorous allocation of teaching time and salaries affects the total salary expenditures reported for each institution. Most institutions do not prorate to the instructional budget the salaries of deans and other administrative officers who teach an occasional class. For more accurate accounting of instructional costs, however, such proration has been made in this study.

CHAPTER VI

CLASS SIZE

This chapter of the present study is devoted to an analysis of class size, treating the average size of class and the percentage of classes that are small or that fall into various different class size categories. Important light is thrown on the general efficiency and economy of the instructional program of a college or university by such an analysis. Much research has been done on the question of the size of classes as related to the extent and quality of achievement by students. The traditional and commonly held opinion is that the smaller the size of class, the more the students in it will learn. A long series of research studies, however, fails to support this opinion. Some representative research of this type is reported in Chapter II of this study. In general, the research shows that students in large classes seem to learn as much and as well as those in small classes. In certain subjects it is recognized that the nature of the instructional process requires class groups to be of only limited size. For example, in the teaching of English composition to freshmen, it has long been held that classes cannot be larger than 25 to 30 if the instructor is to give adequate attention to the development of the writing skills of his students. In many other subjects, such as introductory

courses in history, psychology, and sociology, the size of the lecture classes is often seemingly limited only by the capacity of the largest available classroom on the campus, and instructional groups of a hundred students or more are common.

The relationship between the size of classes and the economy of the instructional program is clear. If the number of students is held constant, a college operating with an average class size of 24 will need only half the instructional staff that would be necessary if the average size of class was to be 12; or, if the same number of faculty members are employed in the two situations, the average instructor will have to meet classes twice as many hours a week to maintain an average size of class of 12 as if the average were 24.

While some would maintain that the ideal size of class is one, a compromise with this extreme position is necessary and is found in practically every institutional situation. The question then becomes, how large can the average size of class become without endangering the effectiveness of the instructional program? The available research seems to give no definite answer to this problem. In fact, it is difficult to find examples anywhere of institutions whose instructional program was imparied in quality because the average size of classes became too large, especially if one insists on objective evidence of such impairment. Doubtless there is such a maximum limit beyond which the size of classes cannot be

increased, but the available research surveyed by the writer gives no indication of what that limit is. For the most part, in current practice, limits on the size of classes seem to be based on the subjective judgment of individual instructors, departmental staffs or academic administrative officers, plus natural restrictions due to availability of appropriate physical facilities.

The present study does not start with a presumption about a desirable size of classes in any subject-matter area or level of instruction. Instead the study seeks to investigate the situation with respect to the distribution of class size in Utah state-supported institutions of higher education during the regular academic years 1959-60 and 1960-61.

Several different approaches to the analysis of size of classes are used in this study. The first section of the chapter treats the average size of classes, for the entire institution, for each instructional level, and for each subject-matter field. The second approach is by a computation of the percentage of classes taught that are either small or large. Two measures of smallness are used: (1) classes with fewer than five students enrolled, and (2)classes with fewer than 10 students enrolled. Similarly, two measures of largeness are used: (1) classes enrolling 100 or more students, and (2) classes enrolling 50 or more students. A third section investigates the actual number of classes taught in various different class size categories: 1-4, 5-9, 10-29,

30-49, 50-99, 100 or more. Finally, class size in some selected graduate subject-matter fields in the two universities is also investigated.

Average Size of Class

As explained in Chapter I, a class is defined, for the purposes of this study, as a grouping of students who meet at the same time and place under an instructor. A single course may be taught in a number of different sections, meeting at different times and places and possibly under different instructors; each such section is considered a "class" for the purposes of this analysis. In some cases the students of several different courses, in a field such as art, may meet in the same place and at the same time for instruction under a faculty member. This is possible in case the instruction is largely individual. In such cases the group is considered as one class, even though it may be composed of students pursuing several different courses.

A simple computation of the average size of class might be made by summing all the enrollments of the various classes taught and dividing by the number of classes. This would not give an accurate measure so far as the instructional load to be carried is concerned, for classes are given for varying amounts of credit. For this reason it is necessary to compute a weighted average size of class. In such a computation each class is given a weighting in accordance with the number of

quarter hours of credit carried. This average is computed by dividing the total number of student-credit-hours produced in a subject-field (or in an institution) by the number of credit hours of classes taught in that field (or at that institution). It is in this sense a "weighted" average. A class carrying three quarter hours of credit is counted into the average at three times the weight of a class carrying only one quarter hour of credit. For example, if an instructor taught four classes, the first class for three credit-hours enrolling 25 students, the second class for one credit-hour with an enrollment of 100 students, the third class for four credit-hours with an enrollment of 30 students, and the fourth class for five credit-hours with an enrollment of six students, the total of his credit hours of teaching would be 13, the total student-credit-hours produced would be 325, and the weighted average size of his classes would be 25. Another example, if an institution produced 6,500 student-credit-hours in a given subject-matter area in which classes totaling 250 quarter credit-hours were taught, the weighted average size of class in this subject-matter area would be 26.

Average class size by instructional level

Data are presented in Table 18 and Figure 3 showing the weighted average size of class at each institution participating in the study. The average is shown for each instructional level and for all levels combined, for each of the Utah

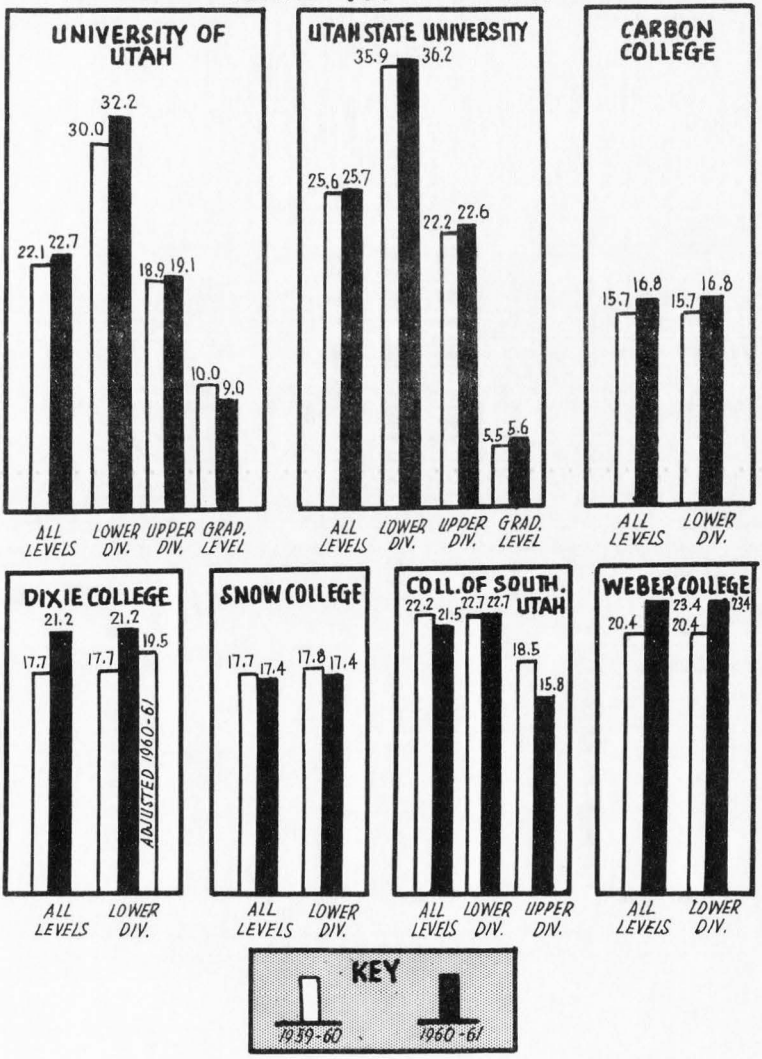
institutions.

Table 18. Weighted average size of class at the Utah institutions at the three levels of instruction and at all levels combined for the regular academic years 1959-60 and 1960-61.

Institution		Lower Division	Upper Division	Graduate	All levels combined
Univ. of Utah	1959-60	30.0	18.9	10.0	22.1
	1960-61	32.2	19.1	9.0	22.7
Utah State University	1959-60	35.9	22.2	5.5	25.6
	1960-61	36.2	22.6	5.6	25.7
Carbon College	1959-60	15.7			15.7
	1960-61	16.8			16.8
Dixie College	1959-60	17.7			17.7
	1960-61	21.2			21.2
Snow College	1959-60	17.8	9.0		17.7
	1960-61	17.4			17.4
College of So. Utah	1959-60	22.7	18.5		22.2
	1960-61	22.7	15.8		21.5
Weber College	1959-60	20.4			20.4
	1960-61	23.4			23.4
State Average	1959-60				22.5
	1960-61				23.2

It is interesting to note that substantial increases in average class size have occurred over the two-year period particularly at the lower-division level. All the Utah institutions either maintained or raised their average class size at this level with the exception of Snow College. Weber

FIGURE 3, AVERAGE SIZE OF CLASSES IN ALL SUBJECT-FIELDS IN ALL INSTRUCTIONAL LEVELS: REGULAR ACADEMIC YEARS 1959-60 AND 1960-61.



College increased their average class size by three persons per class.

It is also interesting that the institutions have very similar weighted average sizes of classes, when all instructional levels are combined. The range within the group for all instructional levels combined is relatively small, from a low of 15.7 students per class to a high of 25.6 in 1959-60 and from a low of 16.8 to a high of 25.7 in 1960-61. Carbon College has the smallest average class size both years and Utah State University the largest. At the lower-division level the junior colleges as a group have a substantially lower average size of class than the universities. The average size of lower-division classes is larger than for either upper-division or graduate classes. The average size of graduate classes is considerably smaller than either upper-division or lower-division undergraduate classes. This pattern of average size of classes for the Utah institutions is similar to that found in other institutions and states where this kind of study has been made.

In both universities the average size of class is much larger in the lower-division than in the upper-division courses. The question can be raised as to why this is true. In general the situation seems to result from the tendency to offer a wider range of courses at the upper division than at the lower-division level, in proportion to the numbers of students who are eligible to enter the courses at each level.

Unless an institution consciously restricts the diversity of its upper-division courses, there is an almost inevitable tendency for the classes at this level to attract a smaller average enrollment than the lower-division classes. Frequently the methods of instruction used at the two levels do not warrant such differences in average class size at the two undergraduate levels.

Some difference is noted between the average size of graduate classes at the two state-supported universities. It might be recalled that in this study a rather strict definition is used for "graduate level" courses and classes. This category includes those courses with numbers of 200 or above that are generally limited to graduate students. Thus, it includes courses to which undergraduates are not normally admitted. Most graduate students, particularly at the master's degree level, fill out their programs at both universities by carrying some courses at the upper-division level.

Although the average size for graduate classes is considerably below the average for upper-division or lower-division classes at both universities, this must be recognized as an inescapable situation in the offering of graduate programs of study. Graduate courses are of necessity highly specialized. The number of students interested in a given subject and competent to pursue it at the graduate level is distinctly limited. As a matter of fact it will be noted in the next section of this chapter that the average size of

graduate classes found in most subject-matter areas in both universities is surprisingly high. In general, it seems that the institutions have used excellent judgment in developing their graduate programs and have not proliferated them unduly into a large number of specialities for which the demand is very limited. The 1960-61 averages for the universities as a whole of between about six to nine students per graduate class are relatively high for classes at the graduate level and indicate programs that are in general economically organized.

Both of the Utah state-supported universities offer graduate programs at the doctor's degree level. At this level much of the work of students consists of seminars that are customarily given only to small groups. The research programs of candidates for the doctorate and the supervision of doctoral theses must be almost on an individual basis, and thus tend to lower the average size of graduate classes. It should be emphasized that graduate research and thesis supervision are essential elements of the advanced graduate program, and the fact that these provisions contribute to the lowering of average class size should not be in any way interpreted as an indication that such instructional provisions are unjustified. On the contrary they are an inherent feature of sound graduate programs, and must be faced as one of the important factors contributing to the generally high cost of advanced instruction.

Average size of class by subject-matter area

The 19 and 20 series of Tables show the weighted average size of classes taught in each subject-field at each institution during the regular academic years 1959-60 and 1960-61. Tables 19A and 20A, 19B and 20B, and 19C and 20C, respectively, show the weighted average size of classes taught in each subject-field for the lower-division level, the upper-division level, and the graduate level. There is a wide range in size of classes among the different subject-fields. Certain subject-matter areas seem rather consistently to have relatively larger average size of classes in all institutions. Among the subjects in which the average size of lower division classes tends to be larger are anthropology, biology, chemistry, economics, geography, history, political science, psychology, social science, and sociology. Subject-matter areas that have average class size rather consistently low for the same 1960-61 year at the lower-division level include some branches of engineering, industrial arts, journalism, language, nursing, speech and drama, and some foreign languages.

Subject-matter areas at the graduate level in which the average size of class is above average at both universities during the 1960-61 year include chemistry, educational and general psychology, mathematics, social work, and zoology. Relatively small average class size at the graduate level in both institutions is shown for areas such as economics,

TABLE 19. WEIGHTED AVERAGE SIZE OF CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60 (EACH CLASS WEIGHTED ACCORDING TO NUMBER OF CREDITS IT CARRIES)

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		13.3			8.6	18.1	8.9
ANTHROPOLOGY	24.2				6.5		18.9
ARCHITECTURE	12.6	15.1				5.0	
ARTS & CRAFTS	19.7	14.0	6.5	16.8	10.2	15.0	7.7
AUTO MECHANICS		13.1	13.3		9.1	14.2	12.1
BACTERIOLOGY		30.7		14.0	18.1	29.5	27.0
BIOLOGY	36.2		31.2	44.2	40.0	38.5	31.8
BOTANY	23.0	39.7		6.5	30.3	32.3	34.2
BUSINESS	24.1	31.6	12.5	11.0	14.6	19.9	22.4
CHEMISTRY	63.5	49.5	16.0	15.3	21.8	21.5	23.6
C.D. & F.L.	23.8	22.3			10.9	16.3	18.2
CLOTHING & TEXTILES	15.1	12.9				13.1	
COSMETOLOGY							13.2
ECONOMICS	26.0	35.5	12.4	14.5	26.5	37.2	23.3
EDUCATION	20.9	20.8	37.4		25.0	21.1	27.0
ENGINEERING			18.6	22.0	8.5		17.8
AERONAUTICAL ENGR		14.2					
AGRICULTURAL ENGR		14.4					
CERAMIC ENGR	9.1						
CHEMICAL ENGR	14.7						
CIVIL ENGR	14.6	24.8				19.9	
ELECTRICAL ENGR	25.9	25.3	7.3	4.0		10.0	17.7
MECHANICAL ENGR	16.7	18.7					
METALLURGICAL ENGR	11.8						
MINING & GEOL ENGR	6.6						
TOOL ENGR		18.0				10.5	
ENGLISH	18.6	28.2	25.5	23.5	21.3	26.7	23.0
FOODS & NUTRITIONS	13.2	13.8				10.5	
FORESTRY		19.2			22.0	29.0	32.8
GEOGRAPHY	28.7		7.0		20.3		29.6
GEOLOGY	18.4	24.1	24.6	23.0	28.0	27.1	20.3
HEALTH EDUCATION	43.1	45.8	34.5	21.0	9.0		38.2
HISTORY	41.1	53.5	18.3	28.1	41.3	30.3	32.2
HOME ECONOMICS	16.4	12.7	3.8	12.0		9.0	
HONORS		5.7					
HUMANITIES	31.6					30.7	33.7
INDUSTRIAL ARTS EDUC		18.2		13.6	4.6	8.2	
JOURNALISM	9.5	5.3		13.8	3.3	10.0	
LANGUAGE	14.4	29.0					
ARABIC	5.0						
DUTCH	9.4						
FRENCH	15.2	19.3			8.5	13.3	23.3
GERMAN	17.3	23.3	9.6	7.3	11.7		14.0
GREEK	4.3						
ITALIAN	6.1						
JAPANESE	6.0						
LATIN	4.3						
PORTUGUESE	2.0						
RUSSIAN	14.2	17.8					
SCANDINAVIAN	20.6						
SPANISH	11.6	21.8		18.3		17.7	6.2
TURKISH	3.0						
LAW	31.3						
LIBRARY SCIENCE	21.1	8.1					
MATHEMATICS	22.2	35.3	20.0	19.9	27.5	24.9	24.7
MEDICAL TECHNOLOGY		6.3					12.1
MUSIC	27.6	23.8	11.3	13.4	10.0	15.7	14.8
NURSING	9.6		8.0				9.3
PHARMACY	20.6						
PHILOSOPHY	35.8		14.0				20.6
PHYSICAL EDUCATION	18.1	25.5	12.6	16.6	17.1	19.6	30.1
PHYSICAL SCIENCE			29.3		32.3	22.8	25.7
PHYSICS	23.1	33.1	13.0	10.8	9.2	28.3	23.3
PHYSIOLOGY		40.2	22.0	47.0	47.7	38.5	34.3
POLITICAL SCIENCE	23.2	45.5	12.3	25.8	34.9	20.7	27.7
PSYCHOLOGY	30.8	50.5	55.1		39.9	32.4	32.1
SECRETARIAL SCIENCE		25.0			9.0	19.1	19.7
SOCIAL STUDIES	20.9	41.9				15.2	33.0
SOCIOLOGY	41.4	35.8	17.8	40.0	34.6	28.3	31.0
SPEECH & DRAMA	15.5	13.1	8.8	17.1	12.1	18.0	13.0
VETERINARY SCIENCE		21.3				16.0	
VOCATIONAL-TECHNICAL	10.2		15.8				7.7
WELDING		13.7	7.3		10.7	13.3	12.7
ZOOLOGY	26.6	35.3	16.8	9.1	31.6	22.7	29.7
TOTAL	22.1	25.6	15.7	17.7	17.7	22.2	20.4

TABLE 19A. WEIGHTED AVERAGE SIZE OF LOWER-DIVISION UNDERGRADUATE CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		33.6			8.6	18.1	8.9
ANTHROPOLOGY	56.8				6.5		18.9
ARCHITECTURE	16.7	28.8				5.0	
ARTS & CRAFTS	37.7	18.9	6.5	16.8	10.2	15.0	7.7
AUTO MECHANICS		12.9	13.3		9.1	14.2	12.1
BACTERIOLOGY		47.4		14.0	18.1	29.5	27.0
BIOLOGY	43.4		31.2	44.2	40.0	38.5	31.8
BOTANY	28.8	68.3		6.5	30.3	32.3	34.2
BUSINESS	33.2	45.5	12.5	11.0	14.6	19.9	22.4
CHEMISTRY	125.0	95.4	16.0	15.3	21.8	21.5	23.6
C.D. & F.L.	31.9	32.7			10.9	16.3	18.2
CLOTHING & TEXTILES	21.9	15.4				13.1	
COSMETOLOGY							13.2
ECONOMICS	36.2	43.4	12.4	14.5	26.5	37.2	23.3
EDUCATION	34.9	68.0	37.4		25.0	50.5	27.0
ENGINEERING			18.6	22.0	8.5		17.8
AERONAUTICAL ENGR		15.8					
AGRICULTURAL ENGR		21.0					
CERAMIC ENGR	3.0						
CHEMICAL ENGR	24.9						
CIVIL ENGR	15.9	29.2				19.9	
ELECTRICAL ENGR	35.7	50.5	7.3	4.0		10.0	17.7
MECHANICAL ENGR	18.8	22.9					
METALLURGICAL ENGR							
MINING & GEOL ENGR	18.5						
TOOL ENGR		18.1				10.5	
ENGLISH	19.3	30.6	25.5	23.5	21.3	26.7	23.0
FOODS & NUTRITIONS	22.4	17.9				10.5	
FORESTRY		102.3			22.0	29.0	32.8
GEOGRAPHY	47.4		7.0		20.3		29.6
GEOLOGY	33.0	53.7	24.6	23.0	28.0	27.1	20.3
HEALTH EDUCATION	51.4	21.9	34.5	21.0	9.0		38.2
HISTORY	59.5	86.8	18.3	28.1	41.3	31.4	32.2
HOME ECONOMICS	33.2	17.2	3.8	12.0		9.0	
HONORS							
HUMANITIES	31.6					30.7	33.7
INDUSTRIAL ARTS EDUC		16.0		13.6	4.6	8.2	
JOURNALISM	14.9	7.0		13.8	3.3	10.0	
LANGUAGE	23.4	26.4					
ARABIC	5.0						
DUTCH							
FRENCH	16.9	20.9			8.5	13.3	23.3
GERMAN	19.2	26.4	9.6	7.3	11.7		14.0
GREEK	11.0						
ITALIAN	6.5						
JAPANESE	6.0						
LATIN	6.8						
PORTUGUESE							
RUSSIAN	16.7	17.8					
SCANDINAVIAN							
SPANISH	13.0	26.2		18.3		17.7	6.2
TURKISH	3.0						
LAW							
LIBRARY SCIENCE	36.8	14.2					
MATHEMATICS	24.1	36.5	20.0	19.9	29.0	24.9	24.7
MEDICAL TECHNOLOGY							12.1
MUSIC	39.0	30.2	11.3	13.4	10.0	15.5	14.8
NURSING	12.2		8.0				9.3
PHARMACY	45.5						
PHILOSOPHY	59.3		14.0				20.6
PHYSICAL EDUCATION	24.2	25.3	12.6	16.6	17.1	19.8	30.1
PHYSICAL SCIENCE			29.3		32.3	22.8	25.7
PHYSICS	31.9	72.7	13.0	10.8	9.2	28.3	23.3
PHYSIOLOGY		86.7	22.0	47.0	47.7	38.5	34.3
POLITICAL SCIENCE	34.3	73.6	12.3	25.8	34.9	23.6	27.7
PSYCHOLOGY	131.6	77.4	55.1		39.9	49.7	32.1
SECRETARIAL SCIENCE		28.5			9.0	19.1	19.7
SOCIAL STUDIES		67.5				23.0	33.0
SOCIOLOGY	55.0	45.2	17.8	40.0	34.6	35.0	31.0
SPEECH & DRAMA	18.3	19.7	8.8	17.1	12.1	18.1	13.0
VETERINARY SCIENCE		39.0				16.0	
VOCATIONAL-TECHNICAL			15.8				7.7
WELDING		14.9	7.3		10.7	13.3	12.7
ZOOLOGY	31.1	65.8	16.8	9.1	31.6	22.0	29.7
TOTAL	30.0	35.9	15.7	17.7	17.8	22.7	20.4

TABLE 19B. WEIGHTED AVERAGE SIZE OF UPPER-DIVISION UNDERGRADUATE CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		16.0					
ANTHROPOLOGY	10.9						
ARCHITECTURE	10.0	7.7					
ARTS & CRAFTS	10.4	9.2					
AUTO MECHANICS		13.9					
BACTERIOLOGY		15.5					
BIOLOGY	18.5						
BOTANY	19.4	31.2					
BUSINESS	23.4	29.7					
CHEMISTRY	44.5	26.0					
C.D. & F.L.	15.8	19.6					
CLOTHING & TEXTILES	12.1	9.9					
COSMETOLOGY							
ECONOMICS	17.0	31.2					
EDUCATION	22.0	23.9				19.4	
ENGINEERING							
AERONAUTICAL ENGR		12.0					
AGRICULTURAL ENGR		14.4					
CERAMIC ENGR	9.5						
CHEMICAL ENGR	16.6						
CIVIL ENGR	15.8	28.5					
ELECTRICAL ENGR	27.8	25.2					
MECHANICAL ENGR	18.0	14.9					
METALLURGICAL ENGR	12.0						
MINING & GEOL ENGR	10.9						
TOOL ENGR		18.0					
ENGLISH	17.8	24.5					
FOODS & NUTRITIONS	5.8	12.9					
FORESTRY		27.9					
GEOGRAPHY	17.8						
GEOLOGY	15.7	8.6					
HEALTH EDUCATION	19.4	57.0					
HISTORY	31.9	40.7				18.0	
HOME ECONOMICS	9.7	14.1					
HONORS		5.7					
HUMANITIES							
INDUSTRIAL ARTS EDUC		21.9					
JOURNALISM	11.1	3.4					
LANGUAGE	8.6	33.0					
ARABIC							
DUTCH	9.4						
FRENCH	11.0	5.8					
GERMAN	11.0	8.0					
GREEK	2.4						
ITALIAN	2.0						
JAPANESE							
LATIN	2.3						
PORTUGUESE	2.0						
RUSSIAN	3.2						
SCANDINAVIAN	20.6						
SPANISH	8.7	4.9					
TURKISH							
LAW	44.5						
LIBRARY SCIENCE	13.0	7.1					
MATHEMATICS	21.2	35.7			9.0		
MEDICAL TECHNOLOGY		6.3					
MUSIC	19.6	18.4				17.5	
NURSING	9.7						
PHARMACY	30.0						
PHILOSOPHY	16.3						
PHYSICAL EDUCATION	12.3	30.3				17.0	
PHYSICAL SCIENCE							
PHYSICS	18.3	11.2					
PHYSIOLOGY		15.0					
POLITICAL SCIENCE	22.8	35.7				13.8	
PSYCHOLOGY	24.1	51.4				18.0	
SECRETARIAL SCIENCE		13.2					
SOCIAL STUDIES		17.5				10.0	
SOCIOLOGY	30.2	29.5				15.0	
SPEECH & DRAMA	12.8	11.8				17.0	
VETERINARY SCIENCE		13.6					
VOCATIONAL-TECHNICAL	10.4						
WELDING		10.2					
ZOOLOGY	23.8	23.5				24.0	
TOTAL	18.9	22.2			9.0	18.5	

TABLE 19C. WEIGHTED AVERAGE SIZE OF GRADUATE CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		4.4					
ANTHROPOLOGY	4.1						
ARCHITECTURE		1.0					
ARTS & CRAFTS	5.1	2.6					
AUTO MECHANICS							
BACTERIOLOGY		2.4					
BIOLOGY	1.7						
BOTANY	3.8	6.4					
BUSINESS	9.6	8.7					
CHEMISTRY	16.6	4.8					
C.D. & F.L.		3.4					
CLOTHING & TEXTILES							
COSMETOLOGY							
ECONOMICS	9.1	4.0					
EDUCATION	11.1	7.0					
ENGINEERING							
AERONAUTICAL ENGR							
AGRICULTURAL ENGR		8.2					
CERAMIC ENGR	9.0						
CHEMICAL ENGR	8.9						
CIVIL ENGR	3.8	9.5					
ELECTRICAL ENGR	9.3	9.9					
MECHANICAL ENGR	8.2						
METALLURGICAL ENGR	7.2						
MINING & GEOL ENGR	2.5						
TOOL ENGR							
ENGLISH	7.3	8.2					
FOODS & NUTRITIONS		3.8					
FORESTRY		4.6					
GEOGRAPHY	5.2						
GEOLOGY	6.2	1.6					
HEALTH EDUCATION	4.6	3.0					
HISTORY	5.2	2.2					
HOME ECONOMICS		1.3					
HONORS							
HUMANITIES							
INDUSTRIAL ARTS EDUC		4.9					
JOURNALISM	3.2						
LANGUAGE							
ARABIC							
DUTCH							
FRENCH	1.4						
GERMAN	1.0						
GREEK							
ITALIAN							
JAPANESE							
LATIN	1.0						
PORTUGUESE							
RUSSIAN							
SCANDINAVIAN							
SPANISH							
TURKISH							
LAW	27.0						
LIBRARY SCIENCE	2.8						
MATHEMATICS	8.5	6.9					
MEDICAL TECHNOLOGY							
MUSIC	5.3	1.2					
NURSING	5.5						
PHARMACY	1.6						
PHILOSOPHY	1.0						
PHYSICAL EDUCATION	5.4	6.0					
PHYSICAL SCIENCE							
PHYSICS	8.0	2.7					
PHYSIOLOGY		2.8					
POLITICAL SCIENCE	3.6	4.6					
PSYCHOLOGY	10.2	12.3					
SECRETARIAL SCIENCE							
SOCIAL STUDIES	20.9	8.1					
SOCIOLOGY	5.4	2.4					
SPEECH & DRAMA	4.5	1.8					
VETERINARY SCIENCE		4.0					
VOCATIONAL-TECHNICAL	10.2						
WELDING							
ZOOLOGY	15.7	8.1					
TOTAL	10.0	5.5					

TABLE 20. WEIGHTED AVERAGE SIZE OF CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61 (EACH CLASS WEIGHTED ACCORDING TO NUMBER OF CREDITS IT CARRIES)

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		11.7	10.3		10.9	11.8	15.2
AGRI ECONOMICS		21.6			5.3	12.6	
ANTHROPOLOGY	31.9		75.0				30.3
APPLIED ARTS		17.7					8.0
ARCHITECTURE	16.1						
ARTS & CRAFTS	24.9	15.6	11.6	15.6	8.8	13.9	24.2
BACTERIOLOGY		37.8	22.0		22.6	21.0	29.4
BIOLOGY	37.2		33.5	30.6	33.5	36.4	34.6
BOTANY	22.0	43.2	31.0	4.5	16.0	27.5	29.7
BUSINESS	25.3	34.9	18.2	15.5	13.2	20.0	23.2
CHEMISTRY	46.1	45.2	14.9	25.8	24.8	22.7	26.5
C.D. & F.L.	17.5	23.6				12.1	
CLOTHING & TEXTILES	15.4	12.8					
ECONOMICS	27.5	35.4	16.5	20.5	35.0	30.5	24.1
EDUCATION	18.9	21.0	29.0	32.0	24.0	17.8	28.0
EDUCATIONAL PSYCHOLOGY	19.7	53.4					33.7
AGRICULTURAL ENGR		10.3					
CERAMIC ENGINEERING	7.7						
CHEMICAL ENGINEERING	14.9						
CIVIL ENGINEERING	13.5	22.1				19.0	
ELECTRICAL ENGR	30.2	24.0		3.0		2.6	
FUEL ENGINEERING	7.9						16.9
GENERAL ENGINEERING			14.4	15.0			
MECHANICAL ENGR	17.5	18.7					
METALLURGICAL ENGR	12.6						
MINING & GEOLOGICAL	6.7						
ENGLISH	19.7	28.4	24.5	22.3	22.2	26.3	24.3
FOODS & NUTRITION	16.3	11.9				12.5	
FORESTRY		16.5			14.0	19.4	43.0
GENERAL PSYCHOLOGY	29.9	37.2	43.1	46.5	36.2	32.6	
GENERAL SCIENCE	126.0					23.2	28.3
GEOGRAPHY	31.5		47.0		18.6		42.7
GEOLOGY	17.7	26.1	23.8	30.7	34.2	30.3	20.4
HEALTH EDUCATION	35.4	26.7		31.4	7.0		43.0
HISTORY	47.1	48.1	30.5	32.7	50.5	31.1	35.5
HOME ECONOMICS	23.9		5.2	14.0	10.1		18.4
INDUSTRIAL ARTS				12.2	3.6		8.0
JOURNALISM	8.6	8.6	6.2		5.0	5.0	
LANGUAGE	8.6	12.6					
FRENCH	16.4	22.3	26.6		6.7	14.7	14.7
GERMAN	18.1	23.2	8.0	17.3	10.9		19.5
SPANISH	12.8	17.3	12.3	9.9	6.0	45.0	16.0
LAW	31.5						
LIBRARY SCIENCE	19.2	8.7					
MATH & STATISTICS	21.7	34.1	18.1	23.9	23.6	22.2	23.5
MUSIC	28.1	20.2	19.9	16.5	9.9	15.3	28.4
NURSING	8.7		7.3				18.8
PHARMACY	15.4						
PHILOSOPHY	39.3	26.4	9.2				27.8
PHYSICAL EDUCATION	18.8	25.8	15.5	14.8	17.6	19.3	34.7
PHYSICS	26.1	32.8	19.3	12.6	26.3	22.3	22.5
PHYSIOLOGY		53.5			48.5	38.6	40.0
POLITICAL SCIENCE	29.9	40.3	17.8	40.0	38.6	20.3	33.5
SECRETARIAL SCIENCE	20.8	27.7	18.8	21.6	10.4	15.6	22.8
SOCIAL SCIENCE		78.7					30.4
SOCIAL WORK	20.5	21.5					
SOCIOLOGY	43.5	43.4	25.2	51.0	30.1	29.3	33.5
SPEECH & DRAMA	15.9	14.5	14.8	15.8	12.6	21.6	13.6
TRADE TECHNOLOGY		12.9	10.7	16.6	7.7	10.6	13.7
ZOOLOGY	27.3	40.8	10.6	22.3	25.0	24.0	29.2
UNCLASSIFIED	45.7	6.0	9.8		5.0	33.3	28.7
TOTAL	22.7	25.7	16.8	21.2	17.4	21.5	23.4

TABLE 20A. WEIGHTED AVERAGE SIZE OF LOWER-DIVISION UNDERGRADUATE CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		26.6	10.3		10.9	12.5	15.2
AGRI ECONOMICS		67.3			5.3	12.6	
ANTHROPOLOGY	80.7		75.0				30.3
APPLIED ARTS		26.3					8.0
ARCHITECTURE	23.6						
ARTS & CRAFTS	44.9	24.6	11.6	15.6	8.8	13.9	24.2
BACTERIOLOGY		64.1	22.0		22.6	21.0	29.4
BIOLOGY	45.6		33.5	30.6	33.5	36.4	34.6
BOTANY	29.2	72.1	31.0	4.5	16.0	27.5	29.7
BUSINESS	45.7	51.8	18.2	15.5	13.2	20.0	23.2
CHEMISTRY	119.2	91.3	14.9	25.8	24.8	25.9	26.5
C.D. & F.L.	27.4	34.8				12.1	
CLOTHING & TEXTILES	20.8	17.5					
ECONOMICS	38.0	42.6	16.5	20.5	35.0	30.5	24.1
EDUCATION	33.1	43.1	29.0	32.0	24.0	26.2	28.0
EDUCATIONAL PSYCHOLOGY	25.0						33.7
AGRICULTURAL ENGR		20.7					
CERAMIC ENGINEERING	3.0						
CHEMICAL ENGINEERING	16.8						
CIVIL ENGINEERING	15.1	27.9				20.7	
ELECTRICAL ENGR	56.8	30.8		3.0		2.6	
FUEL ENGINEERING							16.9
GENERAL ENGINEERING			14.4	15.0			
MECHANICAL ENGR	24.0	22.6					
METALLURGICAL ENGR							
MINING & GEOLOGICAL	10.6						
ENGLISH	20.8	30.9	24.5	22.3	22.2	28.8	24.3
FOODS & NUTRITION	25.6	14.8				12.5	
FORESTRY		53.7			14.0	19.4	43.0
GENERAL PSYCHOLOGY	143.4	67.8	43.1	46.5	36.2	47.0	
GENERAL SCIENCE	162.3					23.2	28.3
GEOGRAPHY	63.1		47.0		18.6		42.7
GEOLOGY	42.5	61.5	23.8	30.7	34.2	30.3	20.4
HEALTH EDUCATION	51.1	24.4		31.4	7.0		43.0
HISTORY	74.8	70.8	30.5	32.7	50.5	31.1	35.5
HOME ECONOMICS	40.3		5.2	14.0	10.1		18.4
INDUSTRIAL ARTS				12.2	3.6		8.0
JOURNALISM	10.2	8.5	6.2		5.0	5.0	
LANGUAGE	14.8	12.6					
FRENCH	18.7	25.2	26.6		6.7	14.7	14.7
GERMAN	20.3	25.8	8.0	17.3	10.9		19.5
SPANISH	15.4	19.2	12.3	9.9	6.0	45.0	16.0
LAW							
LIBRARY SCIENCE	47.4	22.0					
MATH & STATISTICS	23.2	37.0	18.1	23.9	23.6	22.8	23.5
MUSIC	41.6	24.8	19.9	16.5	9.9	15.3	28.4
NURSING	11.6		7.3				18.8
PHARMACY	36.2						
PHILOSOPHY	70.9	36.0	9.2				27.8
PHYSICAL EDUCATION	25.1	26.6	15.5	14.8	17.6	20.5	34.7
PHYSICS	30.6	81.4	19.3	12.6	26.3	22.3	22.5
PHYSIOLOGY		119.0			48.5	38.6	40.0
POLITICAL SCIENCE	56.2	62.6	17.8	40.0	38.6	26.1	33.5
SECRETARIAL SCIENCE	24.0	33.9	18.8	21.6	10.4	15.6	22.8
SOCIAL SCIENCE		78.7					30.4
SOCIAL WORK		23.0					
SOCIOLOGY	62.5	55.3	25.2	51.0	30.1	30.5	33.5
SPEECH & DRAMA	19.5	19.5	14.8	15.8	12.6	23.1	13.6
TRADE TECHNOLOGY		14.1	10.7	16.6	7.7	10.6	13.7
ZOOLOGY	36.1	93.4	10.6	22.3	25.0	31.0	29.2
UNCLASSIFIED	45.7		9.8		5.0	33.3	28.7
TOTAL	32.2	36.2	16.8	21.2	17.4	22.7	23.4

TABLE 20B. WEIGHTED AVERAGE SIZE OF UPPER-DIVISION UNDERGRADUATE CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		14.2				4.0	
AGRI ECONOMICS		26.5					
ANTHROPOLOGY	12.7						
APPLIED ARTS		10.9					
ARCHITECTURE	11.7						
ARTS & CRAFTS	13.9	7.1					
BACTERIOLOGY		17.1					
BIOLOGY	21.1						
BOTANY	17.3	25.3					
BUSINESS	25.2	34.3					
CHEMISTRY	45.2	31.1				11.3	
C.D. & F.L.	2.0	18.7					
CLOTHING & TEXTILES	12.3	10.1					
ECONOMICS	21.3	30.7					
EDUCATION	20.2	24.4				16.7	
EDUCATIONAL PSYCHOLOGY	31.7	62.9					
AGRICULTURAL ENGR		11.0					
CERAMIC ENGINEERING	6.5						
CHEMICAL ENGINEERING	22.0						
CIVIL ENGINEERING	16.2	26.8				6.0	
ELECTRICAL ENGR	34.2	31.5					
FUEL ENGINEERING	9.2						
GENERAL ENGINEERING							
MECHANICAL ENGR	19.5	17.6					
METALLURGICAL ENGR	11.5						
MINING & GEOLOGICAL	9.2						
ENGLISH	18.0	25.3				17.6	
FOODS & NUTRITION	11.2	11.9					
FORESTRY		25.0					
GENERAL PSYCHOLOGY	25.3	39.2				18.2	
GENERAL SCIENCE	17.0						
GEOGRAPHY	14.9						
GEOLOGY	14.5	5.4					
HEALTH EDUCATION	12.8	27.7					
HISTORY	32.1	35.4					
HOME ECONOMICS	15.7						
INDUSTRIAL ARTS							
JOURNALISM	8.9	8.6					
LANGUAGE	5.4						
FRENCH	11.1	6.9					
GERMAN	12.8	12.0					
SPANISH	8.9	10.8					
LAW	55.7						
LIBRARY SCIENCE	5.8	7.2					
MATH & STATISTICS	19.8	30.3				11.0	
MUSIC	18.4	16.1				16.0	
NURSING	9.0						
PHARMACY	23.3						
PHILOSOPHY	15.4	18.5					
PHYSICAL EDUCATION	13.2	28.5				5.5	
PHYSICS	24.9	16.7					
PHYSIOLOGY		13.5					
POLITICAL SCIENCE	28.2	31.6				11.5	
SECRETARIAL SCIENCE	18.0	18.5					
SOCIAL SCIENCE							
SOCIAL WORK		29.4					
SOCIOLOGY	30.6	39.1				25.0	
SPEECH & DRAMA	10.7	12.6				13.5	
TRADE TECHNOLOGY		11.6					
ZOOLOGY	23.2	25.9				19.0	
UNCLASSIFIED		6.0					
TOTAL	19.1	22.6				15.8	

TABLE 20C. WEIGHTED AVERAGE SIZE OF GRADUATE CLASSES TAUGHT IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		3.5					
AGRI ECONOMICS		5.2					
ANTHROPOLOGY	4.2						
APPLIED ARTS							
ARCHITECTURE							
ARTS & CRAFTS	5.6	2.9					
BACTERIOLOGY		2.0					
BIOLOGY	1.8						
BOTANY	1.0	10.0					
BUSINESS	8.3	9.2					
CHEMISTRY	11.0	7.2					
C.D. & F.L.		9.1					
CLOTHING & TEXTILES		1.0					
ECONOMICS	8.5	3.7					
EDUCATION	8.5	7.3					
EDUCATIONAL PSYCHOLOGY	9.4	18.0					
AGRICULTURAL ENGR		3.0					
CERAMIC ENGINEERING	10.1						
CHEMICAL ENGINEERING	4.6						
CIVIL ENGINEERING	2.3	7.6					
ELECTRICAL ENGR	8.4	6.5					
FUEL ENGINEERING	5.8						
GENERAL ENGINEERING							
MECHANICAL ENGR	7.8	2.6					
METALLURGICAL ENGR	13.8						
MINING & GEOLOGICAL	3.7						
ENGLISH	4.8	7.8					
FOODS & NUTRITION	1.0	2.0					
FORESTRY		4.3					
GENERAL PSYCHOLOGY	10.6	8.0					
GENERAL SCIENCE							
GEOGRAPHY	5.2						
GEOLOGY	6.4	3.1					
HEALTH EDUCATION	1.9	1.0					
HISTORY	4.8	3.3					
HOME ECONOMICS							
INDUSTRIAL ARTS							
JOURNALISM	1.0						
LANGUAGE	1.0						
FRENCH	2.9						
GERMAN	2.0						
SPANISH							
LAW	23.3						
LIBRARY SCIENCE	3.0						
MATH & STATISTICS	12.7	9.4					
MUSIC	4.0	3.2					
NURSING	3.8						
PHARMACY	1.6						
PHILOSOPHY							
PHYSICAL EDUCATION	3.7	4.1					
PHYSICS	12.6	3.1					
PHYSIOLOGY		5.2					
POLITICAL SCIENCE	3.2	7.8					
SECRETARIAL SCIENCE	1.0						
SOCIAL SCIENCE							
SOCIAL WORK	20.5	5.5					
SOCIOLOGY	3.8	2.5					
SPEECH & DRAMA	3.5	2.2					
TRADE TECHNOLOGY		5.6					
ZOOLOGY	15.2	7.7					
UNCLASSIFIED							
TOTAL	9.0	5.6					

mechanical engineering, foods and nutrition, geology, health education, history, music, physical education, sociology, and speech and drama. Other subjects, offered in either one or the other but not both of the universities, could be similarly categorized. The reasons for the small average size of classes in some fields at the graduate level can only be surmised. Perhaps some of the programs characterized by low averages are of recent origin, and should be given time in which to demonstrate their ability to attract student groups of satisfactory size. However, if a subject-area continues over a period of time to show a relatively small average size of graduate class, a study might be undertaken to see if the variety of specialized courses offered at this level could be reduced so as to increase this measure.

Because no study similar to this one has previously been carried out in the State of Utah, it is impossible to compare the data of this study with data for past years. Similar studies, however, have been completed in other states. The pattern of average size of classes for the Utah institutions is similar to that found in those other states where this kind of study has been made. They too have a wide range in size of classes among the different subject-fields. In such areas as the classical languages the average size of classes tends to run small wherever they are taught. In some other subject-fields, such as history and psychology, the average size of classes tends to be relatively large.

Small Classes in the Instructional Program

The previous section of this chapter analyzed class size from the point of view of averages. Another indication of the extent of economy in the instructional organization is obtained by noting the frequency with which the classes are maintained that have very small enrollments. Two levels of "smallness" are used--classes with fewer than five students enrolled, and classes with fewer than ten students. The number with fewer than ten students necessarily includes the number with fewer than five students. Counts of small classes can best be expressed in terms of the total number of quarter hours of credit involved. The number of quarter credit-hours of small classes can then be expressed as a percentage of the total quarter credit-hours of all classes taught.

The importance of the study of small classes cannot be overemphasized. On the one hand, it is clear that some small classes are bound to occur in even the best managed curriculum-programming. On the other hand, a consistently high percentage of small classes in certain departments or at certain levels of instruction warrants concern and study because of the evident drain such classes make on the budget and manpower of the department and the institution. In general, a high percentage of small classes is indicative of an overexpanded program of course offerings, in relation to the student demand for instruction.

Small classes at the different instructional levels

Table 21 summarizes data on the percentage of quarter credit-hours of all classes taught with enrollments of less than five and less than 10 for the Utah institutions at the different levels of instruction.

The data for classes enrolling fewer than five students and for classes enrolling fewer than ten students lead to essentially the same interpretations. On these bases it is apparent that the lower-division programs in the junior colleges in Utah have a higher percentage of small classes than the two Utah universities' lower-division programs.

The operation of Snow College seems to involve a relatively large proportion of small classes and the percentage of them increased over the two-year period of this study. There may be a need for a critical examination of the situation to determine the reasons for this increase.

Large Classes in the Instructional Program

The previous section noted the percentage of classes taught that had small enrollments. Similarly, the frequency with which classes are maintained that have very large enrollments is important. To present this side of the coin, two measures of largeness are used: (1) classes enrolling 100 or more students, and (2) classes enrolling 50 or more students. The number enrolling 50 or more students necessarily includes

Table 21. Percentage of quarter hours of courses taught in classes enrolling less than five and less than ten students in the Utah state-supported institutions during the 1959-60 and 1960-61 regular academic years

Institution	Lower division		Upper division		Graduate		All levels combined	
	Less than 5	Less than 10	Less than 5	Less than 10	Less than 5	Less than 10	Less than 5	Less than 10
University of Utah								
1959-60	2.2	8.6	9.5	25.2	35.2	63.4	10.6	24.4
1960-61	1.8	6.6	10.1	24.7	43.2	67.3	12.6	24.9
Utah State Univer.								
1959-60	3.3	9.0	8.8	24.3	56.9	82.3	13.6	26.4
1960-61	3.2	8.5	8.4	24.0	53.2	86.0	13.0	26.9
Carbon College								
1959-60	12.2	43.4	---	---	---	---	12.2	43.4
1960-61	7.0	34.0	---	---	---	---	7.0	34.0
Dixie College								
1959-60	7.8	33.2	---	---	---	---	7.8	33.2
1960-61	5.7	23.4	---	---	---	---	5.7	23.4
Snow College								
1959-60	12.8	28.8	---	---	---	---	12.8	28.8
1960-61	15.2	34.0	---	---	---	---	15.2	34.0
College of So. Utah								
1959-60	2.7	11.2	---	6.7	---	---	2.4	10.7
1960-61	4.8	12.7	6.8	16.0	---	---	5.1	13.2
Weber College								
1959-60	7.0	22.5	---	---	---	---	7.0	22.5
1960-61	2.1[a]	9.9[a]	---	---	---	---	2.1[a]	9.9[a]

[a]A portion of this drop in percentage between the two years at Weber College can be accounted for by the fact that in their 1959-60 report they neglected to bracket a number of small classes meeting together the same hour with the same instructor. Nevertheless, Weber is to be highly commended for their low percentage of credit hours taught in small classes.

the number enrolling 100 or more students. Table 22 summarizes data on the percentage of large classes in the Utah institutions at the different levels of instruction.

The number of quarter credit-hours of large classes presented in Table 22 are expressed as a percentage of the total credit-hours of all classes taught.

It is noted that the two Utah universities have a much higher percentage of large classes than do the junior colleges. The data show that the highest percentage of large classes in any of the state-supported institutions is found at Utah State University, at both the lower and the upper-division levels. If some graduate classes are relatively small in size, a good percentage of large classes at the undergraduate levels could serve to maintain a fairly high average class size in an institution or in specific subject-matter areas.

The Number of Classes Taught in Various Different Class Size Categories

One rough measure of the economy of an instructional program is the actual number of different classes taught in various class size categories. This measure was investigated in this study and the data summarized in the following Tables. Tables 23 and 24 show the actual number of classes taught in six different class size categories: 1-4, 5-9, 10-29, 30-49, 50-99, and 100 or more.

Some interesting observations can be made from these Tables. For example, it is noted that the Utah state-supported

Table 22. Percentage of quarter hours of courses taught in classes enrolling 100 or more and 50 or more students in the Utah state-supported institutions during the 1959-60 and 1960-61 regular academic years

Institution	Lower division		Upper division		Graduate		All levels combined	
	More than 100	More than 50	More than 100	More than 50	More than 100	More than 50	More than 100	More than 50
University of Utah								
1959-60	3.2	12.8	.2	3.0	---	.4	1.4	6.6
1960-61	3.6	14.9	.2	4.0	---	.1	1.5	7.7
Utah State Univer.								
1959-60	4.1	21.5	.5	6.0	---	---	2.0	11.8
1960-61	4.1	22.2	.2	8.5	---	---	1.8	12.9
Carbon College								
1959-60	---	3.0	---	---	---	---	---	3.0
1960-61	---	2.3	---	---	---	---	---	2.3
Dixie College								
1959-60	---	2.6	---	---	---	---	---	2.6
1960-61	---	3.4	---	---	---	---	---	3.4
Snow College								
1959-60	---	3.7	---	---	---	---	---	3.7
1960-61	---	4.4	---	---	---	---	---	4.4
College of So. Utah								
1959-60	---	1.5	---	---	---	---	---	1.3
1960-61	---	2.0	---	---	---	---	---	1.7
Weber College								
1959-60	---	.7	---	---	---	---	---	.7
1960-61	.1	1.3	---	---	---	---	.1	1.4

Table 23. Number of classes taught in various different class size categories by institution and by class level during the 1960-61 regular academic year

Institution & division		Class size categories						Total
		1-4	5-9	10-29	30-49	50-99	100 & up	
University of Utah	Lower	46	105	1,247	342	223	64	
	Upper	215	292	1,056	245	64	5	
	Grad.	328	210	239	44	3	--	
	Total	589	607	2,542	631	290	69	4,728
Utah State Univer.	Lower	68	89	590	326	173	36	
	Upper	131	192	580	208	97	3	
	Grad.	237	168	73	2	--	--	
	Total	436	449	1,243	536	270	39	2,973
Carbon College	Lower	28	87	179	43	6	--	
	Upper	--	--	--	--	--	--	
	Total	28	87	179	43	6	--	343
Dixie College	Lower	12	45	120	49	5	--	
	Upper	--	--	--	--	--	--	
	Total	12	45	120	49	5		231
Snow College	Lower	47	64	166	37	10	--	
	Upper	--	--	--	--	--	--	
	Total	47	64	166	37	10	--	324

Table 23. Continued

Institution & division		Class size categories						Total
		1-4	5-9	10-29	30-49	50-99	100 & up	
College of So. Utah	Lower	19	39	220	114	7	--	
	Upper	4	7	54	--	--	--	
	Total	23	46	274	114	7	--	464
Weber College	Lower	19	84	602	274	20	2	
	Upper	--	--	--	--	--	--	
	Total	19	84	602	274	20	2	1,001
State total		1,154	1,382	5,126	1,684	608	110	10,064

Table 24. Number and per cent of classes in each class size category by levels--all institutions--1959-60 and 1960-61 regular academic years

Class size	Lower Div.		Upper Div.		Graduate		All levels	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
1959-60								
1- 4	328	5.8	321	10.5	487	40.7	1,136	11.4
5- 9	627	11.0	508	16.6	335	28.0	1,470	14.8
10-29	3,115	54.9	1,625	53.2	318	26.6	5,058	50.9
30-49	1,117	19.7	483	15.8	54	4.5	1,654	16.7
50-99	393	6.9	107	3.5	3	0.2	503	5.1
100 & over	95	1.7	13	0.4			108	1.1
Total	5,675	57.2	3,057	30.8	1,197	12.0	9,929	
1960-61								
1- 4	239	4.3	350	11.1	565	43.3	1,154	11.5
5- 9	513	9.1	491	15.6	378	29.0	1,382	13.7
10-29	3,124	55.7	1,690	53.6	312	23.9	5,126	50.9
30-49	1,185	21.2	453	14.4	46	3.5	1,684	16.7
50-99	444	7.9	161	5.1	3	0.3	608	6.0
100 & over	102	1.8	8	0.2			110	1.2
Total	5,607	55.7	3,153	31.3	1,304	13.0	10,064	

institutions of higher education taught 10,064 different classes during the 1960-61 regular academic year. These institutions ranged in number of classes taught from 4,728 at the University of Utah to 231 given at Dixie Junior College.

Some 5,126 classes or over 50 per cent of the total number taught fell into the class size category of 10-29 students, while 110, or about one per cent, of the total number of classes taught contained 100 or more students.

It is also observed that 1,154 different classes were taught with only four or less students enrolled in the Utah institutions during the 1960-61 regular academic year. The greatest number of graduate classes taught at both universities fell into this 1-4 class size category and then the number of graduate classes taught per category steadily declines as the size of the class size categories increases. In contrast to this, the number of classes taught at the lower and upper division levels almost assumes a bell-shaped distribution with the median falling in the 10-29 class size category. Both lower division programs at the two universities are skewed to the right or in the direction of greater numbers of classes being taught in the larger class size categories. The upper division program at the University of Utah is skewed to the left or in the direction of more classes taught in the smaller class size categories, while the number of classes are practically evenly distributed between the lower and upper class size categories at the upper-division

level at Utah State University.

The College of Southern Utah and Weber College had greater numbers of classes taught above the median or are skewed to the right in terms of number of classes taught in the different class size categories. The number of classes at Dixie Junior College are about evenly distributed above and below the median, while the actual number of classes taught at Carbon Junior College and Snow Junior College are concentrated much more heavily in the smaller class size categories.

Inter-institutional Analysis of Small Graduate Classes

In the main, the foregoing analyses of size of classes have been concerned primarily with individual institutions, levels of instruction, and subject-matter fields of study. Another sort of analysis may be carried out that focuses attention on some small graduate classes offered at one or the other or both of the two Utah universities. Part of such an analysis involves the identification of those graduate courses, offered in one institution with enrollments of less than five students, that are offered in the other institution, possibly with larger enrollments. Table 25 presents such an analysis with a list of graduate-level courses given with small enrollments in one Utah State-supported university that are also given in the other State-supported university in Utah.

Table 25. Comparison of class size at the graduate level in selected subject-matter fields at the two Utah universities during the 1960-61 regular academic year

Subject-area	Average size of classes	Per cent of small classes[a]	Number of small classes[a]	Instructional salary cost per SCH prod.
Arts & Crafts				
University of Utah	5.6	58.5	12	$ 33.58
Utah State University	2.9	100.0	6	21.01
Botany				
University of Utah	1.0	100.0	2	146.84
Utah State University	10.0	56.3	3	17.57
Economics				
University of Utah	8.5	20.8	4	27.99
Utah State University	3.7	80.0	4	53.02
Civil Engineering				
University of Utah	2.3	86.7	17	117.45
Utah State University	7.6	36.8	10	29.13
Mechanical Engineering				
University of Utah	7.8	34.3	7	31.11
Utah State University	2.6	100.0	5	54.92
English				
University of Utah	4.8	67.5	7	35.58
Utah State University	7.8	24.5	4	27.44
Geology				
University of Utah	6.4	37.8	15	46.20
Utah State University	3.1	62.9	6	40.67

[a]Classes with fewer than five students

Table 25. Continued

Subject-area	Average size of classes	Per cent of small classes	Number of small classes	Instructional salary cost per SCH prod.
Health Education				
University of Utah	1.9	100.0	3	$ 103.94
Utah State University	1.0	100.0	2	162.00
History				
University of Utah	4.8	61.4	4	54.09
Utah State University	3.3	76.2	4	42.98
Music				
University of Utah	4.0	60.9	18	55.05
Utah State University	3.2	100.0	6	47.98
Physical Education				
University of Utah	3.7	62.4	11	72.85
Utah State University	4.1	75.0	5	42.03
Physics				
University of Utah	12.6	8.0	3	25.86
Utah State University	3.1	80.5	11	98.93
Political Science				
University of Utah	3.2	75.3	10	60.01
Utah State University	7.8	25.0	2	25.84
Sociology				
University of Utah	3.8	69.2	2	66.54
Utah State University	2.5	85.7	7	66.05
Speech & Drama				
University of Utah	3.5	71.0	14	57.31
Utah State University	2.5	100.0	14	70.04

CHAPTER VII

INSTRUCTIONAL PRODUCTIVITY

The effective utilization of staff members in the instructional program can be measured in terms of the volume of instructional productivity per faculty member. The increasing demands for additional faculty to meet the needs of rising enrollments, and the limited availability of personnel with advanced degrees, make necessary a careful examination of the utilization of college and university instructional staffs. In this study two measures of instructional productivity have been used. One is the credit hours of teaching per full-time-equivalent faculty member. The other is the student-credit-hours produced per full-time equivalent faculty member.

Credit-hours of Teaching per Quarter per Full-time-equivalent Faculty Member

In the administration of an academic program, the assignment of teaching responsibilities to faculty members is usually considered in terms of the number of credit-hours of classes which an instructor is to teach each quarter. Thus, a faculty member whose assignment for a given quarter consists of teaching History 105 for five credit-hours, History 143 for three credit-hours, and History 190 for two credit-hours, would have a total teaching load of ten credit-hours. It is

customary in academic administration to think of teaching load as a certain number of credit-hours per quarter, rather than the total for an entire year, so average credit-hours per quarter, rather than per year, has been used as the measure in this study.

The average number of credit-hours taught per full-time equivalent faculty member for an entire year is readily obtained by dividing the total number of credit-hours taught annually by the number of full-time-equivalent faculty members. To reduce this result to a number per quarter, it is divided by three, the number of quarters in a year. These calculations have been made for each of the Utah institutions participating in the study, and are shown for each institution by subject-matter areas.

The writer wishes to advise caution in interpreting data presented in this study concerning the average number of credit-hours taught per quarter per full-time-equivalent faculty member. Such data are often misunderstood and misinterpreted by people who are unfamiliar with academic organization and procedures. The error into which an uninformed person is likely to fall in interpretating data on credit-hours of teaching per faculty member arises because it is assumed that the credit-hour load of a faculty member represents his entire clock hours of service during the week. It is true that in the ordinary lecture or recitation-type of class the instructor customarily meets the class for the same

number of periods or hours per week as the number of credits the course carries. A laboratory-type class customarily meets under the direction of the instructor for two or even three hours for each hour of credit the course carries.

But the meeting of classes by no means constitutes the entire service load of a faculty member, for he has many other responsibilities. He must, of course, make preparation for meeting his classes. He must hold conferences with his students, he must read the papers they write, prepare and evaluate the examinations given in the course, make out grades, and carry on many other activities directly connected with his teaching of classes, in addition to the actual meeting of his classes for a stated number of hours each week. Normally these other activities closely associated with actual class teaching may be expected to occupy about twice as much time as the instructor spends in actual meetings of lecture and recitation-type classes.

Beyond the duties directly associated with the teaching of classes, a member of the faculty in an institution of higher education is expected to keep up certain scholarly activities that contribute in a most important way to his continued effectiveness as a college teacher. He is normally expected to do some research and writing and to publish articles and books that make a contribution to his scholarly field. He must maintain contacts with other scholars in the same field throughout the entire country, and even in other

countries, through correspondence, through attendance at meetings of professional societies, and through careful reading of the current periodical literature and new books published on the subject in which he is a specialist.

In most cases the faculty member is expected to participate to some extent in the government of the institution with which he is connected, through service on faculty committees, attendance at faculty meetings, assistance in the registration of students at the beginning of each quarter, and in many other ways. There is a growing tendency for institutions to expect each faculty member to share in the responsibility of counseling students on all sorts of problems, other than those directly connected with the courses the faculty member is teaching.

Most institutions expect their faculty members to take on certain services to the community entirely apart from their class-teaching duties. Many faculty members spend considerable time in giving consultative services to all sorts of groups in the community, in making addresses at meetings, and in other forms of public service. This catalog of duties and responsibilities of faculty members, beyond their service in the meeting of classes, is by no means exhaustive but it will indicate the wide range of activities in which they are expected to engage. It is evident that only a small portion of the entire service of a faculty member is measured by the number of credit-hours of the

classes he teaches each quarter. Thus, care needs to be taken not to interpret these credit-hours as the total number of clock hours per week that a faculty member is obligated to spend in the service of his institution.

Apparently no valid measures have yet been developed for the nonteaching services of faculty members in institutions of higher education. Instead, it is customary to consider the teaching loads only, and to report those in terms of credit-hours per term. This is an objective measure that can be applied. It might be possible to use clock hours of teaching, rather than credit hours. It is sometimes argued that this would give a better representation of the loads carried in the sciences and other subjects in which much of the teaching is done in laboratory-type classes. However, normally laboratory teaching involves less time outside the class itself for the activities directly associated with the teaching than the lecture-type class requires. For example, most of the conferring with students in a laboratory class is done during class hours, rather than outside of class hours as is generally customary in other kinds of classes. Instructors in laboratory courses commonly have assistants, not of faculty rank, to help them with many features of the teaching that would otherwise require time outside the class meeting. A satisfactory method of equating the load in laboratory teaching to the load in other kinds of classes has not yet been developed. Most institutions administer the assignment

of loads in terms of credit-hours, so that base is used in the present study.

Average credit-hours of teaching in various subject-matter areas

With reservations in mind such as described in the preceding paragraphs, data are presented in Tables 26 and 27 showing for each institution participating in the study the average number of credit-hours of teaching per quarter per full-time-equivalent faculty member in each subject-matter area. A rather wide range is noted among the averages for the various subject-matter areas in each of the institutions. Subjects that seem generally to show a relatively high average number of credit-hours of teaching per faculty member are arts and crafts, economics, education, history, library science, mathematics, philosophy, political science, and most of the foreign languages. Many of these subjects are those in which the teaching is done principally by the lecture and recitation method. In general, the average credit-hour loads of teaching per faculty member are low in the sciences. This probably reflects an attempt by the academic administration to compensate for the additional clock hours involved in teaching laboratory-type classes.

Tables 26 and 27 show that in the Utah junior colleges the average teaching load tends to run from 12 to 15 quarter hours per full-time faculty member. The average teaching load

TABLE 26. AVERAGE CREDIT HOURS TEACHING EACH TERM OR QUARTER PER FULL-TIME-EQUIVALENT FACULTY MEMBER IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		12.4			12.7	12.4	14.8
ANTHROPOLOGY	12.6				16.7		14.9
ARCHITECTURE	8.8	15.2				9.5	
ARTS & CRAFTS	12.2	15.7	14.8	10.0	16.1	12.6	30.7
AUTO MECHANICS		11.3	20.0		18.0	18.0	16.2
BACTERIOLOGY		14.5		11.1	14.5	11.9	15.0
BIOLOGY	6.5		15.6	9.1	12.8	11.7	15.2
BOTANY	13.4	11.3		10.8	12.8	8.3	14.6
BUSINESS	12.1	12.6	17.3	12.6	14.3	11.3	15.3
CHEMISTRY	5.4	7.7	15.5	12.0	16.2	13.2	14.4
C.D. & F.L.	15.6	11.8			11.0	9.2	12.4
CLOTHING & TEXTILES	12.6	13.2				10.9	
COSMETOLOGY							20.0
ECONOMICS	13.0	13.1	16.2	10.4	14.5	14.0	14.6
EDUCATION	13.1	15.2	12.8		10.5	13.6	14.8
ENGINEERING			11.9	11.1	28.8		15.2
AERONAUTICAL ENGR		11.1					
AGRICULTURAL ENGR		11.2					
CERAMIC ENGR	13.6						
CHEMICAL ENGR	7.5						
CIVIL ENGR	9.0	9.9				13.7	
ELECTRICAL ENGR	10.0	8.4	25.0	11.1		12.5	15.0
MECHANICAL ENGR	11.3	9.4					
METALLURGICAL ENGR	11.3						
MINING & GEOL ENGR	14.0						
TOOL ENGR		8.7				9.5	
ENGLISH	11.0	12.4	13.1	9.4	14.1	16.0	13.6
FOODS & NUTRITIONS	8.7	8.5				9.4	
FORESTRY		9.8			14.3	7.1	14.8
GEOGRAPHY	14.2		13.3		10.7		17.3
GEOLOGY	9.9	15.2	14.1	10.0	27.7	17.3	17.4
HEALTH EDUCATION	15.9	13.5	10.7	5.3	7.4		15.3
HISTORY	12.2	9.1	16.0	11.1	23.3	14.5	14.7
HOME ECONOMICS	10.1	8.9	10.0	7.3		8.3	
HONORS		14.3					
HUMANITIES	13.3					11.5	15.2
INDUSTRIAL ARTS EDUC		11.3		9.6	11.7	8.6	
JOURNALISM	11.6	14.6		2.5	13.0	14.3	
LANGUAGE	17.0	13.2					
ARABIC	13.5						
DUTCH	17.5						
FRENCH	16.0	16.1			22.8	15.2	20.8
GERMAN	15.5	14.8	17.7	5.0	22.2		18.1
GREEK	22.0						
ITALIAN	16.3						
JAPANESE	18.3						
LATIN	22.5						
PORTUGUESE	11.8						
RUSSIAN	16.9	14.9					
SCANDINAVIAN	16.7						
SPANISH	14.2	12.5		5.7		14.7	21.2
TURKISH	15.2						
LAW	7.9						
LIBRARY SCIENCE	14.8	11.0					
MATHEMATICS	12.4	16.5	15.0	11.9	23.1	15.6	14.8
MEDICAL TECHNOLOGY		58.3					15.8
MUSIC	9.1	13.8	9.7	8.2	7.1	9.8	9.7
NURSING	10.6		5.0				8.6
PHARMACY	12.3						
PHILOSOPHY	13.3		13.3				15.2
PHYSICAL EDUCATION	12.8	13.1	9.9	4.7	8.0	7.8	12.0
PHYSICAL SCIENCE			14.3		18.0	14.2	15.6
PHYSICS	9.8	7.2	13.9	10.4	27.7	12.8	16.3
PHYSIOLOGY		11.4	15.2	10.4	14.1	15.2	15.2
POLITICAL SCIENCE	12.1	14.7	15.1	3.3	22.9	14.3	14.6
PSYCHOLOGY	13.0	13.7	15.7		11.7	14.5	14.5
SECRETARIAL SCIENCE		13.2			14.3	12.4	17.7
SOCIAL STUDIES	5.8	12.9				15.2	14.1
SOCIOLOGY	10.7	13.4	13.1	8.8	10.7	14.3	14.8
SPEECH & DRAMA	9.1	17.7	16.1	9.0	13.9	14.2	12.8
VETERINARY SCIENCE		4.1				15.2	
VOCATIONAL-TECHNICAL	13.3		16.7				17.9
WELDING		12.6	15.3		17.6	9.3	18.1
ZOOLOGY	12.1	11.0	15.9	8.7	13.7	11.9	15.0
TOTAL	11.0	12.2	13.9	8.6	14.5	12.7	14.7

TABLE 27. AVERAGE CREDIT HOURS TEACHING EACH TERM OR QUARTER PER FULL-TIME-EQUIVALENT FACULTY MEMBER IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		10.9	16.6		11.7	14.0	18.6
AGRI ECONOMICS		8.3			12.4	13.6	
ANTHROPOLOGY	10.3		20.8				14.3
APPLIED ARTS		11.0					13.3
ARCHITECTURE	8.2						
ARTS & CRAFTS	12.5	15.5	14.4	16.4	16.3	10.9	13.9
BACTERIOLOGY		10.6	16.6		16.6	12.8	14.9
BIOLOGY	11.4		15.2	25.6	16.6	14.3	15.0
BOTANY	12.6	8.9	16.6	18.4	16.6	11.4	15.0
BUSINESS	12.9	10.6	17.3	19.2	16.1	11.6	14.7
CHEMISTRY	5.5	6.1	14.0	17.9	17.3	13.9	14.1
C.D. & F.L.	13.6	10.4				11.0	
CLOTHING & TEXTILES	11.9	8.2					
ECONOMICS	11.6	12.9	16.2	15.8	16.6	13.3	14.6
EDUCATION	13.8	13.5	14.2	13.3	12.4	13.1	14.9
EDUCATIONAL PSYCHOLOGY	10.6	10.4					12.7
AGRICULTURAL ENGR		9.7					
CERAMIC ENGINEERING	12.6						
CHEMICAL ENGINEERING	8.4						
CIVIL ENGINEERING	9.7	10.4				14.2	
ELECTRICAL ENGR	8.7	8.3		4.9		15.3	
FUEL ENGINEERING	20.8						13.4
GENERAL ENGINEERING			10.6	12.4			
MECHANICAL ENGR	11.5	9.6					
METALLURGICAL ENGR	11.6						
MINING & GEOLOGICAL	14.4						
ENGLISH	11.6	12.1	12.4	12.5	13.3	13.9	13.2
FOODS & NUTRITION	9.3	9.7				8.9	
FORESTRY		10.9			16.6	11.0	14.7
GENERAL PSYCHOLOGY	15.4	10.0	17.9	13.3	12.0	11.2	
GENERAL SCIENCE	8.7					9.5	13.7
GEOGRAPHY	11.7		11.0		12.4		15.3
GEOLOGY	9.4	17.1	12.4	15.4	21.5	12.5	13.5
HEALTH EDUCATION	5.5	20.7		10.7	8.3		14.6
HISTORY	12.4	11.8	16.9	20.4	23.3	11.3	15.5
HOME ECONOMICS	8.5		14.2	9.4	11.3		12.4
INDUSTRIAL ARTS				6.7	16.6		13.3
JOURNALISM	12.6	14.0	9.2		13.8	11.9	
LANGUAGE	17.8	13.3					
FRENCH	14.5	19.4	21.7		23.5	9.6	13.3
GERMAN	13.9	14.6	21.7	29.3	22.5		14.6
SPANISH	13.3	14.4	12.1	11.9	24.9	9.2	12.5
LAW	7.7						
LIBRARY SCIENCE	19.6	18.2					
MATH & STATISTICS	13.1	13.3	13.0	18.1	22.3	15.0	14.2
MUSIC	11.0	13.2	13.1	9.4	7.9	10.9	9.4
NURSING	9.5		7.4				3.0
PHARMACY	14.1						
PHILOSOPHY	11.9	16.9	11.6				15.2
PHYSICAL EDUCATION	9.7	12.6	9.9	7.4	8.4	7.8	11.5
PHYSICS	9.7	7.5	12.7	16.3	21.4	13.4	15.6
PHYSIOLOGY		11.4			15.8	15.1	15.1
POLITICAL SCIENCE	13.5	12.5	14.0	16.6	13.0	13.6	13.8
SECRETARIAL SCIENCE	11.9	11.8	15.5	15.5	14.8	11.8	14.7
SOCIAL SCIENCE		12.0					14.2
SOCIAL WORK	6.1	13.8					
SOCIOLOGY	10.7	13.2	15.9	17.5	12.6	10.9	14.9
SPEECH & DRAMA	10.5	14.7	12.8	15.6	18.3	12.4	15.0
TRADE TECHNOLOGY		10.5	15.1	11.9	20.7	10.2	14.3
ZOOLOGY	12.0	10.1	15.6	20.8	16.6	14.5	14.9
UNCLASSIFIED	13.6	26.6	12.9		16.6	13.2	13.0
TOTAL	11.1	11.5	13.5	13.7	15.2	12.2	12.9

at the two universities tends to be lower than 12 quarter hours per quarter. The difference in the two types of institutions is perhaps attributable to the differences in the expectancy of research and writing, or because of the larger volume of laboratory-type instruction and thesis supervision in the two Utah universities.

Student-credit-hours Produced per Full-time-equivalent Faculty Member

In an earlier chapter of this study the student-credit-hour has been defined and statistics have been presented showing the total student-credit-hour production in each of the institutions. Briefly, by way of review, the student-credit-hour may be defined as one student enrolled in a class for one hour of credit. A three-credit class with 25 students enrolled produces 75 student-credit-hours. The total student-credit-hour production for any grouping of classes and courses, by subject-matter areas, by instructional levels, or by individual institutions, may be divided by the number of full-time-equivalent faculty members for the same grouping of classes and courses, to obtain a figure for average student-credit-hour production per full-time-equivalent faculty member. This average is perhaps one of the best measures available for analyzing the efficiency of the academic program in an institution of higher education. The average size of classes multiplied by the average number of quarter credit hours of teaching per full-time-equivalent faculty

member for the entire academic year also gives this same index of productivity.

Student-credit-hour production per faculty member at each instructional level

Figure 4 and Table 28 summarize for each institution the average student-credit-hour production per faculty member for each instructional level. Most of the institutions in Utah show a relatively large annual production of student-credit-hours per faculty member, and the indication is that, in general, the instructional programs are efficiently organized.

Under conditions of economical operation, a university-type institution will have an annual student-credit-hour production that averages 750 or more per full-time-equivalent instructor. Under similar conditions, the average will be somewhat higher in institutions with only an undergraduate program. The following example illustrates what an average student-credit-hour production figure of 750 per full-time-equivalent instructor means to a faculty member. If a full-time-equivalent faculty member teaches 36 quarter hours per year, and has an average of 21 students in each of his classes, his annual student-credit-hour production would be 756. He can approximate this same figure by teaching a larger number of credit hours and having fewer students in his classes, or by teaching fewer credit hours and having larger

FIGURE 4, AVERAGE STUDENT-CREDIT-HOURS PRODUCED ANNUALLY PER FULL-TIME EQUIVALENT FACULTY MEMBER AT THE UTAH INSTITUTIONS OF HIGHER EDUCATION DURING REGULAR ACADEMIC YEARS 1959-60 AND 1960-61.

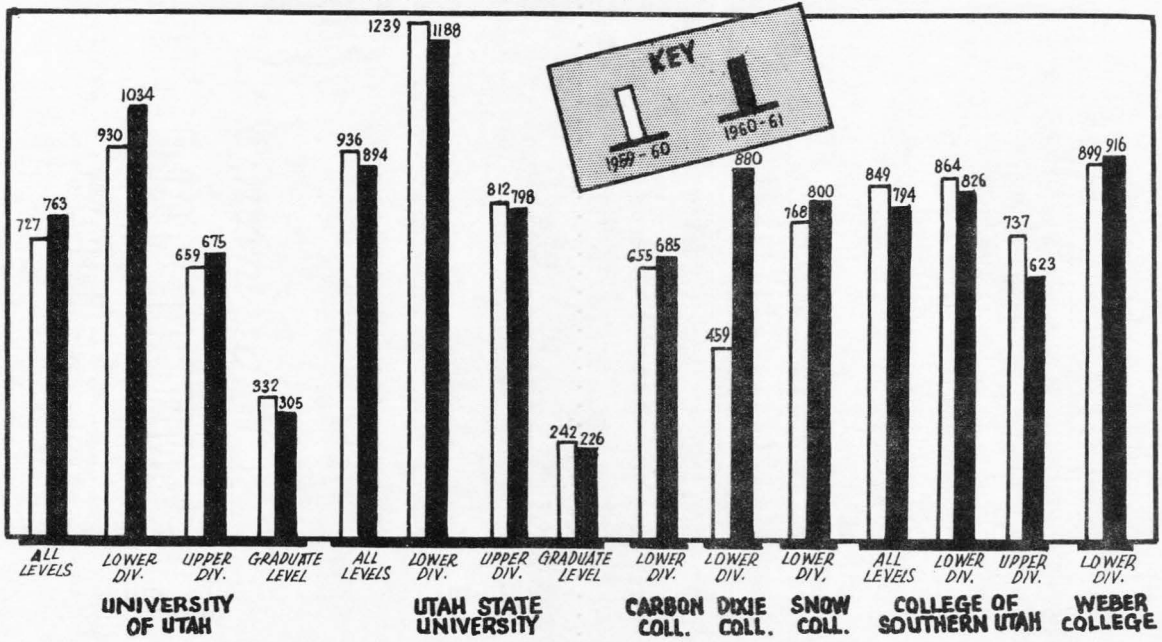


Table 28. Average number of student-credit-hours produced annually per full-time-equivalent faculty member at the Utah institutions of higher education during the 1959-60 and 1960-61 regular academic years

Institution	Lower division	Upper division	Graduate	All levels combined
University of Utah				
1959-60	$ 929.9	$ 658.7	$ 332.4	$ 727.1
1960-61	1,033.8	675.2	305.1	763.3
Per cent change	11.2	2.4	-8.1	5.0
Utah State University				
1959-60	1,239.1	812.4	241.6	936.4
1960-61	1,188.4	797.5	226.0	894.1
Per cent change	-4.2	-1.9	-6.6	-4.5
Carbon College				
1959-60	655.2			655.2
1960-61	684.6			684.6
Per cent change	4.6			4.6
Dixie College				
1959-60	459.6[a]			459.6[a]
1960-61	879.7			879.7
Per cent change	91.3[a]			91.3[a]
Snow College				
1959-60	768.1	750.0		768.0
1960-61	799.9			799.9
Per cent change	4.2			4.2
College of So. Utah				
1959-60	863.7	737.2		849.0
1960-61	826.4	623.4		793.6
Per cent change	-4.4	-15.5		-6.5
Weber College				
1959-60	898.9			898.9
1960-61	916.1			916.1
Per cent change	1.9			1.9
Average				
1959-60				804.4
1960-61				816.9
Per cent change				1.6

[a]Time devoted to teaching high school classes was not deducted in computing FTE faculty in 1959-60.

classes.

It is noted that the average is lowest at the graduate level. The average at the upper-division level is about twice as large as at the graduate level, and the average at the lower-division level is around three times as large as at the graduate level. The ratios, to be more specific, are: University of Utah, 1 to 2 to 2.8 and Utah State University, 1 to 2.3 to 3.4. These ratios of student-credit-hour production at the various instructional levels are not out of line with what has been found in similar studies in other states.

Student-credit-hours produced per faculty member in the various subject-matter areas

The 29 and 30 series of Tables show the average number of student-credit-hours taught per full-time-equivalent faculty in each subject-field at each institution during the 1959-60 and 1960-61 regular academic years. Tables 29A and 30A, 29B and 30B, and 29C and 30C present similar analyses for programs at the lower-division undergraduate, the upper-division undergraduate, and graduate level respectively. There is a wide range among the different subject-matter areas at every instructional level. At the lower division level some of the subjects that seem to have a relatively high student-credit-hour production per faculty member are anthropology, biological sciences, economics, history, mathematics, philosophy, physics, physiology, political science,

TABLE 29. AVERAGE STUDENT-CREDIT-HOURS PRODUCED ANNUALY (QUARTER HOURS) PER FULL-TIME-EQUIVALENT FACULTY MEMBER IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		497.6			327.1	676.0	391.8
ANTHROPOLOGY	913.9				325.0		842.5
ARCHITECTURE	333.0	686.5				142.8	
ARTS & CRAFTS	719.6	661.3	289.8	504.1	490.3	567.5	708.9
AUTO MECHANICS		443.6	795.0		495.1	768.0	586.5
BACTERIOLOGY		1,333.9		466.6	786.9	1,053.5	1,213.3
BIOLOGY	709.4		1,461.7	1,201.0	1,538.4	1,350.8	1,452.4
BOTANY	923.6	1,344.0		209.6	1,166.6	808.3	1,500.0
BUSINESS	876.7	1,195.8	648.7	413.8	623.8	674.5	1,027.9
CHEMISTRY	1,022.3	1,148.1	744.4	551.5	1,059.2	854.5	1,016.5
C.D. & F.L.	1,115.5	793.2			360.0	448.2	678.3
CLOTHING & TEXTILES	567.4	513.7				428.9	
COSMETOLOGY							790.0
ECONOMICS	1,016.9	1,399.1	600.0	453.1	1,152.1	1,565.7	1,019.7
EDUCATION	825.2	944.4	1,438.4		789.4	860.5	1,200.0
ENGINEERING			664.2	733.3	732.4		813.3
AERONAUTICAL ENGR		473.6					
AGRICULTURAL ENGR		484.0					
CERAMIC ENGR	372.4						
CHEMICAL ENGR	332.9						
CIVIL ENGR	396.5	736.1				816.8	
ELECTRICAL ENGR	775.2	634.5	550.0	133.3		375.0	799.3
MECHANICAL ENGR	563.0	526.4					
METALLURGICAL ENGR	401.5						
MINING & GEOL ENGR	278.8						
TOOL ENGR		468.3				300.0	
ENGLISH	616.2	1,050.5	1,003.1	658.9	902.3	1,283.7	942.3
FOODS & NUTRITIONS	346.0	354.0				298.3	
FORESTRY		564.9			942.8	621.4	1,455.5
GEOGRAPHY	1,221.2		280.0		653.5		1,540.0
GEOLOGY	549.5	1,099.6	1,045.4	686.5	2,333.3	1,410.9	1,061.1
HEALTH EDUCATION	2,049.1	1,853.1	1,104.0	333.3	200.0		1,751.3
HISTORY	1,507.0	1,455.1	880.5	937.5	2,890.0	1,317.6	1,426.5
HOME ECONOMICS	498.7	339.4	113.3	264.5		225.0	
HONORS		242.8					
HUMANITIES	1,258.1					1,061.5	1,540.3
INDUSTRIAL ARTS EDUC		614.7		393.8	162.1	211.2	
JOURNALISM	332.5	233.0		101.8	130.4	428.5	
LANGUAGE	733.3	1,148.2					
ARABIC	202.7						
DUTCH	494.7						
FRENCH	728.7	932.4			585.7	606.0	1,458.3
GERMAN	802.0	1,033.9	511.1	110.0	780.5		760.8
GREEK	286.7						
ITALIAN	297.7						
JAPANESE	330.0						
LATIN	292.5						
PORTUGUESE	70.5						
RUSSIAN	724.3	797.0					
SCANDINAVIAN	1,030.0						
SPANISH	495.4	815.7		312.5		779.4	393.6
TURKISH	136.3						
LAW	743.0						
LIBRARY SCIENCE	931.6	267.9					
MATHEMATICS	824.0	1,750.3	900.0	708.6	1,907.1	1,163.0	1,094.4
MEDICAL TECHNOLOGY		1,103.5					574.5
MUSIC	755.0	981.4	327.0	329.5	212.5	463.8	431.7
NURSING	304.6		120.0				237.8
PHARMACY	762.1						
PHILOSOPHY	1,427.5		560.0				941.3
PHYSICAL EDUCATION	695.2	1,005.5	374.2	234.2	411.8	457.7	1,085.0
PHYSICAL SCIENCE			1,257.1		1,743.2	970.2	1,208.1
PHYSICS	680.6	711.5	541.6	338.5	763.8	1,086.5	1,140.2
PHYSIOLOGY		1,377.1	1,000.0	1,468.7	2,019.2	1,750.0	1,560.6
POLITICAL SCIENCE	841.5	2,009.0	554.8	253.7	2,400.0	889.2	1,210.6
PSYCHOLOGY	1,203.6	2,076.0	2,591.1		1,397.5	1,406.5	1,392.4
SECRETARIAL SCIENCE		988.0			386.8	710.8	1,047.8
SOCIAL STUDIES	360.9	1,626.7				690.9	1,393.7
SOCIOLOGY	1,326.4	1,444.4	703.0	1,052.6	1,108.0	1,214.2	1,373.7
SPEECH & DRAMA	421.4	696.1	425.0	462.0	503.8	765.0	498.7
VETERINARY SCIENCE		263.7				727.2	
VOCATIONAL-TECHNICAL	407.2		796.4				415.7
WELDING		517.8	335.0		564.7	370.3	690.9
ZOOLOGY	968.1	1,165.6	797.6	236.9	1,294.8	809.5	1,333.3
TOTAL	727.1	936.4	655.2	459.6	768.0	849.0	898.9

TABLE 29A. AVERAGE LOWER-DIVISION STUDENT-CREDIT-HOURS (QUARTER HOURS) PRODUCED ANNUALLY PER FULL-TIME-EQUIVALENT FACULTY MEMBER DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		798.3			327.1	676.0	391.8
ANTHROPOLOGY	1,894.3				325.0		842.5
ARCHITECTURE	469.7	1,310.3				142.8	
ARTS & CRAFTS	1,371.0	835.8	289.8	504.1	490.3	567.5	708.9
AUTO MECHANICS		450.0	795.0		495.1	768.0	586.5
BACTERIOLOGY		1,571.6		466.6	786.9	1,053.5	1,213.3
BIOLOGY	737.0		1,461.7	1,201.0	1,538.4	1,350.8	1,452.4
BOTANY	1,183.5	1,752.3		209.6	1,166.6	808.3	1,500.0
BUSINESS	1,202.4	1,458.5	648.7	413.8	623.8	674.5	1,027.9
CHEMISTRY	1,203.9	1,713.1	744.4	551.5	1,059.2	854.5	1,016.5
C.D. & F.L.	1,343.8	1,010.9			360.0	448.2	678.3
CLOTHING & TEXTILES	772.0	587.0				428.9	
COSMETOLOGY							790.0
ECONOMICS	1,320.2	1,718.7	600.0	453.1	1,152.1	1,565.7	1,019.7
EDUCATION	1,528.9	2,040.0	1,438.4		789.4	2,020.0	1,200.0
ENGINEERING			664.2	733.3	732.4		813.3
AERONAUTICAL ENGR		444.9					
AGRICULTURAL ENGR		675.0					
CERAMIC ENGR	54.5						
CHEMICAL ENGR	320.4						
CIVIL ENGR	365.5	674.5				816.8	
ELECTRICAL ENGR	589.3	758.8	550.0	133.3		375.0	799.3
MECHANICAL ENGR	500.0	593.3					
METALLURGICAL ENGR							
MINING & GEOL ENGR	616.6						
TOOL ENGR		486.5				300.0	
ENGLISH	661.0	1,136.9	1,003.1	658.9	902.3	1,283.7	942.3
FOODS & NUTRITIONS	697.1	376.9				298.3	
FORESTRY		492.7			942.8	621.4	1,455.5
GEOGRAPHY	1,865.6		280.0		653.5		1,540.0
GEOLOGY	683.1	2,327.4	1,045.4	686.5	2,333.3	1,410.9	1,061.1
HEALTH EDUCATION	2,625.5	1,036.8	1,104.0	333.3	200.0		1,751.3
HISTORY	2,143.5	1,778.2	880.5	937.5	2,890.0	1,366.6	1,426.5
HOME ECONOMICS	1,418.7	173.1	113.3	264.5		225.0	
HONORS							
HUMANITIES	1,258.1					1,061.5	1,540.3
INDUSTRIAL ARTS EDUC		533.9		393.8	162.1	211.2	
JOURNALISM	446.2	280.0		101.8	130.4	428.5	
LANGUAGE	992.4	1,025.0					
ARABIC	202.7						
DUTCH							
FRENCH	795.6	1,014.9			585.7	606.0	1,458.3
GERMAN	892.1	1,149.7	511.1	110.0	780.5		760.8
GREEK	550.0						
ITALIAN	317.0						
JAPANESE	330.0						
LATIN	435.8						
PORTUGUESE							
RUSSIAN	840.3	797.0					
SCANDINAVIAN							
SPANISH	556.2	984.1		312.5		779.4	393.6
TURKISH	136.3						
LAW							
LIBRARY SCIENCE	1,425.8	507.1					
MATHEMATICS	968.9	1,823.8	900.0	708.6	1,982.6	1,163.0	1,094.4
MEDICAL TECHNOLOGY							574.5
MUSIC	936.6	1,229.9	327.0	329.5	212.5	449.3	431.7
NURSING	350.4		120.0				237.8
PHARMACY	108.9						
PHILOSOPHY	2,384.8		560.0				941.3
PHYSICAL EDUCATION	923.9	931.6	374.2	234.2	411.8	462.6	1,085.0
PHYSICAL SCIENCE			1,257.1		1,743.2	970.2	1,208.1
PHYSICS	975.4	1,533.9	541.6	338.5	763.8	1,086.5	1,140.2
PHYSIOLOGY		2,823.2	1,000.0	1,468.7	2,019.2	1,750.0	1,560.6
POLITICAL SCIENCE	1,141.8	3,204.6	554.8	253.7	2,400.0	1,018.4	1,210.6
PSYCHOLOGY	4,675.2	3,074.3	2,591.1		1,397.5	2,403.2	1,392.4
SECRETARIAL SCIENCE		1,127.9			386.8	710.8	1,047.8
SOCIAL STUDIES		2,640.2				1,150.0	1,393.7
SOCIOLOGY	1,718.9	1,807.6	703.0	1,052.6	1,108.0	1,521.7	1,373.7
SPEECH & DRAMA	467.2	1,027.5	425.0	462.0	503.8	768.4	498.7
VETERINARY SCIENCE		590.9				727.2	
VOCATIONAL-TECHNICAL			796.4				415.7
WELDING		559.7	335.0		564.7	370.3	690.9
ZOOLOGY	1,101.4	1,661.9	797.6	236.9	1,294.8	785.7	1,333.3
TOTAL	929.9	1,239.1	655.2	459.6	768.1	863.7	898.9

TABLE 29B. AVERAGE UPPER-DIVISION STUDENT-CREDIT-HOURS (QUARTER HOURS) PRODUCED ANNUALLY PER FULL-TIME-EQUIVALENT FACULTY MEMBER DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		538.2					
ANTHROPOLOGY	389.9						
ARCHITECTURE	252.7	354.0					
ARTS & CRAFTS	368.1	445.9					
AUTO MECHANICS		426.9					
BACTERIOLOGY		861.1					
BIOLOGY	601.5						
BOTANY	722.0	1,135.3					
BUSINESS	845.8	1,184.9					
CHEMISTRY	913.0	685.8					
C.D. & F.L.	832.6	728.9					
CLOTHING & TEXTILES	468.7	416.0					
COSMETOLOGY							
ECONOMICS	658.7	1,203.6					
EDUCATION	853.9	1,112.5				793.4	
ENGINEERING							
AERONAUTICAL ENGR		539.5					
AGRICULTURAL ENGR		475.3					
CERAMIC ENGR	354.9						
CHEMICAL ENGR	411.3						
CIVIL ENGR	472.8	856.5					
ELECTRICAL ENGR	916.7	691.8					
MECHANICAL ENGR	602.8	454.5					
METALLURGICAL ENGR	405.2						
MINING & GEOL ENGR	461.4						
TOOL ENGR		458.6					
ENGLISH	521.8	906.8					
FOODS & NUTRITIONS	134.6	284.0					
FORESTRY		777.8					
GEOGRAPHY	816.2						
GEOLOGY	548.9	381.8					
HEALTH EDUCATION	738.0	2,198.5					
HISTORY	1,192.3	1,451.1				771.4	
HOME ECONOMICS	265.0	504.0					
HONORS		242.8					
HUMANITIES							
INDUSTRIAL ARTS EDUC		728.1					
JOURNALISM	378.7	168.6					
LANGUAGE	505.3	1,350.0					
ARABIC							
DUTCH	494.7						
FRENCH	552.5	276.1					
GERMAN	502.8	388.5					
GREEK	177.0						
ITALIAN	100.0						
JAPANESE							
LATIN	161.5						
PORTUGUESE	70.5						
RUSSIAN	172.0						
SCANDINAVIAN	1,030.0						
SPANISH	371.5	184.3					
TURKISH							
LAW	1,050.0						
LIBRARY SCIENCE	513.1	230.3					
MATHEMATICS	714.9	1,537.5			750.0		
MEDICAL TECHNOLOGY		1,103.5					
MUSIC	586.2	754.7				583.3	
NURSING	351.3						
PHARMACY	1,376.0						
PHILOSOPHY	625.0						
PHYSICAL EDUCATION	512.1	1,230.1				364.2	
PHYSICAL SCIENCE							
PHYSICS	506.2	228.3					
PHYSIOLOGY		537.1					
POLITICAL SCIENCE	833.5	1,560.1				589.2	
PSYCHOLOGY	980.3	2,145.0				720.0	
SECRETARIAL SCIENCE		516.6					
SOCIAL STUDIES		672.6				428.5	
SOCIOLOGY	982.5	1,180.9				625.0	
SPEECH & DRAMA	371.3	600.3				728.5	
VETERINARY SCIENCE		146.1					
VOCATIONAL-TECHNICAL	592.4						
WELDING		389.3					
ZOOLOGY	877.9	986.8				857.1	
TOTAL	658.7	812.4			750.0	737.2	

TABLE 29C. AVERAGE GRADUATE STUDENT-CREDIT-HOURS (QUARTER HOURS) PRODUCED ANNUALLY PER FULL-TIME-EQUIVALENT FACULTY MEMBER DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		229.4					
ANTHROPOLOGY	195.0						
ARCHITECTURE		43.4					
ARTS & CRAFTS	197.8	184.3					
AUTO MECHANICS							
BACTERIOLOGY		228.5					
BIOLOGY	68.1						
BOTANY	205.2	361.6					
BUSINESS	359.4	372.0					
CHEMISTRY	537.8	161.7					
C.D. & F.L.		162.5					
CLOTHING & TEXTILES							
COSMETOLOGY							
ECONOMICS	504.3	175.0					
EDUCATION	444.4	300.6					
ENGINEERING							
AERONAUTICAL ENGR							
AGRICULTURAL ENGR		308.3					
CERAMIC ENGR	497.7						
CHEMICAL ENGR	236.0						
CIVIL ENGR	110.4	356.0					
ELECTRICAL ENGR	426.7	292.0					
MECHANICAL ENGR	305.9						
METALLURGICAL ENGR	257.1						
MINING & GEOL ENGR	107.8						
TOOL ENGR							
ENGLISH	215.5	324.1					
FOODS & NUTRITIONS		422.2					
FORESTRY		170.9					
GEOGRAPHY	235.5						
GEOLOGY	252.4	82.3					
HEALTH EDUCATION	176.9	120.0					
HISTORY	189.0	80.7					
HOME ECONOMICS		51.7					
HONORS							
HUMANITIES							
INDUSTRIAL ARTS EDUC		188.7					
JOURNALISM	131.4						
LANGUAGE							
ARABIC							
DUTCH							
FRENCH	77.7						
GERMAN	50.0						
GREEK							
ITALIAN							
JAPANESE							
LATIN	50.0						
PORTUGUESE							
RUSSIAN							
SCANDINAVIAN							
SPANISH							
TURKISH							
LAW	641.3						
LIBRARY SCIENCE	195.0						
MATHEMATICS	246.0	475.0					
MEDICAL TECHNOLOGY							
MUSIC	202.2	58.0					
NURSING	132.3						
PHARMACY	114.4						
PHILOSOPHY	56.2						
PHYSICAL EDUCATION	172.1	443.5					
PHYSICAL SCIENCE							
PHYSICS	243.7	75.6					
PHYSIOLOGY		97.8					
POLITICAL SCIENCE	153.8	217.5					
PSYCHOLOGY	393.9	519.7					
SECRETARIAL SCIENCE							
SOCIAL STUDIES	360.9	316.6					
SOCIOLOGY	193.4	102.3					
SPEECH & DRAMA	169.7	122.7					
VETERINARY SCIENCE		53.3					
VOCATIONAL-TECHNICAL	408.7						
WELDING							
ZOOLOGY	624.1	288.8					
TOTAL	332.4	241.6					

TABLE 30. AVERAGE STUDENT-CREDIT-HOURS PRODUCED ANNUALLY (QUARTER HOURS) PER FULL-TIME-EQUIVALENT FACULTY MEMBER IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		385.0	515.3		386.2	496.2	853.0
AGRI ECONOMICS		540.5			200.0	518.1	
ANTHROPOLOGY	989.2		4,687.5				1,313.5
APPLIED ARTS		590.8					320.0
ARCHITECTURE	400.6						
ARTS & CRAFTS	940.5	733.4	505.9	773.1	434.8	459.0	1,020.0
BACTERIOLOGY		1,211.5	1,100.0		1,130.0	807.6	1,323.3
BIOLOGY	1,278.3		1,532.6	2,358.9	1,675.0	1,574.0	1,572.6
BOTANY	838.6	1,158.2	1,550.0	250.0	800.0	948.2	1,346.3
BUSINESS	985.0	1,114.2	947.9	896.1	640.3	698.2	1,032.5
CHEMISTRY	764.3	834.0	629.6	1,392.3	1,294.6	955.0	1,124.7
C.D. & F.L.	717.7	744.8				403.3	
CLOTHING & TEXTILES	555.4	320.6					
ECONOMICS	964.7	1,378.2	804.8	976.1	1,750.0	1,220.0	1,060.2
EDUCATION	790.4	857.4	1,242.8	1,280.0	900.0	706.0	1,260.0
EDUCATIONAL PSYCHOLOGY	631.3	1,671.8					1,287.6
AGRICULTURAL ENGR		304.0					
CERAMIC ENGINEERING	294.3						
CHEMICAL ENGINEERING	378.7						
CIVIL ENGINEERING	392.6	697.5				813.4	
ELECTRICAL ENGR	793.5	604.8		44.4		123.0	
FUEL ENGINEERING	497.8						681.0
GENERAL ENGINEERING			459.5	562.5			
MECHANICAL ENGR	606.8	542.8					
METALLURGICAL ENGR	442.8						
MINING & GEOLOGICAL	291.3						
ENGLISH	690.5	1,039.2	920.4	837.5	893.7	1,103.0	972.2
FOODS & NUTRITION	459.0	351.0				336.5	
FORESTRY		545.0			700.0	646.6	1,911.1
GENERAL PSYCHOLOGY	1,393.4	1,126.1	2,325.6	1,860.0	1,310.6	1,098.8	•
GENERAL SCIENCE	3,304.9					664.2	1,172.9
GEOGRAPHY	1,114.3		1,566.6		700.0		1,974.3
GEOLOGY	502.2	1,343.4	895.8	1,430.2	2,217.6	1,147.2	832.0
HEALTH EDUCATION	595.1	1,664.2		1,012.9	175.0		1,892.0
HISTORY	1,766.7	1,712.8	1,550.7	2,008.0	3,536.6	1,060.2	1,662.6
HOME ECONOMICS	612.7		226.5	397.7	344.0		689.3
INDUSTRIAL ARTS				248.9	183.3		320.0
JOURNALISM	327.9	363.1	174.4		208.3	180.0	
LANGUAGE	463.5	505.9					
FRENCH	716.7	1,310.9	1,739.1		473.5	427.5	588.0
GERMAN	760.7	1,019.7	521.7	1,529.4	738.2		859.5
SPANISH	516.5	750.6	451.2	356.7	450.0	1,250.0	604.9
LAW	733.2						
LIBRARY SCIENCE	1,135.0	479.2					
MATH & STATISTICS	856.2	1,367.6	709.3	1,304.5	1,587.6	1,006.5	1,005.7
MUSIC	932.8	807.3	785.5	470.1	237.6	506.7	809.2
NURSING	252.0		165.0				169.8
PHARMACY	656.9						
PHILOSOPHY	1,412.9	1,343.0	325.0				1,269.5
PHYSICAL EDUCATION	553.3	981.1	465.2	331.8	445.9	457.2	1,205.1
PHYSICS	761.7	750.2	742.5	617.6	1,695.2	904.2	1,059.4
PHYSIOLOGY		1,836.6			2,309.5	1,754.5	1,818.1
POLITICAL SCIENCE	1,222.1	1,520.3	750.0	2,000.0	1,517.8	833.3	1,401.7
SECRETARIAL SCIENCE	747.9	991.7	882.2	1,009.3	467.8	556.8	1,016.4
SOCIAL SCIENCE		2,843.0					1,303.1
SOCIAL WORK	377.7	898.0					
SOCIOLOGY	1,406.1	1,731.5	1,208.6	2,684.2	1,147.6	964.2	1,512.6
SPEECH & DRAMA	503.1	647.1	570.3	740.6	694.0	810.2	615.5
TRADE TECHNOLOGY		407.8	488.4	597.0	480.5	326.8	590.6
ZOOLOGY	990.0	1,250.1	500.0	1,393.7	1,250.0	1,049.0	1,314.1
UNCLASSIFIED	1,880.2	480.0	384.7		250.0	1,329.1	1,129.1
TOTAL	763.3	894.1	684.6	879.7	799.9	793.6	916.1

TABLE 30A. AVERAGE LOWER-DIVISION STUDENT-CREDIT HOURS (QUARTER HOURS) PRODUCED ANNUALLY PER FULL-TIME-EQUIVALENT FACULTY MEMBER DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		488.4	515.3		386.2	530.9	853.0
AGRI ECONOMICS		1,553.8			200.0	518.1	
ANTHROPOLOGY	2,622.2		4,687.5				1,313.5
APPLIED ARTS		969.1					320.0
ARCHITECTURE	673.4						
ARTS & CRAFTS	1,516.7	1,072.5	505.9	773.1	434.8	459.0	1,020.0
BACTERIOLOGY		1,342.7	1,100.0		1,130.0	807.6	1,323.3
BIOLOGY	1,524.9		1,532.6	2,358.9	1,675.0	1,574.0	1,572.6
BOTANY	1,085.7	1,598.5	1,550.0	250.0	800.0	948.2	1,346.3
BUSINESS	1,467.6	1,338.5	947.9	896.1	640.3	698.2	1,032.5
CHEMISTRY	732.7	1,246.9	629.6	1,392.3	1,294.6	1,071.4	1,124.7
C.D. & F.L.	1,134.4	835.7				403.3	
CLOTHING & TEXTILES	747.7	388.4					
ECONOMICS	1,325.5	1,602.7	804.8	976.1	1,750.0	1,220.0	1,060.2
EDUCATION	1,080.0	849.1	1,242.8	1,280.0	900.0	935.7	1,260.0
EDUCATIONAL PSYCHOLOGY	1,020.3						1,287.6
AGRICULTURAL ENGR		519.4					
CERAMIC ENGINEERING	200.0						
CHEMICAL ENGINEERING	312.9						
CIVIL ENGINEERING	394.4	573.8				880.8	
ELECTRICAL ENGR	633.4	354.0		44.4		123.0	
FUEL ENGINEERING							681.0
GENERAL ENGINEERING			459.5	562.5			
MECHANICAL ENGR	939.1	620.0					
METALLURGICAL ENGR							
MINING & GEOLOGICAL	329.0						
ENGLISH	732.5	1,150.8	920.4	837.5	893.7	1,231.3	972.2
FOODS & NUTRITION	863.2	389.1				336.5	
FORESTRY		255.9			700.0	646.6	1,911.1
GENERAL PSYCHOLOGY	5,941.4	2,797.7	2,325.6	1,860.0	1,310.6	1,719.5	.
GENERAL SCIENCE	4,234.7					664.2	1,172.9
GEOGRAPHY	2,195.0		1,566.6		700.0		1,974.3
GEOLOGY	948.1	3,105.4	895.8	1,430.2	2,217.6	1,147.2	832.0
HEALTH EDUCATION	618.1	813.3		1,012.9	175.0		1,892.0
HISTORY	2,802.3	2,148.3	1,550.7	2,008.0	3,536.6	1,060.2	1,662.6
HOME ECONOMICS	1,423.5		226.5	397.7	344.0		689.3
INDUSTRIAL ARTS				248.9	183.3		320.0
JOURNALISM	349.4	362.2	174.4		208.3	180.0	
LANGUAGE	747.2	505.9					
FRENCH	818.5	1,561.8	1,739.1		473.5	427.5	588.0
GERMAN	851.8	1,157.4	521.7	1,529.4	738.2		859.5
SPANISH	610.7	835.4	451.2	356.7	450.0	1,250.0	604.9
LAW							
LIBRARY SCIENCE	1,835.4	825.0					
MATH & STATISTICS	1,016.3	1,589.4	709.3	1,304.5	1,587.6	1,032.2	1,005.7
MUSIC	1,272.6	912.2	785.5	470.1	237.6	503.4	809.2
NURSING	341.2		165.0				169.8
PHARMACY	129.4						
PHILOSOPHY	2,625.5	1,421.0	325.0				1,269.5
PHYSICAL EDUCATION	659.2	1,009.3	465.2	331.8	445.9	478.9	1,205.1
PHYSICS	1,123.5	2,060.2	742.5	617.6	1,695.2	904.2	1,059.4
PHYSIOLOGY		3,912.8			2,309.5	1,754.5	1,818.1
POLITICAL SCIENCE	2,262.0	2,297.8	750.0	2,000.0	1,517.8	1,075.0	1,401.7
SECRETARIAL SCIENCE	843.7	1,200.4	882.2	1,009.3	467.8	556.8	1,016.4
SOCIAL SCIENCE		2,843.0					1,303.1
SOCIAL WORK		985.7					
SOCIOLOGY	2,001.1	2,183.9	1,208.6	2,684.2	1,147.6	1,000.0	1,512.6
SPEECH & DRAMA	587.3	827.7	570.3	740.6	694.0	863.7	615.5
TRADE TECHNOLOGY		418.1	488.4	597.0	480.5	326.8	590.6
ZOOLOGY	1,301.7	1,720.9	500.0	1,393.7	1,250.0	1,291.6	1,314.1
UNCLASSIFIED	1,880.2		384.7		250.0	1,329.1	1,129.1
TOTAL	1,033.8	1,188.4	684.6	879.7	799.9	826.4	916.1

TABLE 30B. AVERAGE UPPER-DIVISION STUDENT-CREDIT HOURS (QUARTER HOURS) PRODUCED ANNUALLY PER FULL-TIME-EQUIVALENT FACULTY MEMBER DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		457.1				160.0	
AGRI ECONOMICS		527.1					
ANTHROPOLOGY	371.3						
APPLIED ARTS		338.7					
ARCHITECTURE	271.7						
ARTS & CRAFTS	556.5	326.9					
BACTERIOLOGY		776.1					
BIOLOGY	726.7						
BOTANY	624.5	711.7					
BUSINESS	1,003.7	1,127.0					
CHEMISTRY	1,572.1	596.4				500.0	
C.D. & F.L.	81.5	718.8					
CLOTHING & TEXTILES	443.4	332.9					
ECONOMICS	753.2	1,244.6					
EDUCATION	845.2	1,021.2				672.8	
EDUCATIONAL PSYCHOLOGY	1,070.7	1,845.5					
AGRICULTURAL ENGR		299.4					
CERAMIC ENGINEERING	210.5						
CHEMICAL ENGINEERING	637.5						
CIVIL ENGINEERING	494.0	907.8				266.6	
ELECTRICAL ENGR	960.5	771.8					
FUEL ENGINEERING	572.4						
GENERAL ENGINEERING							
MECHANICAL ENGR	671.2	515.8					
METALLURGICAL ENGR	415.1						
MINING & GEOLOGICAL	404.7						
ENGLISH	581.4	863.7				698.0	
FOODS & NUTRITION	367.2	381.5					
FORESTRY		794.6					
GENERAL PSYCHOLOGY	1,156.9	868.4				568.7	
GENERAL SCIENCE	453.3						
GEOGRAPHY	528.8						
GEOLOGY	441.5	265.8					
HEALTH EDUCATION	672.5	1,851.1					
HISTORY	1,218.0	1,387.7					
HOME ECONOMICS	354.3						
INDUSTRIAL ARTS							
JOURNALISM	355.2	363.7					
LANGUAGE	294.9						
FRENCH	484.1	315.1					
GERMAN	538.1	483.6					
SPANISH	369.2	474.3					
LAW	1,337.7						
LIBRARY SCIENCE	357.4	417.7					
MATH & STATISTICS	662.5	991.8				500.0	
MUSIC	618.6	725.7				533.3	
NURSING	270.8						
PHARMACY	1,215.0						
PHILOSOPHY	540.6	1,233.3					
PHYSICAL EDUCATION	482.5	1,053.6				146.6	
PHYSICS	547.4	346.7					
PHYSIOLOGY		460.9					
POLITICAL SCIENCE	1,083.5	1,216.4				467.5	
SECRETARIAL SCIENCE	661.3	671.1					
SOCIAL SCIENCE							
SOCIAL WORK		1,215.8					
SOCIOLOGY	973.7	1,474.2				833.3	
SPEECH & DRAMA	357.6	576.7				506.2	
TRADE TECHNOLOGY		408.7					
ZOOLOGY	834.7	1,062.8				861.2	
UNCLASSIFIED		480.0					
TOTAL	675.2	797.5				623.4	

TABLE 30C. AVERAGE GRADUATE STUDENT-CREDIT-HOURS (QUARTER HOURS) PRODUCED ANNUALLY PER FULL-TIME-EQUIVALENT FACULTY MEMBER DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		170.1					
AGRI ECONOMICS		178.6					
ANTHROPOLOGY	133.3						
APPLIED ARTS							
ARCHITECTURE							
ARTS & CRAFTS	246.4	286.6					
BACTERIOLOGY		383.3					
BIOLOGY	92.1						
BOTANY	54.1	500.0					
BUSINESS	362.7	403.6					
CHEMISTRY	440.0	208.5					
C.D. & F.L.		221.2					
CLOTHING & TEXTILES		24.5					
ECONOMICS	297.0	148.0					
EDUCATION	382.4	297.8					
EDUCATIONAL PSYCHOLOGY	278.8	750.0					
AGRICULTURAL ENGR		130.0					
CERAMIC ENGINEERING	542.8						
CHEMICAL ENGINEERING	117.4						
CIVIL ENGINEERING	70.1	271.9					
ELECTRICAL ENGR	265.7	245.6					
FUEL ENGINEERING	381.0						
GENERAL ENGINEERING							
MECHANICAL ENGR	272.8	118.1					
METALLURGICAL ENGR	473.9						
MINING & GEOLOGICAL	181.5						
ENGLISH	220.7	298.4					
FOODS & NUTRITION	10.9	77.2					
FORESTRY		181.0					
GENERAL PSYCHOLOGY	516.2	217.2					
GENERAL SCIENCE							
GEOGRAPHY	194.4						
GEOLOGY	194.7	185.0					
HEALTH EDUCATION	76.0	42.8					
HISTORY	172.7	184.2					
HOME ECONOMICS							
INDUSTRIAL ARTS							
JOURNALISM	42.8						
LANGUAGE	90.0						
FRENCH	133.3						
GERMAN	86.9						
SPANISH							
LAW	535.9						
LIBRARY SCIENCE	509.0						
MATH & STATISTICS	358.3	328.4					
MUSIC	166.6	147.3					
NURSING	88.3						
PHARMACY	93.9						
PHILOSOPHY							
PHYSICAL EDUCATION	110.7	194.1					
PHYSICS	305.2	74.8					
PHYSIOLOGY		210.0					
POLITICAL SCIENCE	151.8	293.0					
SECRETARIAL SCIENCE	40.0						
SOCIAL SCIENCE							
SOCIAL WORK	377.7	232.2					
SOCIOLOGY	144.2	117.7					
SPEECH & DRAMA	151.7	112.2					
TRADE TECHNOLOGY		177.1					
ZOOLOGY	587.5	330.9					
UNCLASSIFIED							
TOTAL	305.1	226.0					

psychology, and sociology. Among the subject-areas showing a relatively low student-credit-hour production per faculty member are agriculture, architecture, forestry, nursing, clothing and textiles, most branches of engineering, journalism, pharmacy, and trade technology. Some of these subject-areas require small classes for individual instruction.

The 29 and 30 series of Tables might well be carefully examined for those subject-fields in which the average student-credit-hour production per instructor is considerably above or below the institutional average. A high average student-credit-hour production may indicate overloading of faculty members, or it may be due to the fact that the peculiar nature of the subject-matter taught permits large class sizes. Similarly a low average student-credit-hour production per instructor may indicate overstaffing in the subject-matter area, or overexpansion of course offerings, or it may be due to the fact that the nature of the subject-matter taught requires instruction in small class groups. Comparisons of data between or among institutions in a given subject-field, such as art or English, may be made only at the same academic level. As can be seen from the preceding Tables, the average student-credit-hour production per instructor at the lower division level is generally higher than for either the upper division or the graduate level. The average student-credit-hour production per faculty member at the graduate level tends to be much lower than for either

of the two undergraduate levels. Thus, all other factors being equal, an institution with a large graduate program would ordinarily have a lower average student-credit-hour production per instructor than an institution with only a limited or no graduate program. This is the case in Utah with the exception of Carbon Junior College which has an average lower than either of the two universities.

CHAPTER VIII

INSTRUCTIONAL SALARY EXPENDITURE PER STUDENT CREDIT HOUR

The present chapter treats the relationship of the expenditure for instructional salaries to the volume of instructional production.

As was pointed out in an earlier chapter, the instructional salary expenditures of an institution of higher education normally comprise the largest single item in the entire budget. For purposes of reference, the total instructional salary expenditure for each participating institution and for each subject-matter area is included again here. These two Tables, 16 and 17, appeared first in Chapter V. The data in these Tables are used to derive the average instructional salary cost per student-credit-hour produced. The aggregate amount spent for instructional salaries in an institution of higher education has to be interpreted in terms of some measure of the size of the instructional program or the volume of instructional production. The measure used in the present analysis for volume of instructional production is the student-credit-hour, and the results are expressed in terms of the instructional salary expenditure per student-credit-hour produced.

The instructional salary cost per student-credit-hour

TABLE 16. TOTAL INSTRUCTIONAL SALARY COST IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		123,267			4,486	4,320	2,792
ANTHROPOLOGY	24,775				577		3,477
ARCHITECTURE	57,125	15,000				1,214	
ARTS & CRAFTS	71,156	44,027	3,859	5,286	5,966	7,300	12,075
AUTO MECHANICS		17,221	5,400		4,125	2,700	17,906
BACTERIOLOGY		13,731		524	1,402	1,343	4,633
BIOLOGY	109,856		3,440	3,717	1,410	3,149	10,800
BOTANY	25,373	26,450		1,047	2,116	3,394	3,807
BUSINESS	175,952	55,980	14,971	12,019	3,008	9,654	25,829
CHEMISTRY	105,625	56,510	5,686	3,679	4,584	10,568	20,458
C.D. & F.L.	6,278	27,639			4,700	1,400	18,450
CLOTHING & TEXTILES	11,909	9,705				6,050	
COSMETOLOGY							4,950
ECONOMICS	84,250	36,189	2,054	1,448	1,114	5,029	9,716
EDUCATION	214,731	91,049	955		1,134	18,595	10,660
ENGINEERING			2,875	105	2,975		14,368
AERONAUTICAL ENGR		17,171					
AGRICULTURAL ENGR		13,235					
CERAMIC ENGR	12,039						
CHEMICAL ENGR	38,030						
CIVIL ENGR	95,465	68,356				6,039	
ELECTRICAL ENGR	85,400	52,559	939	524		1,745	17,479
MECHANICAL ENGR	104,100	44,343					
METALLURGICAL ENGR	21,911						
MINING & GEOL ENGR	24,263						
TOOL ENGR		22,900				2,322	
ENGLISH	208,279	130,412	13,998	10,747	17,585	20,390	65,239
FOODS & NUTRITIONS	19,915	21,957				2,975	
FORESTRY		91,659			421	817	616
GEOGRAPHY	22,347		210		1,702		1,775
GEOLOGY	73,946	19,608	1,467	2,992	464	3,937	4,779
HEALTH EDUCATION	13,025	7,405	1,300	2,286	438		5,445
HISTORY	56,498	26,296	3,739	5,419	2,064	4,728	8,729
HOME ECONOMICS	14,926	17,491	5,760	7,135		175	
HONORS		940					
HUMANITIES	6,146					1,853	14,510
INDUSTRIAL ARTS EDUC		39,202		7,345	4,457	5,682	
JOURNALISM	21,418	8,157		3,255	1,385	440	
LANGUAGE	10,516	4,103					
ARABIC	3,125						
DUTCH	810						
FRENCH	37,428	11,521			2,365	2,200	1,324
GERMAN	41,546	13,043	2,762	529	2,364		3,298
GREEK	5,232						
ITALIAN	2,346						
JAPANESE	1,080						
LATIN	5,984						
PORTUGUESE	1,473						
RUSSIAN	6,600	2,987					
SCANDINAVIAN	810						
SPANISH	24,240	9,399		3,605		2,200	2,648
TURKISH	1,500						
LAW	101,817						
LIBRARY SCIENCE	8,300	4,664					
MATHEMATICS	178,630	66,625	6,800	4,394	6,223	12,761	46,084
MEDICAL TECHNOLOGY		1,895					7,927
MUSIC	98,575	42,620	6,500	8,307	6,390	11,947	13,229
NURSING	79,468		4,680				39,190
PHARMACY	35,891						
PHILOSOPHY	35,924		1,987				3,476
PHYSICAL EDUCATION	90,199	56,004	9,401	5,501	10,337	16,836	11,503
PHYSICAL SCIENCE			1,016		2,200	3,052	9,606
PHYSICS	158,291	49,751	1,571	3,745	2,788	3,498	12,130
PHYSIOLOGY		15,285	782	524	1,545	2,345	2,574
POLITICAL SCIENCE	51,454	20,579	1,707	3,130	1,026	4,837	6,796
PSYCHOLOGY	67,585	37,062	2,221		2,296	5,098	11,463
SECRETARIAL SCIENCE		21,979			7,238	7,709	11,953
SOCIAL STUDIES	73,002	12,041				727	4,919
SOCIOLOGY	65,695	27,239	2,484	1,591	1,513	2,113	10,215
SPEECH & DRAMA	147,013	39,585	4,355	3,684	5,468	4,010	9,842
VETERINARY SCIENCE		9,385				722	
VOCATIONAL-TECHNICAL	28,826		11,008				30,627
WELDING		11,826	6,350		825	3,482	671
ZOOLOGY	46,516	44,785	3,128	1,991	2,252	2,708	5,604
TOTAL	3,114,614	1,600,837	133,405	104,529	121,143	212,064	523,572

TABLE 17. TOTAL INSTRUCTIONAL SALARY COST IN EACH SUBJECT-FIELD AT EACH INSTITUTION DURING REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		102,768	1,375		2,756	6,479	3,234
AGRI ECONOMICS		23,388			1,300	1,552	
ANTHROPOLOGY	26,337		485				2,737
APPLIED ARTS		23,889					616
ARCHITECTURE	59,750						
ARTS & CRAFTS	69,290	45,842	4,238	3,249	6,296	7,150	19,062
BACTERIOLOGY		17,371	543		1,246	1,269	4,783
BIOLOGY	91,154		2,277	2,213	1,160	5,178	10,264
BOTANY	27,437	28,380	543	935	1,740	3,425	7,100
BUSINESS	144,569	69,985	6,335	3,276	3,213	10,883	29,503
CHEMISTRY	110,730	59,654	7,828	3,573	6,415	10,510	20,815
C.D. & F.L.	5,709	42,729				8,504	
CLOTHING & TEXTILES	10,156	18,365					
ECONOMICS	108,131	37,398	2,449	1,092	1,072	5,175	12,610
EDUCATION	173,298	120,271	472	335	998	23,516	3,197
EDUCATIONAL PSYCHOLOGY	54,388	15,411					13,347
AGRICULTURAL ENGR		18,307					
CERAMIC ENGINEERING	16,370						
CHEMICAL ENGINEERING	37,100						
CIVIL ENGINEERING	99,771	69,358				6,518	
ELECTRICAL ENGR	79,134	47,373		1,694		1,461	
FUEL ENGINEERING	9,520						14,370
GENERAL ENGINEERING			3,282	854			
MECHANICAL ENGR	95,398	70,377					
METALLURGICAL ENGR	42,212						
MINING & GEOLOGICAL	49,349						
ENGLISH	208,685	130,744	11,132	12,254	21,338	24,225	78,716
FOODS & NUTRITION	21,691	25,735				2,696	
FORESTRY		87,198			348	930	656
GENERAL PSYCHOLOGY	66,750	32,474	2,820	1,675	2,908	9,096	
GENERAL SCIENCE	4,861					3,185	7,472
GEOGRAPHY	31,800		381		1,496		2,940
GEOLOGY	109,814	21,494	2,287	2,682	1,236	4,569	5,594
HEALTH EDUCATION	23,660	10,106		1,793	429		5,688
HISTORY	53,175	33,627	3,268	3,949	2,134	8,570	8,454
HOME ECONOMICS	12,501		6,251	7,238	5,300		20,060
INDUSTRIAL ARTS				3,078	1,085		330
JOURNALISM	19,579	8,777	2,807		762	1,733	
LANGUAGE	45,799	8,517					
FRENCH	43,255	11,638	1,454		2,383	4,793	4,500
GERMAN	39,388	18,284	2,908	529	2,283		4,908
SPANISH	28,118	10,612	2,453	3,966	298	1,198	3,616
LAW	94,741						
LIBRARY SCIENCE	8,160	2,528					
MATH & STATISTICS	205,685	97,554	9,867	4,035	6,548	15,112	49,711
MUSIC	84,309	45,893	4,971	7,015	6,750	12,381	26,031
NURSING	88,643		9,100				36,180
PHARMACY	36,489						
PHILOSOPHY	39,734	4,489	1,527				3,593
PHYSICAL EDUCATION	109,668	54,615	10,556	5,906	10,497	16,001	11,677
PHYSICS	113,647	40,439	2,355	2,993	3,131	2,920	14,456
PHYSIOLOGY		13,302			1,448	3,992	2,657
POLITICAL SCIENCE	53,122	26,267	2,536	1,202	1,632	5,052	6,022
SECRETARIAL SCIENCE	28,410	22,545	7,876	7,643	7,343	7,115	11,133
SOCIAL SCIENCE		5,244					4,991
SOCIAL WORK	74,640	7,066					
SOCIOLOGY	71,661	25,919	1,730	1,202	1,330	4,392	7,677
SPEECH & DRAMA	136,878	43,588	6,624	3,533	5,250	5,988	7,700
TRADE TECHNOLOGY		78,821	20,404	3,249	14,267	17,613	75,141
ZOOLOGY	51,301	51,098	1,628	1,788	1,740	3,836	5,282
UNCLASSIFIED	13,828	344	3,520		340	6,337	10,385
TOTAL	3,229,798	1,729,781	148,282	92,951	128,472	253,354	557,208

for any grouping of courses, such as a subject-matter field, an instructional level, an entire institution, or a group of institutions, can be obtained by dividing the total expenditure for instructional salaries in the particular course grouping by the number of student-credit-hours produced in that course grouping. For example, if a given subject field in an institution had a total expenditure for instructional salaries of $50,000 and 5,000 student-credit-hours were produced, the instructional salary cost per student-credit-hour would be $10.00.

Instructional Salary Expenditure per Student-credit-hour at Each Instructional Level

Table 31 summarizes the instructional salary expenditure per student-credit-hour for each institution, according to instructional levels. Although the Table gives the data for all instructional levels combined, it is probably wiser to make comparisons between institutions only on the basis of the several instructional levels. Better still, comparisons might be made between the 1959-60 and 1960-61 costs in any one institution. Then, one institution is compared with itself. Figure 5 shows the instructional salary cost per student-credit-hour produced for each institution and each instructional level in graphical form.

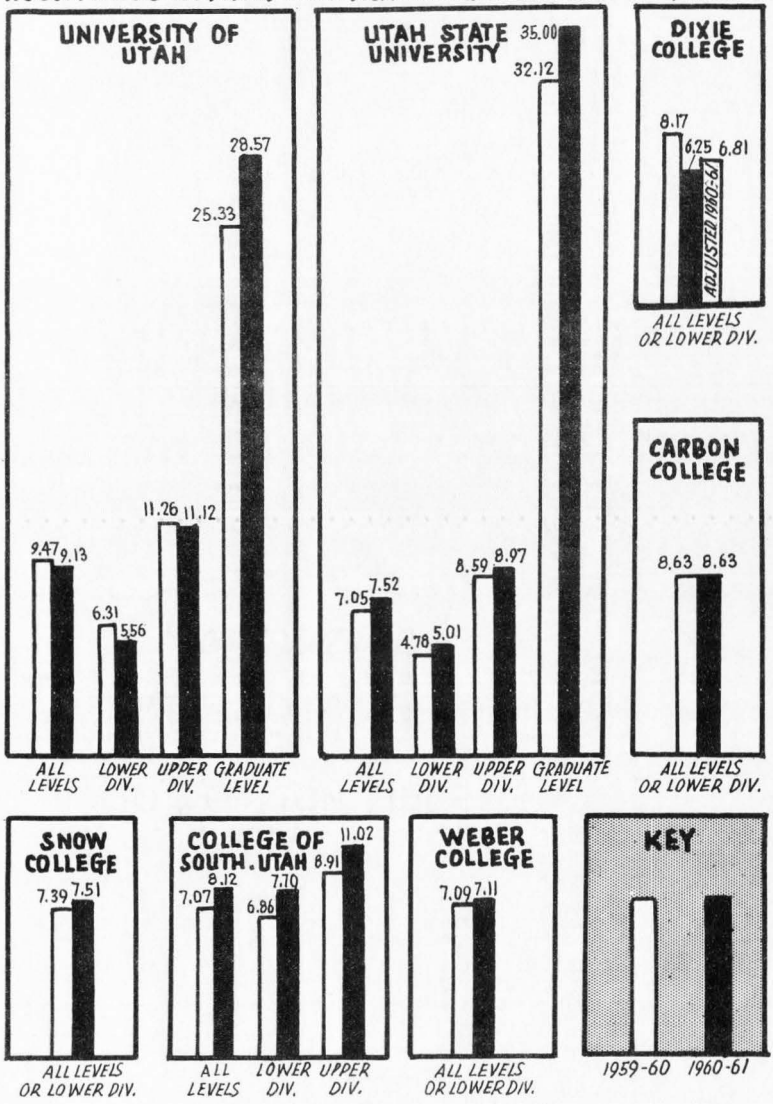
Since the student-credit-hour production increased slightly more rapidly than the full-time-equivalent teaching staff, the increases in cost per student-credit-hour might be

Table 31. Instructional salary cost per student-credit-hour produced in the Utah institutions of higher education at the three levels of instruction during the 1959-60 and 1960-61 regular academic years

Institution	Lower division	Upper division	Graduate	All levels combined
University of Utah				
1959-60	$6.31	$11.26	$25.33	$9.47
1960-61	5.56	11.12	28.57	9.13
Per cent change	-11.9	-1.2	12.8	-3.6
Utah State University				
1959-60	4.78	8.59	32.12	7.05
1960-61	5.01	8.97	35.00	7.52
Per cent change	4.8	4.4	9.0	6.7
Carbon College				
1959-60	8.63			8.63
1960-61	8.63			8.63
Per cent change	---			---
Dixie College				
1959-60	8.17[a]			8.17[a]
1960-61	6.25			6.25
Per cent change	-23.5[a]			-23.5[a]
Snow College				
1959-60	7.37	10.33		7.39
1960-61	7.51			7.51
Per cent change	1.9			1.9
College of So. Utah				
1959-60	6.86	8.91		7.07
1960-61	7.70	11.02		8.12
Per cent change	12.2	23.6		14.9
Weber College				
1959-60	7.09			7.09
1960-61	7.11			7.11
Per cent change	0.3			0.3
Average				
1959-60				8.25
1960-61				8.28

[a]The salary for teaching high school classes was not deducted in this instance.

FIGURE 5, **INSTRUCTIONAL SALARY COST PER STUDENT-CREDIT-HOUR PRODUCED, REGULAR ACADEMIC YEARS 1959-60 & 1960-61**



due to higher salaries.

At the lower division level the instructional salary expenditure per student-credit-hour is less, on the average, in the two universities than it is in the junior colleges. It is sometimes claimed that the junior college is a less expensive sort of educational institution to operate than a four-year college or university, but the data of Table 31 would not seem to support such a conclusion, at least insofar as the cost for instructional salaries per unit of credit granted is concerned. Perhaps the economy in the system of junior colleges arises, not from the lower instructional expenditure for programs of comparable quality, but from the fact that the great majority of the junior college students attend while living at home in their community and thus escape the cash outlay necessary for room and board away from home at a degree-granting institution. It would be an interesting study to compare the salary of faculty members at the lower-division level in the universities with the salary of faculty members in the junior colleges. Some portion of the difference in instructional salary cost per student-credit-hour may be due to the number of lower salaried graduate teaching assistants employed at this level in the universities. At least, this could be a hypothesis to be tested in such a study.

At each of the two universities the average instructional salary cost per student-credit-hour produced is

considerably higher at the graduate level than at either of the two undergraduate levels, and the average unit cost at the lower-division undergraduate level is the lowest. This pattern of instructional salary cost per student-credit-hours produced prevails in practically every collegiate institution for which an analysis of this kind has been made.

Utah State University maintains the most economical lower division program in the State. Relatively high expenditure at this level is noted at Carbon College. This institution has the highest instructional salary cost per student-credit-hour found at the lower division level of any institution that is included in this study. A low average size of class, a high percentage of small classes, and a relatively low student-credit-hour production per faculty member may be some of the factors contributing to the higher expenditure for faculty salaries per student-credit-hour at this institution.

At the upper-division level, Utah State University has a markedly lower instructional salary expenditure per student-credit-hour than the University of Utah. It may be recalled from the chapter on class size that the upper-division classes at Utah State University average about three more students per class than at the University of Utah. As reported in the previous chapter, this in turn influenced the average upper-division student-credit-hour production making it substantially greater at Utah State University. No doubt this difference in

student-credit-hour production per faculty member is one of the major factors helping to account for the difference in costs at the upper division level. A sharp rise in cost at the upper division level is noted at the College of Southern Utah. Between the two years, it increased from $8.91 to $11.02 per student-credit-hour. This may also be accounted for partially by the decrease in average upper-division student-credit-hour production per full-time-equivalent faculty member. The number of full-time-equivalent faculty and the corresponding total instructional salary cost have expanded more rapidly than the production of student-credit-hours.

The graduate program at Utah State University is slightly more expensive, on the average, than the corresponding program at the University of Utah. Perhaps the differences at this level in average class size, percentage of small classes, and student-credit-hour production per faculty member account for much of the cost differential.

Combining all levels of instruction it is noted that the University of Utah has the highest instructional salary cost per student-credit-hour produced in the Utah institutions.

Instructional Salary Expenditures per Student-credit-hour in Various Subject-matter Areas

The 1959-60 Table 32 and the 1960-61 Table 33 show the instructional salary cost per student-credit-hour taught in

TABLE 32. INSTRUCTIONAL SALARY COST PER STUDENT-CREDIT-HOUR PRODUCED, ALL LEVELS COMBINED, REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		14.66			14.90	8.52	11.68
ANTHROPOLOGY	8.39				14.79		8.78
ARCHITECTURE	22.60	10.92				40.47	
ARTS & CRAFTS	8.96	9.54	16.85	8.74	10.67	11.59	9.57
AUTO MECHANICS		13.67	6.79		10.04	7.03	11.39
BACTERIOLOGY		4.86		7.49	7.75	4.55	6.36
BIOLOGY	7.40		5.01	3.36	3.53	4.09	4.59
BOTANY	8.78	5.56		16.11	4.65	7.00	4.45
BUSINESS	8.34	5.86	9.62	10.84	7.65	8.67	6.39
CHEMISTRY	6.94	5.68	7.72	6.88	5.69	7.50	6.94
C.D. & F.L.	5.46	8.40			13.06	10.77	9.07
CLOTHING & TEXTILES	10.04	10.80				13.18	
COSMETOLOGY							6.27
ECONOMICS	6.74	5.57	9.78	9.99	4.20	4.23	6.95
EDUCATION	8.67	7.28	5.11		7.56	7.89	5.81
ENGINEERING			10.30	4.77	10.98		7.61
AERONAUTICAL ENGR		12.08					
AGRICULTURAL ENGR		15.02					
CERAMIC ENGR	18.16						
CHEMICAL ENGR	25.00						
CIVIL ENGR	18.22	9.84				7.78	
ELECTRICAL ENGR	9.16	11.93	8.54	32.75		14.54	7.46
MECHANICAL ENGR	12.28	12.05					
METALLURGICAL ENGR	19.92						
MINING & GEOL ENGR	31.19						
TOOL ENGR		16.30				22.11	
ENGLISH	9.47	5.50	6.31	5.59	6.54	4.10	6.91
FOODS & NUTRITIONS	20.40	16.76				16.62	
FORESTRY		12.71			6.38	9.39	4.70
GEOGRAPHY	5.55		15.00		9.30		4.61
GEOLOGY	12.69	6.26	4.25	6.50	3.31	3.82	6.72
HEALTH EDUCATION	5.13	4.25	4.71	10.89	24.33		4.32
HISTORY	5.71	4.20	5.51	4.82	2.38	4.22	5.42
HOME ECONOMICS	12.63	16.15	56.47	13.49		19.44	
HONORS		27.65					
HUMANITIES	4.98					6.71	4.22
INDUSTRIAL ARTS EDUC		10.84		9.61	37.14	30.22	
JOURNALISM	24.96	28.93		29.59	46.17	14.67	
LANGUAGE	10.17	6.16					
ARABIC	41.67						
DUTCH	8.62						
FRENCH	7.57	6.57			11.54	11.00	3.78
GERMAN	8.07	5.48	12.01	4.81	8.41		9.42
GREEK	26.83						
ITALIAN	17.51						
JAPANESE	16.36						
LATIN	25.57						
PORTUGUESE	122.75						
RUSSIAN	6.33	5.59					
SCANDINAVIAN	3.93						
SPANISH	12.39	7.58		13.11		8.30	14.31
TURKISH	33.33						
LAW	15.43						
LIBRARY SCIENCE	7.42	16.90					
MATHEMATICS	7.53	3.32	6.19	5.96	3.33	5.40	5.43
MEDICAL TECHNOLOGY		6.13					12.10
MUSIC	9.41	6.89	19.88	12.61	23.67	15.52	12.98
NURSING	21.29		19.50				23.54
PHARMACY	8.66						
PHILOSOPHY	5.77		14.19				8.03
PHYSICAL EDUCATION	9.26	5.49	14.35	15.76	12.36	13.18	5.46
PHYSICAL SCIENCE			3.85		3.41	6.69	5.41
PHYSICS	9.60	9.26	8.06	11.52	10.14	6.19	6.11
PHYSIOLOGY		5.29	7.11	2.23	2.94	3.05	5.00
POLITICAL SCIENCE	9.44	3.71	9.92	9.34	2.67	5.85	5.45
PSYCHOLOGY	6.28	3.26	2.52		4.11	4.77	5.18
SECRETARIAL SCIENCE		6.06			16.41	7.33	5.51
SOCIAL STUDIES	19.85	4.04				9.57	5.51
SOCIOLOGY	5.58	4.87	10.71	3.98	5.46	4.97	4.65
SPEECH & DRAMA	14.81	9.43	16.01	7.97	10.54	6.55	12.03
VETERINARY SCIENCE		31.49				9.03	
VOCATIONAL-TECHNICAL	22.19		7.09				14.85
WELDING		11.96	18.96		8.59	17.41	8.83
ZOOLOGY	8.14	5.82	9.34	18.27	4.46	7.96	5.39
TOTAL	9.47	7.05	8.63	8.17	7.39	7.07	7.09

TABLE 32A. INSTRUCTIONAL SALARY COST PER LOWER-DIVISION UNDERGRADUATE STUDENT CREDIT-HOUR PRODUCED, REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		7.59			14.90	8.52	11.68
ANTHROPOLOGY	3.85				14.79		8.78
ARCHITECTURE	14.20	5.88				40.47	
ARTS & CRAFTS	4.16	7.88	16.85	8.74	10.67	11.59	9.57
AUTO MECHANICS		13.32	6.79		10.04	7.03	11.39
BACTERIOLOGY		3.83		7.49	7.75	4.55	6.36
BIOLOGY	6.64		5.01	3.36	3.53	4.09	4.59
BOTANY	6.81	3.86		16.11	4.65	7.00	4.45
BUSINESS	5.19	4.70	9.62	10.84	7.65	8.67	6.39
CHEMISTRY	5.18	3.43	7.72	6.88	5.69	7.50	6.94
C.D. & F.L.	4.45	6.32			13.06	10.77	9.07
CLOTHING & TEXTILES	7.60	9.52				13.18	
COSMETOLOGY							6.27
ECONOMICS	4.86	4.34	9.78	9.99	4.20	4.23	6.95
EDUCATION	4.35	3.40	5.11		7.56	3.47	5.81
ENGINEERING			10.30	4.77	10.98		7.61
AERONAUTICAL ENGR		12.21					
AGRICULTURAL ENGR		10.12					
CERAMIC ENGR	84.83						
CHEMICAL ENGR	19.61						
CIVIL ENGR	17.60	8.80				7.78	
ELECTRICAL ENGR	11.46	7.87	8.54	32.75		14.54	7.46
MECHANICAL ENGR	15.88	9.58					
METALLURGICAL ENGR							
MINING & GEOL ENGR	13.72						
TOOL ENGR		14.94				22.11	
ENGLISH	7.74	4.78	6.31	5.59	6.54	4.10	6.91
FOODS & NUTRITIONS	9.43	14.30				16.62	
FORESTRY		9.98			6.38	9.39	4.70
GEOGRAPHY	3.14		15.00		9.30		4.61
GEOLOGY	7.86	2.48	4.25	6.50	3.31	3.82	6.72
HEALTH EDUCATION	4.35	6.53	4.71	10.89	24.33		4.32
HISTORY	3.87	3.10	5.51	4.82	2.38	4.08	5.42
HOME ECONOMICS	3.94	33.09	56.47	13.49		19.44	
HONORS							
HUMANITIES	4.98					6.71	4.22
INDUSTRIAL ARTS EDUC		11.48		9.61	37.14	30.22	
JOURNALISM	17.33	22.87		29.59	46.17	14.67	
LANGUAGE	7.16	7.72					
ARABIC	41.67						
DUTCH							
FRENCH	6.62	6.06			11.54	11.00	3.78
GERMAN	6.93	4.72	12.01	4.81	8.41		9.42
GREEK	9.82						
ITALIAN	16.56						
JAPANESE	16.36						
LATIN	13.79						
PORTUGUESE							
RUSSIAN	5.35	5.59					
SCANDINAVIAN							
SPANISH	10.37	6.26		13.11		8.30	14.31
TURKISH	33.33						
LAW							
LIBRARY SCIENCE	4.18	9.55					
MATHEMATICS	5.56	3.05	6.19	5.96	3.16	5.40	5.43
MEDICAL TECHNOLOGY							12.10
MUSIC	7.25	5.40	19.88	12.61	23.67	16.11	12.98
NURSING	16.38		19.50				23.54
PHARMACY	39.84						
PHILOSOPHY	3.47		14.19				8.03
PHYSICAL EDUCATION	6.62	5.63	14.35	15.76	12.36	12.97	5.46
PHYSICAL SCIENCE			3.85		3.41	6.69	5.41
PHYSICS	4.96	4.10	8.06	11.52	10.14	6.19	6.11
PHYSIOLOGY		2.48	7.11	2.23	2.94	3.05	5.00
POLITICAL SCIENCE	6.48	2.31	9.92	9.34	2.67	5.11	5.45
PSYCHOLOGY	1.50	1.96	2.52		4.11	2.73	5.18
SECRETARIAL SCIENCE		4.92			16.41	7.33	5.51
SOCIAL STUDIES		2.56				5.57	5.51
SOCIOLOGY	4.01	3.81	10.71	3.98	5.46	4.03	4.65
SPEECH & DRAMA	12.14	5.72	16.01	7.97	10.54	6.58	12.03
VETERINARY SCIENCE		11.36				9.03	
VOCATIONAL-TECHNICAL			7.09				14.85
WELDING		11.06	18.96		8.59	17.41	8.83
ZOOLOGY	6.46	3.29	9.34	18.27	4.46	8.21	5.39
TOTAL	6.31	4.78	8.63	8.17	7.37	6.86	7.09

TABLE 32B. INSTRUCTIONAL SALARY COST PER UPPER-DIVISION UNDERGRADUATE STUDENT CREDIT-HOUR PRODUCED, REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		13.65					
ANTHROPOLOGY	19.52						
ARCHITECTURE	31.77	20.09					
ARTS & CRAFTS	17.87	13.44					
AUTO MECHANICS		14.62					
BACTERIOLOGY		10.26					
BIOLOGY	11.59						
BOTANY	11.54	7.39					
BUSINESS	8.94	5.88					
CHEMISTRY	8.80	10.31					
C.D. & F.L.	7.48	9.55					
CLOTHING & TEXTILES	11.98	13.20					
COSMETOLOGY							
ECONOMICS	11.15	6.71					
EDUCATION	8.24	5.97				8.54	
ENGINEERING							
AERONAUTICAL ENGR		11.84					
AGRICULTURAL ENGR		14.46					
CERAMIC ENGR	17.73						
CHEMICAL ENGR	20.63						
CIVIL ENGR	16.05	8.65					
ELECTRICAL ENGR	7.80	11.44					
MECHANICAL ENGR	11.18	15.52					
METALLURGICAL ENGR	19.80						
MINING & GEOL ENGR	18.93						
TOOL ENGR		17.07					
ENGLISH	15.54	7.31					
FOODS & NUTRITIONS	54.63	24.25					
FORESTRY		9.40					
GEOGRAPHY	9.19						
GEOLOGY	14.69	20.40					
HEALTH EDUCATION	10.92	3.73					
HISTORY	7.36	4.69				7.09	
HOME ECONOMICS	24.44	10.53					
HONORS		27.65					
HUMANITIES							
INDUSTRIAL ARTS EDUC		9.22					
JOURNALISM	21.00	42.72					
LANGUAGE	15.37	4.22					
ARABIC							
DUTCH	8.62						
FRENCH	11.15	21.40					
GERMAN	14.79	18.01					
GREEK	48.85						
ITALIAN	48.25						
JAPANESE							
LATIN	56.41						
PORTUGUESE	122.75						
RUSSIAN	29.00						
SCANDINAVIAN	3.93						
SPANISH	18.55	34.03					
TURKISH							
LAW	11.16						
LIBRARY SCIENCE	11.84	19.44					
MATHEMATICS	10.11	4.55			10.33		
MEDICAL TECHNOLOGY		6.13					
MUSIC	10.94	9.15				11.76	
NURSING	19.10						
PHARMACY	5.31						
PHILOSOPHY	12.90						
PHYSICAL EDUCATION	13.21	4.71				18.22	
PHYSICAL SCIENCE							
PHYSICS	15.68	29.34					
PHYSIOLOGY		13.88					
POLITICAL SCIENCE	9.17	4.92				8.79	
PSYCHOLOGY	7.48	3.23				9.47	
SECRETARIAL SCIENCE		14.42					
SOCIAL STUDIES		9.20				15.70	
SOCIOLOGY	8.01	5.94				9.39	
SPEECH & DRAMA	18.95	11.38				6.29	
VETERINARY SCIENCE		61.79					
VOCATIONAL-TECHNICAL	15.86						
WELDING		15.92					
ZOOLOGY	9.51	7.49				7.52	
TOTAL	11.26	8.59			10.33	8.91	

TABLE 320. INSTRUCTIONAL SALARY COST PER GRADUATE STUDENT-CREDIT-HOUR PRODUCED, REGULAR ACADEMIC YEAR 1959-60

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		35.09					
ANTHROPOLOGY	42.78						
ARCHITECTURE		195.60					
ARTS & CRAFTS	38.18	29.00					
AUTO MECHANICS							
BACTERIOLOGY		33.59					
BIOLOGY	128.13						
BOTANY	33.36	22.82					
BUSINESS	22.95	21.11					
CHEMISTRY	16.16	47.14					
C.D. & F.L.		40.76					
CLOTHING & TEXTILES							
COSMETOLOGY							
ECONOMICS	15.18	49.82					
EDUCATION	17.51	25.51					
ENGINEERING							
AERONAUTICAL ENGR							
AGRICULTURAL ENGR		32.22					
CERAMIC ENGR	17.20						
CHEMICAL ENGR	40.36						
CIVIL ENGR	77.55	23.70					
ELECTRICAL ENGR	17.98	28.77					
MECHANICAL ENGR	25.83						
METALLURGICAL ENGR	27.33						
MINING & GEOL ENGR	80.60						
TOOL ENGR							
ENGLISH	40.74	23.47					
FOODS & NUTRITIONS		19.58					
FORESTRY		43.21					
GEOGRAPHY	33.44						
GEOLOGY	33.81	87.02					
HEALTH EDUCATION	45.96	61.67					
HISTORY	48.97	88.37					
HOME ECONOMICS		106.47					
HONORS							
HUMANITIES							
INDUSTRIAL ARTS EDUC		41.82					
JOURNALISM	72.17						
LANGUAGE							
ARABIC							
DUTCH							
FRENCH	106.14						
GERMAN	164.50						
GREEK							
ITALIAN							
JAPANESE							
LATIN	86.00						
PORTUGUESE							
RUSSIAN							
SCANDINAVIAN							
SPANISH							
TURKISH							
LAW	17.75						
LIBRARY SCIENCE	58.97						
MATHEMATICS	32.98	16.82					
MEDICAL TECHNOLOGY							
MUSIC	45.70	119.56					
NURSING	51.69						
PHARMACY	73.65						
PHILOSOPHY	181.11						
PHYSICAL EDUCATION	40.71	17.87					
PHYSICAL SCIENCE							
PHYSICS	33.86	94.21					
PHYSIOLOGY		76.58					
POLITICAL SCIENCE	65.36	31.51					
PSYCHOLOGY	20.08	14.70					
SECRETARIAL SCIENCE							
SOCIAL STUDIES	19.85	23.04					
SOCIOLOGY	45.07	77.53					
SPEECH & DRAMA	50.79	60.54					
VETERINARY SCIENCE		162.50					
VOCATIONAL-TECHNICAL	23.60						
WELDING							
ZOOLOGY	16.68	30.69					
TOTAL	25.33	32.12					

TABLE 33. INSTRUCTIONAL SALARY COST PER STUDENT-CREDIT-HOUR PRODUCED, ALL LEVELS COMBINED, REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		18.59	10.26		13.98	12.20	5.74
AGRI ECONOMICS		14.04			27.08	13.61	
ANTHROPOLOGY	7.00		1.29				5.63
APPLIED ARTS		11.89					19.25
ARCHITECTURE	19.21						
ARTS & CRAFTS	7.19	8.86	9.97	6.27	12.92	15.57	6.55
BACTERIOLOGY		5.33	4.93		5.51	6.04	6.02
BIOLOGY	5.64		3.22	2.40	3.46	4.06	4.35
BOTANY	10.45	6.31	3.50	20.77	7.25	6.22	5.55
BUSINESS	7.84	6.11	6.81	7.03	8.09	8.90	6.59
CHEMISTRY	6.97	7.79	9.20	3.94	5.27	6.58	6.53
C.D. & F.L.	8.28	8.62				14.24	
CLOTHING & TEXTILES	10.04	16.41					
ECONOMICS	7.35	5.73	7.42	5.32	3.06	5.65	6.95
EDUCATION	9.71	8.21	5.42	5.23	6.93	10.00	6.34
EDUCATIONAL PSYCHOLOGY	11.89	4.06					5.82
AGRICULTURAL ENGR		24.57					
CERAMIC ENGINEERING	28.66						
CHEMICAL ENGINEERING	23.83						
CIVIL ENGINEERING	18.91	10.38				9.77	
ELECTRICAL ENGR	9.08	13.57		141.16		45.65	
FUEL ENGINEERING	20.12						10.24
GENERAL ENGINEERING			15.19	9.48			
MECHANICAL ENGR	11.73	12.53					
METALLURGICAL ENGR	20.90						
MINING & GEOLOGICAL	29.46						
ENGLISH	8.27	5.45	6.87	5.78	7.06	5.22	6.65
FOODS & NUTRITION	16.81	19.09				15.40	
FORESTRY		14.30			8.28	9.58	3.81
GENERAL PSYCHOLOGY	5.71	6.55	3.10	3.60	4.72	9.30	
GENERAL SCIENCE	2.41					8.56	5.73
GEOGRAPHY	6.84		2.70		8.90		3.81
GEOLOGY	16.00	5.55	5.31	4.36	3.27	5.38	8.29
HEALTH EDUCATION	8.03	4.02		5.71	30.64		4.00
HISTORY	5.02	4.05	3.24	3.17	2.01	5.73	4.75
HOME ECONOMICS	9.66		28.15	13.57	15.40		9.15
INDUSTRIAL ARTS				25.22	32.87		20.62
JOURNALISM	22.87	21.20	37.42		30.48	38.51	
LANGUAGE	14.53	12.46					
FRENCH	7.71	5.41	3.63		14.80	16.24	7.65
GERMAN	6.95	6.66	12.11	2.03	9.09		6.79
SPANISH	11.85	8.51	13.25	16.59	16.55	5.32	9.79
LAW	14.58						
LIBRARY SCIENCE	5.99	9.95					
MATH & STATISTICS	7.43	4.52	8.64	4.68	4.25	6.58	6.31
MUSIC	7.69	8.31	8.32	11.13	22.72	14.89	8.78
NURSING	23.88		27.57				31.92
PHARMACY	11.45						
PHILOSOPHY	5.88	5.14	23.49				6.15
PHYSICAL EDUCATION	10.72	5.58	11.94	15.34	11.88	15.28	5.02
PHYSICS	8.44	9.18	6.74	9.50	4.39	6.87	6.75
PHYSIOLOGY		4.21			2.98	4.13	4.42
POLITICAL SCIENCE	6.92	4.74	8.89	3.00	3.84	6.51	3.73
SECRETARIAL SCIENCE	8.55	6.01	7.19	5.91	14.01	9.68	5.29
SOCIAL SCIENCE		2.56					6.07
SOCIAL WORK	19.77	7.79					
SOCIOLOGY	5.41	4.11	6.22	2.35	5.51	6.50	4.57
SPEECH & DRAMA	12.42	10.34	12.76	7.45	7.56	6.90	10.25
TRADE TECHNOLOGY		15.64	12.07	8.12	12.52	18.77	10.78
ZOOLOGY	8.45	5.46	10.17	4.00	4.64	6.64	5.15
UNCLASSIFIED	3.73	14.33	15.50		22.66	4.62	5.82
TOTAL	9.13	7.52	8.63	6.25	7.51	8.12	7.11

TABLE 33A. INSTRUCTIONAL SALARY COST PER LOWER-DIVISION UNDERGRADUATE STUDENT CREDIT-HOUR PRODUCED, REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		12.34	10.26		13.98	11.59	5.74
AGRI ECONOMICS		5.12			27.08	13.61	
ANTHROPOLOGY	2.65		1.29				5.63
APPLIED ARTS		7.22					19.25
ARCHITECTURE	10.01						
ARTS & CRAFTS	3.97	6.12	9.97	6.27	12.92	15.57	6.55
BACTERIOLOGY		4.59	4.93		5.51	6.04	6.02
BIOLOGY	4.65		3.22	2.40	3.46	4.06	4.35
BOTANY	8.08	4.18	3.50	20.77	7.25	6.22	5.55
BUSINESS	4.61	4.85	6.81	7.03	8.09	8.90	6.59
CHEMISTRY	5.12	4.63	9.20	3.94	5.27	5.58	6.53
C.D. & F.L.	5.29	6.98				14.24	
CLOTHING & TEXTILES	7.68	12.13					
ECONOMICS	4.66	4.59	7.42	5.32	3.06	5.65	6.95
EDUCATION	6.43	7.15	5.42	5.23	6.93	7.84	6.34
EDUCATIONAL PSYCHOLOGY	4.99						5.82
AGRICULTURAL ENGR		13.66					
CERAMIC ENGINEERING	58.83						
CHEMICAL ENGINEERING	23.64						
CIVIL ENGINEERING	17.20	11.19				8.96	
ELECTRICAL ENGR	9.51	15.04		141.16		45.65	
FUEL ENGINEERING							10.24
GENERAL ENGINEERING			15.19	9.48			
MECHANICAL ENGR	8.88	10.27					
METALLURGICAL ENGR							
MINING & GEOLOGICAL	23.62						
ENGLISH	6.99	4.38	6.87	5.78	7.06	4.62	6.65
FOODS & NUTRITION	7.98	16.37				15.40	
FORESTRY		17.74			8.28	9.58	3.81
GENERAL PSYCHOLOGY	1.33	2.35	3.10	3.60	4.72	6.88	
GENERAL SCIENCE	1.87					8.56	5.73
GEOGRAPHY	3.33		2.70		8.90		3.81
GEOLOGY	6.80	2.02	5.31	4.36	3.27	5.38	8.29
HEALTH EDUCATION	6.98	6.64		5.71	30.64		4.00
HISTORY	3.11	3.01	3.24	3.17	2.01	5.73	4.75
HOME ECONOMICS	3.31		28.15	13.57	15.40		9.15
INDUSTRIAL ARTS				25.22	32.87		20.62
JOURNALISM	18.08	19.73	37.42		30.48	38.51	
LANGUAGE	7.38	12.46					
FRENCH	6.34	4.38	3.63		14.80	16.24	7.65
GERMAN	5.48	5.84	12.11	2.03	9.09		6.79
SPANISH	9.77	7.68	13.25	16.59	16.55	5.32	9.79
LAW							
LIBRARY SCIENCE	3.43	7.00					
MATH & STATISTICS	5.35	3.49	8.64	4.68	4.25	6.47	6.31
MUSIC	5.34	7.03	8.32	11.13	22.72	15.01	8.78
NURSING	15.59		27.57				31.92
PHARMACY	33.61						
PHILOSOPHY	3.32	5.15	23.49				6.15
PHYSICAL EDUCATION	7.84	4.93	11.94	15.34	11.88	14.50	5.02
PHYSICS	4.38	3.25	6.74	9.50	4.39	6.87	6.75
PHYSIOLOGY		1.88			2.98	4.13	4.42
POLITICAL SCIENCE	3.95	3.08	8.89	3.00	3.84	5.07	3.73
SECRETARIAL SCIENCE	7.00	4.94	7.19	5.91	14.01	9.68	5.29
SOCIAL SCIENCE		2.56					6.07
SOCIAL WORK		6.53					
SOCIOLOGY	3.24	3.16	6.22	2.35	5.51	6.23	4.57
SPEECH & DRAMA	9.45	7.70	12.76	7.45	7.56	6.50	10.25
TRADE TECHNOLOGY		14.46	12.07	8.12	12.52	18.77	10.78
ZOOLOGY	5.82	3.16	10.17	4.00	4.64	5.12	5.15
UNCLASSIFIED	3.73		15.50		22.66	4.62	5.82
TOTAL	5.56	5.01	8.63	6.25	7.51	7.70	7.11

TABLE 33B. INSTRUCTIONAL SALARY COST PER UPPER-DIVISION UNDERGRADUATE STUDENT CREDIT-HOUR PRODUCED. REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		16.34				31.75	
AGRI ECONOMICS		13.56					
ANTHROPOLOGY	16.54						
APPLIED ARTS		20.79					
ARCHITECTURE	29.99						
ARTS & CRAFTS	12.49	19.75					
BACTERIOLOGY		9.88					
BIOLOGY	10.07						
BOTANY	14.26	11.00					
BUSINESS	7.67	5.95					
CHEMISTRY	5.40	12.03				14.98	
C.D. & F.L.	71.67	9.50					
CLOTHING & TEXTILES	12.36	16.97					
ECONOMICS	10.34	6.92					
EDUCATION	8.74	6.69				10.43	
EDUCATIONAL PSYCHOLOGY	6.52	3.52					
AGRICULTURAL ENGR		24.41					
CERAMIC ENGINEERING	38.08						
CHEMICAL ENGINEERING	15.31						
CIVIL ENGINEERING	15.30	8.01				31.37	
ELECTRICAL ENGR	7.15	11.02					
FUEL ENGINEERING	17.17						
GENERAL ENGINEERING							
MECHANICAL ENGR	10.13	13.77					
METALLURGICAL ENGR	20.87						
MINING & GEOLOGICAL	21.12						
ENGLISH	13.61	8.19				8.58	
FOODS & NUTRITION	19.31	18.39					
FORESTRY		9.98					
GENERAL PSYCHOLOGY	6.60	8.88				15.52	
GENERAL SCIENCE	17.86						
GEOGRAPHY	14.28						
GEOLOGY	18.88	32.10					
HEALTH EDUCATION	11.59	3.68					
HISTORY	7.31	5.37					
HOME ECONOMICS	17.80						
INDUSTRIAL ARTS							
JOURNALISM	21.49	22.15					
LANGUAGE	25.05						
FRENCH	12.84	25.64					
GERMAN	13.01	14.31					
SPANISH	17.25	13.28					
LAW	7.35						
LIBRARY SCIENCE	19.10	10.98					
MATH & STATISTICS	11.60	7.71				11.07	
MUSIC	10.31	9.88				14.01	
NURSING	21.45						
PHARMACY	6.98						
PHILOSOPHY	14.81	5.11					
PHYSICAL EDUCATION	14.24	5.75				51.50	
PHYSICS	13.88	19.18					
PHYSIOLOGY		17.61					
POLITICAL SCIENCE	7.29	5.94				11.52	
SECRETARIAL SCIENCE	10.77	8.95					
SOCIAL SCIENCE							
SOCIAL WORK		5.76					
SOCIOLOGY	8.69	4.92				7.71	
SPEECH & DRAMA	21.09	11.75				10.80	
TRADE TECHNOLOGY		16.59					
ZOOLOGY	10.28	7.25				8.41	
UNCLASSIFIED		14.33					
TOTAL	11.12	8.97				11.02	

TABLE 330. INSTRUCTIONAL SALARY COST PER GRADUATE STUDENT-CREDIT-HOUR PRODUCED, REGULAR ACADEMIC YEAR 1960-61

	UU	USU	CARBON	DIXIE	SNOW	SOUTHERN	WEBER
AGRICULTURE		45.81					
AGRI ECONOMICS		45.73					
ANTHROPOLOGY	58.86						
APPLIED ARTS							
ARCHITECTURE							
ARTS & CRAFTS	33.58	21.01					
BACTERIOLOGY		19.06					
BIOLOGY	93.95						
BOTANY	146.84	17.57					
BUSINESS	24.57	20.53					
CHEMISTRY	19.62	34.65					
C.D. & F.L.		32.95					
CLOTHING & TEXTILES		282.53					
ECONOMICS	27.99	53.02					
EDUCATION	24.86	26.59					
EDUCATIONAL PSYCHOLOGY	29.48	11.06					
AGRICULTURAL ENGR		65.34					
CERAMIC ENGINEERING	17.40						
CHEMICAL ENGINEERING	77.85						
CIVIL ENGINEERING	117.45	29.13					
ELECTRICAL ENGR	35.71	38.40					
FUEL ENGINEERING	27.07						
GENERAL ENGINEERING							
MECHANICAL ENGR	31.11	54.92					
METALLURGICAL ENGR	20.93						
MINING & GEOLOGICAL	49.33						
ENGLISH	35.58	27.44					
FOODS & NUTRITION	927.28	97.05					
FORESTRY		45.79					
GENERAL PSYCHOLOGY	15.88	35.54					
GENERAL SCIENCE							
GEOGRAPHY	43.67						
GEOLOGY	46.20	40.67					
HEALTH EDUCATION	103.94	162.00					
HISTORY	54.09	42.92					
HOME ECONOMICS							
INDUSTRIAL ARTS							
JOURNALISM	280.88						
LANGUAGE	124.77						
FRENCH	62.67						
GERMAN	97.55						
SPANISH							
LAW	20.47						
LIBRARY SCIENCE	18.50						
MATH & STATISTICS	23.70	24.05					
MUSIC	55.05	47.98					
NURSING	85.44						
PHARMACY	89.99						
PHILOSOPHY							
PHYSICAL EDUCATION	72.85	42.03					
PHYSICS	25.87	98.93					
PHYSIOLOGY		35.04					
POLITICAL SCIENCE	60.01	25.84					
SECRETARIAL SCIENCE	196.62						
SOCIAL SCIENCE							
SOCIAL WORK	19.77	30.52					
SOCIOLOGY	66.54	66.05					
SPEECH & DRAMA	57.31	70.04					
TRADE TECHNOLOGY		47.01					
ZOOLOGY	18.57	26.74					
UNCLASSIFIED							
TOTAL	28.57	35.00					

each subject-field at each institution. These data were derived by dividing the total expenditures in each subject-field for instructional salary (Tables 16 and 17) by the number of student-credit-hours taught in that subject-field (the 8 and 9 series of Tables). The instructional salary cost in a subject-area per student-credit-hour produced is a measure of the general economy of that part of the instructional program. In interpreting the data, one might bear in mind that they represent only instructional salary costs. Some subject-fields that may have a relatively low instructional salary cost per student-credit-hour may require rather large expenditures for supplies and equipment and for reference and reading materials.

Tables 32A and 33A, 32B and 33B, and 32C and 33C, respectively, show the subject-area instructional salary cost per student-credit-hour taught for each of the three academic levels. They show a wide range in the instructional cost in the various subjects at every level. Some of the subjects that tend to be low in instructional salary expenditure per student-credit-hour produced are bacteriology, biology, chemistry, economics, English, history, mathematics, physiology, political science, psychology, and sociology. Among the high-cost subjects are such areas as agriculture, applied arts, architecture, clothing and textiles, foods and nutrition, home economics, industrial arts, journalism, law, trade technology, some of the foreigh languages, and most of

the branches of engineering. With a few exceptions, the higher-cost subjects seem to be mainly technical or occupational.

The instructional salary cost per student-credit-hour represents a complex of at least three different factors: (1) the average faculty salary; (2) the number of faculty members; and (3) the number of students enrolled. In a university-type institution, the use of graduate assistants for teaching frequently affects costs. These are the factors to which attention could be directed in any effort to alter extreme deviations in unit costs.

An upward deviation in the unit cost for a given subject-field might be reduced by any one or a combination of the following three processes.

1. A reduction in the average salary of a department by bringing in young staff members at the lower academic ranks to fill vacancies created by the retirement or resignation of senior professors;

2. Discouragement of additions to the faculty in departments suffering from overexpanded course offerings and comparatively uneconomical size of classes;

3. Absorption of additional students without making corresponding increases to the staff.

Where the examination of the data in this study suggests an overworked faculty, for example, large classes or too many hours of teaching, additional staff members could be added.

An unusually low unit cost in a department or in an institution may indicate a low average salary. In this situation promotions of staff members to the higher salary ranks may be called for, or higher-priced mature talent might be brought in to bolster the quality of the program.

CHAPTER IX

SUMMARY OF FINDINGS AND CONCLUSIONS

This chapter will summarize some of the more important findings from each major section of the study.

The purpose of this study was to analyze the scope of curricular offering, class size, teaching load, and instructional salary costs in the state-supported collegiate institutions of higher education in Utah for the regular academic years, 1959-60 and 1960-61 and, insofar as possible, to compare the two years with respect to the above factors.

In order to deal with this problem the study was structured to obtain answers to the following questions by institution, by subject-matter area, and by level of instruction for each of the 1959-60 and 1960-61 regular academic years.

1. What is the scope of curricular offerings?
2. What is the volume of teaching and instructional service?
3. What is the size of the instructional staff?
4. What are the variations in class size?
5. In terms of college credits, what is the instructional productivity?
6. What is the instructional salary expenditure?

Some highlights of the analyses are provided by institution and by level of instruction in the following summary

Table, Table 34. This Table is an attempt to bring together in one place in a somewhat concise fashion, institutional totals for most of the factors studied.

Scope of Course Offerings (Chapter III)

The study presents an analysis of the scope of different courses taught at each of the institutions. The smaller institutions in Utah have a somewhat restricted scope of course offerings, but as might be expected, the breadth of subject-matter taught in the two universities is quite extensive. In the junior college with the most limited variety of course offerings, it would require that a student devote about 12 years of full-time study to complete every course offered in 1960-61; but, to complete all of the different courses offered at the largest university during the same year would require about 150 years of full-time study by one student.

The scope of subject-matter taught, expressed in terms of the number of quarter hours of different courses, ranged from a low of 611 quarter hours at Dixie Junior College to a high of 6,663 quarter hours at the University of Utah during the academic year 1959-60. In the following academic year, 1960-61, the range was from 579 to 6,992 quarter hours with the same two institutions at the two extremes. It is noted that both universities decreased the number of credit hours of different lower-division courses taught and increased the

Table 34. Summary table

Institution	Quarter hrs. of classes taught	Student credit hours produced	Average SCH prod. annually per faculty member	Av. CH teaching ea. qtr. per FTE faculty member	Average size of classes	Per cent of small classes (1-4)	Number of small classes	Inst. sal. cost per SCH	Total FTE faculty teaching
All levels									
U of U									
59-60	14,878	328,721	727.1	11.0	22.1	10.6	520	9.47	452.12
60-61	15,568	353,603	763.3	11.1	22.7	12.6	589	9.13	463.20
USU									
59-60	8,885	227,210	936.4	12.2	25.6	13.6	412	7.05	242.65
60-61	8,935	229,734	894.1	11.5	25.7	13.0	436	7.52	256.93
Lower div.									
U of U									
59-60		185,819	929.9		30.0	2.2	60	6.31	199.83
60-61	6,344	204,646	1,033.8		32.2	1.8	46	5.56	
USU									
59-60		137,055	1,239.1		35.9	3.3	64	4.78	110.61
60-61	3,715	134,546	1,188.4		36.2	3.2	68	5.01	
Upper div.									
U of U									
59-60		119,166	658.7		18.9	9.5	199	11.26	180.91
60-61	6,476	124,096	675.2		19.1	10.1	215	11.12	

Table 34. Continued

Institution	Quarter hrs. of classes taught	Student credit hours produced	Average SCH prod. annually per faculty member	Av. CH teaching ea. qtr. per FTE faculty member	Average size of classes	Per cent of small classes (1-4)	Number of small classes	Inst. sal. cost per SCH	Total FTE faculty teaching
USU									
59-60		82,910	812.4		22.2	8.8	122	8.59	102.06
60-61	3,862	87,497	797.5		22.6	8.4	131	8.97	
Grad.									
U of U									
59-60		23,736	332.4		10.0	35.2	261	25.33	71.41
60-61	2,748	24,862	305.1		9.0	43.2	328	28.57	
USU									
59-60		7,245	241.6		5.5	56.9	226	32.12	29.99
60-61	1,358	7,691	226.0		5.6	53.2	237	35.00	
Lower div.									
Carbon									
59-60	982.0	15,462.0	655.2	13.9	15.7	12.2	46	8.63	23.60
60-61	1,021.5	17,164.0	684.6	13.5	16.8	7.0	28	8.63	25.07
Dixie									
59-60	721.0	12,790.0	459.6	8.6[a]	17.7	7.8	19	8.17[a]	27.83[a]
60-61	698.7	14,850.0	879.7	13.7	21.2	5.7	12	6.25	16.88
Snow									
59-60	926.0	16,390.0	768.1	14.5	17.8	12.8	48	7.37	21.34
60-61	980.6	17,102.0	799.9	15.2	17.4	15.2	47	7.51	21.38

[a]The 1959-60 figures from Dixie Junior College are not a true reflection of the picture there since separation was not made between the high school and college.

Table 34. Continued

Institution	Quarter hrs. of classes taught	Student credit hours produced	Average SCH prod. annually per faculty member	Av. CH teaching ea. qtr. per FTE faculty member	Average size of classes	Per cent of small classes (1-4)	Number of small classes	Inst. sal. cost per SCH	Total FTE faculty teaching
Southern									
59-60	1,350.5	26,964.0	863.7	12.7	22.7	2.7	13	6.86	35.33
60-61	1,448.0	27,216.0	826.4	12.2	22.7	4.8	19	7.70	39.29
Weber									
59-60	3,627.0	73,892.0	898.9	14.7	20.4	7.0	78	7.09	82.20
60-61	3,335.0	78,277.2	916.1	12.9	23.4	2.1	19	7.11	85.44

upper division and graduate scope of course offerings. All Utah institutions, with the exception of Dixie Junior College, show increased curricular offerings during the two-year period. Some of the greatest percentage increases appear in the lower division at Snow Junior College, the upper division at the College of Southern Utah, and in the graduate curriculum at the University of Utah.

As a group, the seven Utah institutions offered 772 more quarter credit hours of different courses in 1960-61 than they did in 1959-60. The greatest increase in actual number of credit hours occurred at the upper-division level, while the greatest increase on a percentage basis occurred at the graduate level.

A direct variation exists between the size of the Utah institutions and the scope of their offerings. As institutions increase in size, they increase their offerings. Thus, as enrollments increase, institutions do not confine themselves to their established programs but, rather, they expand their offerings.

Volume of Teaching and Instructional Service (Chapter IV)

Chapter IV of the study treats the total volume of teaching and instructional service to students in the Utah institutions in terms of both the total number of quarter credit hours of classes taught and in the total number of student-credit-hours "produced." Subject-areas such as

English, fine and applied arts, social sciences, education, engineering, physical sciences, and mathematics rank high in the list with respect to the total volume of teaching.

The volume of teaching measured in terms of total credit hours of classes taught has increased at every institution with the exception of Dixie Junior College. A state-wide total of 31,369.6 credit hours was taught in 1959-60 as compared with a total of 31,987.1 hours taught in 1960-61. The difference is an increase of 617.5 quarter credit hours or 1.9 per cent.

The production of student-credit-hours has increased at every Utah institution. In summary, a state-wide total of 704,481.1 student-credit-hours was produced in 1959-60 as compared with a total of 741,911.1 produced in 1960-61. Thus, the total increase in production for the period is 37,430 student-credit-hours or 5.0 per cent. Thus, the total volume of teaching and instructional service to students in Utah institutions is increasing both in terms of the total number of credit hours of classes taught (the volume of teaching maintained) and in the total number of student-credit-hours produced (the production of instructional services).

There is a very consistent state-wide ratio of production of instructional services among levels of instruction. The percentage of the total student-credit-hours produced at each of the three levels for all the Utah schools combined did not change during the two-year period. The constant

ratios were: lower division 66.5 per cent; upper division 29.1 per cent; and graduate level 4.4 per cent.

The number of student-credit-hours produced in a given field is a good index of student demand for instruction in the field. It must be recognized, of course, that student demand or interest is not the sole educational criterion for maintaining instruction in a subject-field. Such factors as a balanced curriculum, the special needs of students pursuing a program of specialization, and program experimentation must be considered. But student demand, as indicated by the number of student-credit-hours produced, should be weighed in acting on proposals to expand course offerings in a subject-field.

As might be expected, the subject areas of greatest instructional volume and those with the largest student-credit-hour production are usually general education subjects. Those that are high in volume and production at the upper division or graduate levels are, in the main, professional or pre-professional in nature.

The two state-supported universities in Utah produce about three-fourths of the total volume of teaching and instructional service to students in Utah's state-supported collegiate institutions of higher education.

Instructional Staff (Chapter V)

Data are presented in Chapter V concerning the

instructional staff. These data are used in the study mainly as a basis for further computation. The number of full-time-equivalent faculty members is a composite of the proportions of full-time service devoted to instruction by both instructors of academic rank and by graduate assistants or lecturers who have full responsibility for teaching a class.

The data indicate that the total full-time-equivalent faculty teaching at Utah institutions during the 1960-61 school year had increased slightly over the corresponding figure in 1959-60. A total of 875.79 full-time-equivalent faculty was teaching in 1959-60 as compared with 908.19 in 1960-61. This difference is an increase of 32.4 full-time-equivalent faculty or a 3.6 per cent increase state-wide. It is noted, however, that this increase is less than the 5.0 per cent increase in production of student-credit-hours. Thus, there is a slightly greater percentage increase in production than in number of full-time-equivalent faculty during the two-year period.

English, mathematics, and education lead the list of subject-matter areas with regard to the number of full-time-equivalent faculty teaching in each subject-field.

Class Size (Chapter VI)

Chapter VI of the study is devoted to an analysis of class size, treating the average size of class and the percentage of classes that are small. The relation of these two

measures to the efficiency of the instructional program should be evident.

First, the weighted average size of class is shown for each institution by subject-fields and by instructional levels. This average has increased at all Utah institutions with the exception of two--Snow Junior College and the College of Southern Utah. Data from the 1960-61 school year show that, for all subjects and all levels of instruction combined, the weighted average size of class ranges among institutions from 16.8 at Carbon Junior College to 25.7 at Utah State University. The range of class size for lower division programs is from 16.8 to 36.2 students. Similar variations are found at the other levels, also. In upper-division programs the range in average class size is from 15.8 to 22.6 and at the graduate level, from 5.6 to 9.0. The state-wide average size of class for the 1960-61 school year is 23.2.

The study reports a detailed analysis of various patterns of class size beginning with the category of 4 or fewer students and extending through class size categories of 5 to 9, 10 to 29, 30 to 49, 50 to 100, and 100 or more students. The study shows the percentage of credit hours taught and the actual number of classes taught in each of the above categories by subject-matter areas and by institutions. In Utah the vast majority of classes taught at the college level fall into the class size category of 10 to 29 students.

Data of this type have value for all aspects of educational planning. The study reveals, for instance, that on the average the size of classes in institutions with fewer than 1,000 students is significantly smaller than in larger schools. In general the larger institutions show larger average class size especially at the lower-division level. In lower-division programs only, the average class size for larger schools ranges from 32.2 to 36.2. In the smaller schools the range is from 16.8 to 23.4. The two largest institutions--the University of Utah and Utah State University--are substantially higher in average class size than the medium-sized Utah institutions--the College of Southern Utah and Weber College. This does not mean, of course, that the state need abandon its smaller institutions but does it mean that these smaller institutions should regulate their offerings to a point where they can maintain an appropriate average class size in most subject-areas? Not necessarily. In any well administered instructional program a certain number of small classes may be necessary. Furthermore, in a practical sense, small class size is to some extent inherent in the situation at small schools. If a substantial average class size is demanded in most subject-areas it can necessitate a cut in faculty and a drastic reduction in electives. Elimination of some classes has great meaning to the elective principle which involves the inclusion of classes to meet individual student needs, interests, and abilities.

Consider a hypothetical situation. Suppose that a small college enrolls 300 students each carrying an average registration load of 15 credit-hours. This would result in the production of 4,500 student-credit-hours. If this small college maintained an average class size of 30 students with 3 credit-hour courses this would mean 90 student-credit-hours produced per class. Thus, only 50 classes could be offered in the college. It is easy to see how this would affect the teaching load for a faculty of 20 or more teachers. This hypothetical situation illustrates problems involved in a blanket suggestion that smaller institutions need to regulate their offerings to a point where they can maintain an appropriate average class size in most subject-areas. It is conceivable that such an attempt could result in institutional suicide.

A review of the data for the past two years shows that several of the Utah institutions have made substantial increases in average class size. In general, Utah institutions maintain programs that are economical; however, improvements could be made by increasing the average class size in some areas where this is possible. The elimination of a number of small classes would have the effect of increasing average class size without necessarily creating excessively large classes. Perhaps in some instances, students in the very small classes might be absorbed in other existing classes and, thus, raise the over-all average.

There is a wide range in size of classes among the different subject-matter fields. Certain subject-matter areas seem rather consistently to have relatively large average size of classes in all institutions. On the other hand, there are those areas which have rather consistently low average class size. In such areas as the classical languages the average size of class tends to run small wherever they are taught. In certain other subject-fields, college classes are consistently taught in rather large groups ranging from 50 to 100 and above. Examples of such subjects include chemistry, history, and psychology.

As might be expected, the average size of lower-division classes is larger than for either upper division or graduate classes. The average size of graduate classes is considerably smaller than either upper-division or lower-division undergraduate classes. Also, lower-division level class size is increasing in Utah.

The average size of graduate classes in most subject-matter areas in both universities is relatively high. In general, it seems that the institutions have used excellent judgment in developing their graduate programs and have not proliferated them unduly into a large number of specialties for which the demand might be very limited. The 1960-61 averages for the universities as a whole were between about six to nine students per graduate class. These averages are relatively high for classes at the graduate level when Utah

institutions are compared with institutions of a corresponding type where similar studies have been made and reported in the literature. They indicate programs that are, in general, economically organized.

The junior colleges in Utah have a higher percentage of small classes than the lower division programs of the two Utah universities. The two Utah universities have a much higher percentage of large classes than do the junior colleges. At both the lower and the upper-division levels Utah State University has the highest percentage of large classes of any of the state-supported institutions in Utah.

Instructional Productivity (Chapter VII)

In the discussion of instructional productivity it should be made clear that only time prorated to teaching is being considered. Two measures of instructional productivity are presented in Chapter VII. The first is the number of credit-hours of teaching per full-time-equivalent faculty member per quarter. This is a common measure of teaching load. This measure shows considerable variation among institutions. The largest averages, as might be anticipated, are found in the junior colleges. The role played by an institution determines in some measure what can be expected in terms of average credit-hours of teaching per faculty member. For instance, large universities which place heavy emphasis on research as one of their basic functions would be expected to

permit teachers to carry a smaller instructional load of credit hours than institutions which are concerned primarily with the instructional function. Thus, in weighing the significance of differences in teaching load among institutions and among the various subject-matter fields, one should also take into account several other factors such as level of instruction, administrative practices with respect to granting of credit for certain types of activity, the nature of the subject matter taught, the amount of research and committee work expected for faculty members, the amount and nature of laboratory work, administrative duties, and so on.

The average number of credit hours of teaching each quarter per full-time-equivalent faculty member is 11.7. This figure represents all Utah institutions combined during the 1960-61 regular academic year. Those institutions which increased their average credit-hour load over the previous year are the University of Utah, Dixie Junior College, and Snow Junior College. The other institutions decreased slightly in this measure.

It is apparently a recognized practice in Utah for lower-division teachers to teach more credit hours per quarter than do teachers of the upper division and graduate levels. The average number of credit-hours taught per teacher in institutions teaching lower-division courses exclusively is somewhat higher than in those institutions with upper-division and graduate programs.

There exists a rather wide range in average teaching load among the various subject-matter areas in the Utah institutions. Subjects where the teaching is done principally by the lecture and recitation method generally show a relatively high average number of credit-hours of teaching per faculty member, while the sciences or those subjects which necessitate some laboratory-type classes, in general, have a somewhat lower average teaching load.

The second measure of instructional productivity used in Chapter VII concerns the number of student-credit-hours produced annually per full-time-equivalent faculty member. If other factors such as quality of instruction are equal, this is one measure of efficiency in the operation of the instructional program. This measure is actually a product of the instructional credit-hour load and the class size. The institution-wide average of student-credit-hours produced annually for each full-time-equivalent teacher ranges from 685 at Dixie Junior College to 916 at Weber College. The state-wide average for all institutions is 816.9 student-credit-hours. In general, on this measure the state-supported institutions in Utah are higher than similar institutions in other states where such studies have been made. This could be interpreted to indicate some overloading of faculty members.

Most of the subject-matter areas and institutions in Utah show a relatively large annual production of student-credit-hours per faculty member. This indicates, that in

general, the instructional programs are efficiently organized; however, those subject-fields in which the average student-credit-hour production per instructor is considerably above the institutional average should be carefully examined.

There are substantial variations among the Utah institutions regarding this important measure of their efficiency of operation. As has been mentioned, the range among institution-wide averages of student-credit-hours produced annually per full-time-equivalent faculty member is from 685 to 916. These figures, however, are even more significant when considering just the lower-division level programs. Here the Utah institutions range from 685 to 1,188 student-credit-hours produced annually per full-time-equivalent faculty member.

A high average student-credit-hour production annually may indicate overloading of faculty members, or it may be due to the fact that the peculiar nature of the subject-matter taught permits large class sizes. Similarly a low average student-credit-hour production per instructor may indicate overstaffing in the subject-matter area, or over-expansion of course offerings, or it may be due to the fact that the nature of the subject-matter taught requires instruction in small class groups.

As can readily be seen from the data, the average student-credit-hour production per instructor at the lower-division undergraduate level is generally higher than for

either the upper-division undergraduate or the graduate level. Also, the average annual student-credit-hour production per faculty member at the graduate level tends to be much lower than for either of the two undergraduate levels.

Instructional Salary Expenditure (Chapter VIII)

The final type of analysis presented in the study, Chapter VIII, relates to the instructional salary cost per student-credit-hour produced. It discloses for all levels of instruction combined a variation of institutional averages from $6.25 to $9.13 per student-credit-hour produced. The state-wide average unit cost for the 1960-61 regular academic year is $8.28. When only lower-division costs are considered, the average cost per student-credit-hour varies among institutions from $5.01 to $8.63. The student-credit-hour costs on the average vary between institutions at the upper-division level from $8.97 to $11.12 and at the graduate level from $28.57 to $35.00. Graduate-level programs at both universities show increases in cost during the period studied.

The total instructional salary cost increased at all institutions with the exception of Dixie Junior College. An increase from $5,810,164 in 1959-60 to $6,139,846 in 1960-61 results in a difference or an increase of $329,682. This difference accounts for a 5.4 per cent increase in the state's total instructional salary cost for higher education.

The junior college is sometimes said to have the

advantage of being able to offer instruction more economically than degree-granting institutions. The data of this study show that, so far as instructional salary expenditure per student-credit-hour produced is concerned, the junior college average unit expenditure is higher.

Class size and teacher load seem to be the two principal factors in the costs of instruction in higher education. Of the two, class size seems to be the most significant single factor in determining such costs. In making these statements it is recognized that salaries must be sufficiently uniform as not to be a major factor in any differences found.

As might be expected, at each of the two universities the average instructional salary cost per student-credit-hour produced is considerably higher at the graduate level than at either of the two undergraduate levels, and the average unit cost of the lower-division level is the lowest of the three.

Utah State University maintains the most economical lower-division program in the State. At the upper-division level it also has a markedly lower instructional salary expenditure per student-credit-hour produced than does the University of Utah. The graduate program at Utah State University, however, is slightly more expensive, on the average, than the corresponding program at the University of Utah.

Combining all levels of instruction, the University of

Utah has the highest instructional salary cost per student-credit-hour produced of all of the Utah institutions.

There are large instructional salary cost variations among the Utah institutions. For example, when lower-division costs are considered, the cost per student-credit-hour produced varied among institutions from $5.01 to $8.63 during the 1960-61 regular academic year. Thus, the low institution was producing credit hours at almost half the cost of the high institution.

The data throughout the study reflect the large differences between the various subject-matter fields in respect to the particular measure being studied and the three levels of instruction.

This summary does not purport or seek to explain the full value of these data for state-wide and institutional planning and for future studies. It is hoped, however, that the data presented in this study will stimulate increased institutional studies and planning.

A single one-time study like the present one, even though it covers two years, appears to have a somewhat limited use. The chances are extremely remote that the various factors studied will ever again be identical or even close to those observed at a given period of time. A continuous intra-institutional study of all the related factors affecting instructional programs and their costs is to be preferred.

Probably within a short time the colleges and

universities in Utah will develop programs of self-analysis for investigating and will investigate many of the same elements considered in this study. The two universities have already done or are now doing this. It is the writer's hope that there will be favorable faculty response and participation in these analyses so that such efforts might help lead the way to wiser use of instructional resources and improved faculty salaries.

The roles of the Utah institutions can be viewed in clearer focus by the light thrown upon them from some of these data. Admittedly, these data offer no panacea. At present, the writer suggests that they be used with caution, with reservations, and with the realization that they do not purport to measure the quality of instruction. Unwise generalizations or unwarranted conclusions may create wholly erroneous opinions about instructional programs and institutional operations. Moreover, any item or section of data must be interpreted in terms of all related factors and cannot be used safely in isolation. The cost and efficiency of any course or program must be measured in terms of many values and needs.

Some General Conclusions

1. On the three main measures of the study--class size, teaching load, and instructional salary costs--Utah state-supported collegiate institutions reflect, on the average,

operational patterns of educational efficiency and economy. This conclusion is based on Utah institutions compared with institutions of a corresponding type where similar studies have been made and reported in the literature.

The Utah institutions generally maintain economical programs of instruction with their costs in line with the averages of other institutions computed in similar studies.

2. In comparing the two state-supported Utah universities, there is a general tendency running throughout the more important analyses of the study. That is, on the measures of class size, teaching load, and instructional salary costs there is a noticeable shift toward the mean. Where one university was high on a particular measure, it decreased the second year; and where the other university was low on the same measure, it has increased. Thus, the difference between the two universities is less on each of the important measures in the 1960-61 data than it was in the 1959-60 data. This can be seen and is particularly apparent in the summary Table presented earlier in this chapter, Table 34.

This conclusion suggests some interesting implications. For example, perhaps the awareness of the 1959-60 data was a factor contributing to the narrowing of the differences between the two universities on the various measures.

3. Based on the assumption that students expecting to take the bachelor's degree should, in their first two years

of college, take principally courses that are broad in nature and that are designed to provide a good general education, there is evidence in the study to indicate that in some subject-matter areas certain of the Utah institutions have a proliferation of courses. Certain questions can well be raised about the wisdom of a curriculum pattern that exposes lower-division undergraduate students to as many highly specialized lower-division courses as are offered at some Utah institutions. It is recognized, however, that unless the preparation period is extended beyond four years, students in some subject-matter fields such as forestry and engineering will have to begin their specialized preparation during the first two years.

4. Evidence from the study suggests that all of the Utah state-supported collegiate institutions recognize the importance of "general education" as an essential part of the total program of education for all, or practically all, students. All institutions offer basic courses commonly considered essential to general education, i.e., the basic biological and physical sciences, mathematics, fundamental courses in the humanities and social sciences, language, and so on. The main differences among institutions are in the number of courses available in the basic studies. The larger institutions offer a wider range for election in the fundamental subjects.

5. It is generally recognized that three major

functions of a junior college are: (1) preparation for further college, (2) terminal education for those seeking no further schooling, and (3) community service through being readily accessible to the public. There is some evidence from this study to support the conclusion that the preparation for further college function is being emphasized by most of the Utah junior colleges. To some extent, they appear to be only small replicas of the lower-division programs of the Utah universities. Their offerings are very similar to the lower-division programs at the larger institutions.

While it seems that the preparation for further college, or the work toward a degree function is being met at all of the Utah institutions, there are indications that the terminal function is being neglected or being met only relatively lightly. Only one of the junior colleges seems to have what is thought of as a major program of terminal education but an analysis of course work even there shows that degree courses by far outnumber the terminal ones. Very few courses of a terminal nature were found in the other two-year institutions. They, too, offer some terminal programs but these again are small in comparison with the degree-type courses.

No evidence on whether Utah junior colleges serve a community function was secured as a part of this study.

In view of the high percentage of dropouts, could the emphasis on degree credit be a little too great in terms of

those students who go on to obtain degrees? Certainly, factors beyond the scope of this study will need to be investigated before this conjecture can be firmly established or rejected.

6. Apparently the bachelor's degree is a terminal degree in higher education in Utah since only between four and five per cent of the student-credit-hours produced are at the graduate level. There is some evidence, however, that the second year of college is also somewhat terminal. Statewide student-credit-hour production drops from two-thirds of the total being produced at the lower-division level to less than one-third being produced at the upper-division level (29.1 per cent). Insofar as 66.5 per cent of the total student-credit-hour production in Utah includes as a factor students who could succeed two more years, the difference between two-thirds and less than one-third represents a critical loss to our state and nation of needed college graduates.

7. On the basis of instructional salary costs, the education of lower-division level students can be achieved much more economically in the Utah universities than in the junior colleges. Several reasons can be advanced to partially explain this situation. The two primary factors influencing unit costs are the instructional salary of the faculty members and the average number of student-credit-hours produced by each. The universities, by frequently employing

graduate teaching assistants for instructing the freshman level, can reduce the instructional salary costs of their lower-division programs. Also, the average size of class is a primary factor in influencing the costs of instruction since it is the major determinant in the number of student-credit-hours produced per instructor. Therefore, the small institutional enrollments found in the Utah junior colleges with the corresponding prevalence of small classes handicap the economy of instruction.

There is the possibility that the student in the smaller class may achieve more significant educational growth in areas that, as yet, have not been adequately measured. This discussion and comparison of unit costs, however, has not dealt with the quality of the instructional program. Quality is extremely difficult to measure objectively. The institution itself, in the evaluation of each faculty member, each department of study, and every course of instruction, should more or less continuously study ways and means of improving the quality of its educational program.

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APPENDIXES

APPENDIX A

FORMS, INSTRUCTIONS, AND ILLUSTRATIVE TABULATIONS FOR THE ANALYSIS OF CLASS SIZE, TEACHING LOAD, AND INSTRUCTIONAL COSTS

UTAH COORDINATING COUNCIL OF HIGHER EDUCATION
15 North West Temple, Suite A
Salt Lake City 16, Utah

Analysis of Scope of Offering, Class Size, Teaching Load, and Instructional Salary Costs for the Academic Year 1960-61

Form 1. Class Schedule and Enrollments.

Instructions for completion of report--Form 1

1. Purpose of report-form. The data requested on this form are needed as a basis for state planning for higher education. The data will be used to analyze institutional offerings, class sizes, instructional loads, and compute instructional costs. The blank has been arranged so that the data may be entered directly from the Registrar's records with, it is hoped, a minimum of effort. Please use a typewriter in filling out this report-form. Please use double space.

2. Classes to be included. Please include each class and class section taught during the fall, winter, and spring quarters of the academic year 1960-61. List only courses taught on the campus as a part of the institution's normal residence-study program, excluding courses taught during summer session, off campus, by extension or correspondence. If a course taught on the campus is considered an "extension" course, it should be included if the instructor giving it has the course counted as a part of his regular teaching load and he is not paid an extra amount beyond his regular salary for giving the course. Instruction in military science and courses taught under the auspices of religious organizations for which college credit is allowed should be excluded. No courses should be included for which college credit is not given.

3. Order of listing classes. Please list first the classes taught in the fall quarter, then the classes taught in the winter quarter, then the classes taught in the spring quarter. Within each quarter classes should be grouped by departments, i.e. all English classes together, all mathematics classes together, etc., using the departmental organization and nomenclature customarily followed in the institution. Also, please group the classes in the following order: (I) Fall Quarter, (II) Winter Quarter, (III) Spring Quarter. Start each departmental list on a new

page. Within the department, classes should be arranged in order of course number, the smallest number first.

4. Separate listing for each class. Each class and class section should be listed on a separate line. Thus if English 101 is taught in five sections, each section should occupy a separate line on the report form. In the column headed "section" the class sections of a course should be numbered or lettered (a, b, c, d, e, etc.) in accordance with the institution's usual pattern of designation. If the course is given in only one section, there need be no entry in the column headed "section."

5. Departmental assignment of courses. A course that is recognized in more than one department (such as "English 101, same as Speech 101") should have entry made under only one department, the one to which it is principally attached. Thus if English 101 and Speech 101 are the same course and it is considered as primarily belonging to the Department of Speech, the full entry of title of course, instructor, credit value, number of students, etc., should be made in the listing of the courses of the Department of Speech. A duplication of entries should be avoided.

6. Indication of level of course. The level of the course should be identified in the column headed "Course Level" using the appropriate symbol or combination of symbols from the following list:

L - Lower division (freshman and sophomore)
U - Upper division (junior and senior)
G - Graduate

7. Title of course. The title given for each course should be the same as that in the institution's catalog. Abbreviations may be used if the identity of the course is accurately preserved.

8. Identification of instructor. Only the surname of the instructor of the course need be given, except in instances in which two or more faculty members have the same surname. These should be identified by initials, such as H. Smith, J. Smith. It is important that the name of each instructor be reported in such a way that it can be identified on the salary list supplied by the institution.

9. Indication of quarter. Indicate the quarter by a Roman numeral, using I for the Fall Quarter, II for the Winter Quarter, and III for the Spring Quarter.

10. Hour and days of class. Indicate the hour of the day at which the class or class section is taught by an

arabic number, and the days of the week by the customary abbreviations - M, T, W, TH, F, S. If several different courses are taught at the same time under a single instructor, as sometimes is arranged in laboratory subjects, these classes should be listed consecutively, out of numerical order if necessary, and bracketed to show that they should count as only one class in the instructor's teaching schedule. Failure to follow this instruction results in an increased number of small classes in the summary report.

11. Contact hours per week. In the column for "contact hours per week," show the number of hours per week that an instructor meets with his class. This information can be readily obtained by examining the number of hours and days of class meetings. The following are examples:

English 201	9:00	MWF	3 contact hours per week
Chem Lab 101	2 - 5	W	3 contact hours per week

In the case of seminars and graduate thesis courses that are on an "arranged" basis, estimate the average number of hours per week that an instructor meets with a particular seminar group or the graduate student. Please do not report "arranged" under this column even if it is necessary to contact the instructor for an estimate of hours per week.

12. Credit value. The credit value of the course should be reported in terms of quarter hours in accordance with the practice of the institution. If a course is listed for an indefinite credit value such as "Credit to be arranged" or "1-5 credits" enter as the credit value the whole number nearest to the average amount of credit granted per student taking the course for credit. Thus if an instructor's report for English 601 lists two students for one credit each, one student for three credits, one for 4 credits, and two for five credits each, the average would be 3.17 and the credit value for the course should be entered as 3. Please do not enter "arranged" under this column.

In trade and industrial courses of the shop or laboratory type, the credit value of a course should be computed on the basis of 3 hours of instruction per week throughout a full quarter for each hour of credit. Exception may be made where the institutional policy has established a different ratio of laboratory hours to credits. Please make note of such a policy on back of the report-form.

13. Number of students. In the next to the last column of the report-form enter the number of students carried on the official class list for the course or course section. The roster may include students who did not take the course

for credit, or who failed, or who withdrew after the time that such withdrawal became a matter of record. Normally students who withdraw from a course during the first week or two of the quarter are not considered as having been members of the class. The intention is to have the report reflect the number of students for whom the work in each class was recognized as a substantial part of their quarter's activities.

14. Student credit hours. In the last column of the blank enter the student credit hours. These are arrived at by multiplying the credit value times the number of students enrolled. Thus the product of the two columns preceding the last column will yield the student credit hours.

15. Independent study courses. It is recognized that in music, independent study, thesis, etc., the student receives individual teaching from the faculty member. These courses should be counted as part of the instructor's regular teaching load when no extra compensation is allowed for this instruction. Please use the following methods in reporting on such teaching.

Private instruction in music or other subjects when taught without extra compensation--group all of the students in a particular course at a particular level as though they were a class. For example, if a teacher has five freshmen taking Violin 162, three sophomores taking Violin 262, two seniors taking Violin 462, and one graduate student taking Violin 662, this would be shown as four classes: Violin 162 - 5; Violin 262 - 3; Violin 462 - 2; and Violin 662 - 1.

Independent study or work by consultation--group all students studying under the same course registration with the same man as a single class.

Thesis--group all students studying under the same course registration with the same man as a single class.

16. Supply of forms. The supply of forms furnished is intended to be sufficient to permit the institution to retain one copy of its report. We are sending only two copies of the manual of instruction. Additional blanks may be obtained on request, or the institution may prepare its own additional forms as needed, using the headings as indicated on the official blank. The larger institutions may wish to use IBM processing in lieu of these forms.

UTAH COORDINATING COUNCIL OF HIGHER EDUCATION

Form 1. Class Schedule and Enrollment Information 1960-61, Regular Academic Year

Name of Institution_____ Date of this report_____

Name and title of person making this report_____

To be returned to: H. Grant Vest, 15 North West Temple Street, Salt Lake City, Utah

See instructions for filling out this report-form.

Dept.	Course No.	Section	Course Level	Title of Course	Instructor	Quarter	Hour	Days of Week	Contact Hours per Week	Cr. Value	No. of Stud.	Stud. Cr. Hours

UTAH COORDINATING COUNCIL OF HIGHER EDUCATION
15 North West Temple, Suite A
Salt Lake City 16, Utah

Analysis of Scope of Offering, Class Size,
Teaching Load, and Instructional Salary
Costs for the Academic Year 1960-61

Form 2. Instructional Staff and Salaries for 1960-61.

Instructions for filling out report - Form 2.

1. List the name of each member of the instructional staff, including graduate assistants, part-time instructors, lecturers, etc., who was responsible for the teaching of any class or laboratory section at the institution during the regular academic year 1960-61. Please show initials after surname as follows: Smith, J. C., and Smith, M. O.

2. After the name of each member of the instructional staff, indicate the rank or title, such as professor (Prof.), associate professor (Assoc. Prof.), assistant professor (Asst. Prof.), instructor (Instr.), graduate assistant (Grad. Asst.) or lecturer (Lect.). Where rank is not followed, list State Department of Education salary schedule classification.

3. Group faculty members by departments. If a faculty member teaches in two or more departments, list him in the department with which he is principally identified. It is important that the name of each instructor be reported in such a way that it can be identified on the class list being prepared by the Registrar's Office.

4. Indicate by Quarter the proportion of full time devoted to college instruction by an appropriate decimal fraction. Following are three methods to be used in assigning proportion of full time to college instruction:

a. A "full-time-equivalent" (1.00) faculty member means one person who devotes his full time to the instructional program of the institution, including such incidental research as is normally associated with a full-time teaching schedule. Regardless of how many classes a person teaches, he is considered a "full-time faculty member" for budgetary purposes if his entire salary is paid to him as compensation for teaching duties. If a person teaches full time for the academic year and also does teaching

during the summer session, he is still a full-time teacher for the academic year. A faculty member who devotes a part of his time to teaching and the remainder to separately organized and budgeted research is a part-time faculty member for purposes of instructional accounting. Thus a professor who spent three-fourths of his time teaching and one-fourth of his time in organized or contract research would show in Column 4 as a 0.75 full-time-equivalent faculty member.

b. Service as head of a department is counted as instruction, but service as dean or other central administrative officer is excluded. Thus a professor who spends two-thirds of his time as Dean of the College of Arts and Sciences and only one-third of his time in teaching classes should be reported in Column 4 as a 0.33 full-time-equivalent faculty member.

c. Use budget (salary) data to determine the fraction of full-time devoted to instruction in the case of staff members who have two or more separately budgeted functions. For example, if the business office shows Professor Smith's total salary as prorated one-half to instruction and one-half to intercollegiate athletics, he should be reported in Column 4 as 0.50 full-time-equivalent faculty member, regardless of his actual teaching load. It is assumed of course, that the budgetary proration of a professor's salary is reasonably representative of the actual time that he devotes to each of the several budgeted functions. If the business office does not, as a regular procedure, prorate a professor's salary among several functions, then it will be necessary for the institution to estimate the fraction of full time he devoted to teaching duties during the academic year. The usual procedure would be to estimate or compute the credit hours of classes taught normally by a full-time faculty member, and divide this figure into the actual credit hours taught by a person who devoted only part of his time to instruction.

In the case of a person who teaches part-time and also performs other institutional duties, assume that the duties performed in instruction and outside of instruction are of the same professional level and salary. The FTE is determined by considering the ratio of the person's teaching load to the full-time teaching load of his

department. The salary proration is made by (1) adjusting the salary to the academic year (if on a 12-month basis) and (2)applying the ratio of full-time-equivalency devoted to teaching to the academic year salary.

If academic salaries are budgeted on a 12-month rather than on an academic year basis, it is necessary, for the purposes of this report, to compute the academic year equivalency of each 12-month salary. The fraction .8181 is recommended unless there is good reason for another choice.

A slightly more complicated situation occurs when a person's teaching and other duties are not at the same level in terms of salary. Assume that a dean teaches nine credit hours during the academic year. Assume also that his annual salary is $15,000 and that the academic year salary of the highest paid full professor in the subject matter area in which the dean is teaching is $9,000. Assume in addition that 36 credit hours per academic year is considered a full-time teaching load. In this case, the dean would be considered .25 FTE in instruction. The part of his salary budgeted to instruction would be 25 per cent of $9,000.

In studies of this kind, institutions tend to differ in their methods of determining the fraction of full time to be assigned to the services of part-time lecturers and graduate assistants. For the purpose of obtaining as high a degree of uniformity as possible in our inter-institutional studies we suggest that you estimate the full-time salary that an individual of comparable training and experience is normally paid in the institution, and divide this figure into the actual salary paid for the part-time service, the resulting quotient expressing the full-time equivalency.

5. Compute and record the academic year "full-time-equivalent." This fraction should be consistent with the data as shown in the analysis by Quarters. The instructions under 4 above apply also to computing the academic year FTE.

6. In Column 6, show the total salary for the regular academic year for each individual listed.

7. In Column 7, show the amount of the regular academic-year salary chargeable to instruction for the

academic year. The salaries of faculty members on 11-12 month appointments should be adjusted to 9-months (regular academic year) equivalents. Make these adjustments following the suggestions given above under Column 4. Be sure also to make proportional adjustments in case of part-time instructional assignments.

UTAH COORDINATING COUNCIL OF HIGHER EDUCATION

Form 2. Instructional Staff and Salaries for 1960-61

(Please double space between entries; report salaries only to nearest whole dollar.)
See instructions for filling out this form.

(1) Name	(2) Rank or Title	(3) Dept.	(4) Proportion of full-time spent on instruction			(5) Academic Year FTE	(6) Academic Year Salary (or in case of part-time staff, total pd. during acad. yr.)	(7) Salary Chargeable to Instruction
			Fall	Winter	Spring			
(Examples for Institutions on the Quarter System) Smith, J. C.	Asst. Prof.	Eng.	1.00	1.00	1.00	1.00	$6,000	$6,000
Note: Smith is a full-time staff member devoting full-time all three quarters to instructional duties. The total amount of his regular academic salary should be charged to Instruction.								
White, N. E.	Assoc. Prof.	Econ.	1.00	-	1.00	.667	4,000	4,000
Note: White, who is ordinarily a full-time staff member for the entire academic yr., took a leave of absence without pay during the winter quarter. He received $4,000 for his services								

Form 2.

(1) Name	(2) Rank or Title	(3) Dept.	(4) Proportion of full-time spent on instruction			(5) Academic Year FTE	(6) Academic Year Salary (or in case of part-time staff, total pd. during acad. yr.)	(7) Salary Chargeable to Instruction
			Fall	Winter	Spring			
for the entire academic yre., or two-thirds of what he would have received had he not taken a leave. Assuming that White devoted his entire time to instructional duties during the fall and spring terms, the total amount he received should be charged to Instruction.								
Anderson, P. H.	Prof.	P.E.	.50	.50	.50	.50	$8,000	$4,000
Note: Anderson is a full-time staff member, but he devotes one-half of his time to instruction and the remaining one-half to inter-collegiate athletics. Thus, one-half of his academic year salary of $8,000 should be charged to Instruction.								

Form 2.

(1)	(2)	(3)	(4)			(5)	(6)	(7)
Name	Rank or Title	Dept.	Proportion of full-time spent on instruction			Academic Year FTE	Academic Year Salary (or in case of part-time staff, total pd. during acad. yr.)	Salary Chargeable to Instruction
			Fall	Winter	Spring			
Brown, T. T.	Asst. Prof.	Psy.	.50	-	-	.167	$2,000	$1,000
Note: Brown left the institution after serving for one qtr. While he was on the staff he devoted one-half of his time to instruction and the other half to administering the testing and counseling service. One-half of the salary he received during the term he was employed should be charged to Instruction.								

APPENDIX B

CLASSIFICATION OF SUBJECT FIELDS AND THE DEPARTMENTS INCLUDED UNDER EACH GROUPING FOR THE ANALYSIS OF CLASS SIZE, TEACHING LOAD, AND INSTRUCTIONAL COSTS

CLASSIFICATION OF SUBJECT FIELDS AND THE

DEPARTMENTS INCLUDED UNDER EACH

GROUPING, 1959-60

1.	Agriculture	USU - Agricultural Economics
		Agricultural Education
		Agronomy
		Animal Husbandry
		Applied Statistics
		Dairy Industry
		General Agriculture
		Horticulture
		Poultry Husbandry
		WC Agriculture
		CSU - Agricultural Economics
		Agriculture
		Agronomy
		Animal Husbandry
		SC - Agriculture
2.	Anthropology	U of U - Anthropology
		WC - Anthropology
		SC - Anthropology
3.	Architecture	U of U - Architecture
		USU - Landscape Architecture and Environment Planning
		CSU - Architectural Drawing
4.	Arts and Crafts	U of U - Art
		Sculpture
		USU - Fine Arts--Visual Art
		WC - Art
		CSU - Art
		SC - Art
		CC - Art
		DC - Art
5.	Auto Mechanics	USU - Automobile Technician
		WC - Automobile Body
		Automobile Service
		CSU - Automobile
		SC - Automobile Technician
		CC - Automobile Mechanics

6.	Bacteriology	USU - Bacteriology WC - Bacteriology CSU - Bacteriology
7.	Biology	U of U - Biology Experimental Biology Genetics WC - Biology Life Science CSU - Biology SC - Biology CC - Biological Science DC - Biology
8.	Botany	U of U - Botany USU - Botany WC - Botany CSU - Botany SC - Botany CC - Botany DC - Botany
9.	Business	U of U - Accounting Banking and Finance Management Marketing Office Administration USU - Business Administration Business Education WC - Business CSU - Business Administration SC - Business Administration CC - Business DC - Business
10.	Chemistry	U of U - Chemistry USU - Chemistry WC - Chemistry CSU - Chemistry SC - Chemistry CC - Chemistry DC - Chemistry
11.	Child Development & Family Living	U of U - Child and Family USU - Family Life & Child Development WC - Family Life CSU - Child Development SC - Home & Family Living

12.	Clothing & Textiles	U of U - Clothing and Textiles USU - Clothing and Textiles CSU - Clothing
13.	Cosmetology	WC - Cosmetology
14.	Economics	U of U - Economics USU - Economics WC - Economics CSU - Economics SC - Economics CC - Economics DC - Economics
15.	Education	U of U - Education Educational Administration Educational Psychology General Education Science Education Special Eductaion USU - Education WC - Education Orientation CSU - Education SC - Education CC - Education Orientation DC - Education
16.	Engineering	WC - Engineering SC - Engineering CC - Engineering DC - Engineering
17.	Aeronautical Engineering	USU - Aeronautics
18.	Agricultural Engineering	USU - Agricultural Engineering
19.	Ceramic Engineering	U of U - Ceramic Engineering
20.	Chemical Engineering	U of U - Chemical Engineering
21.	Civil Engineering	U of U - Civil Engineering USU - Civil Engineering CSU - Civil Engineering

22.	Electrical Engineering	U of U - Electrical Engineering USU - Electrical Engineering WC - Electronics CSU - Electrical Engineering CC - Electricity DC - Electricity
23.	Mechanical Engineering	U of U - Mechanical Engineering USU - Mechanical Engineering
24.	Metallurgical Engineering	U of U - Metallurgical Engineering
25.	Mining and Geological Engineering	U of U - Mining Engineering Mining & Geological Engineering
26.	Tool Engineering	USU - Tool Manufacturing Engineering CSU - Tool Engineering
27.	English	U of U - Basic Communications English Reading USU - English WC - English CSU - English SC - English CC - English DC - English
28.	Foods and Nutrition	U of U - Foods and Nutrition USU - Foods and Nutrition CSU - Foods and Nutrition
29.	Forestry	USU - Forest Management Range Management Wildlife Management WC - Forestry CSU - Forestry SC - Forestry
30.	Geography	U of U - Geography WC - Geography SC - Geography CC - Geography

31.	Geology	U of U - Geology Mineralogy USU - Geology WC - Geology CSU - Geology SC - Geology CC - Geology DC - Geology
32.	Health Education	U of U - Health Education WC - Health Education SC - Hygiene CC - Hygiene DC - Health Education
33.	History	U of U - History USU - History WC - History CSU - History SC - History CC - History DC - History
34.	Home Economics	U of U - Home Economics USU - Homemaking Education Household Administration CSU - Household Administration CC - Home Economics DC - Home Economics
35.	Honors	USU - Honors
36.	Humanities	U of U - Humanities WC - Humanities CSU - Humanities
37.	Industrial Arts Education	USU - Industrial Education CSU - Industrial Education SC - Industrial Education DC - Industrial Arts and Trades
38.	Journalism	U of U - Journalism USU - Journalism CSU - Journalism SC - Journalism DC - Journalism
39.	Language	U of U - Language USU - Language

40.	Arabic	U of U - Arabic
41.	Dutch	U of U - Dutch
42.	French	U of U - French USU - French WC - French CSU - French SC - French
43.	German	U of U - German USU - German WC - German SC - German CC - German DC - German
44.	Greek	U of U - Greek
45.	Italian	U of U - Italian
46.	Japanese	U of U - Japanese USU - Japanese
47.	Latin	U of U - Latin
48.	Portuguese	U of U - Portuguese
49.	Russian	U of U - Russian USU - Russian
50.	Scandinavian	U of U - Scandinavian
51.	Spanish	U of U - Spanish USU - Spanish WC - Spanish CSU - Spanish DC - Spanish
52.	Turkish	U of U - Turkish
53.	Law	U of U - Law
54.	Library Science	U of U - Library Science USU - Library Science
55.	Mathematics	U of U - Mathematics USU - Mathematics WC - Mathematics CSU - Mathematics SC - Mathematics CC - Mathematics DC - Mathematics

56.	Medical Technology	USU - Medical Technology
57.	Music	U of U - Music USU - Fine Arts - Music WC - Music CSU - Music SC - Music CC - Music DC - Music
58.	Nursing	U of U - Nursing Nursing Education USU - Public Health WC - Nursing CC - Practical Nursing
59.	Pharmacy	U of U - Pharmacy Pharmaceutical Chemistry Pharmacognosy Pharmacology
60.	Philosophy	U of U - Philosophy WC - Philosophy CC - Philosophy
61.	Physical Education	U of U - Physical Education Recreation USU - Physical Education - Professional Physical Education - Men Physical Education - Women Physical Education - Men & Women WC - Physical Education Recreation CSU - Physical Education SC - Physical Education CC - Physical Education DC - Physical Education
62.	Physical Science	WC - Physical Science CSU - Physical Science SC - Physical Science CC - Physical Science
63.	Physics	U of U - Astronomy Geophysics Meterology Physics USU - Photography Physics

WC - Physics
CSU - Physics
SC - Physics
CC - Physics
DC - Physics

64. Physiology
USU - Physiology
WC - Physiology
CSU - Physiology
SC - Physiology
CC - Physiology
DC - Physiology

65. Political Science
U of U - Political Science
USU - Political Science
WC - Political Science
CSU - Political Science
SC - Political Science
CC - Political Science
DC - Political Science

66. Psychology
U of U - Psychology
USU - Psychology
WC - Psychology
CSU - Psychology
SC - Psychology
CC - Psychology
DC - Psychology

67. Secretarial Science
USU - Secretarial Science
WC - Secretarial Training
CSU - Secretarial Science
SC - Secretarial Science

68. Social Studies
U of U - Social Work
USU - Social Science
Social Work
WC - Social Science
Social Work
CSU - Social Science
Student Government

69. Sociology
U of U - Sociology
USU - Sociology
WC - Sociology
CSU - Sociology
SC - Sociology
CC - Sociology
DC - Sociology

70.	Speech and Drama	U of U - Speech USU - Fine Arts - Theatre Speech WC - Speech Theatre Arts CSU - Speech SC - Speech CC - Speech DC - Speech
71.	Veterinary Science	USU - Veterinary Science CSU - Veterinary Science
72.	Vocational-Technical	U of U - Fuel Technician Metallurgy WC - Diesel Mechanics Drafting Machine Tool Watch Making CC - Hydraulics Machine Shop Related Trade
73.	Welding	USU - Welding WC - Welding CSU - Welding SC - Welding CC - Welding
74.	Zoology	U of U - Zoology USU - Entomology Zoology WC - Zoology CSU - Zoology SC - Zoology CC - Zoology DC - Zoology

CLASSIFICATION OF SUBJECT FIELDS AND THE

DEPARTMENTS INCLUDED UNDER EACH

GROUPING, 1960-61

1.	Agriculture	USU - General Agriculture
		Agronomy
		Animal Husbandry
		Dairy Industry
		Horticulture
		Poultry Industry
		Veterinary Science
		SC - Dairy Industry
		Animal Husbandry
		Agronomy
		WC - Agriculture
		CC - Agriculture
		CSU - Agriculture
		Agronomy
		Animal Husbandry
		Dairy Industry
		Entomology
		Veterinary Science
2.	Architecture	U of U - Architecture
3.	Bacteriology	USU - Bacteriology
		WC - Bacteriology
		SC - Bacteriology
		CC - Bacteriology
		CSU - Bacteriology
4.	Biology	U of U - Biology
		Experimental Biology
		Genetics
		SC - General Biology
		WC - Biology
		Life Science
		CC - Biological Science
		Biology
		Heredity
		DC - Biology
		CSU - Biology
5.	Botany	U of U - Botany
		USU - Botany
		SC - Botany
		WC - Botany

		CC - Botany
		DC - Botany
		CSU - Botany
6.	Physiology	USU - Physiology
		SC - Physiology
		WC - Physiology
		CSU - Physiology
7.	Zoology	U of U - Zoology
		USU - Zoology
		Entomology
		SC - Zoology
		WC - Zoology
		CC - Zoology
		DC - Zoology
		CSU - Zoology
8.	Business	U of U - Accounting
		Banking & Finance
		Management
		Marketing
		USU - Business Administration
		SC - Business
		WC - Business
		CC - Business
		DC - Business
		CSU - Business
9.	Secretarial	U of U - Office Administration
		USU - Secretarial Science
		SC - Secretarial Science
		WC - Secretarial Training
		CC - Business
		DC - Business
		CSU - Secretarial Science
10.	Education	U of U - Education
		Educational Administration
		Science Education
		USU - Business Education
		Agricultural Education
		Education
		Homemaking Education
		SC - Education
		WC - Education
		CC - Education
		DC - Education
		CSU - Education

11.	Physical Education	U of U - Physical Education Recreation USU - Physical Education - Men Physical Education - Women Physical Education - Professional SC - Physical Education WC - Recreation Physical Education CC - Physical Education DC - Physical Education CSU - Physical Education
12.	Agricultural Engineering	USU - Agricultural Engineering
13.	Ceramic Engineering	U of U - Ceramic Engineering
14.	Chemical Engineering	U of U - Chemical Engineering
15.	Civil Engineering	U of U - Civil Engineering USU - Civil Engineering CSU - Civil Engineering
16.	Electrical Engineering	U of U - Electrical Engineering CSU - Electrical Engineering DC - Basic Electricity CSU - Electrical Engineering
17.	Fuel Engineering	U of U - Fuel Engineering WC - Engineering
18.	General Engineering	CC - Engineering DC - Engineering
19.	Mechanical Engineering	U of U - Mechanical Engineering USU - Mechanical Engineering Tool Manufacturing Engineering
20.	Metallurgical	U of U - Metallurgical Engineering Metalurgy
21.	Mining & Geological	U of U - Mineralogy Mining Engineering

22.	English & Literature	U of U - Basic Communication English Reading
		USU - English
		SC - English
		WC - English
		CC - English Literature
		DC - English
		CSU - English
23.	Journalism	U of U - Journalism
		USU - Journalism
		SC - Journalism
		CC - Journalism
		CSU - Journalism
24.	Arts & Crafts	U of U - Art, Sculpture
		USU - Fine Arts Art
		SC - Art
		WC - Art Humanities-Art
		CC - Art
		DC - Art
		CSU - Art
25.	Music	U of U - Music
		USU - Fine Arts-Music
		SC - Music
		WC - Music Humanities-Music
		CC - Music
		DC - Music
		CSU - Music
26.	Speech & Drama	U of U - Speech
		USU - Speech Fine Arts-Theatre
		SC - Speech
		WC - Speech Theatre Arts
		CC - Speech
		DC - Speech
		CSU - Speech
27.	Applied Arts	USU - Photography Landscape Architecture and Environmental Planning
		WC - Photography

28.	French	U of U - French USU - French SC - French WC - French CC - French CSU - French
29.	German	U of U - German USU - German SC - German WC - German CC - German DC - German
30.	Spanish	U of U - Spanish USU - Spanish SC - Spanish WC - Spanish CC - Spanish DC - Spanish CSU - Spanish
31.	All Other Languages	U of U - Arabic Dutch Greek Hebrew Italian Japanese Language Latin Persian Turkish Scandinavian Portuguese Russian USU - Language Russian
32.	Forestry	USU - Forestry Range Management Wildlife Management SC - Forestry WC - Forestry CSU - Forestry
33.	Geography	U of U - Geography SC - Geography WC - Geography CC - Geography

34.	Health	U of U - Health Education USU - Public Health Medical Technology SC - Hygiene WC - Health Education DC - Health Education
35.	Nursing	U of U - Nursing Nursing Education WC - Nursing CC - Practical Nursing
36.	Pharmacy	U of U - Pharmaceutical Chemistry Pharmacognosy Pharmacology Pharmacy
37.	Child Development & Family Living	U of U - Child and Family USU - Family Living and Child Development Household Administration CSU - Household Administration Division of Family Life
38.	Foods and Nutrition	U of U - Foods and Nutrition USU - Foods and Nutrition CSU - Foods and Nutrition
39.	Clothing and Textiles	U of U - Clothing and Textiles USU - Clothing and Textiles
40.	General Home Economics	U of U - Home Economics SC - Home Economics WC - Family Life CC - Home Economics DC - Home Economics
41.	Law	U of U - Law
42.	Library Science	U of U - Library Science USU - Library Science
43.	Mathematics & Statistics	U of U - Mathematics USU - Applied Statistics Mathematics SC - Mathematics WC - Mathematics

		CC - Mathematics
		DC - Mathematics
		CSU - Mathematics
44.	Philosophy	U of U - Philosophy
		Language
		WC - Philosophy
		CC - Philosophy
45.	Chemistry	U of U - Chemistry
		USU - Chemistry
		SC - Chemistry
		WC - Chemistry
		CC - Chemistry
		DC - Chemistry
		CSU - Chemistry
46.	Earth Science	U of U - Geology
		Geophysics
		Meteorology
		USU - Geology
		SC - Physical Science
		Geology
		WC - Geology
		CC - Geology
		Physical Science
		DC - Geology
		SC - Geology
47.	General Science	U of U - Astronomy
		WC - Physical Science
		CSU - Physical Science
48.	Physics	U of U - Physics
		USU - Physics
		SC - Physics
		WC - Physics
		CC - Physics
		DC - Physics
		CSU - Physics
49.	Educational Psychology	U of U - Educational Psychology
		USU - Psychology
		WC - Psychology
50.	General Psychology	U of U - General Psychology
		USU - General Psychology
		SC - General Psychology
		CC - General Psychology
		DC - General Psychology
		CSU - General Psychology

51.	Anthropology	U of U - Anthropology WC - Anthropology CC - Anthropology
52.	Economics	U of U - Economics USU - Economics SC - Economics CC - Economics DC - Economics WC - Economics CSU - Economics
53.	Social Science	USU - Social Science WC - Social Science
54.	History	U of U - History USU - History SC - History CC - History DC - History WC - History CSU - History
55.	Political Science	U of U - Political Science USU - Political Science SC - Political Science CC - Political Science DC - Political Science WC - Political Science CSU - Political Science
56.	Sociology	U of U - Sociology USU - Sociology SC - Sociology CC - Sociology DC - Sociology WC - Sociology CSU - Sociology
57.	Agricultural Economics	USU - Agricultural Economics SC - Agricultural Economics CSU - Agricultural Economics
58.	Social Work	U of U - Social Work USU - Social Work
59.	Industrial Arts	SC - Welding Woodwork Art Metalwork WC - Industrial Arts DC - Industrial Arts

60. Trade Technology

USU - Aeronautics
Auto Technology
Industrial Education
Welding

SC - Auto Technology
Electronics
Engineering Drawing

WC - Auto Technology
Cosmetology
Dies
Drafting
Electronics
Watchmaking
Welding
Diesel Mechanics
Machine Tool

CC - Trade Technology
Auto Technology
Electricity
Machine Shop
Welding

DC - Trades

CSU - Architectural Drawing
Auto Technology
Industrial Education
Tool Engineering
Welding

61. Unclassified

U of U - General Education
Humanities
Honors

USU - Honors

SC - Humanities

WC - Orientation

CC - Orientation

CSU - Orientation
Humanities

APPENDIX C

CLASSIFICATION OF SUBJECT-FIELDS USED IN THE RANK ORDER TABLES FOR THE ANALYSIS OF CLASS SIZE, TEACHING LOAD, AND INSTRUCTIONAL COSTS

CLASSIFICATION OF SUBJECT-FIELDS USED IN

THE RANK ORDER TABLES

No.	Field of Study	Course Groups Included
1.	Agriculture	Agronomy Animal Husbandry Dairy Industry General Agriculture Horticulture Poultry Husbandry Veterinary Science
2.	Architecture	Architecture
3.	Biological Sciences	
	Bacteriology	Bacteriology
	Biology	Experimental Biology General Biology Genetics Principles of Biology
	Botany	Botany
	Physiology	Anatomy Physiology
	Zoology	Zoology Entomology
4.	Business & Commerce	
	Business & Commerce	Accounting Business Administration Business Management Finance & Banking Marketing
	Secretarial Training & Office Administration	Office Management Office Management Secretarial Science Shorthand Type
5.	Education	Administration Elementary Secondary Special Fields Agricultural Education Business Education Homemaking Education Science Education

No.	Field of Study	Course Groups Included
	Physical Education	Recreation
6.	Engineering	
	Agriculture Eng.	
	Ceramic	
	Chemical	
	Civil	
	Electrical	
	Fuel	
	General	Drawing & Design
	Mechanical	
	Metallurgical	Metallurgy
	Mining & Geological	Mineralogy
7.	English	
	English & Literature	Basic Communications
	Journalism	
8.	Fine and Applied Arts	Fine Arts - Art
	Arts and Crafts	Sculpture
	Music	
	Speech and Drama	Fine Arts - Theatre
	Applied Arts	Photography
		Landscape Arch. & Environment Planning
9.	Foreign Language & Literature	
	French	
	German	
	Spanish	
	All Other	Language
10.	Forestry	
11.	Geography	
12.	Health	
	General	Medical Technology
		Personal Health
		Public Health
	Nursing	
	Pharmacy	
13.	Home Economics	
	Child Dev. & Family	Household Administration
	Foods & Nutrition	
	Clothing & Textiles	
	Home Ec. (General)	

No.	Field of Study	Course Groups Included
14.	Law	
15.	Library Science	
16.	Mathematics & Statistics	
17.	Philosophy	
18.	Physical Science	
	Chemistry	
	Earth Science	Geology Geophysics Meteorology
	General	Astronomy
	Physics	
19.	Psychology	
	Educational	
	General	
20.	Social Science (Basic)	
	Anthropology	
	Economics	
	General	Social Science
	History	
	Political Science	Public Administration
	Sociology	
21.	Social Science (Applied)	
	Agr. Economics	
	Social Work	
22.	Trade & Industrial	
	Industrial Arts	
	Trade Technology	Auto Mechanics Welding Tool Technology Aree Technology
23.	Unclassified	Honors Humanities Orientation