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ABSTRACT

The way that funding allocations are made to colleges and departments at Appalachian State University (ASU) (North Carolina) was examined. Funding patterns related to full-time equivalent (FTE) enrollment and faculty allocation units (FAU) were addressed. An account is provided on attempts to gather information on how funds are distributed to colleges and universities in other states. Comparison data for 15 North Carolina universities are presented on funding ratios indicative of the number of FTEs per FAU and general funding appropriations per full-time student. For ASU, data and graphical displays are provided on: numbers of FTE positions assigned to the different departments; number of student credit hours generated for 1992-93 by level (lower division, upper division, and graduate) for the colleges of arts and sciences, business, education, and fine arts; and the relationship between credit hours and faculty allocations by college and level. Most of the variance in FAUs was explained by either total undifferentiated credit hours generated or FTE student numbers. Allocation of faculty resources was not conditioned by level of courses generating student credit hours. There was little relationship between FAUs and the number of student credit hours generated by upper division and graduate level courses. (Contains 16 references.) (SW)

COLLEGE AND DEPARTMENTAL FUNDING AND ITS RELATIONSHIP TO FULL-TIME EQUIVALENCE AT APPALACHIAN STATE UNIVERSITY

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Jean Endo
Editor
AIR Forum Publications

Abstract

The primary purpose of this study was to determine how funding allocations are made to colleges and departments at Appalachian State University. This study attempts to define funding patterns as related to full-time equivalence enrollment (FTE) and faculty allocation units (FAU).

A research team of five gathered on a bimonthly basis to share and analyze data. Gathering relevant information was a more difficult task than expected due to the lack of published data, sensitivity of the topic, and reluctance of organizations and individuals to share data. Implications were that these data could impact professional negotiations with employee groups, and that traditional patterns of inter/intra-institutional funding may no longer be appropriate.

College and Departmental Funding and Its Relationship
to Full Time Equivalence at Appalachian State University

The primary purpose of this study was to determine how funding allocations are made to colleges and departments at Appalachian State University. This study attempted to define funding patterns and trends as related to full time equivalence (FTE) and faculty allocation units (FAU). Many institutions have implemented funding formulas. We examined some of those used in states that have been successful in utilizing the formulas.

A research team of five individuals gathered together on a bimonthly basis to share and analyze information as it became available. Gathering relevant information was a more difficult task than we first expected. The process of gathering information was challenging and slow because organizations, institutions, and individuals were reluctant to share resources on the topic of funding. As the study developed, gaining access to information regarding financial allocations became more difficult because of the sensitivity of the topic and its potential political and financial implications.

According to Values in Conflict Funding: Priorities for Higher Education, by McKeown and Alexander (1986), North Carolina is not a formula state for university funding and has not been since 1980 – the only southern state that does not use formulas for budgeting and resource allocation. No reason is given by the authors.

A member of the research team spoke with John Norton of the Southern Regional Education Board, who recommended consultation with their statistician, Joseph L. Marks, Associate Director for Data Services for the Southern Regional Education Board. When reached by telephone, Mr. Marks provided the following:

1. to his knowledge all states make lump-sum funding distributions to their universities;
2. some states have specified weighted funding allocations based on graduate and undergraduate programs, i.e. funding is based on criteria, such as the availability of masters and doctoral programs or professional schools;
3. some state legislatures mandate the formula for internal allocation of FTE funding, i.e. the funds are allocated in a lump sum to the individual universities, but each university is told how to allocate their funds;

4. some university boards are totally autonomous in their distribution of funds, i.e. they allocate funds at their discretion;
5. he advised that no one, to his knowledge, was doing any type of research in this area; and
6. the Southern Regional Education Board has a publication that would be off the press in November. 1993 which would include information on the southern states' funding distribution for their universities, including formulas.

Mr. Marks recommended we contact the National Association of College and University Business Officers (NACUBO), for additional information. It was his opinion that NACUBO would not have this information either, but that it might be worth a telephone call.

One of our team members had lunch with John Brown, NC 5th District State Representative, and John Garwood, NC. Board of Governors, who indicated that there actually are formulas, but because of the imbalance of funding the state does not consider itself to be a formula state. Brown and Garwood suggested others to contact and pledged their support.

We also talked with Gwyn Pruyne at the Center for Higher Education Finance Studies at Illinois State University who did not have any information, but referred us to the National Center for Educational Statistics in Washington, DC.

At the same time another member of our team was following a lead from Nick Penning in the Washington, DC office of the American Association of School Administrators. Penning indicated that Dr. Allen Hickrod, Professor, of Illinois State University had testified to Congress regarding weighted courses. Weighted courses were funded according to their classification and level. Higher level courses received more weight than lower level courses to balance FTEs. Higher level courses received more weight because the class size was smaller. Dr. Hickrod primarily worked with the public schools; other than his perspective on weighted courses, he could not offer any substantial information.

Upon further investigation, we spoke with Norman Brandt of the National Center for Educational Statistics who said that he did not believe the information we requested existed, although he did say that a "rule-of-thumb" was to weight masters and preprofessional degrees at four times, and professional degrees at seven times the regular undergraduate value. These were just numbers that he had in his head. He

could not give any reference other than the fact that this was what he had been told, and that a number of others in the field seemed to believe these numbers would facilitate an equitable distribution of funds. Mr. Brandt recommended that we telephone the National Center for Higher Educational Management Systems, but said that they would only suggest that Mr. Brandt be contacted for statistical information. He further suggested that we contact the States Higher Education Officers and speak with Alene Russel.

An ERIC literature search produced a limited amount of information; however, we did locate the Statistical Summary of Missouri Higher Education. The Missouri study focused on enrollment based on the type of institution. Institutions in the study were categorized based on mission, and student level.

Another study examined the current funds, revenues, and expenditures in institutions across the nation. A Higher Education General Information Survey polled the institutions and analyzed current trends.

State Support Priorities: A Test Case in Ohio related to full-time equivalency and funding, evaluated growing institutions and compared the level of funding that they received to the level received by established institutions. Because of traditional allocations the younger institutions receive less state money.

John Dornan, President and Executive Director of the Public Schools Forum of North Carolina, advised us that the funding problem within North Carolina schools is not just with the state's university system but with the public school system as well, i.e. needy counties cannot offer the same programs as their wealthier neighbors.

Mr. Dornan recommended that someone speak with Dr. James Watts, Committee Specialist for the North Carolina General Assembly. One of us spoke at length with Dr. Watts, who understood the need for the requested data and recommended that someone contact Mr. Jim Newlin, Fiscal Analyst for the North Carolina General Assembly.

According to Mr. Newlin, Mr. Felix Jorner, North Carolina's Vice President of Finance, was requested in 1972, by the North Carolina General Assembly, to investigate the budgets of universities that were to be part of the new 16 campus university system. Some universities had extremely high budgets per FTE and some had extremely low budgets per FTE at that time.

The university budgets for the new system were based on the individual university budgets in 1972, and these same budget figures are the basis for today's funding. Because Appalachian had a low budget per FTE in 1972, and UNC, Chapel Hill, had a higher budget per FTE during this same year, UNC still today

receives the same percentage more than Appalachian.

In 1989, the North Carolina Board of Governors requested a cursory review of what seemed to be an inequity in the distribution of funds to the state universities. The Board of Governors questioned why there was not a difference in the funding given to universities with high levels of graduate FTEs when compared with those with low levels of graduate FTEs. The Finance Office responded by saying that after their cursory investigation they saw no problem with the funding distribution as it was. For this reason, the North Carolina General Assembly still allocates funds to its state universities just as it did in 1972.

Mr. Newlin, who had done research in the area of funding within the North Carolina universities, informed us that the data we were looking for did not exist. He had concluded that an FTE funding formula for institutions in the UNC System was not available because he was told by the state finance office that it did not exist. His opinion was that the data would not be available until there were some political changes. He then told us that he was aware of only two comprehensive universities that used a weighted funding formula for inter-university funding. These were the University of Illinois and the University of Tennessee.

According to him, the differences in the weighting of FTE distribution in these states was based solely on the difference in the cost of programs between undergraduate and graduate programs, which he believed was the logical way for distribution of funds on a state level and within member universities. He suggested that someone plug Appalachian's numbers into the weighted funding formula that the University of Illinois and the University of Tennessee utilize to see what the results would yield. He suggested that an investigation be made into the actual cost of undergraduate graduate, first professional degree, and doctoral programs at Appalachian to determine the weighting formula for Appalachian's FTE funding distribution.

Historical Perspective of Appalachian State University

It is apparent to us that Appalachian has not received adequate funding from the state. Furthermore, because of the minimal contributions made by the state, it is our opinion that Appalachian has developed traditional funding patterns of its own. Appalachian has dramatically grown over the past fifteen years, yet solid funding formulas for colleges and departments have not been established. Clearly one of the deciding factors for funding has been full-time equivalency. Appalachian has the sixth largest head count and the fifth largest FTE enrollment in the UNC system (UNC Profile, 1992). The head count enrollment at

Appalachian has increased by 19% sinceFall 1985. Appalachian has the second highest FTE-to-head count ratio in the system and the highest among the state's comprehensive or higher institutions.

Full-Time Equivalence

At Appalachian a full-time undergraduate student could take up to 18 credit hours without special permission from a college dean. Regardless of the number of credit hours a student carries during any given semester, only the first twelve credit hours count toward full-time equivalency. Any credit hours over twelve have not been recognized by the state or the institution for funding purposes. To illustrate the current structure consider the following example.

2 students enrolled in 18 credit hours each = 36 credit hours

translates into 2 FTEs

3 students enrolled in 12 credit hours each = 36 credit hours

translates into 3 FTEs

Based on the example, any credit hours in excess of 12 do not translate into FTEs. If we look at the two groups of students above and assume that the two students enrolled in 18 credit hours have six classes of three credit hours each, and the three students enrolled in 12 credit hours each have four classes of three credit hours each, the student credit hours are not the same for both. The students with 18 credit hours are not generating the same level of funding as those carrying 12 credit hours. Theoretically, the students with 12 credit hours have 25% of their FTE assigned to each of four classes while the students with 18 credit hours have 16.6% of the FTE assigned to each of the six classes.

To make FTEs even more disproportionate, ASU faculty and staff and NC public school teachers are not charged for courses taken at ASU. We discovered that all students who were enrolled in these fee waiver courses were not included in final FTE tallies. Therefore, if a department has a number of fee waiver students, their head count is greater than their FTEs. Unfortunately, funding is allocated based on FTEs and not head count.

Faculty Allocation Units

Faculty positions at Appalachian, and all universities in the UNC system, are allocated by FTEs. The Deans of each college at Appalachian indicate to the Provost their requested number of FAUs, and the Provost may, at his discretion, disburse these FAUs just as "currency."

Although funding is allocated to Appalachian based on 16.41 FTEs per faculty position, or faculty allocation unit (FAU), as indicated in Figure 1, this often is not indicative of actual faculty work load. For example, if the Dean of the College of Education indicates that an instructor is teaching six hours, which is a one half undergraduate teaching load, it is indicated to the Provost as .5 FAU hours. But, it may happen that this teacher's actual work load is eight hours, or .67 FAUs, rather than the .5 FAU work load which was indicated to the provost by the Dean.

Analysis of Data

Funding ratios shown in Figure 1 illustrate Funding Ratios for all 16 of the institutions in the University of North Carolina system. These ratios are indicative of the number of FTEs per FAU. Appalachian ranks next to highest among all UNC institutions in the number of students per funded position. Each 0.1 change in the funding ratio is equivalent to four faculty positions, given ASU's approved enrollment for 1992-1993. For example, ASU is currently funded for 1993-1994 at 10,600 FTEs, which generates approximately 646 full time faculty positions at 16.41 FTE per position (as indicated in Figure 1). If this ratio were changed by 0.1 to a ratio of 16.31, ASU would receive 650 full time faculty positions. This would increase ASU's total faculty allocation by four positions, which at approximately $45,000 per position would increase ASU's funding by approximately $200,000 for the 1993-1994 fiscal year.

General Funding Appropriations per Full-Time Student, shown in Figure 2, indicate that when General Fund Appropriations per FTE are taken into consideration ASU ranks fourth from the lowest with an allocation of $5,235 per FTE. Although ASU is next to highest in students per funded position, the institution is fourth from the lowest when consideration is given for general fund appropriations per FTE. Although Figure 2 indicates that ASU receives more funding by general fund appropriation per FTE, institutions such as UNC-Charlotte seem to receive less, falling from fourth to last in Figure 1 to last in Figure 2. The data used for Figures 1 and 2 were provided by the Office of Institutional Research.

The data used for our study of FAUs are given in Table 1. The numbers of full time faculty equivalent positions assigned to departments were provided by the Office of the Provost. These reflect fall 1993 allocations. The rest of the data in Table 1 were provided by the Office of the Provost. These reflect fall 1993 allocations. The rest of the data in Table 1 were provided by the Office of Institutional Research.

Figure 1

Funding Ratios
University of North Carolina Institutions
1993-94

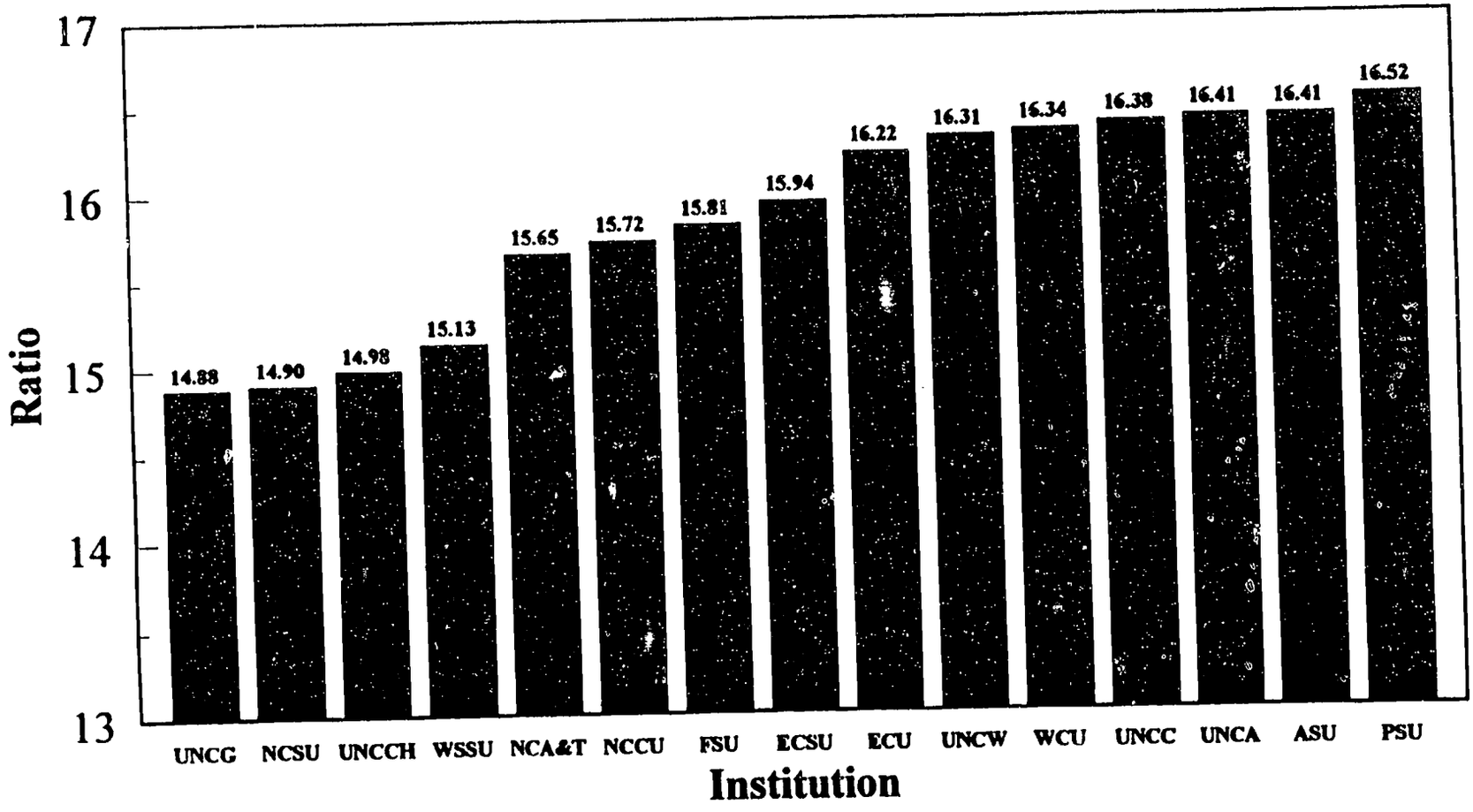
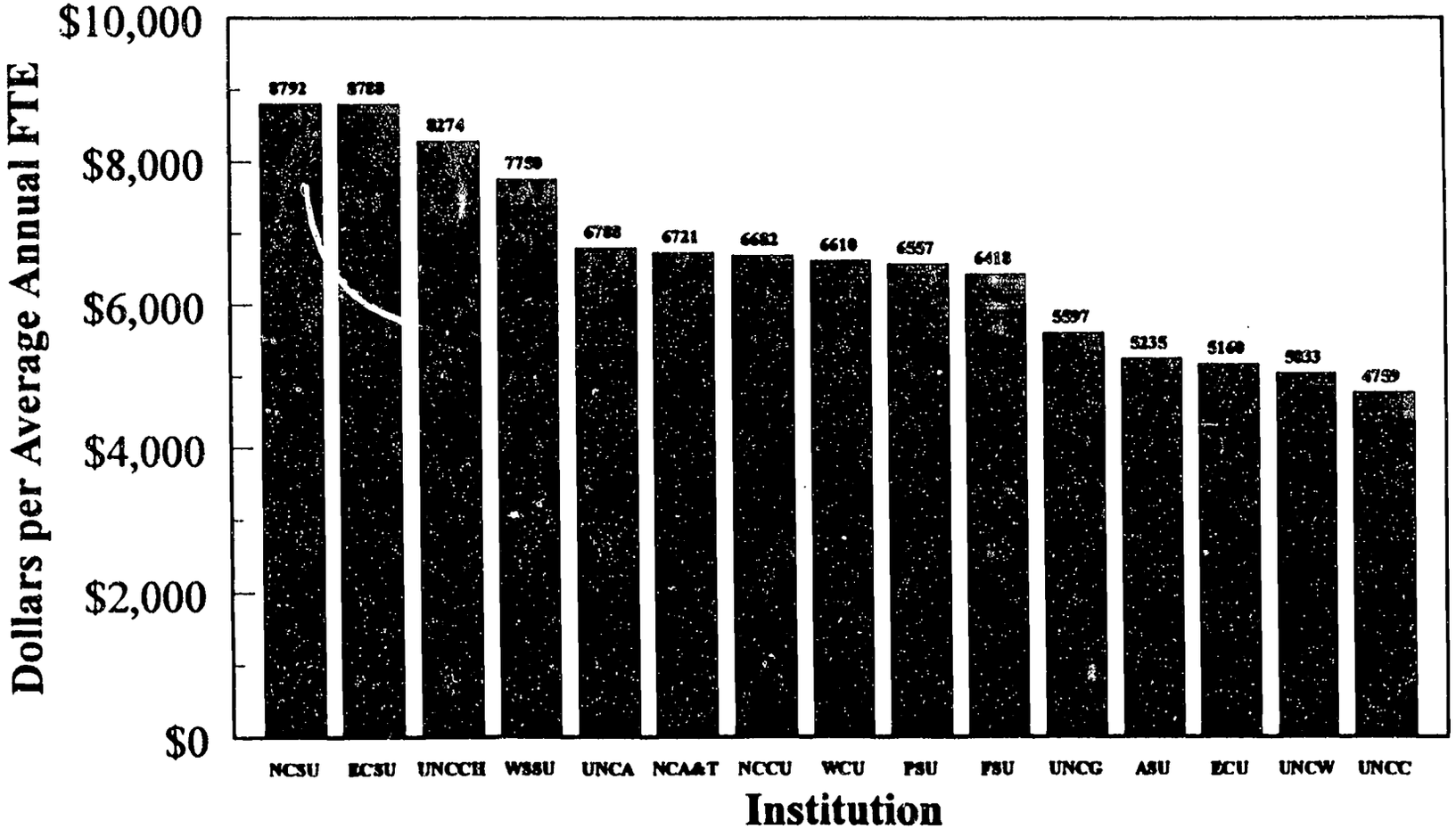


Figure 2

General Fund Appropriations per Full-Time Student
University of North Carolina Institutions
1993-94



Note: Excludes Health Affairs

Table 1

DEPT	Faculty Allocation Units Fall '93	Faculty FTE Fall '92	Total Headcount Fall '92 - Spring '93	Annual Instr. Hours Fall '92 - Spring '93	Total Faculty FTE Fall '92 - Spring '93	Total Enrollment Fall '92 - Spring '93	Credit Hours Generated Fall '92 - Spring '93	Credit Hours Generated in 0000 - 2999 Level Courses	Credit Hours Generated in 3000 - 4999 Level Courses	Credit Hours Generated in 5000 - 6999 Level Courses
ANTHRO	8.00	8.00	8.00	170.00	9.00	1,521.00	4,409.00	2,598.00	1,235.00	27.00
BIO	18.00	21.00	46.00	656.25	31.05	8,072.00	13,122.00	10,094.00	2,749.00	279.00
CHEM	11.00	13.61	22.00	342.80	15.88	1,719.00	5,225.00	4,742.00	475.00	8.00
ENG	36.00	45.60	69.00	108.00	52.26	8,102.00	24,052.00	18,304.00	5,180.00	577.00
FORLAN	13.00	15.26	21.00	397.00	16.88	1,948.00	6,145.00	4,548.00	1,110.00	106.00
GEOPLN	7.00	8.75	16.00	205.10	10.74	1,814.00	4,930.00	3,057.00	1,669.00	204.00
GEOLOG	6.00	7.00	6.00	159.00	6.00	1,696.00	2,426.00	2,303.00	117.00	6.00
HiST	27.00	33.51	40.00	627.00	33.12	5,721.00	16,954.00	14,714.00	2,268.00	344.00
INTSTD	9.00	10.57	12.00	175.00	10.33	904.00	3,717.00	2,768.00	646.00	0.00
MATH	35.00	44.02	54.00	972.49	48.39	6,883.00	22,746.00	18,074.00	4,386.00	79.00
PHILO	13.00	16.25	19.00	321.00	15.26	3,079.00	9,218.00	8,670.00	512.00	36.00
PHYAST	11.00	10.24	14.00	255.68	11.54	2,474.00	4,704.00	4,220.00	393.00	91.00
PLYSCI	19.00	20.89	27.00	458.00	21.09	3,926.00	12,223.00	6,261.00	5,227.00	584.00
PSYCH	27.00	30.84	53.00	644.00	31.16	6,362.00	18,723.00	5,928.00	12,355.00	1,391.00
SOC&SW	16.00	19.11	27.00	377.00	19.63	4,073.00	12,065.00	6,729.00	4,397.00	195.00
ACCTNG	15.00	16.25	18.00	384.00	17.29	2,764.00	8,651.00	6,851.00	1,740.00	321.00
DECSCI	13.00	11.00	13.00	228.00	13.00	2,097.00	6,269.00	2,556.00	3,527.00	186.00
ECONMC	17.00	16.00	16.00	289.00	16.88	3,294.00	9,886.00	7,212.00	2,470.00	267.00
FINANC	12.00	15.25	23.00	280.00	16.34	3,020.00	8,976.00	2,292.00	6,348.00	273.00
MNGMNT	18.00	20.38	25.00	355.00	21.29	3,364.00	9,820.00	610.00	8,742.00	408.00
MRKTNG	10.00	11.00	10.00	195.00	9.83	1,508.00	4,508.00	0.00	4,260.00	216.00
C&I	30.50	32.98	44.00	774.50	37.29	3,660.00	13,087.00	2,242.00	10,632.00	522.00
HUMDEV	13.00	11.81	37.00	233.00	14.96	1,394.00	3,987.00	637.00	1,457.00	1,894.00
LRE	26.20	22.99	44.00	501.30	29.43	3,333.00	9,204.00	2,249.00	5,076.00	1,609.00
LHE	10.00	9.25	15.00	181.00	12.12	536.00	1,667.00	0.00	582.00	969.00
LIBFDN	9.00	11.09	13.00	214.00	11.17	1,298.00	3,349.00	0.00	2,539.00	775.00
ART	18.00	21.75	25.00	1,903.80	24.25	2,591.00	7,560.00	6,160.00	1,292.00	42.00
COMM	16.00	22.07	31.00	584.00	23.08	4,731.00	11,857.00	7,613.00	4,244.00	0.00
HEALTH	26.00	31.15	59.00	488.00	38.76	2,270.00	13,445.00	8,061.00	4,866.00	389.00
HMECON	11.00	13.01	13.00	802.00	11.96	2,257.00	4,397.00	2,849.00	1,503.00	48.00
TECH	15.00	20.19	38.00	255.00	21.46	2,087.00	7,113.00	3,883.00	3,142.00	225.00
TH&DNC	8.00	10.43	13.00	545.50	10.97	2,569.00	5,633.00	5,016.00	617.00	0.00
MUSIC	31.60	NA	48.00	891.50	36.28	6,350.00	13,014.00	9,818.00	1,302.00	294.00

Since the College of Music is unique in many respects, it will not be included in any of the following analyses.

Distributions of student credit hours generated. The total number of student credit hours generated during the 1992-1993 school year is displayed graphically by college in Figure 3. In the figure credit hours are separated by course level (lower division: course numbers, 0000-2999; upper division: course numbers, 3000 4999; and graduate schools: course numbers, 5000-7999). The figure shows that the College of Arts and Sciences generates more student credit hours than the other three college combined. However, the percentages of student credit hours generated through upper division and graduate-level courses is not proportional across colleges. This is shown more clearly in Figure 4 where the relative percentages of lower, upper. and graduate level credit hours generated within colleges are displayed. From this figure it is clear that the College of Arts and Sciences generates the lowest proportionate number of upper division and graduate credit hours. By a fair margin, the College of Education generates the largest number of upper division and graduate credit hours. In fact, the figure shows clearly that hours generated by lower division courses comprise only a small percentage of the total student credit hours generated by the College of Education.

Figure 5 shows the distribution of student credit hours generated another way. Here the total numbers of credit hours generated (across the four colleges listed) through lower division courses, upper division courses, and graduate courses have been partitioned by college. Over 60 percent of the lower division credit hours are generated by the College of Arts and Sciences. On the other hand, about a fourth of the upper division credit hours, and half the graduate credit hours, are generated by the College of Education. The College of Business also generates a sizable proportion of the upper division and graduate level credit hours.

Relationships between credit hours generated and FAUs. Figure 6 redisplays the data just shown in Figure 5 along with the university's allocation. In the figure, percentages across colleges sum to 100. In the figure it is obvious that the pro rata distribution of FAUs is undifferentiated with respect to the level of courses generating student credit hours. In fact, the percentage allocation of faculty resources is roughly the same (about 18 to 20 percent each) for the colleges of Business, Education, and Fine and Applied Arts, and twice that for the College of Arts and Sciences.

Figure 3

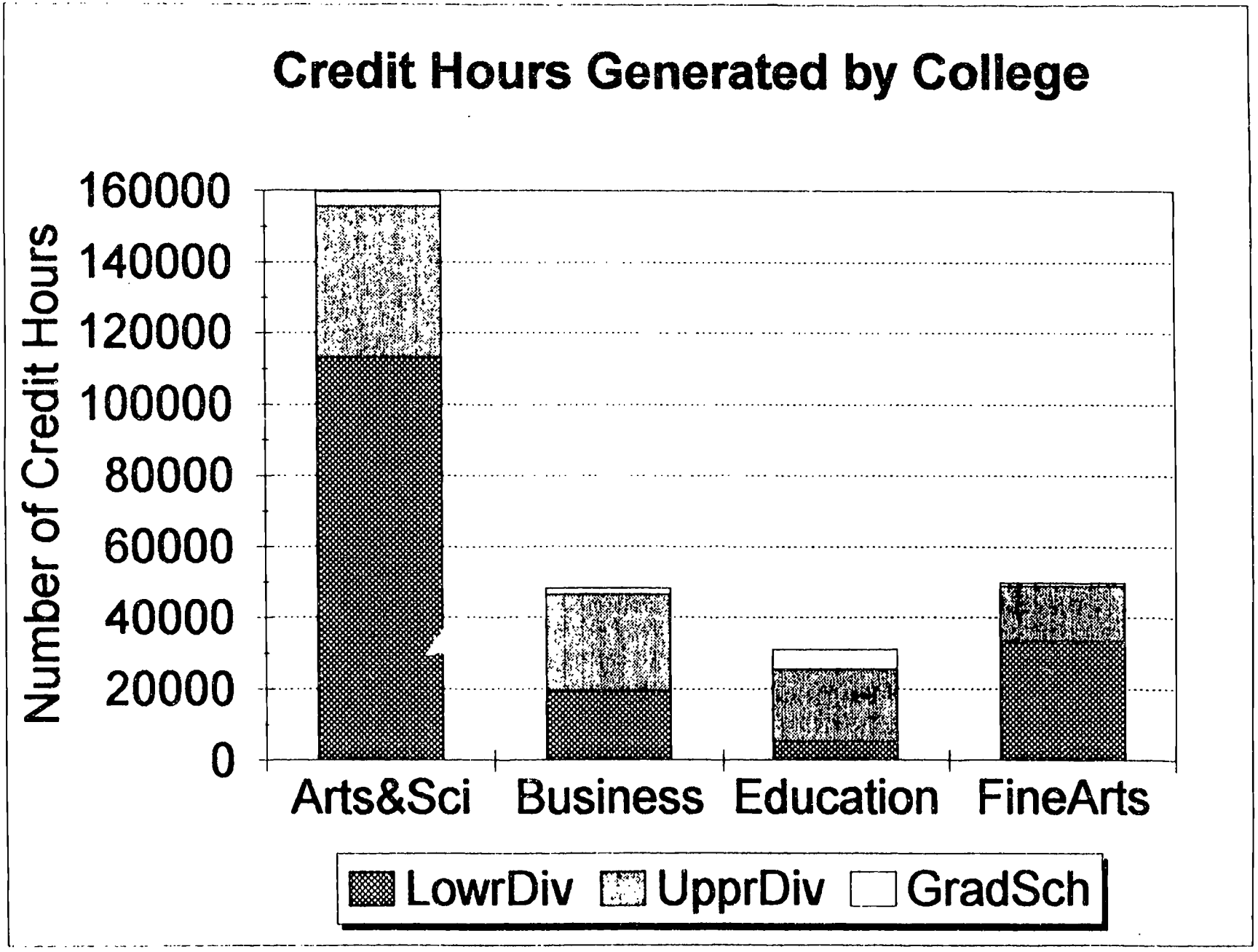

Credit Hours Generated by College
Number of Credit Hours
160000
140000
120000
100000
80000
60000
40000
20000
0
Arts&Sci
Business
Education
FineArts
LowrDiv
UpprDiv
GradSch

Figure 4

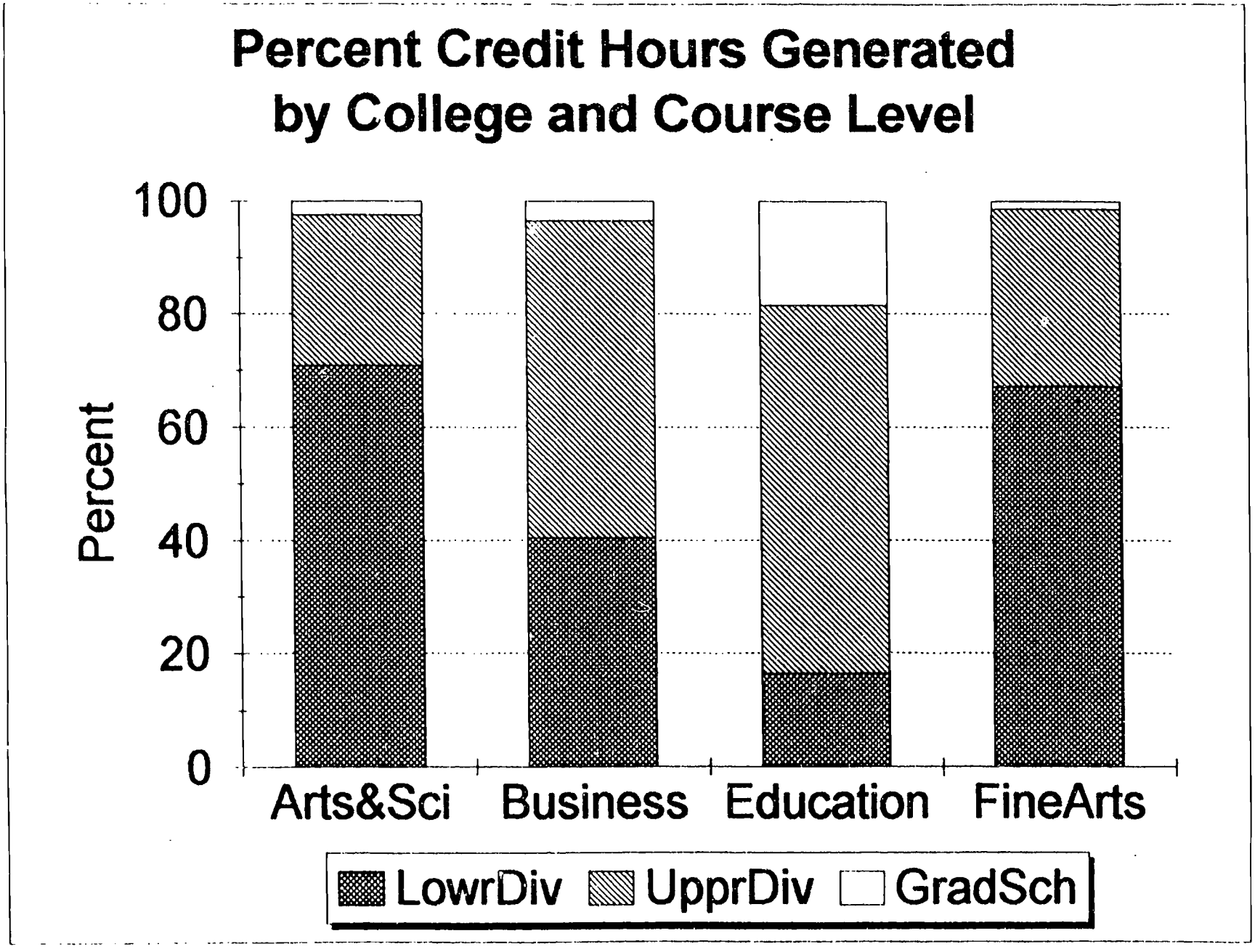

Percent Credit Hours Generated
by College and Course Level
Percent
100
80
60
40
20
0
Arts&Sci
Business
Education
FineArts
LowrDiv
UpprDiv
GradSch

Figure 5

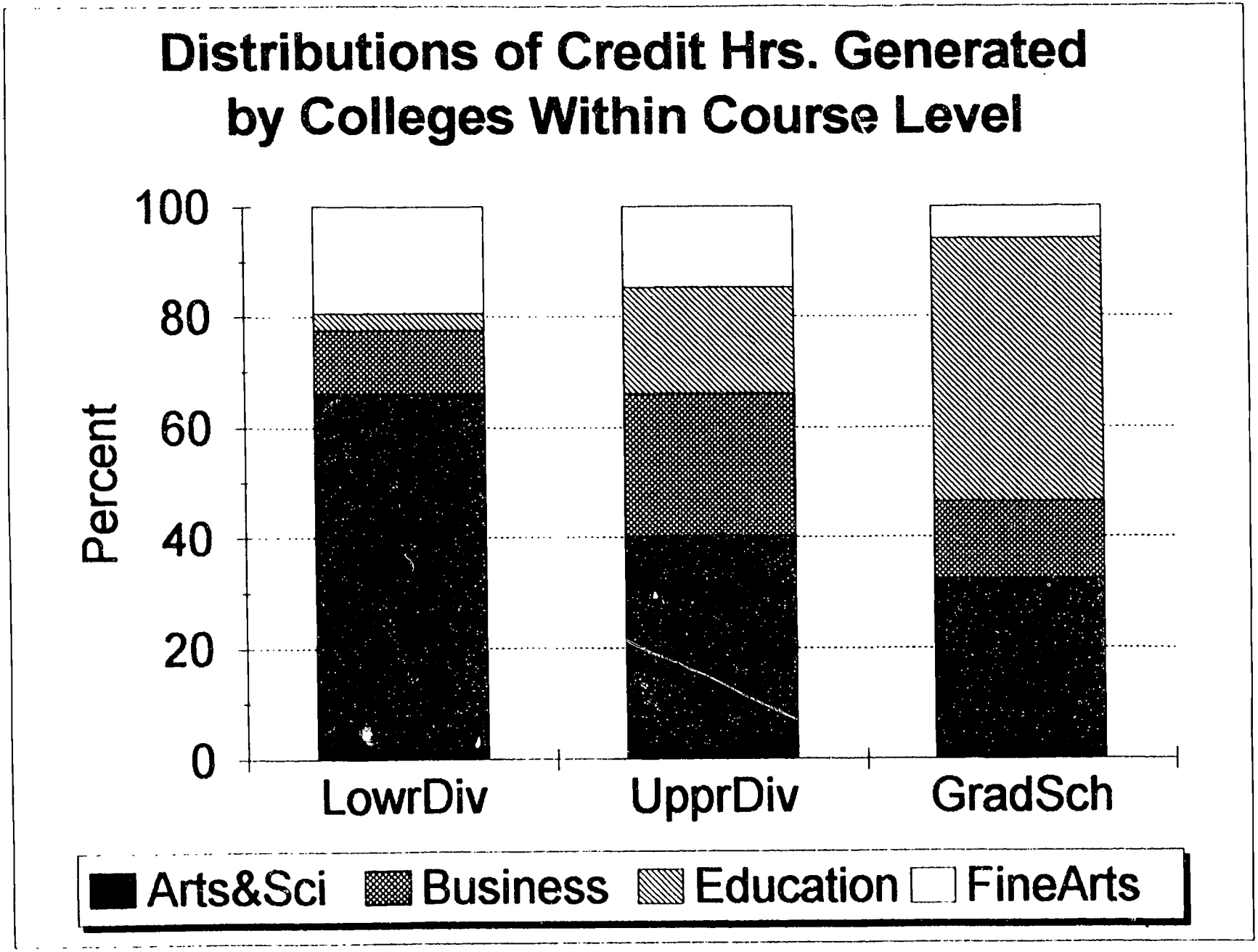
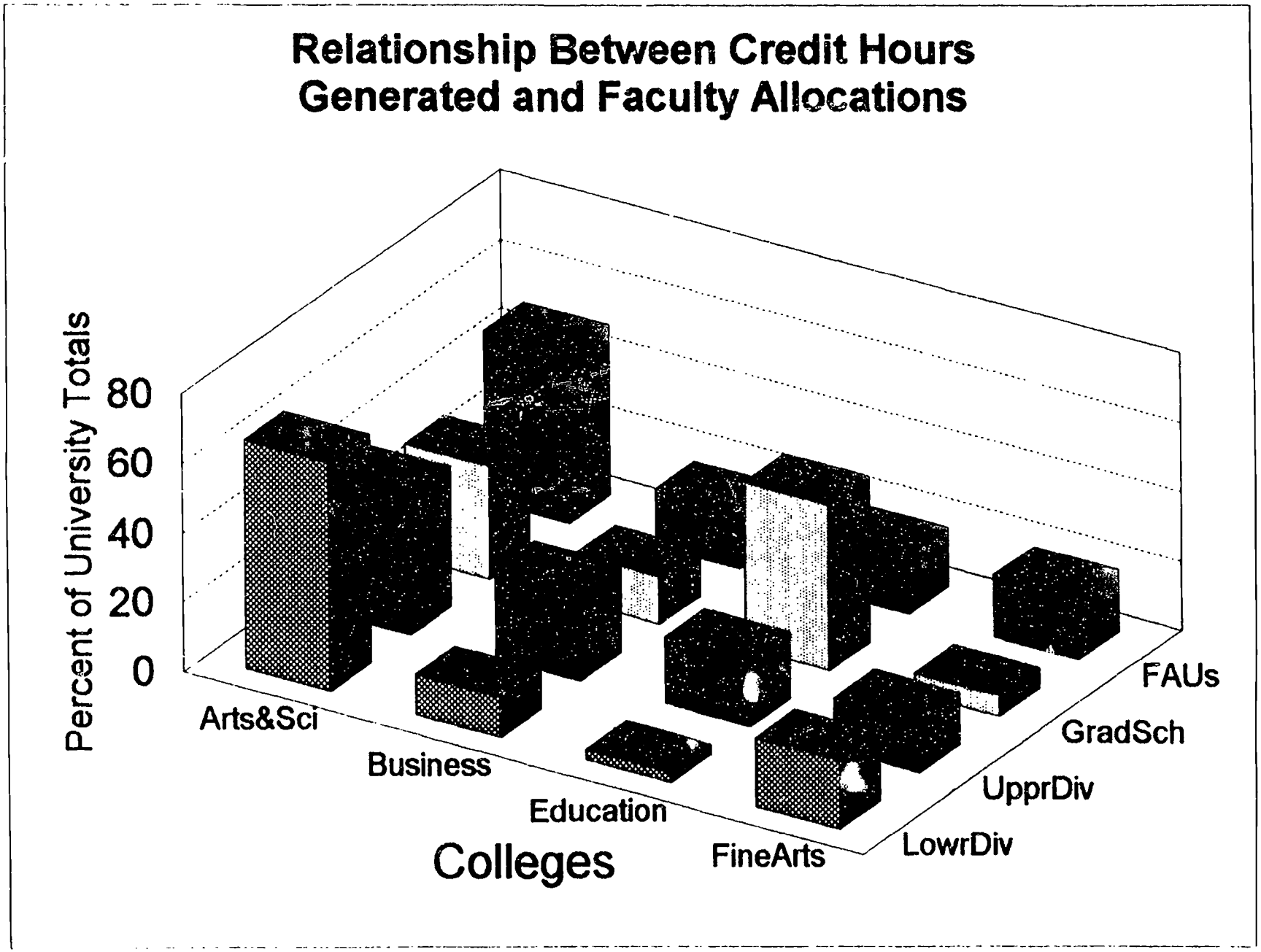

Distributions of Credit Hrs. Generated by Colleges Within Course Level
Percent
100
80
60
40
20
0
LowrDiv
UpprDiv
GradSch
Arts&Sci
Business
Education
FineArts

Figure 6


Relationship Between Credit Hours Generated and Faculty Allocations
Percent of University Totals
80
60
40
20
0
Arts&Sci
Business
Education
FineArts
Colleges
FAUs
GradSch
UpprDiv
LowrDiv

What governs the allocation of faculty resources? It is clearly undifferentiated student credit hours generated (or its nearly identical counterpart, full time equivalent units). This is shown in Figures 7 and 8, which are nearly identical. In Figure 7 FAUs are graphed as a function of undifferentiated student hours generated. A linear regression analysis of FAUs on credit hours yielded an R_2 of .803, while a regression analysis of FAU on f-1 > yielded an R_2 of .944. Thus, most of the variance in FAUs can be explained by either total undifferentiated credit hours generated or FTE. The fact that the allocation of faculty resources is not conditioned by the level of courses generating student credit hours is demonstrated graphically in Figure 9. There is little relationship between FAUs and the number of student credit hours generated by upper division and graduate level courses.

Conclusion

This study warrants further investigation into weighted FTE funding distribution and proportional funding. Statistical research is still ongoing and will possibly conclude within the next three months.

Figure 7

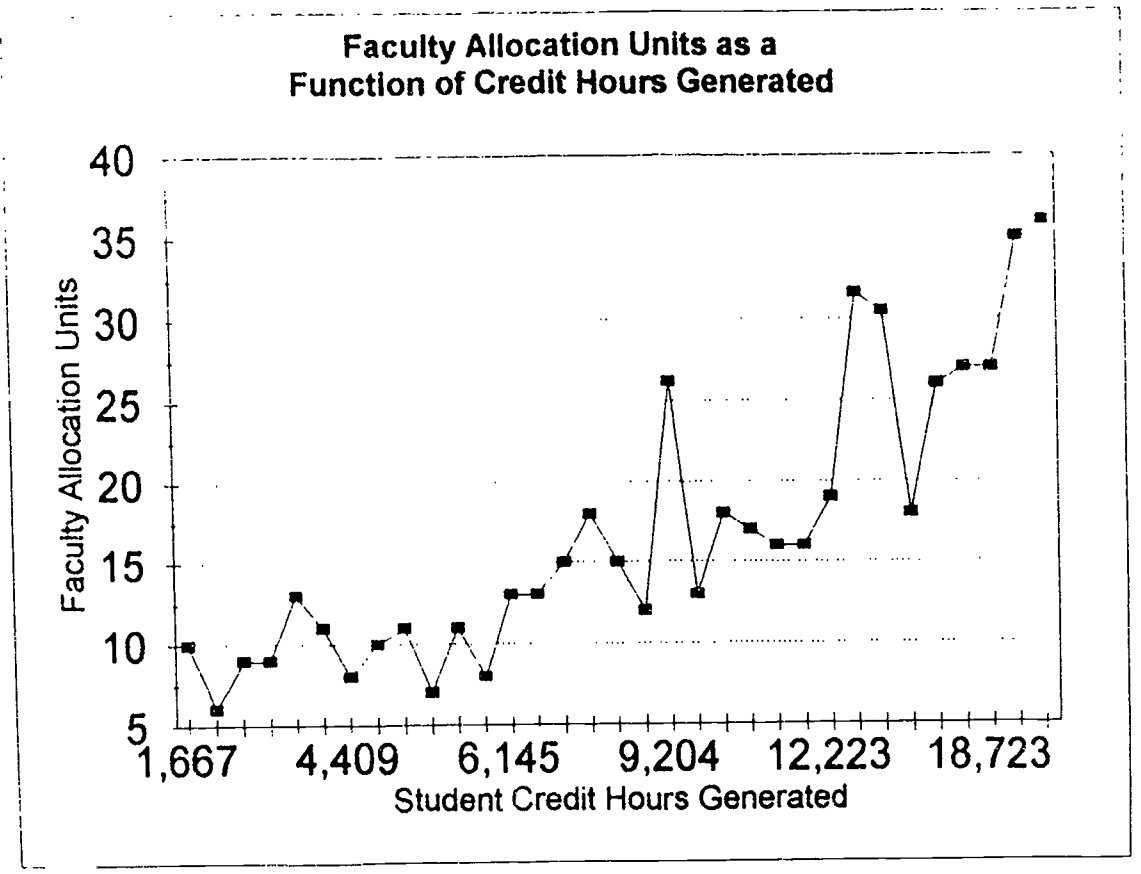


Figure 8

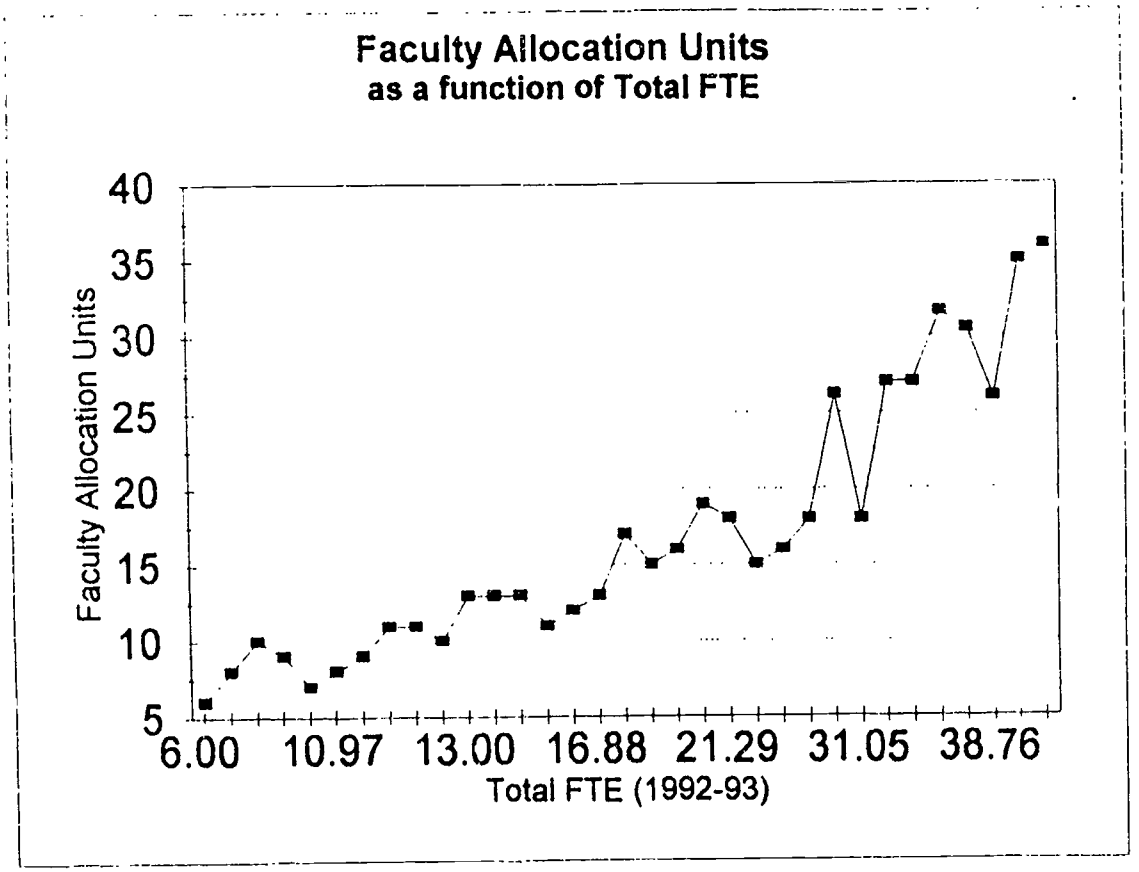
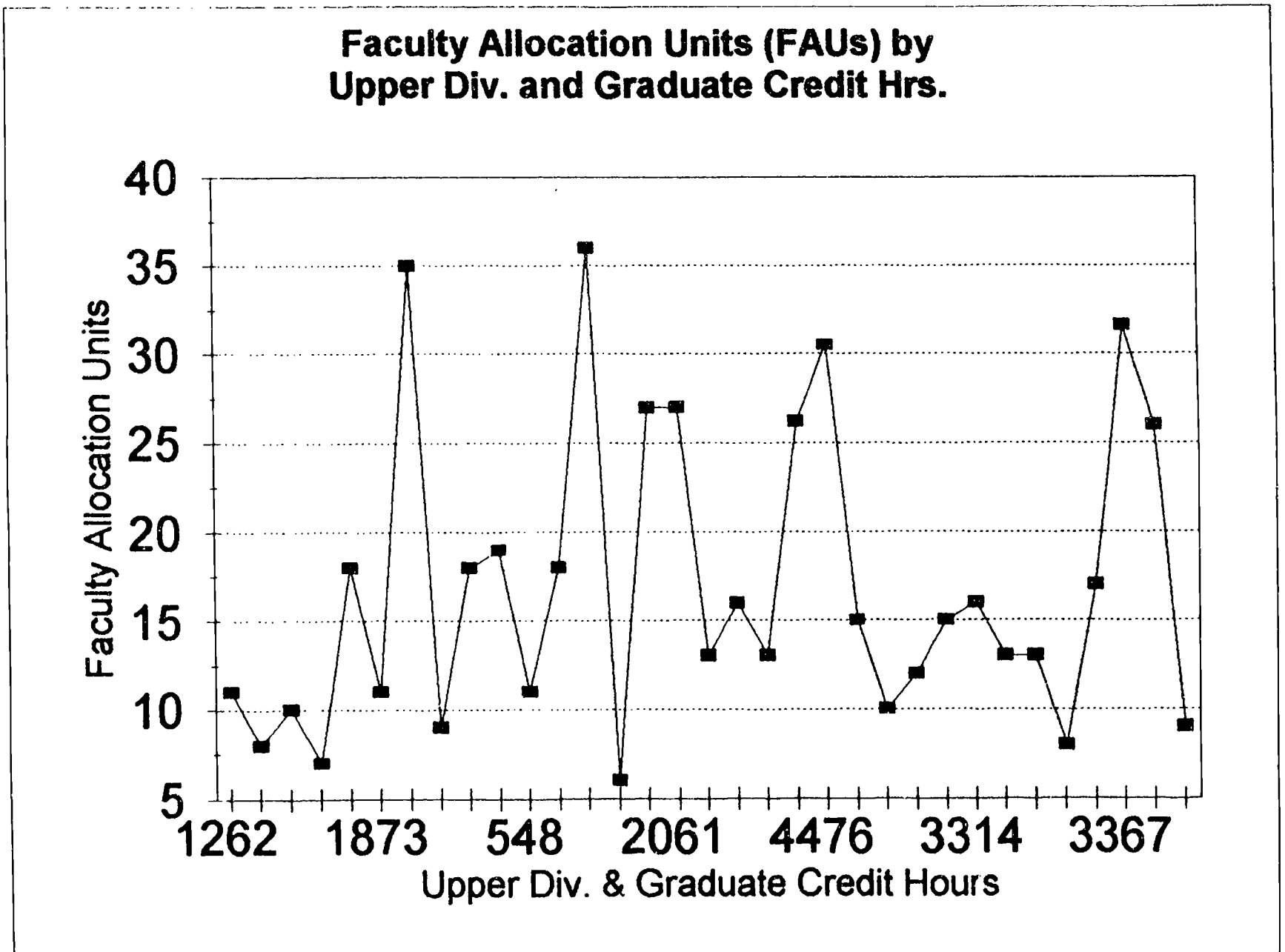


Figure 9


Faculty Allocation Units (FAUs) by
Upper Div. and Graduate Credit Hrs.
Faculty Allocation Units
40
35
30
25
20
15
10
5
1262
1873
548
2061
4476
3314
3367
Upper Div. & Graduate Credit Hours

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