Hay Report

Report of Committee on Long Range Priorities

March 29, 1971

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REPORT OF THE COMMITTEE ON LONG RANGE PRIORITIES - MARCH 29, 1971

Charge to the committee and its work

The committee, composed of five faculty members and three students

Philip Davis, senior in Political Science
Kenneth Hanson, Professor of Literature
Patricia Kahn, senior in Art
Jeff Kelly, Assistant Professor of Chemistry
John Leadley, Professor of Mathematics
Clifford Perry, junior in Biology
John Staten, Assistant Professor of Religion
George Hay, Chairman, Professor of Economics

was appointed in mid-fall 1970 to study four objectives concerning the future of the college and to report back to the faculty by mid-March 1971. The objectives were as follows:

1. to write a statement of the basic goals of Reed College
2. to recommend the appropriate size of the college in terms of the number of undergraduate students
3. to recommend departmental distribution of the faculty at whatever size is recommended, on the basis of a 12 to 1 student-faculty ratio in a period of financial stringency
4. to set the long-term priorities of the college, anticipating improvement in the financial situation.

Work on the statement of goals was the first task of the committee as will be explained below. Analysis and planning phases came next. Our approach to these can be explained in more detail.

The committee was instructed to plan in the perspective of the next several years, looking beyond next year's budget and thus going beyond the viewpoint of last fall's short-range committee established to make recommendations for a balanced budget for 1971-72. That committee's work, the work of the summer 1969 committee on size, and of the E.P.C. of fall 1969, including its December 1969 report, all formed the base from which the present "long-range" committee took up its assignment.

In addition to these earlier studies, the committee gathered, analyzed, and portrayed data reflecting many features of the recent structure of the college -- data such as student enrollment, faculty size and distribution, course enrollment, patterns of attrition and transfer (see, for instance, Appendix II). We considered departmental and divisional written statements on needs, and we gave special attention to needs such as those of library and physical facilities.

It became clear that we would meet our assignment by issuing a report based on the fact that the basic educational features and curricular design of the college could not be drastically changed. Our agreement on a statement of goals precluded vast changes. We sought a planning model which should be closely enough related to the ways in which the college

nad developed to influence in a meaningful way the steps that would be required to reckon adequately with a period of financial stringency that might last from three to five years.

For some in the community, the creation of this committee seemed to signal the establishment of a body to examine new ideas and very differing ways of structuring the college and of operating it. We received a number of suggestions. Some of these were considered and were either dropped or referred to more appropriate regular committees, others were incorporated in our thinking, and a few which were felt important but not of immediate concern to our report are being held over for furtner consideration and possible later action. But considering all suggestions, we decided to produce firm recommendations within the assumption of a relatively unchanged college structure, altnough there are a number of significant shifts of program which are essential to the model we present.

A statement of goals and operating procedures

It was felt crucially important that the committee address itself to a statement of the goals and principles of the college and to seek agreement on these before proceeding with its other work. We reached agreement during the first six weeks of our existence on the following statement.

The goal of Reed College

The goal of Reed College is to provide an education in the liberal arts and sciences with emphasis on the highest intellectual and scholarly standards.

The Reed education pays particular attention to a balance between a broad study in the various major areas of human knowledge and a close, in-depth study in a recognized academic discipline.

The general program is designed to provide a background of humanistic and scientific study which will give an understanding of cultural phenomena as they relate to each other and modes of thought as they bear on the problem of man's various attempts to understand himself and his world.

The advanced program provides opportunity for intensive examination of the subject matter and techniques of a more narrowly defined academic discipline.

The balance of a general and a more specialized education is best achieved where students and faculty work closely together in an atmosphere of shared intellectual and scholarly concern, and where individual interests and disciplines must be pursued not in isolation, but with a sense of the larger intellectual life of which they are a part.

Operating principles and basic procedures of Reed College

In carrying out its goals the college has developed certain operating principles and procedures. Some are basic and unalterable, such as academic freedom. Some refer to tested and valued methods which give the college some of its distinctive character. All are important to the present workings of the college and should guide its future development.

--The college fosters and defends academic freedom and avoids taking positions on political issues that do not affect the college or higher education directly.

--As a relatively small school, the college necessarily offers a limited number of subject areas, but by careful selection and judicious balance among these strives to offer each well and in effective relationship to the whole.

--The college provides an intense and demanding educational regimen. As stated by the first president of the college:

> "Only those who want to work, and to work hard, and who are determined to gain the greatest possible benefit from their studies are welcomed."

--Each student exercises wide choice in constructing his program, but the ~~college employs course requirements to~~ ensure that proper attention is given to the goals of both general and advanced study.

--Most students complete their advanced study within a departmental major, but interdisciplinary programs are endorsed insofar as they represent carefully reasoned alternatives to a major within an academic discipline.

--Students are not divided by academic ability or promise and there are neither "honors" degrees nor other such programs.

--The college program encourages a growing intellectual self-reliance. Independent study courses are available for students of proven ability, and each student writes a thesis and is examined on it during his final year.

--Much of a student's class work is conducted by the conference method or by active participation in the laboratory. Lectures and formal expository presentations are used where they are effective alternatives or supplements to the conference method.

--A faculty advisory system ensures that each student's program meets the requirements of both general and advanced study consistent with the student's goals and facilitates appropriate communication on matters such as the evaluation of student performance.

--Although student performance is closely and frequently evaluated and the grades are recorded, students are encouraged to consider intellectual growth more important than grades.

--The college provides an environment for student life in which unnecessary structuring and regulation are avoided. Areas of conduct not affected by college regulations are mediated by the honor principle.

--The affairs of the college are conducted under constitutional government. The campus is an area of the freest exchange and open discussion of ideas. The use of force or threat of force is intolerable in such a community.

--The college regularly seeks student advice on educational policy and other operating features of the college. But final decisions in certain spheres are made by the faculty, administrative officers, and trustees.

14 --The college provides a variety of extracurricular offerings in cultural affairs, in public and international affairs, and in personal and recreational sports.

15 The college supports and encourages scholarly research and the application of such scholarship to teaching.

16 --The college is not an "experimental school," but continues to seek more effective ways to present the subject matters of the liberal arts curriculum.

We recommend to the faculty the adoption and appropriate publication of this statement.

Planning recommendations -- a model for a period of difficult financial stringency

Having agreed on a statement of basic goals, the committee turned to the questions of how to deal with the stringency implicit in a 12 to 1 ratio and of what college size to recommend. It was agreed that the final recommendation could best be presented in the form of a model which would include a specific allocation of full-time equivalent faculty teaching time to 1) departmental teaching requirements and 2) departmental contributions to college staff courses such as Humanities and Natural Science courses, and which would 3) specify minimum numbers of persons in departments.

In brief, the steps the committee followed in reaching its target model were:

1. The size question was considered initially in and of itself -- including the evidence which had been previously gathered, and which had led to the earlier faculty resolution which aimed at "a gradual decrease in the size of the institution with the end point to be determined in the future." In its consideration of the size question, the committee was sympathetic to the desirability of smaller size for many reasons including grounds already adduced in earlier discussions. Some of the arguments very briefly put are:

a. better communication, which this particular kind of college and its goals require

b. the desirability of backing away from recent overcrowding of facilities which became clearly apparent as the college pressed toward the 1200 "goal"

c. special reference to library problems and dormitory problems with respect to overcrowding

d. undesirable ratios of underclass to upperclass students, which are adversely affected by pushing to the larger size against dormitory constraints and upperclass program constraints

e. recognition that any "size" figures, based as ours are on F.T.E. student enrollment (=tuitions), require a higher fall enrollment because of the experience of intra-year attrition. Thus a target in the mid 10-hundreds implies a fall enrollment of over 1100, and a figure in the low 1100's implies pushing very close to strained physical (and other) capacities of 1200 in fall enrollment.

2. The committee then considered several "structural models" at various sizes; of these none was thought desirable that went much above 1100 students. Most ranged between 1000 and 1200, and a number of them trailed off toward 900.

3. Then we approached the problem from the perspective of what basic programs should be supported, what areas constitute a good liberal arts program, what parts can be sustained in effective relationship to the whole, what minimal staffing is necessary to do a decent job in what the college chooses to continue. As part of that exercise we tried at one stage to build a model at 1050 students that would keep most existing programs untouched. That exercise convinced us that anything less than 1050 and those models moving toward the 900 figure were unrealistically small. And we felt the 1050 model itself would not work in precisely those terms, i.e. without some shifts of program.

4. Finally the model which we now recommend was produced. It provides some modest reduction in student size from recent highs which we felt had clearly been undesirably large. It does this by providing some shifting of programs and priorities, and it follows the general principle of specifying those basic areas which are to be continued.

Given the harsh constraints of a 12 to 1 ratio, our procedures pointed up the difficult choice between trying to determine an ideal (and ideally limited) college size and yet trying to staff smaller departments and programs in an adequate way. We agreed on the desirability of putting

emphasis on defining minimum but adequate program sizes, recognizing that the college should probably concentrate on somewhat fewer areas, and attempt to offer these as well as possible.

Model and recommendations

The committee makes the following recommendations -- the recommendations made as a whole and in consideration of one another.

For a period of financial stringency

1. That the student body F.T.E. size target be set at 1080, and that steps be taken to set freshman and transfer targets to achieve that goal. (We feel that precise specification of the admission goals necessary to achieve the 1080 target should rest as in the past with the President after appropriate consultation. Nonetheless we are mindful that this recommendation provides a significant reduction in freshman and transfer targets from their recent highs. Our attrition models suggest, for instance, that a fall 1971 class of 350 new freshmen and 80 new transfers would be in line with the 1080 figure. See Appendix A on attrition models.)

2. That, at a 12 to 1 student-faculty ratio, the college plan on a faculty F.T.E. of 90 (i.e. 1080 ÷ 12 = 90).

Figure 1

Recommended Departmental Structure

	Target dept'l FTE's	Division subtotals	Prob. contrib. to Hum.	Rec. min. no. of persons
Letters and Arts		22.1		
Art	3.4		0.6	5[1]
Literature	4.2		4.8	10[2]
French	3.4		0.6	4
German	2.2		1.8	4
Russian	2.0			2
Classics	1.4		0.6	2
Music	3.0			3
Dance	1.0			1
Theater	1.5			2
History and Social Sciences		13.5		
Anthropology	3.0			3
Economics	2.5			3[3]
History	3.2		4.8	8
Political Science	2.8		1.2	4
Sociology	2.0			2
Mathematics and Natural Sciences		21.3		
Biology	5.0			7[3]
Chemistry	5.0		0.5(Nat.Sci.)	6[3]
Mathematics	7.3			8[3]
Physics	4.0		0.5(Nat.Sci.)	6[3]
P.E.R.P.		12.4		
Philosophy	3.0		3.0	6
Psychology	5.0			5
Religion	1.4		0.6	2
P.E.	3.0			3
Non-departmental		19.0		
Hum. 110 and 210	18.0			
Nat. Sci. 110	1.0			
Black Studies	1.5	1.5		3[4]
All College	89.8	89.8		

Notes:
1. Higher than contribution to Hum. due to assumed special program in studio arts.
2. Assumed at present to include a person part-time in creative writin
3. Assumes released time or part-time availabilities.
4. Special assumption due to natur of program.

3. That the college move toward a model of the department and divisional structure as contained in Figure 1 to allocate the proposed 90 F.T.E. It is realized that the precise allocation determined there will not necessarily be adhered to in each year, but that it will nonetheless serve as the model which guides personnel planning for a stringent period of the next few years. That model has inherent in it other recommendations which now follow.

4. That the Division of the Arts be merged with the Division of Literature and Languages to form a Division of Letters and Arts.

5. That a special program in studio arts be established, as is allowed for in the model, emphasizing rotating visits of artists-in-residence, the presentation of a multiplicity of styles and artistic media, possible short-term and part-time assignments, and avoidance of long-term faculty commitments.

6. That the new Division of Letters and Arts establish a Committee on the Studio Arts to a) plan its special rotating manpower needs and opportunities; b) administer student major programs or those aspects of student programs affected by studio arts; and c) explore the extent to which inter-institutional cooperation can be more fruitfully pursued, including that with the Museum Art School.

7. That the language requirement be dropped as a <u>college</u> requirement.

8. That Spanish be discontinued if the language requirement is dropped.

9. That Hebrew be discontinued.

10. That the physical education staff be reduced to three and the P.E. program, and if necessary the P.E. requirement, be restructured accordingly.

11. That Black Studies be staffed at 1.5 F.T.E., but that special attention be given to a minimum of <u>three</u> persons teaching in the program by way of at least partial use of part-time or joint appointments with other departments.

12. That the E.P.C. and the Division of Mathematics and Natural Sciences reconsider the Group C requirement, its scope and extent, and the most desirable modes by which it should be met.

<u>Priorities in the event of relaxation of financial stringency</u>

The committee recommends that in the event a measure of financial relief is possible, the following priorities should be followed.

<u>First priority</u>. Hold the faculty size at 90 F.T.E., retain the

general faculty structure as shown in the target model (Figure 1), and reduce the F.T.E. student body to 1000, the final size target we recommend. This would move the student-faculty ratio toward eleven to one. There would be generally desirable effects (by a factor of about 8% reduction) on many features of the college, such as

1. class size
2. crowding of facilities, including excess demand for dormitories
3. library capacity problems
4. the per capita impact of the financial aid budget, which we recommend should be fixed as student body size decreases
5. pressure on some administrative capacities.

The cost of such a move would be on the order of $200,000 financial relief.

Second priority. When the 1000 student size figure is reached, we would move along two other avenues of relief.

One is a recommended increase in the size of the faculty toward 100, keeping the student body size constant, i.e. a ratio of ten to one, with special attention to the aid of minimal programs and to the arts programs in particular, and aid to the relief of differential class sizes and faculty loads.

The other avenue is to move toward a somewhat larger financial aid budget -- one which meets the "austere" financial needs of all returning students and makes at least a modest improvement in the percent of newly admitted freshman scholarship

students relative to the freshman class size. The target might be an increase of 3-5 percentage points above the present proportions unless major new forms of direct external student financial assistance appear.

Later priorities. Not until these improvements have been met would we recommend the contemplation of new programs requiring faculty manpower support.

* * * * * * * * * *

We believe it is possible to live with a 12 to 1 ratio at our recommended size for a limited period of time, but we question whether this college can long achieve its goals and long keep its place among first-rate liberal arts colleges, virtually all of which are more fully staffed, without early relief of the present stringency. Our model implies the faculty can and will accept heavier teaching loads and will adapt to such requirements in a variety of ways. And even though that can be done, the quality of the teaching process cannot remain unaffected. We earnestly recommend that every effort be made in support of the financial position of the college so that it is possible to move beyond our first category of priorities for relief and improvement and into the second category as soon as possible. It is really at that stage that the college can most fully achieve the educational goals to which it subscribes.

APPENDIX A: ATTRITION MODELS

The following attrition models were investigated to determine the impact of a given target school enrollment on the required sizes of the entering freshman and transfer groups as well as an estimate of expected class sizes.

A. Static Models Based on Fall Class Enrollments

A static model denotes one in which class enrollments are considered separate from current enrollments. This would be equivalent to the situation existing after four years of a fixed freshman and transfer size. By comparing for each class level the numbers returning each year from the class level of the preceding year, a retention percentage can be determined. This number will include transfers, leave returnees, as well as students making normal progress, but it allows a simple means of compensating for attrition. The basic data are presented below:

TABLE A-1

	Fall Enrollment					Spring
Year	Freshman	Sophomore	Junior	Senior	Fall Total	Spring Total
1960-61	253	228	139	98	718	662
61-62	235	228	163	112	738	704
62-63	259	217	170	140	786	738
63-64	270	244	172	130	816	773
64-65	236	289	182	153	861	817
65-66	285	258	159	159	909	878
66-67	314	283	182	184	963	906
67-68	323	327	184	177	1011	958
68-69	402	350	196	175	1123	1046
69-70	421	382	199	221	1223	1090
70-71	397	356	184	212	1149	1070

TABLE A-2

Retention Percentages

Entering Class of	Freshman to Sophomore	Sophomore to Junior	Junior to Senior	Total Enrollment Midyear Attrition (%age loss)
1958			81	5.8
1959		72	86	6.1
1960	90	72	76	7.8
1961	92	79	89	4.6
1962	94	75	87	6.1
1963	107	55	116	5.3
1964	109	71	97	5.1
1965	99	65	95	3.4
1966	104	60	113	5.9
1967	108	57	107	5.2
1968	95	48		6.9
1969	85			10.9
4 Year Averages	98.0	57.5	103	7.2
10 Year Averages	98.3	65.4	94.7	6.2
19 Year Averages (Data not presented)	91.5	74.5	79.9	6.7

Based on the above averages, the totals of each class can be expressed as a percentage of the freshman class.

If F stands for the number of Freshmen:

		4-year averages	10-year averages	19-year averages
Freshman	=	1.00 F	1.00 F	1.00 F
Sophomore	=	.98 F	.983 F	.915 F
Junior	=	.56 F	.643 F	.682 F
Senior	=	.58 F	.609 F	.545 F
Total Fall Enrollment		3.12 F	3.24 F	3.14 F
Spring Enrollment		2.90 F	3.04 F	2.93 F
Average Year Enrollment		3.01 F	3.14 F	3.03 F

From these figures a target freshman class size can be calculated for an assumed total enrollment (as below for the 4-year average) while upper class sizes can also be estimated.

TABLE A-3

"Desired" Average Year Enrollment	Fall Enrollment	Fall Freshman (4-year averages)
900	935	299
950	985	316
1000	1040	332
1050	1090	349
1100	1140	365
1150	1190	382
1200	1245	399

The basic model above is our simplest and makes as assumptions the fewest student categories of attrition characteristics. In order to achieve an average student body size of 1080 over the two semesters it would require approximately 360 new freshmen and imply a fall enrollment of 1120. In the next section we explore a more complex model which categorizes students by more dimensions, citing appropriate retention percentages based on previous experience for those categories.

B. A Static Model Based on Normal Progress, Heldover and Transfer Data

The registrar's office maintains records of students who have made normal progress - progressing to the next class each year. All other students are classified as transfers or heldover students, (students not making normal progress such as leave returnees, re-admits, or students heldback at least one year).

Data for each year for each of these groups of students - retention percentages for normal progress students, sophomore transfers, and junior transfers; and percent of class heldover are not included here.* A summary of the recent 4-year average values are listed below:

Retention Expressed as Percentage of Original Entering Group

	Normal Progress Freshmen	Transfers Sophomores	Juniors
Freshman → Sophomore	71.5%		
Sophomore → Junior	34	63	
Junior → Senior	33	50	77
4th → 5th year	5	15	14

Heldover Percentages by Classes (%age of original freshman class)

Freshman	.04%
Sophomore	14.4
Junior	15.6
Senior	10.0

Heldover denotes that the student remains at the same class level at least one extra year.

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* These data are available for those interested from J. Kelly or any other member of the committee.

Using the following abbreviations

Entering Freshman = F

Sophomore Transfers = ST

Junior Transfer = JT

one obtains the class compositions listed below:

	Freshman	Sophomore	Junior	Senior	5th Year
Normal Progress Freshmen	1.00 F	.715 F	.344 F	.334F	.05F
Heldover Students	.04 F	.144 F	.156 F	.100F	.016 F
Sophomore Transfers		1.00 ST	.63 ST	.50 ST	.15 ST
Junior Transfers			1.00 JT	.77 JT	.14 JT

The following equation is obtained. (If one ignores the 5th year students as being a category which is small in comparison with the other classes, and one which fluctuates quite widely, then its own averages are rendered next to useless. Note: seniors held-over for a 5th year are not included in this category, but are listed under seniors.)

Fall Total = 2.83 F + 2.13 ST + 1.77 JT (Eq. A-1)

Using an 8.2% Fall-Spring Attrition, one obtains

Average Total = 2.71 F + 2.04 ST + 1.70 JT (Eq. A-2)

During the past ten years, 2/3 of the admitted transfer students have been sophomores and 1/3 juniors. Assuming this same ratio one can substitute 0.67 T = ST and 0.33 T = JT in the above equation and obtain

Fall Total = 2.83 F + 2.01 T (Eq. A-3)

Average Total = 2.71 F + 1.93 T (Eq. A-4)

These totals are fairly insensitive to the ratio of sophomore to junior transfers for if one inverts the ratio to 1/3 sophomores - 2/3 juniors, Eq. A-4 becomes 2.71 F + 1.81 T.

Based on Eq. A-4, a figure can be constructed which relates total enrollment, freshman class size and total transfers for any given set of enrollment characteristics. Such a graph is Figure A-1. The figure suggests that one can obtain a static enrollment of 1080 students with admission of: 120 transfers and 313 freshmen, 100 transfers and 327 freshmen, 80 transfers and 341 freshmen, or a variety of other combinations from the graph.

C. Dynamic Model

These figures allow one to project future enrollments based on the above calculations and current class enrollment. For illustrative purposes, Table A-4 depicts an entering freshman class size of 350 and a transfer size of 80. The freshman number 364 includes these 350 plus an estimated 14 heldover freshmen (350 X 4%).

TABLE A-4

Fall Enrollment Projections

Year	1970	1971	1972	1973	1974
Freshman	397	364	364	364	364
Sophomore	356	378	353	353	353
Junior	184	242	260	236	236
Senior	212	159	207	223	199
Total	1149	1143	1184	1176	1152

Based on a net mid year attrition of 8.2% the average year enrollments would be:

1970	1971	1972	1973	1974
1100	1095	1130	1125	1105

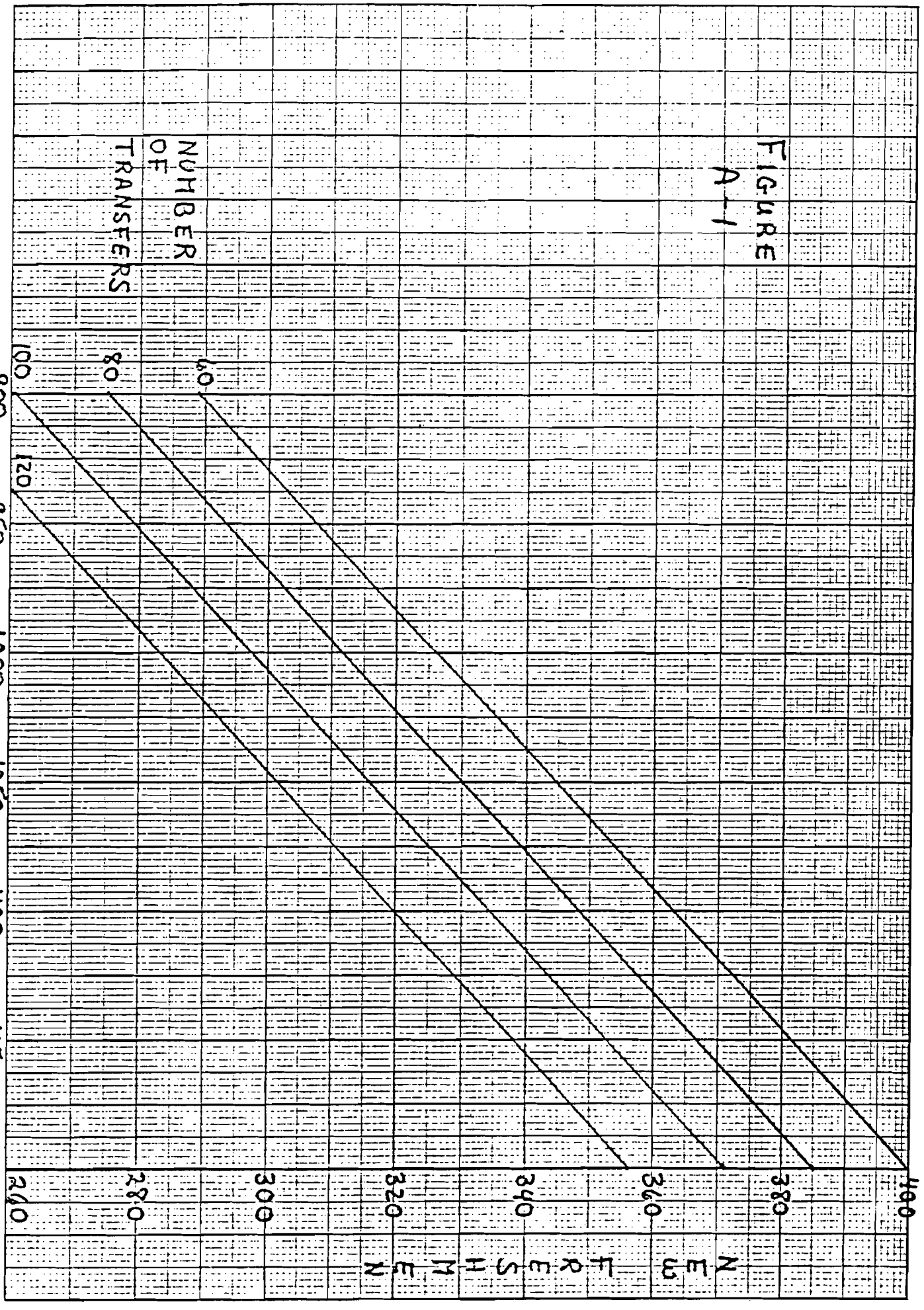
FIGURE A-1
NUMBER OF TRANSFERS
40
80
120
AVERAGE YEAR TOTAL ENROLLMENT
900
950
1000
1050
1100
1150
1200
NEW FRESHMEN
400
380
360
340
320
300
280
260

The 1974 average enrollment is slightly higher than the projected 1080 figure because the numbers employed here are head count numbers whereas the actual numbers of paid tuitions is 15 to 20 less. Thus the 1105 figure corresponds to a 1080-1085 paid tuition student body.

D. Comparison of Midyear Attrition with Summer Attrition

A study was made of a comparison of midyear attrition and summer attrition. A variety of possible correlations were tested, but it was found that a simple ratio of the average summer attrition 16.4% to the average midyear attrition 6.5% gave a quite consistent "prediction" of the summer attrition. The method correlates well with data back through 1951-52 except for the years 1952-53, 1957-58, and 1965-66. By using this ratio, one predicts a summer attrition in 1971 of around 17%.

This study suggests that one might anticipate a returning student count of 725 in the Fall of 1971 which when added to 350 freshman and 80 transfers yields a total fall enrollment of 1155. The dynamic model predicts 713 returning students for a total fall enrollment of 1142. Another method for predicting summer attrition based on midyear class attrition also yields essentially the same results.

E. Conclusion

A variety of other models have been considered, all of which are variations on the above. A more complete discussion is available

in the working papers of the committee.*

The model presented in sections B, C and D suggest that 340 to 350 freshmen and 80 transfers should be sufficient admissions to maintain a 1080 student body size under the average attrition experienced over the last four years.

Although the committee has attempted to account for factors contributing to attrition, special steps should be taken to re-examine these models if attrition continually exceeds these 4-year averages and is similar to or greater than that of 1969-70.

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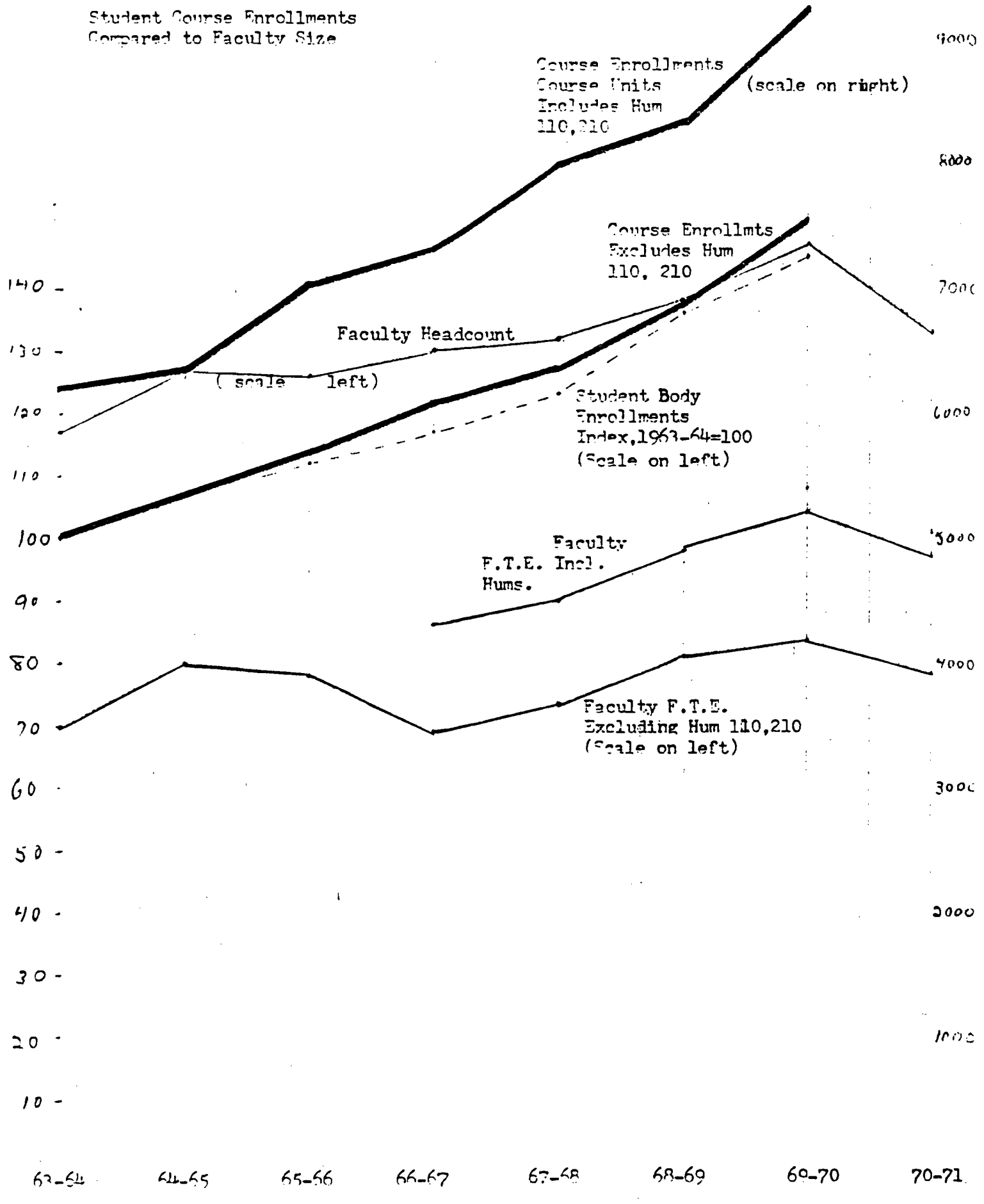
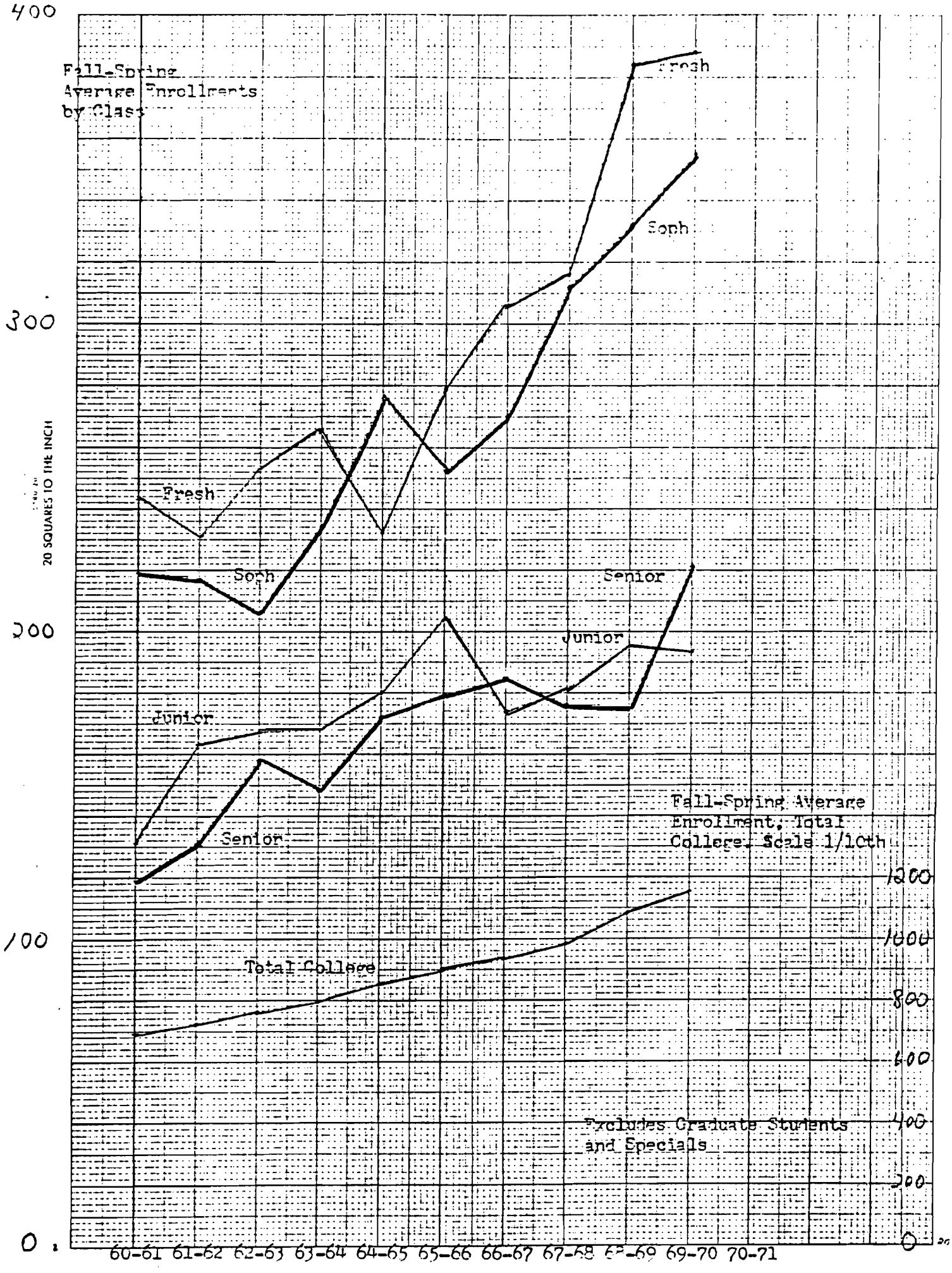
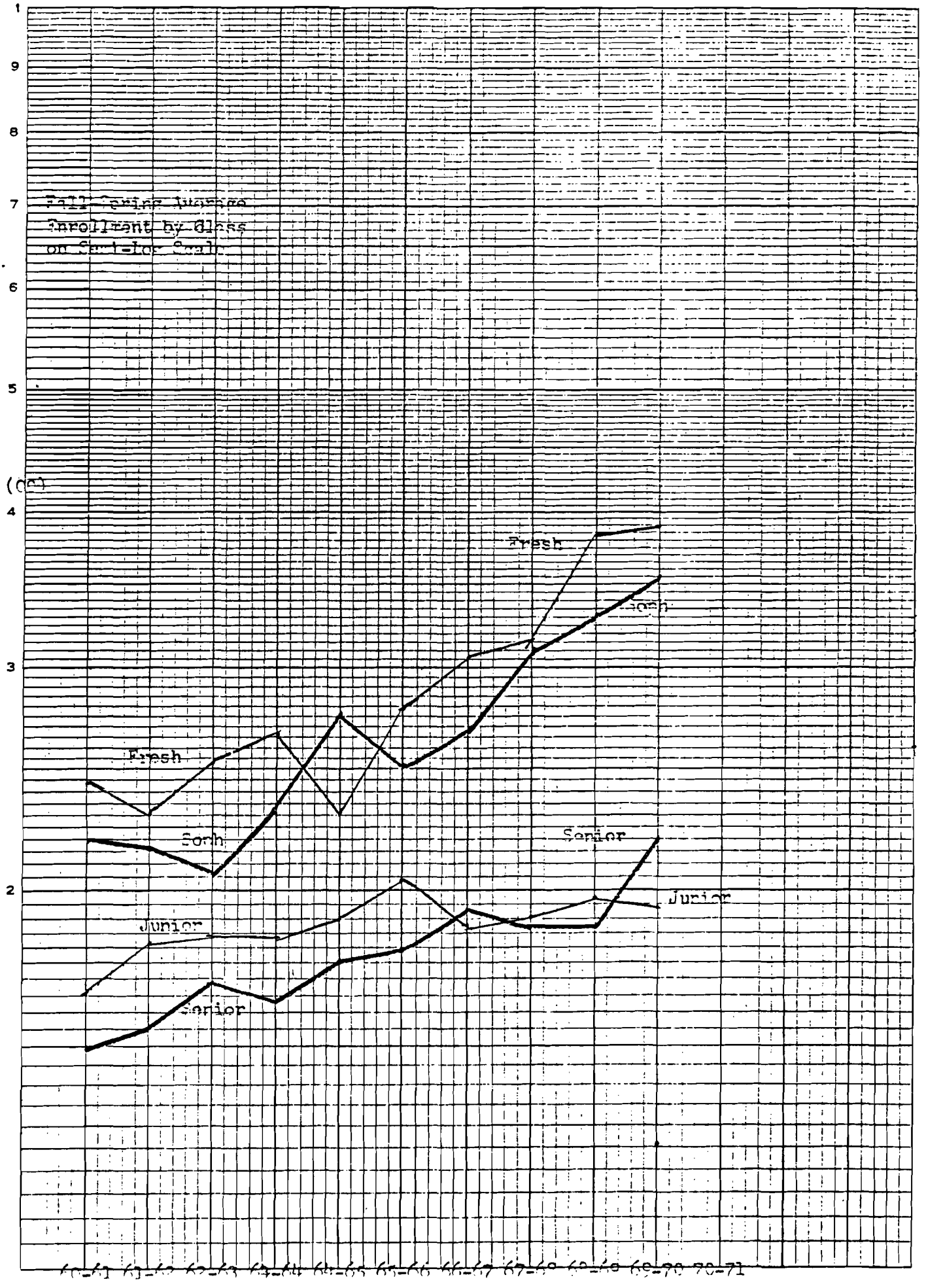
* For these working papers, see J. Kelly or any member of the committee.

(Note: P.F. Excluded Throughout
Except Faculty Headcount)



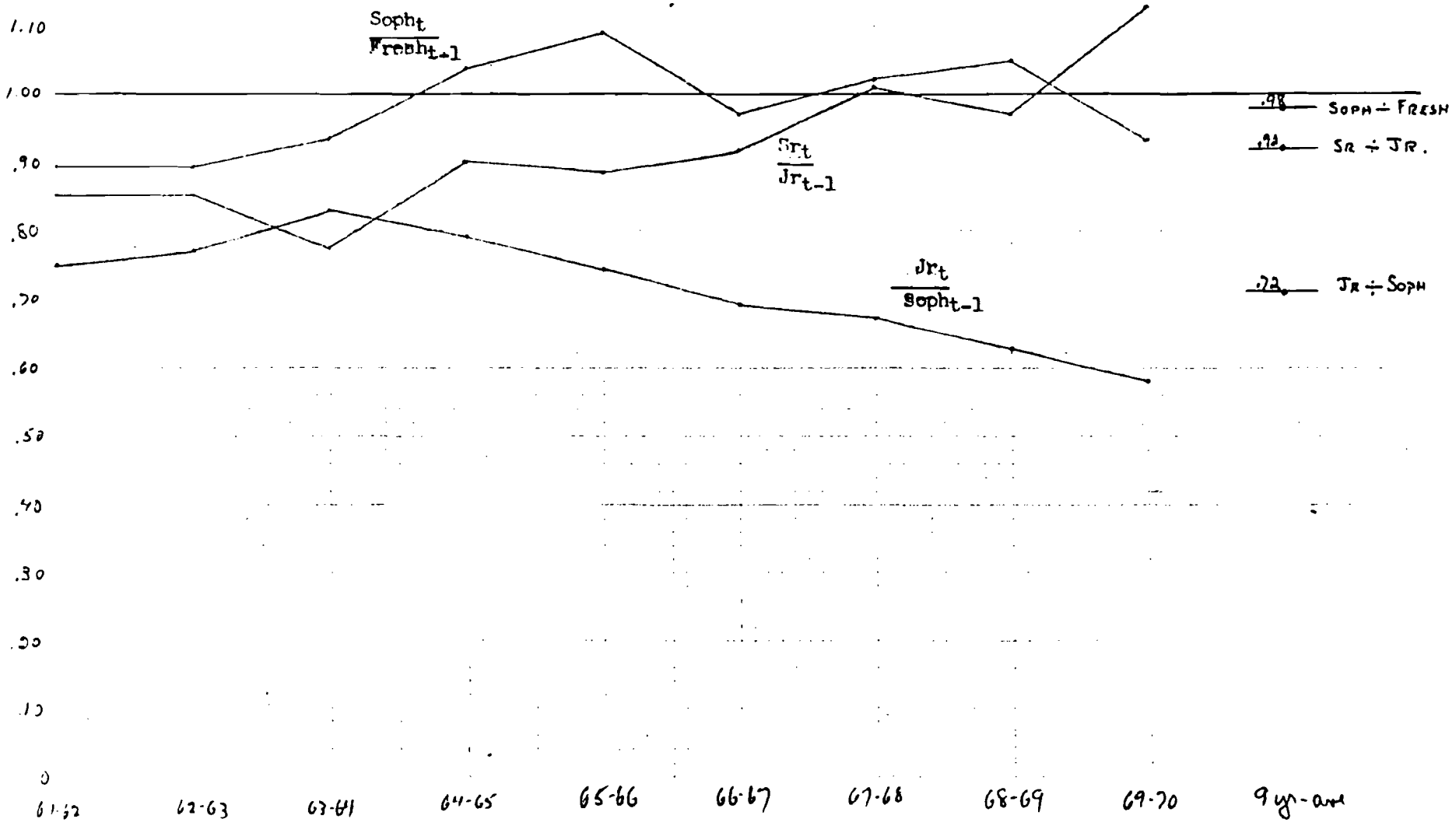

400
300
200
100
0
Fall-Spring
Average Enrollments
by Class
Fresh
Soph
Junior
Senior
Total College
20 SQUARES TO THE INCH
Fall-Spring Average
Enrollment, Total
College. Scale 1/10th
1200
1000
800
600
400
200
0
Excludes Graduate Students
and Specials
60-61 61-62 62-63 63-64 64-65 65-66 66-67 67-68 68-69 69-70 70-71


Fall Spring Average
Enrollment by Class
on Semi-Log Scale
(00)
Fresh
Soph
Senior
Junior
Fresh
Soph
Senior
Junior

B-4

Interyear Attrition between Class Levels

-Ratio of Class Size to Preceding Class Level's Size in Preceding Year.
-Data are Average Spring-Fall Enrollments
-Data Include Enrollments of Transfers, Readmits, etc.



AGE DISTRIBUTION OF REED FACULTY not including emeritus

- YEARS SINCE ATTAINMENT OF BACHELOR'S DEGREE -

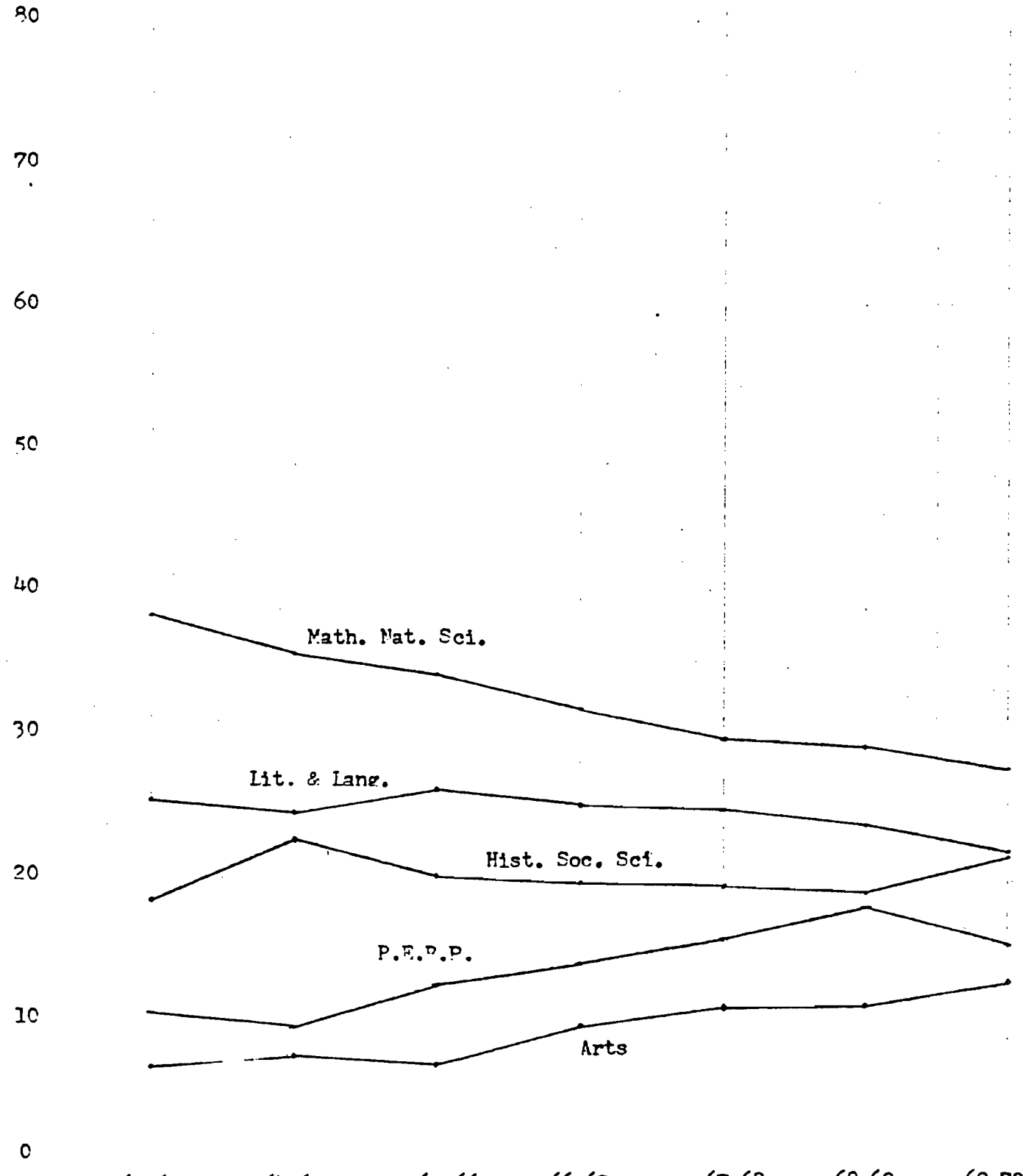
Years since B.A.	1946	1955	1960	1965	1970	NON-TENURED 1970	TENURED 1970
≤ 5	11	7 11	1111	7 11	7 7 7 1	7 7 7 1 1	
6 - 10	7 1	7 7 7 7 7 7 1	7 7 7 7 7 7 7 7	7 7 7 7 7 7 7 7 7 111	7 7 7 7 7 7 11	7 7 7 7 7 7 11	
11 - 15	7 7	7 7 11	7 1111	7 7 7 7 7 11	7 7 7 7 111	7 7 1111	7 7 1111
16 - 20	7 111	7 111	7 7 7 11	7 7 1111	7 7 7 7 7	7 11	7 7 7 111
21 - 25	7 1	7 7	7 7	7 7 111	7 11	1	7 1
26 - 30	7	7 1	7 111	7 7 1	7 7 1		7 7 1
31 - 35	11	1111	111	7 11	7 7 11	11	7 7
36 - 40	1	111	111	111	7		7
41 - 45	7	11	111	111	11		11
≥ 46	1		1	1	1		1
total	46	73	89	124	129	62	67

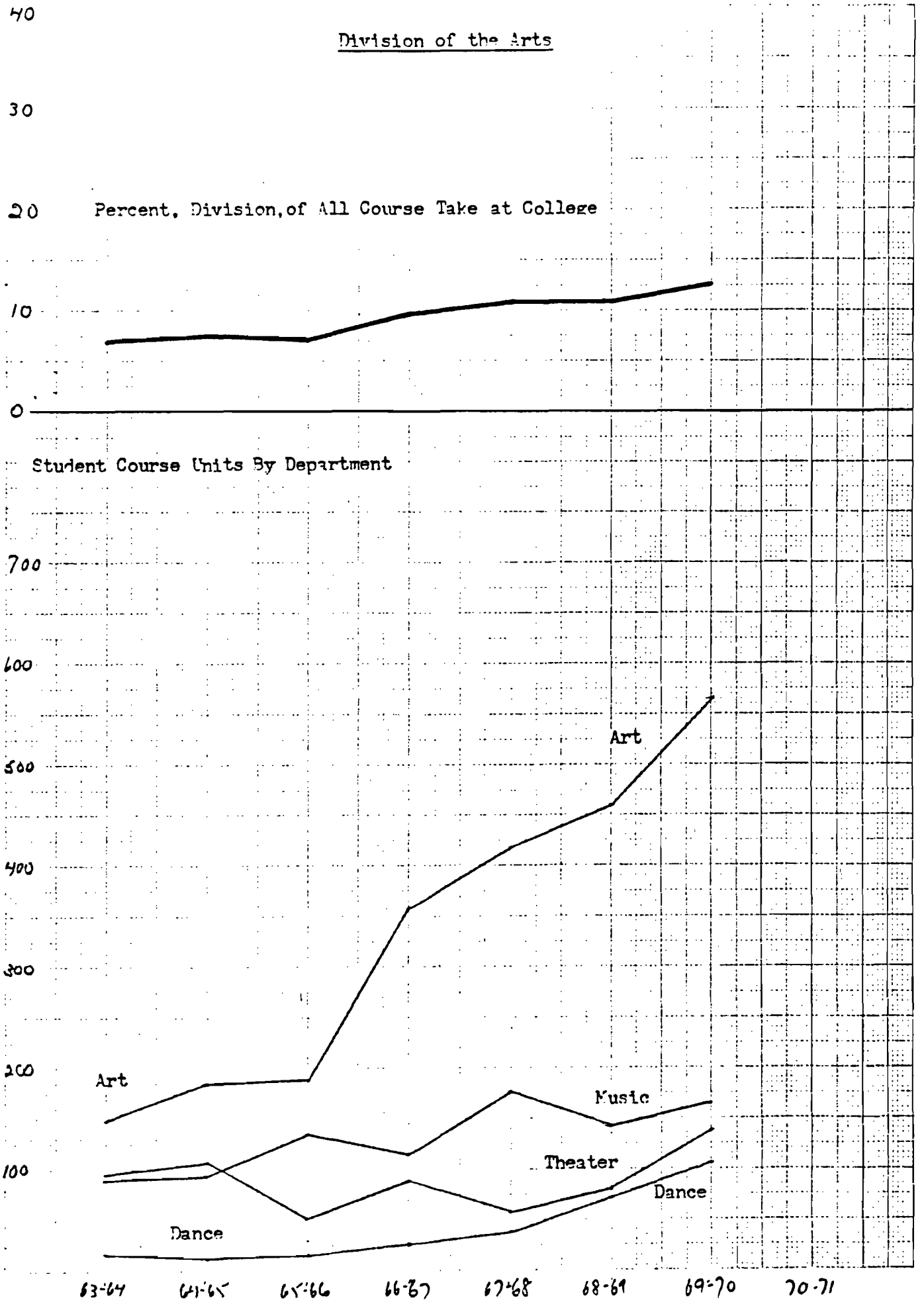
a - locate median

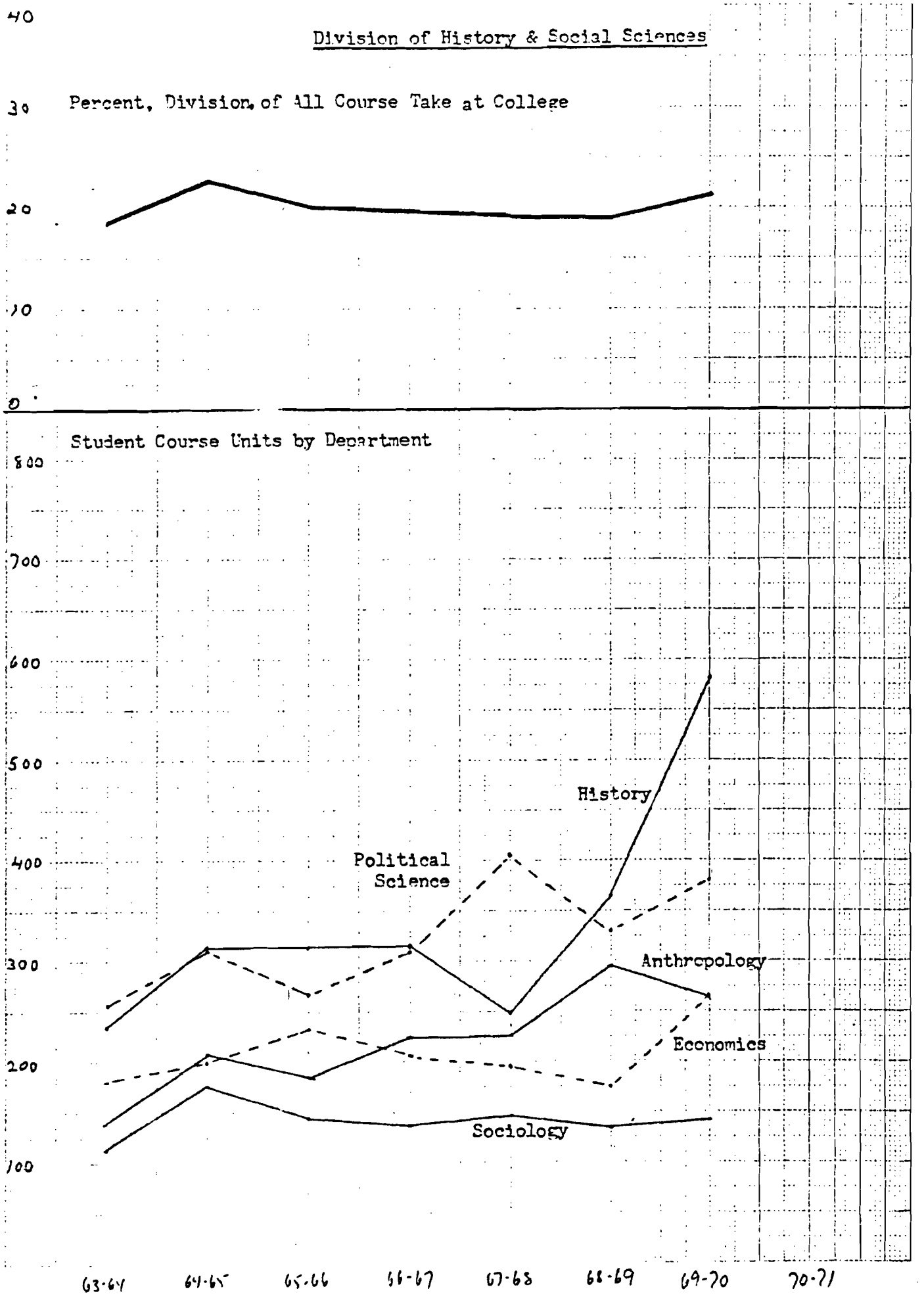
percent

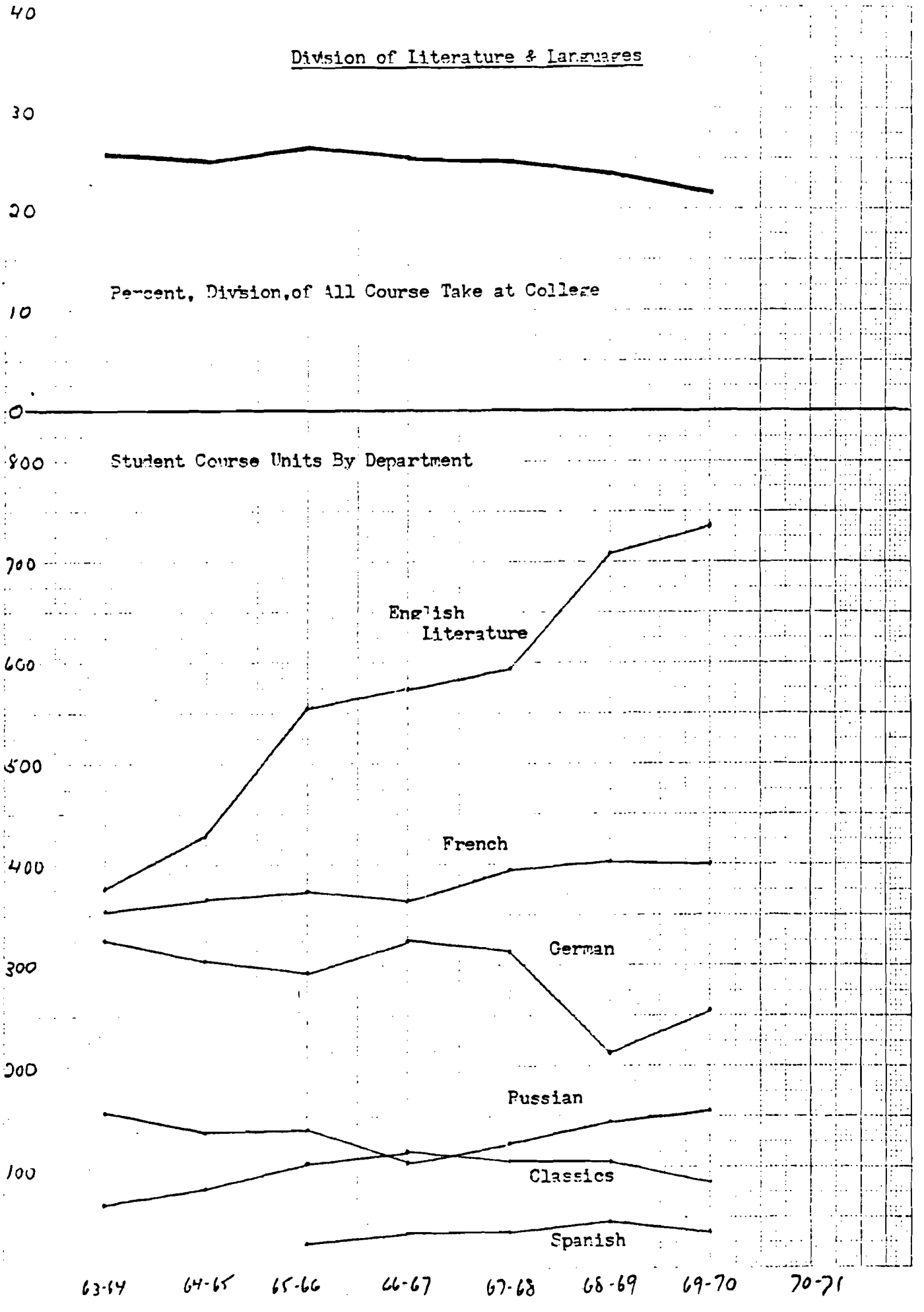
Structure of Course Take, By Division
measured in student-course units

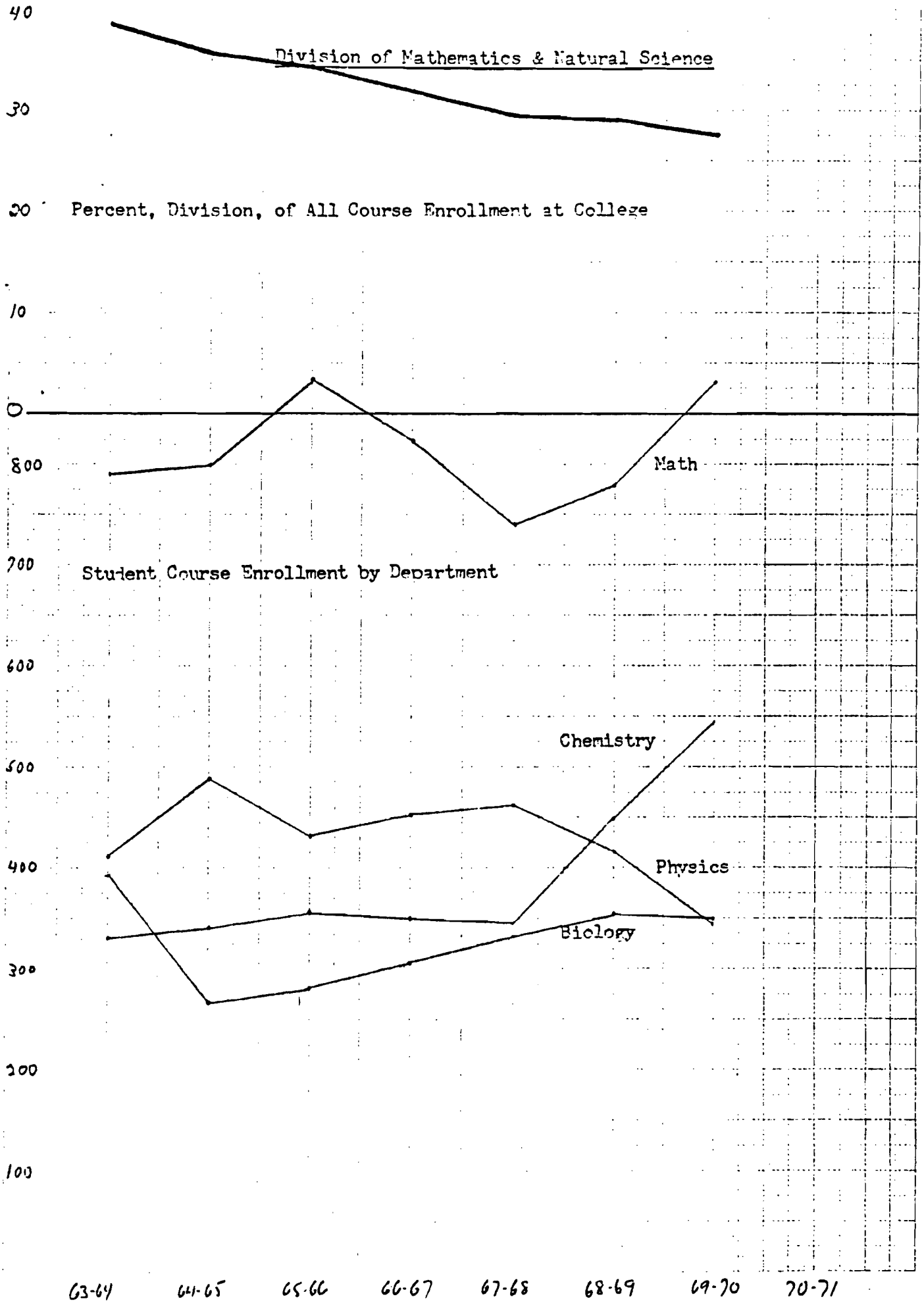
Shows percentage which divisional course take is of total college course take, where latter excludes Hum 100, 210, & P.E.

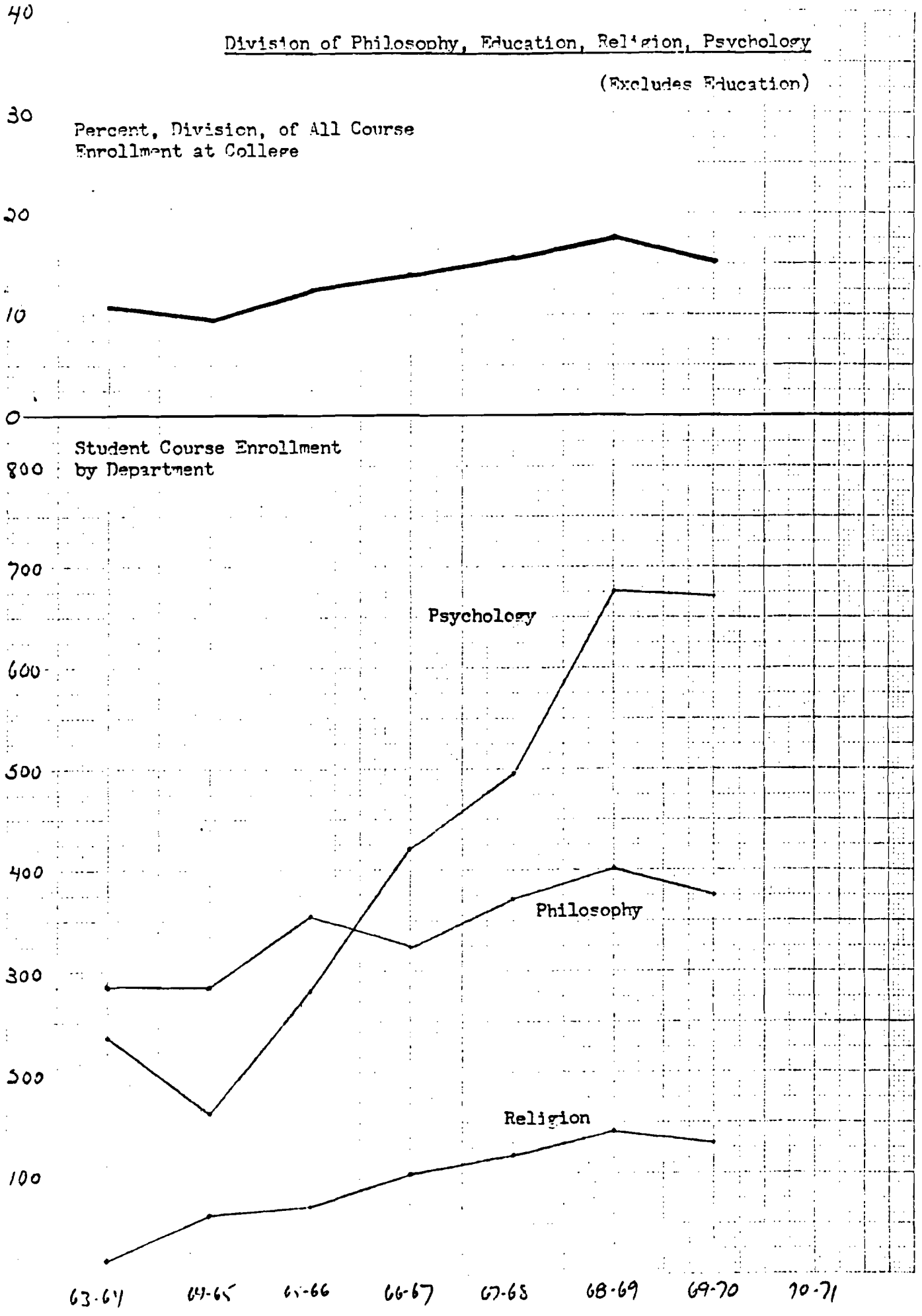



Division of the Arts
40
30
20
10
0
Percent, Division, of All Course Take at College
Student Course Units By Department
700
600
500
400
300
200
100
Art
Art
Music
Theater
Dance
Dance
63-64
64-65
65-66
66-67
67-68
68-69
69-70
70-71

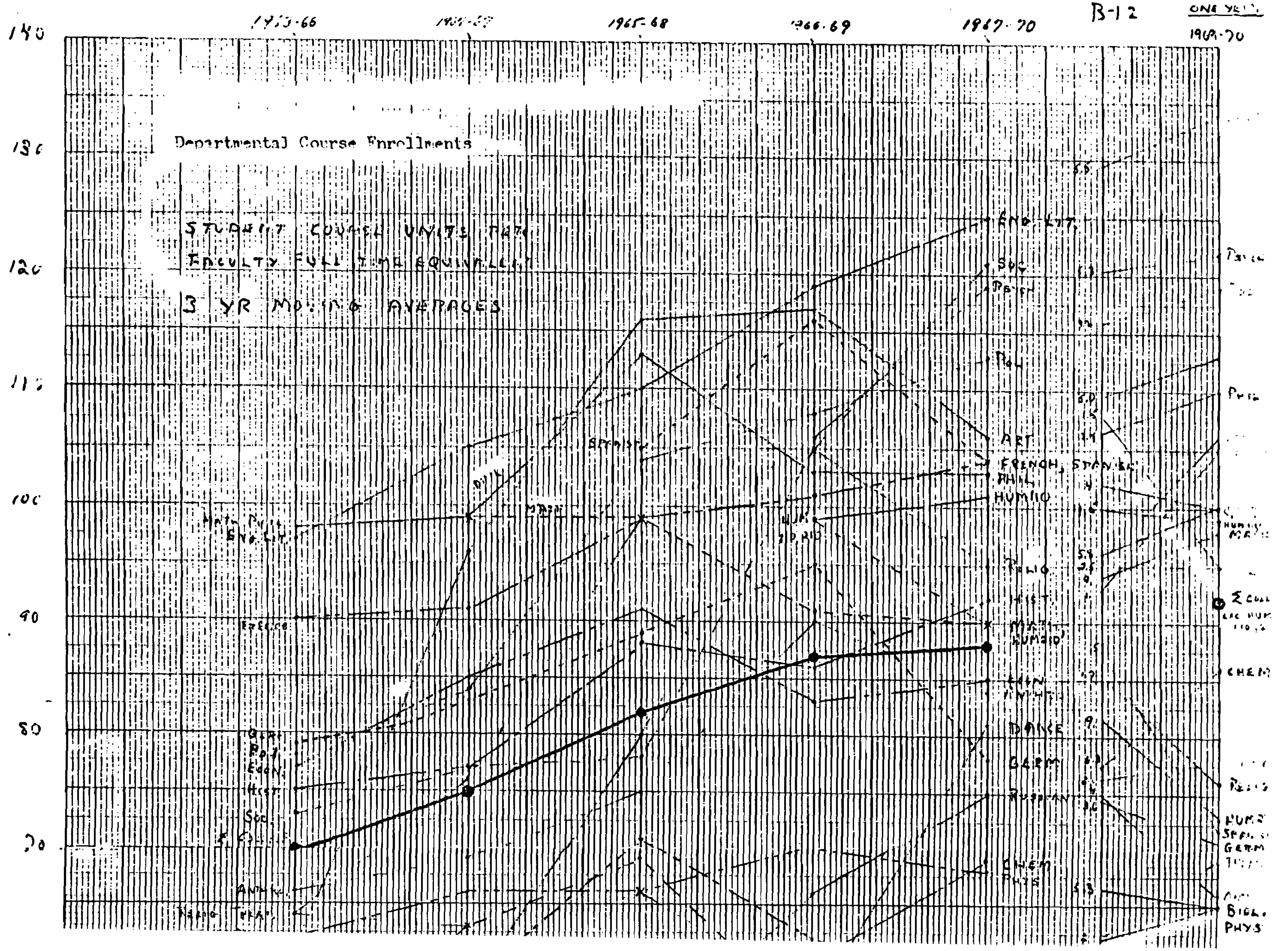

Division of History & Social Sciences
Percent, Division of All Course Take at College
40
30
20
10
0
Student Course Units by Department
800
700
600
500
400
300
200
100
History
Political Science
Anthropology
Economics
Sociology
63-64
64-65
65-66
66-67
67-68
68-69
69-70
70-71


Division of Literature & Languages
40
30
20
10
0
Percent, Division, of All Course Take at College
800
700
600
500
400
300
200
100
Student Course Units By Department
English Literature
French
German
Russian
Classics
Spanish
63-64
64-65
65-66
66-67
67-68
68-69
69-70
70-71

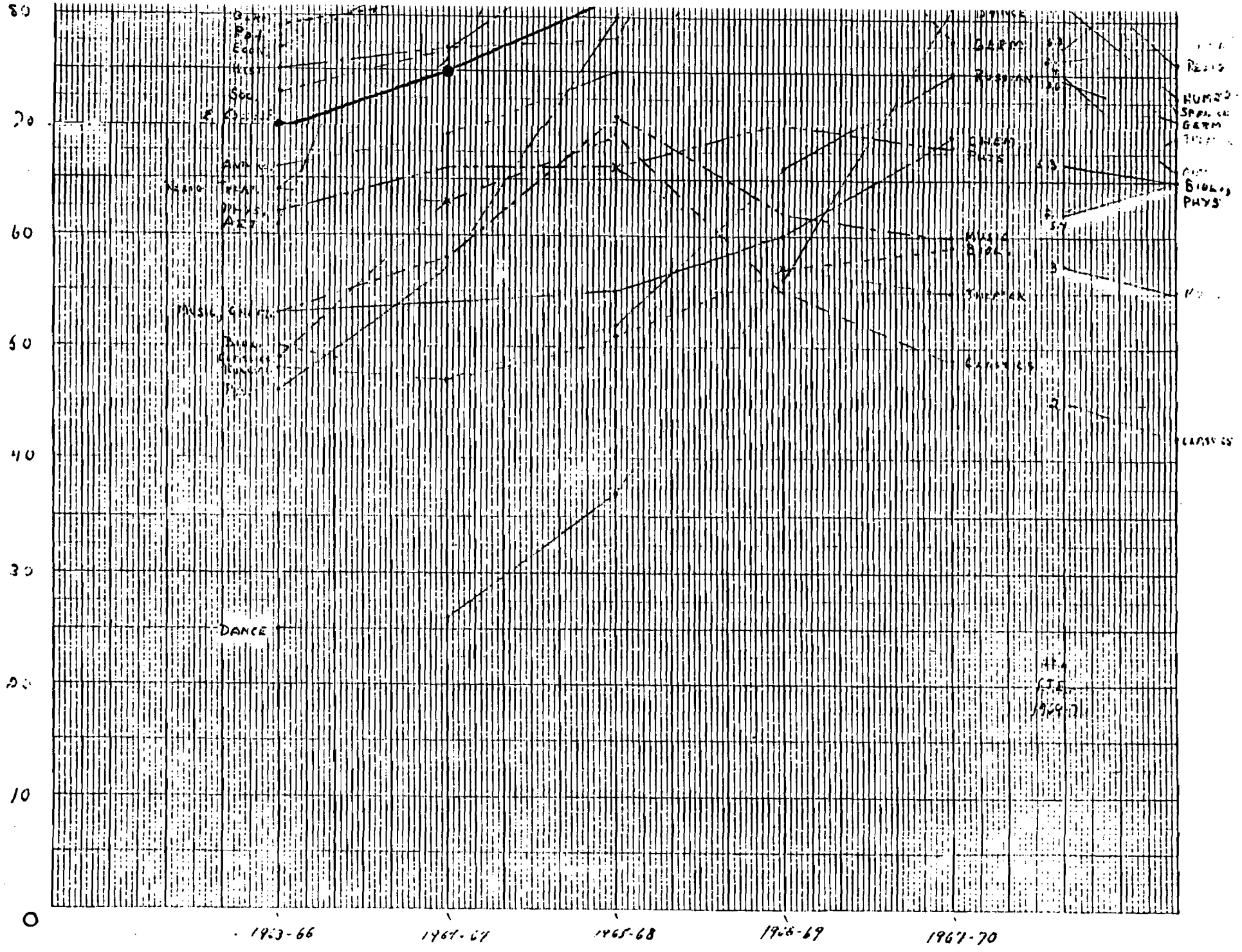

40
30
20
10
0
800
700
600
500
400
300
200
100
Division of Mathematics & Natural Science
Percent, Division, of All Course Enrollment at College
Math
Student Course Enrollment by Department
Chemistry
Physics
Biology
63-64
64-65
65-66
66-67
67-68
68-69
69-70
70-71

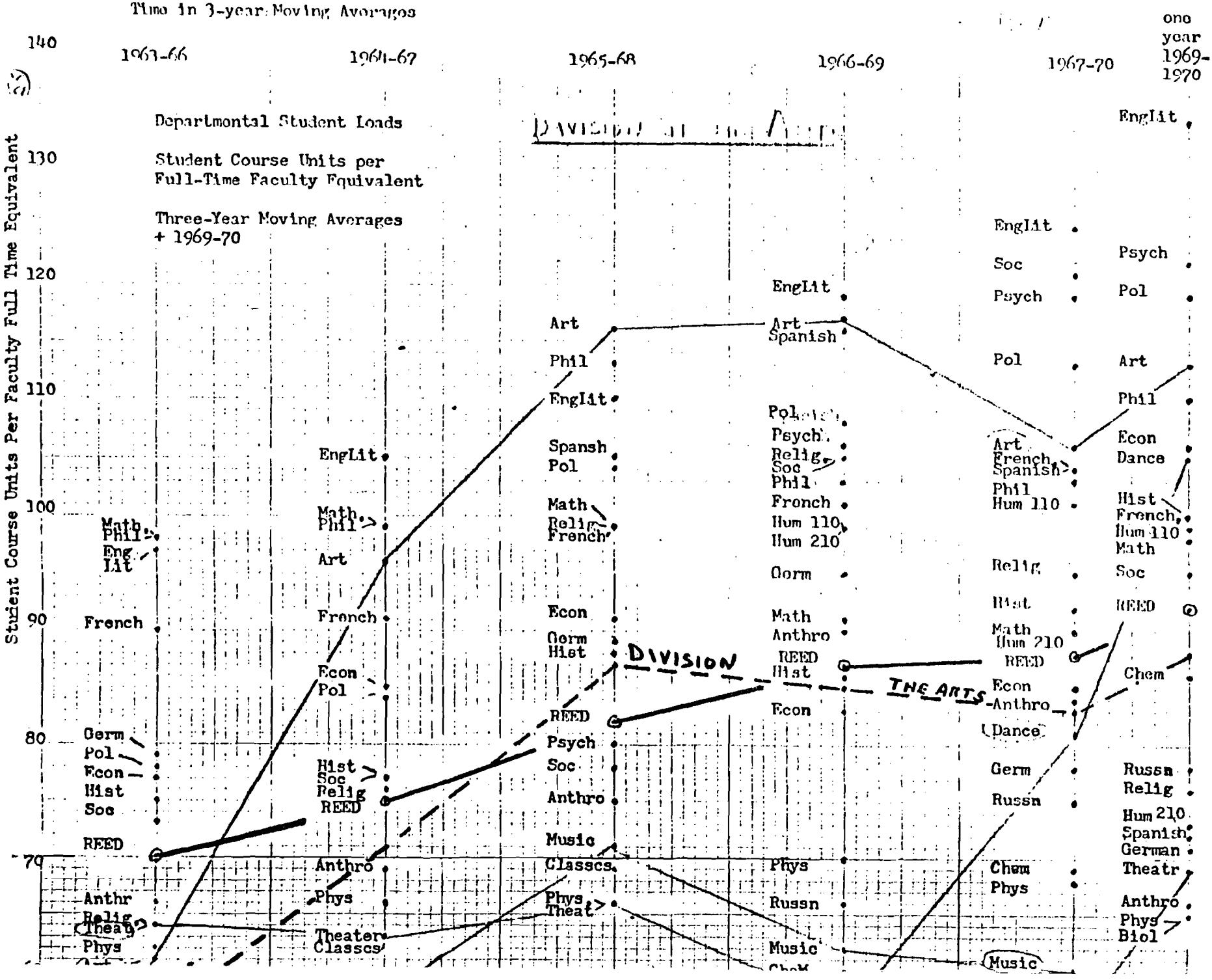

Division of Philosophy, Education, Religion, Psychology
(Excludes Education)
Percent, Division, of All Course Enrollment at College
40
30
20
10
0
Student Course Enrollment by Department
800
700
600
500
400
300
200
100
Psychology
Philosophy
Religion
63-64
64-65
65-66
66-67
67-68
68-69
69-70
70-71

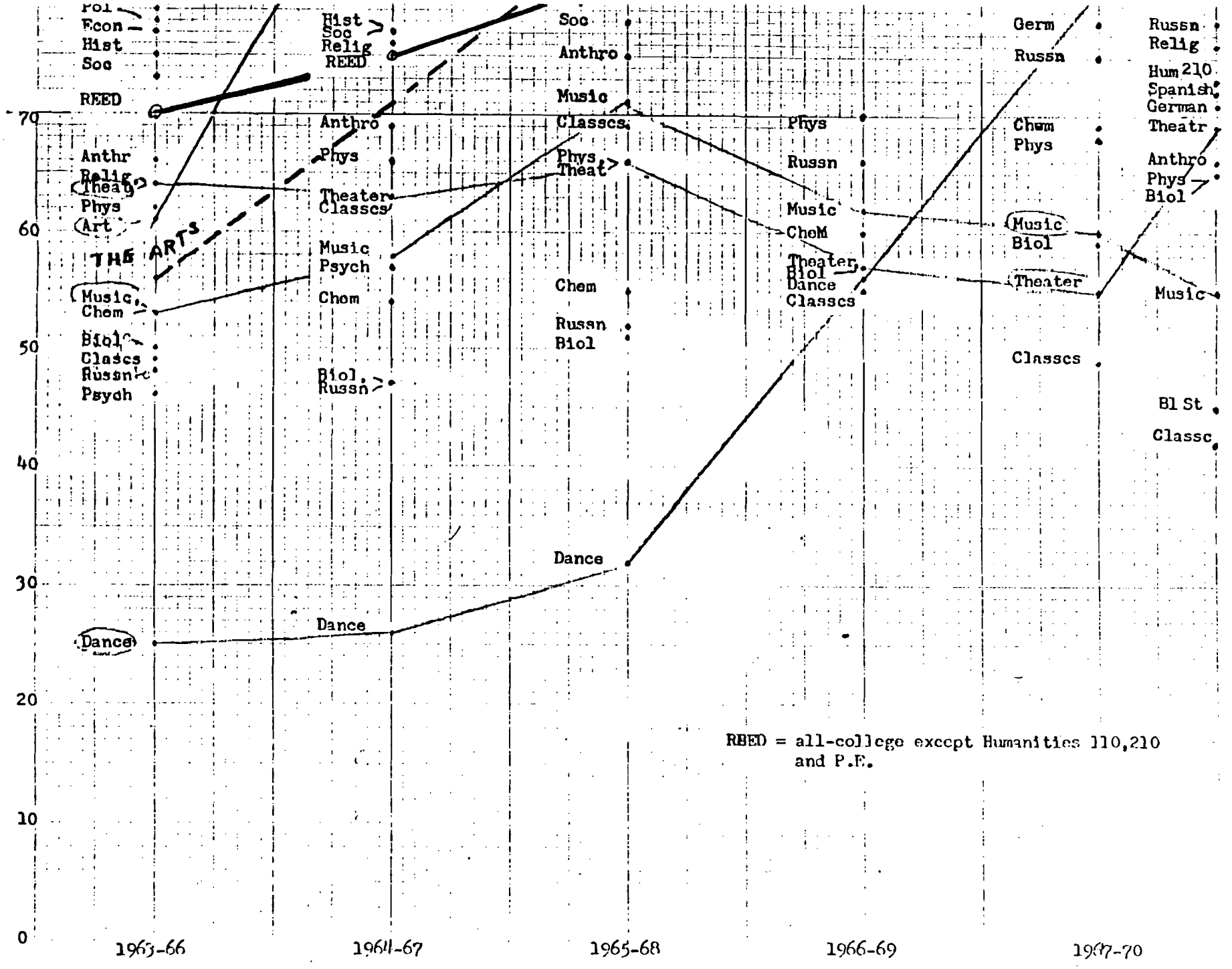
B-12



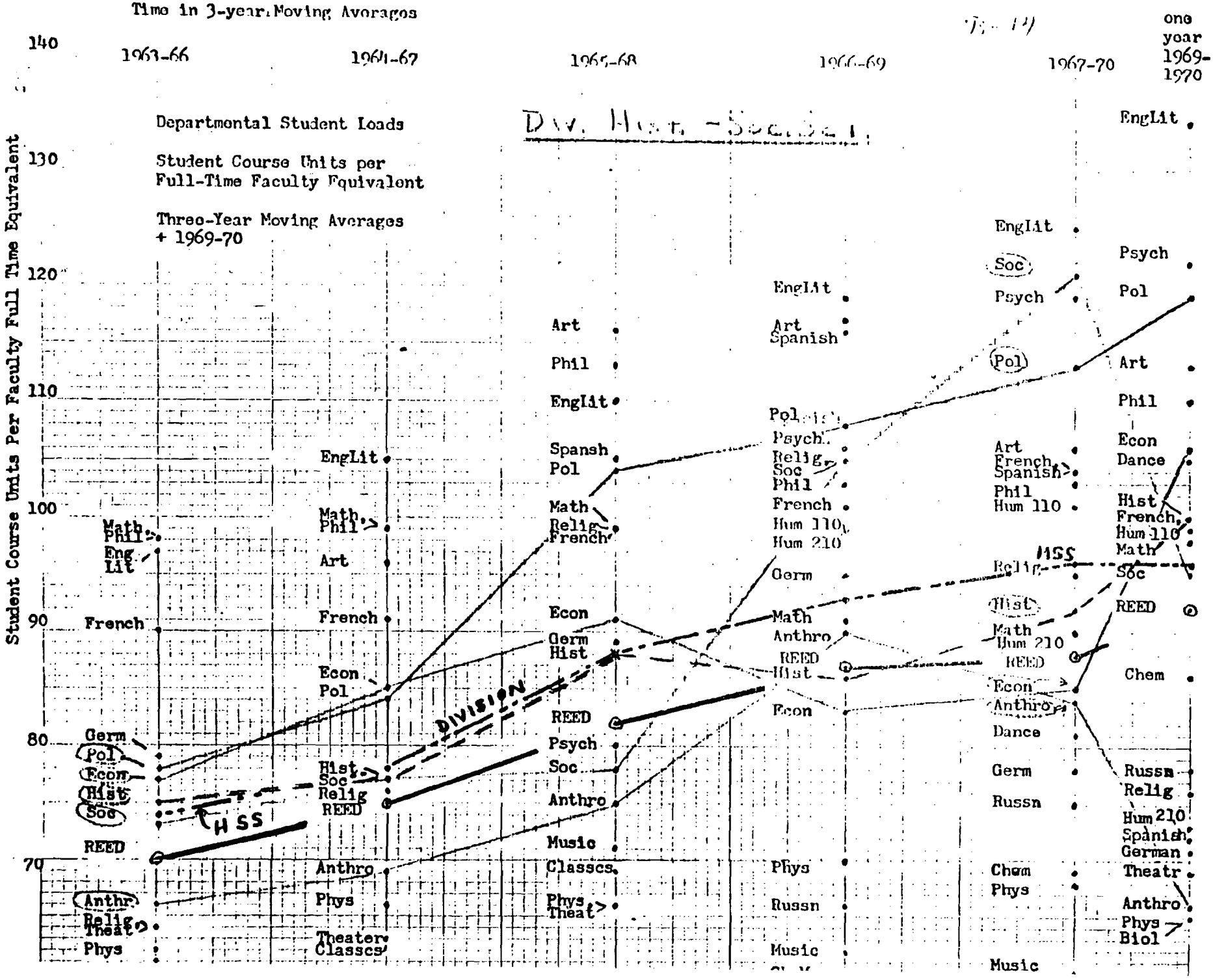
Departmental Course Enrollments
3 YR MOVING AVERAGES
1965-68
1966-69
1967-70
ONE YEAR
1969-70
140
130
120
110
100
90
80
70
ENG. LIT.
SOC.
ART
FRENCH, SPANISH
PHIL.
HUM 110
RELIG.
HIST.
MATH
HUM 210
CHEM
DANCE
GERM
RUSSIAN
PHYS
SPANISH
GEOG.
POL.
ECON.
HIST.
SOC.
ANTH.
BIOL.

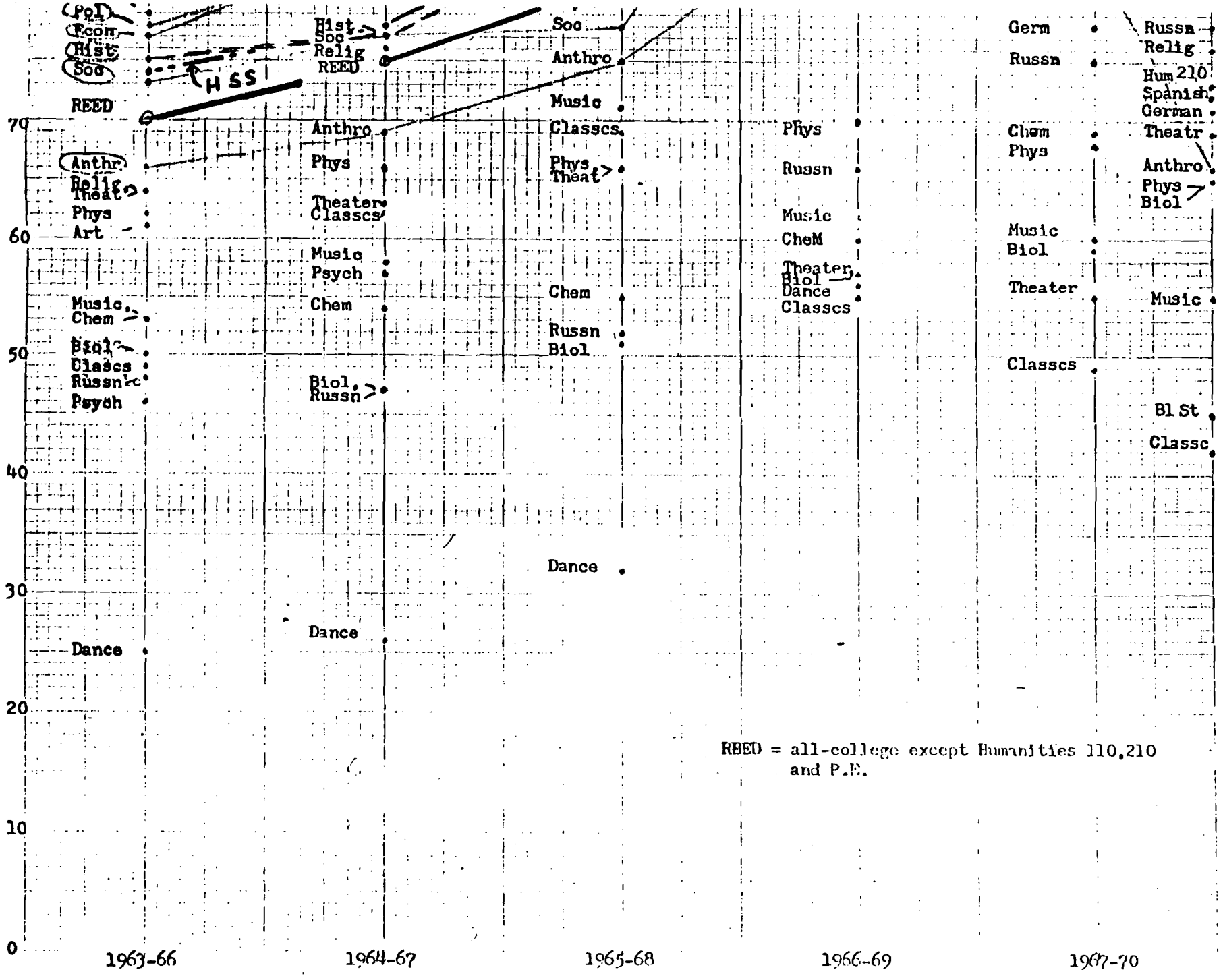

80
70
60
50
40
30
20
10
0
DANCE
1963-66
1964-67
1965-68
1966-69
1967-70


Time in 3-year Moving Averages
1963-66
1964-67
1965-68
1966-69
1967-70
one year 1969-1970
Departmental Student Loads
Student Course Units per Full-Time Faculty Equivalent
Three-Year Moving Averages + 1969-70
Student Course Units Per Faculty Full Time Equivalent
140
130
120
110
100
90
80
70
DIVISION
THE ARTS
Math
Phil
Eng Lit
French
Germ
Pol
Econ
Hist
Soc
REED
Anthr
Relig
Theat
Phys
EngLit
Art
Phil
Spansh
Pol
Math
Relig
French
Econ
Germ
Hist
Psych
Soc
Anthro
Music
Classcs
Theater
Hist
Soc
Relig
REED
Anthro
Phys
Phys
Theat
Psych
Relig
Soc
Phil
French
Hum 110
Hum 210
Germ
Math
Anthro
REED
Hist
Econ
Phys
Russn
Music
Art
French
Spanish
Phil
Hum 110
Relig
Hist
Math
Hum 210
REED
Econ
Anthro
Dance
Germ
Russn
Chem
Phys
Music
Psych
Pol
Art
Phil
Econ
Dance
Hist
French
Hum 110
Math
Soc
REED
Chem
Russn
Relig
Hum 210
Spanish
German
Theatr
Anthro
Phys
Biol

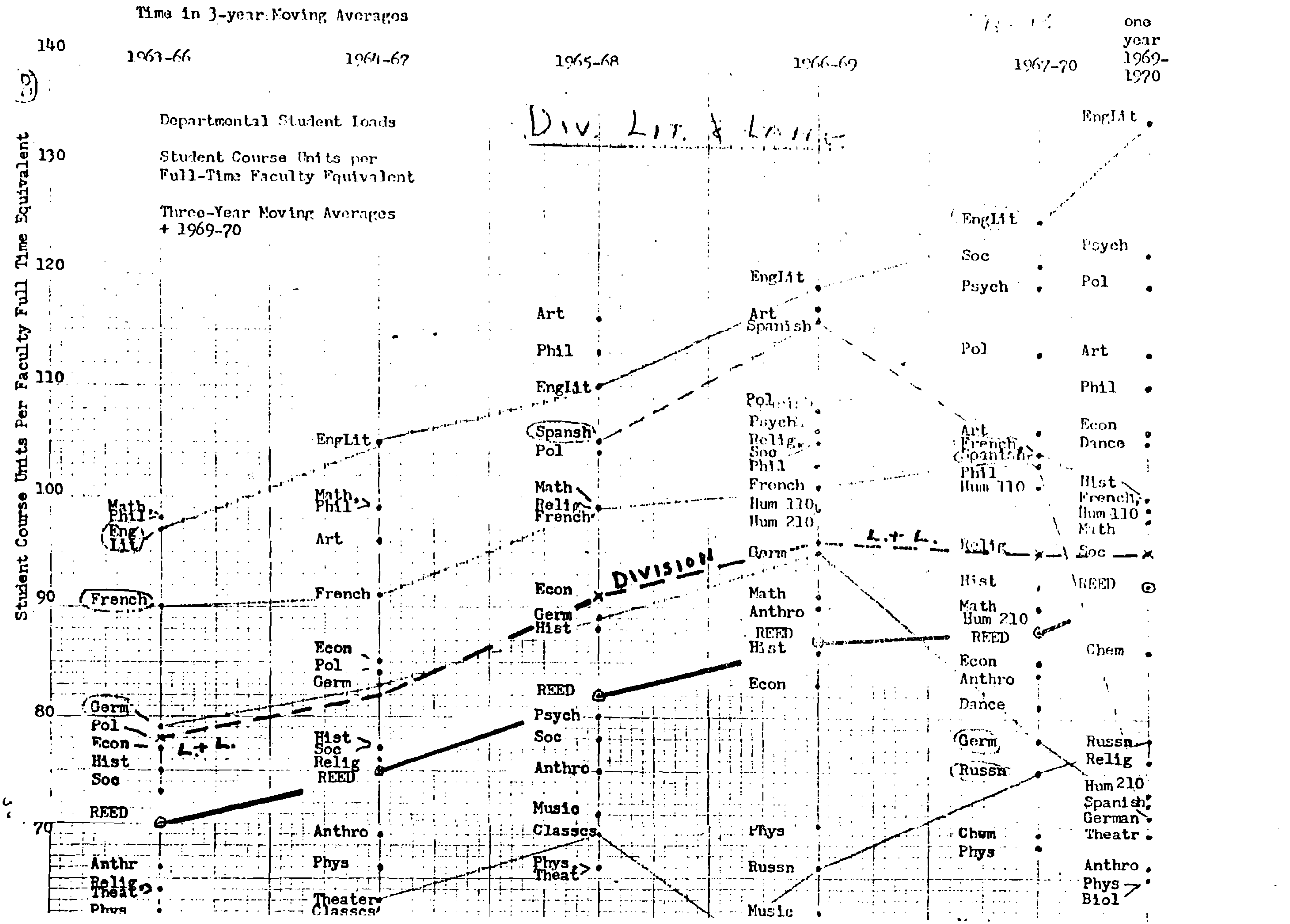


REED = all-college except Humanities 110,210 and P.E.

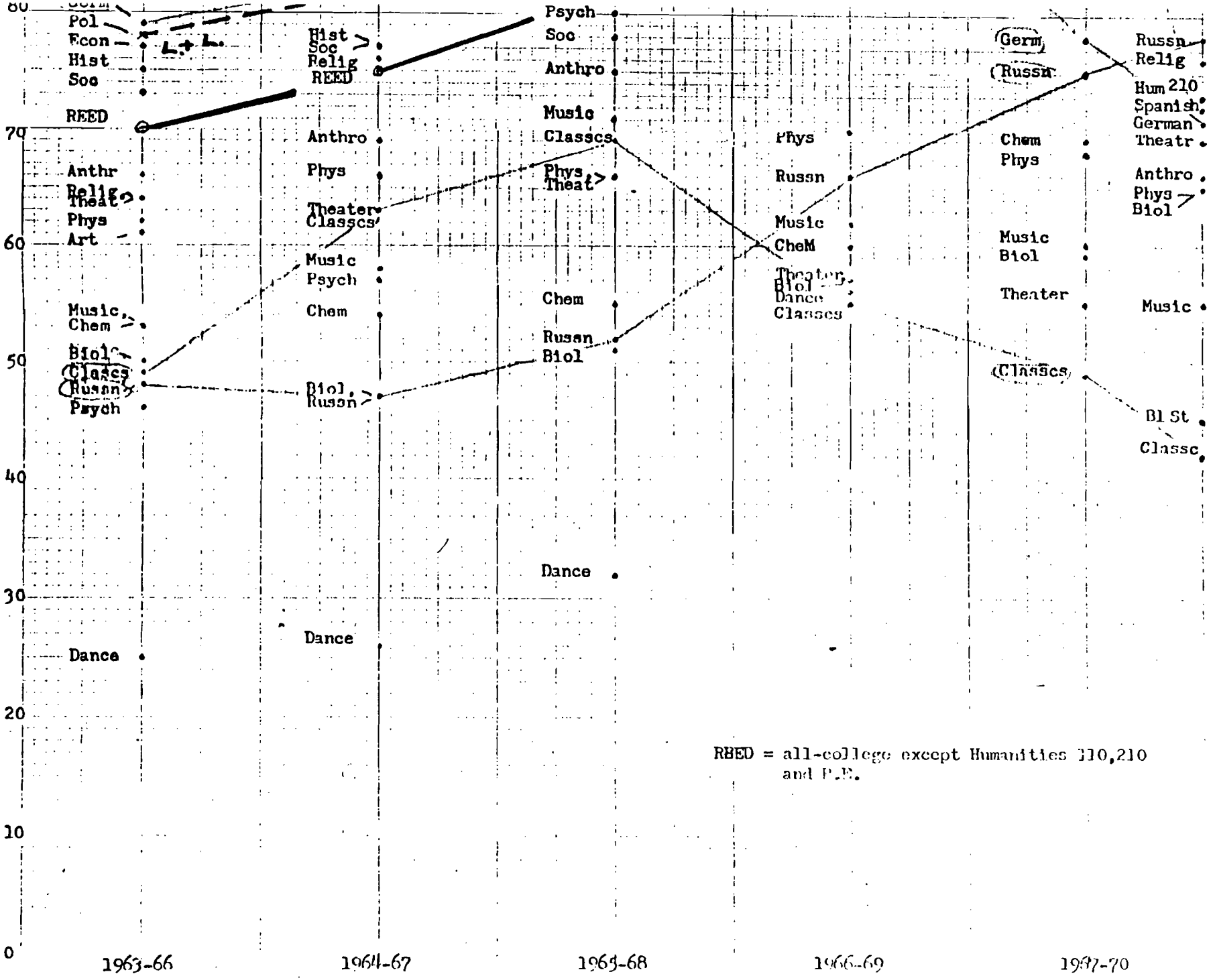

Time in 3-year Moving Averages
1963-66
1964-67
1965-68
1966-69
1967-70
one year 1969-1970
Departmental Student Loads
Student Course Units per Full-Time Faculty Equivalent
Three-Year Moving Averages + 1969-70
Div. Hum. - Social
Student Course Units Per Faculty Full Time Equivalent
140
130
120
110
100
90
80
70
DIVISION
HSS



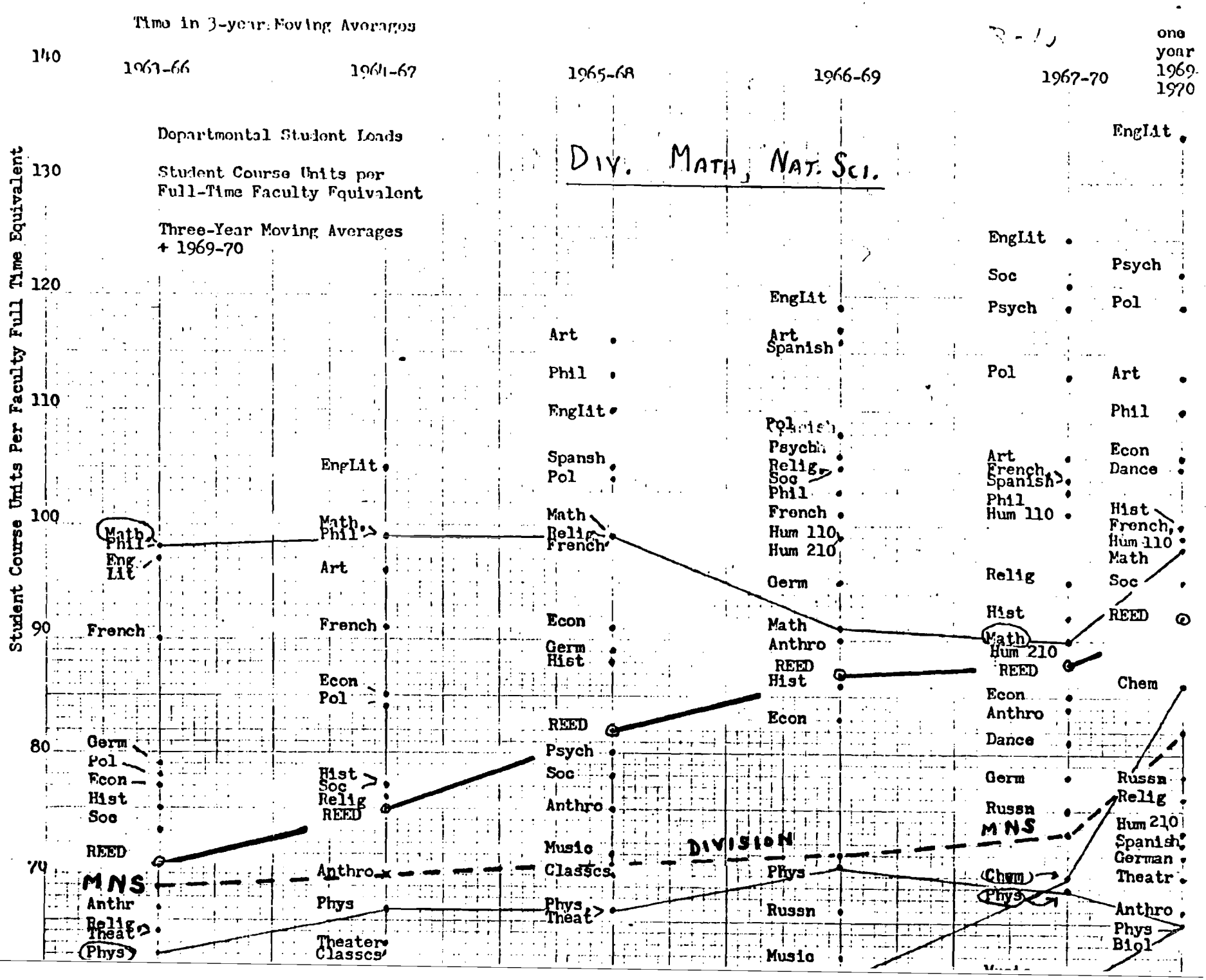
REED = all-college except Humanities 110,210 and P.E.

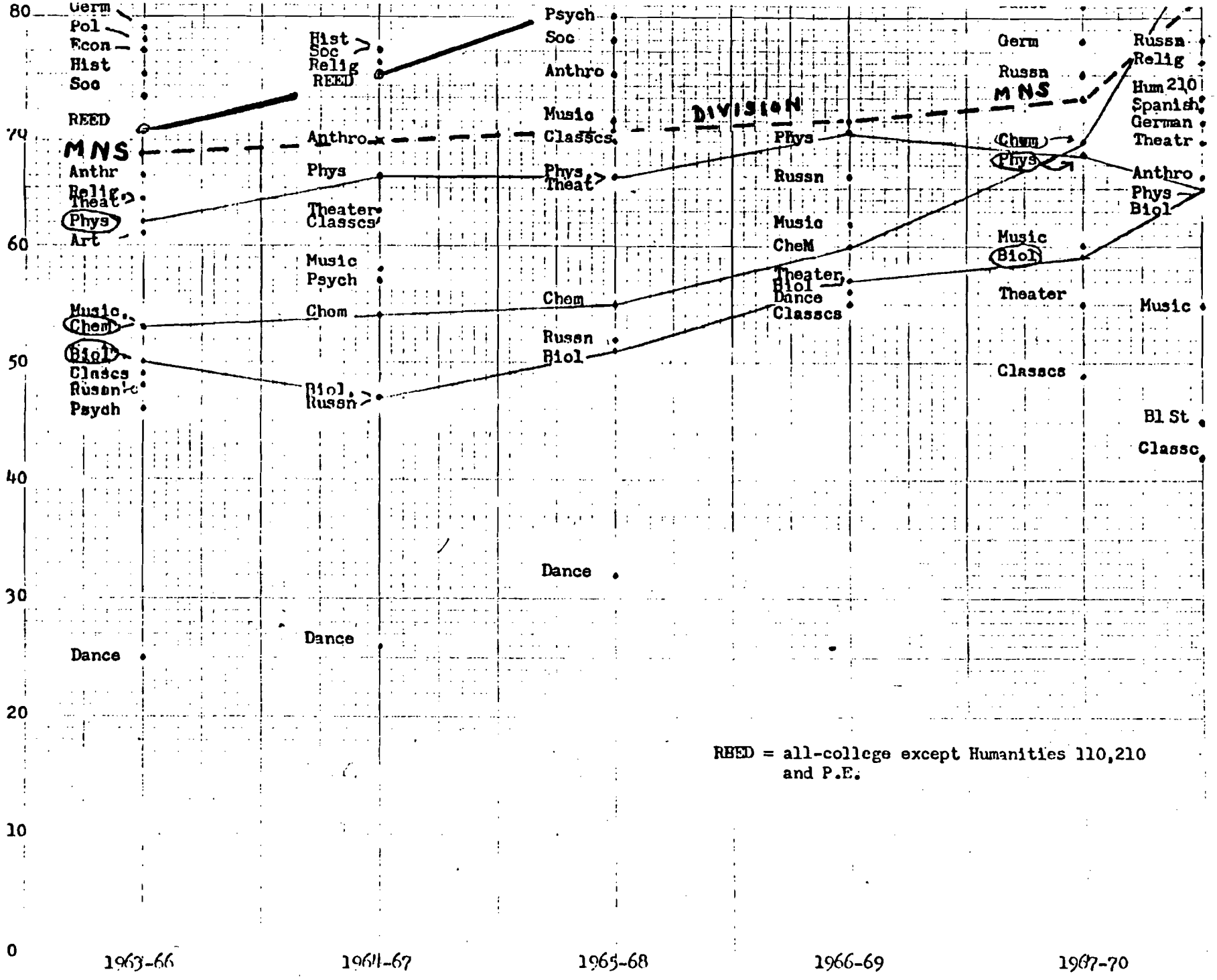


Time in 3-year Moving Averages
1963-66
1964-67
1965-68
1966-69
1967-70
one year 1969-1970
Departmental Student Loads
Student Course Units per Full-Time Faculty Equivalent
Three-Year Moving Averages + 1969-70
Div. Lit. & Lang.
Student Course Units Per Faculty Full Time Equivalent
140
130
120
110
100
90
80
70
Math
Phil
Eng Lit
French
Germ
Pol
Econ
Hist
Soc
REED
Anthr
Relig
Theat
Phys
L + L.
EngLit
Math
Phil
Art
French
Econ
Pol
Germ
Hist
Soc
Relig
REED
Anthro
Phys
Theater
Classes
Art
Phil
EngLit
Spansh
Pol
Math
Relig
French
Econ
Germ
Hist
DIVISION
REED
Psych
Soc
Anthro
Music
Classcs
Phys
Theat
EngLit
Art
Spanish
Pol
Psych
Relig
Soc
Phil
French
Hum 110
Hum 210
Germ
L + L.
Math
Anthro
REED
Hist
Econ
Phys
Russn
Music
EngLit
Soc
Psych
Pol
Art
French
Spanish
Phil
Hum 110
Relig
Hist
Math
Hum 210
REED
Econ
Anthro
Dance
Germ
Russn
Chem
Phys
EngLit
Psych
Pol
Art
Phil
Econ
Dance
Hist
French
Hum 110
Math
Soc
REED
Chem
Russn
Relig
Hum 210
Spanish
German
Theatr
Anthro
Phys
Biol

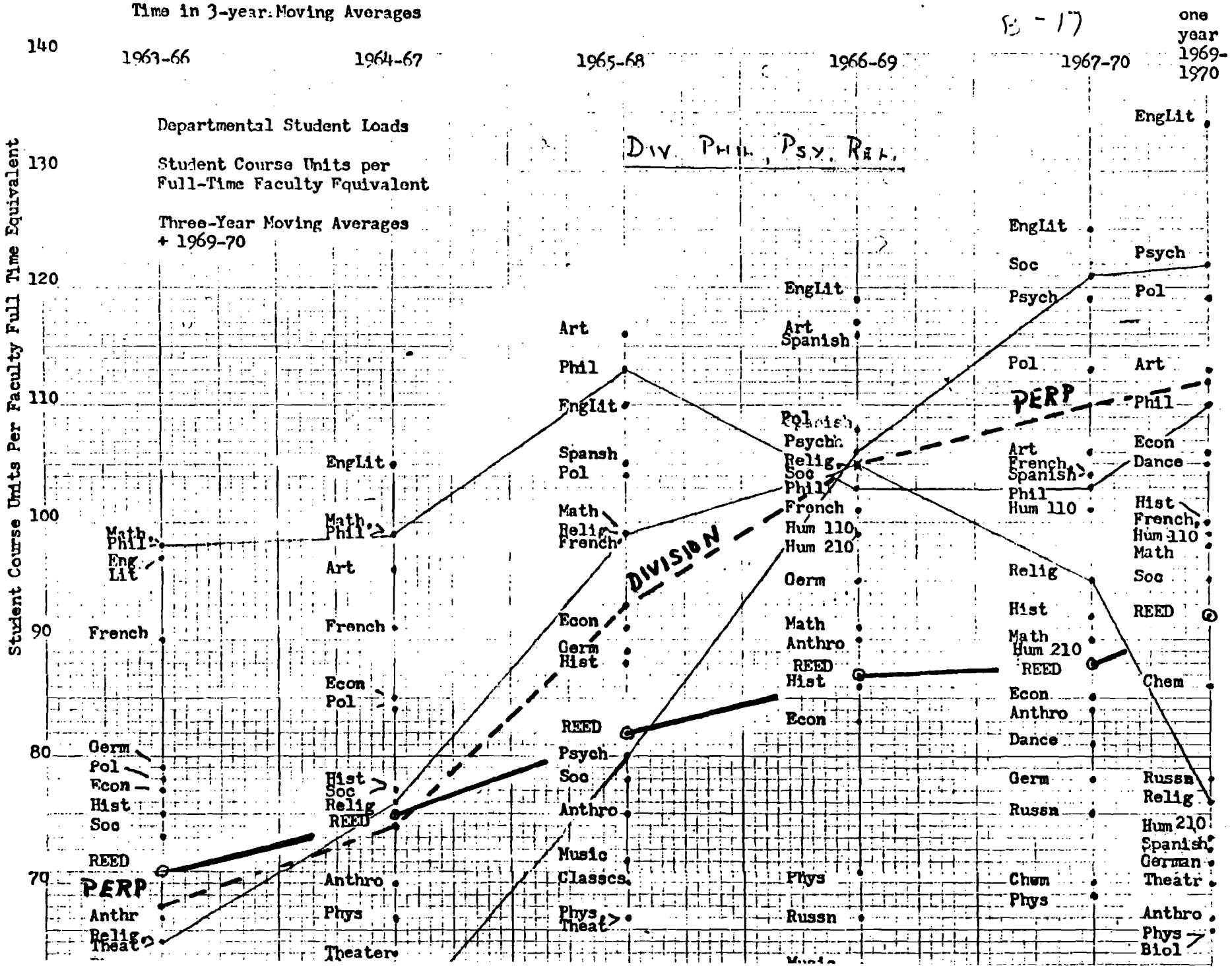


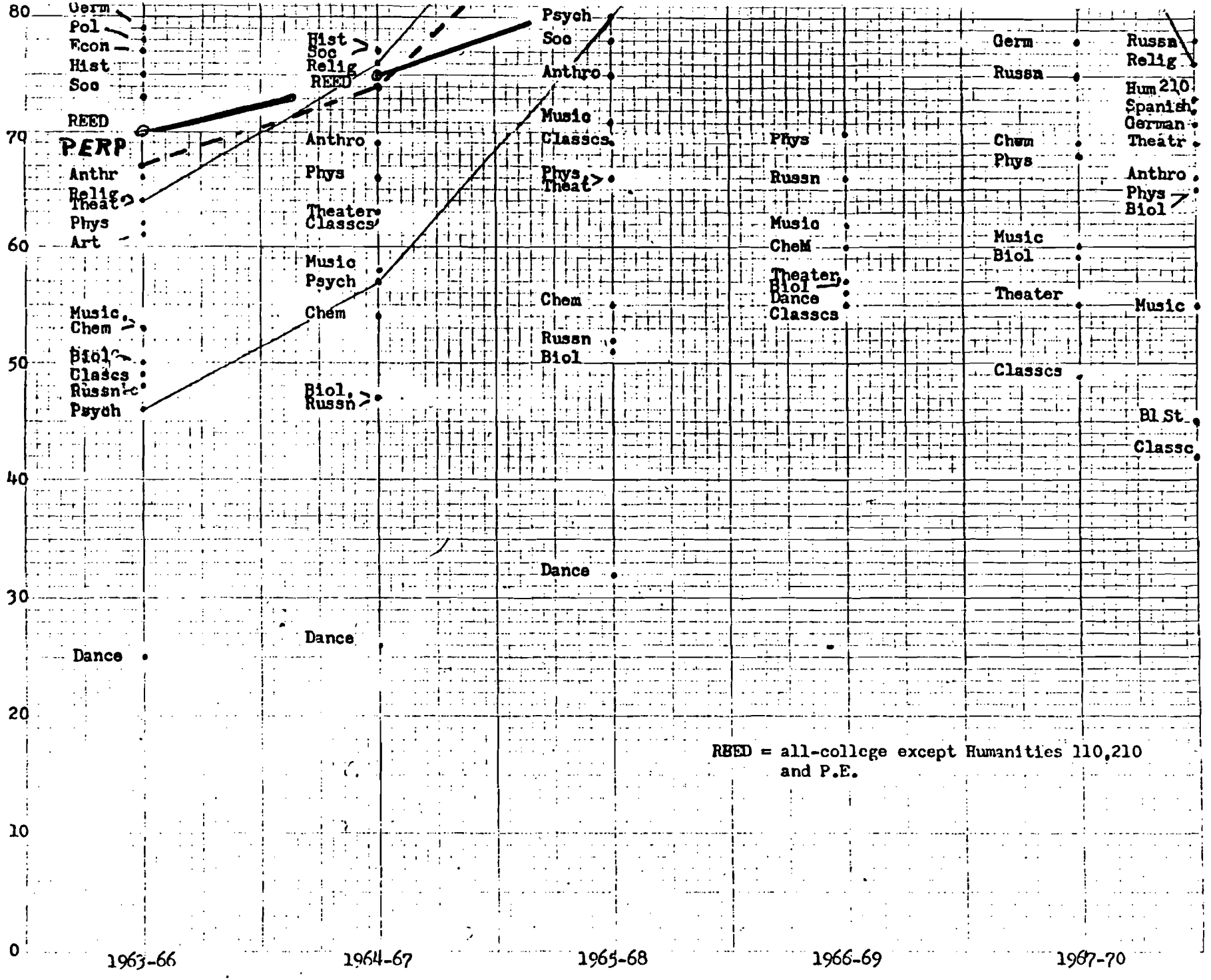
REED = all-college except Humanities 110,210 and P.E.


Time in 3-year Moving Averages
1963-66
1964-67
1965-68
1966-69
1967-70
one year 1969-1970
Departmental Student Loads
Student Course Units per Full-Time Faculty Equivalent
Three-Year Moving Averages + 1969-70
DIV. MATH, NAT. SCI.
Student Course Units Per Faculty Full Time Equivalent
140
130
120
110
100
90
80
70
MNS
DIVISION
EngLit
Art
Phil
Spansh
Pol
Math
Relig
French
Hum 110
Hum 210
Germ
Econ
Hist
REED
Psych
Soc
Anthro
Music
Classcs
Phys
Theat
Theater
Russn
Chem
Dance
Spanish
German
Theatr
Biol



REED = all-college except Humanities 110,210 and P.E.

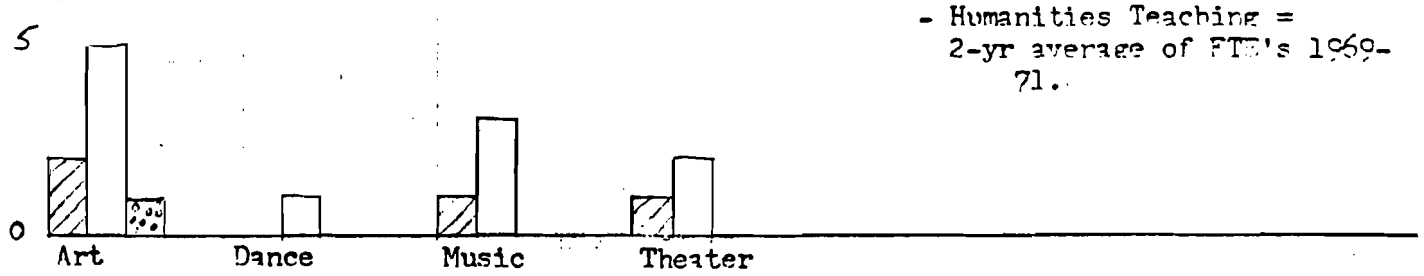

Time in 3-year Moving Averages
1963-66
1964-67
1965-68
1966-69
1967-70
one year 1969-1970
Departmental Student Loads
Student Course Units per Full-Time Faculty Equivalent
Three-Year Moving Averages + 1969-70
Div. Phil., Psy. Rel.
Student Course Units Per Faculty Full Time Equivalent
140
130
120
110
100
90
80
70
PERP
DIVISION
PERP
Math
Phil
Eng Lit
French
Germ
Pol
Econ
Hist
Soc
REED
Anthr
Relig
Theat
EngLit
Art
Phil
Spansh
Pol
Math
French
Econ
Germ
Hist
Soc
Relig
REED
Psych
Anthro
Music
Classcs
Phys
Theat
Theater
Art
Spanish
Pol
Psych
Relig
Soc
Phil
French
Hum 110
Hum 210
Germ
Math
Anthro
REED
Hist
Econ
Dance
Russn
Chem
Phys
Soc
Psych
Pol
Art
Phil
Econ
Dance
Hist
French
Hum 110
Math
Soc
REED
Relig
Hist
Math
Hum 210
REED
Chem
Econ
Anthro
Dance
Germ
Russn
Relig
Hum 210
Spanish
German
Theatr
Anthro
Phys
Biol


80
70
60
50
40
30
20
10
0
1963-66
1964-67
1965-68
1966-69
1967-70
Germ
Pol
Econ
Hist
Soc
REED
PERP
Anthr
Relig
Theat
Phys
Art
Music
Chem
Biol
Classcs
Russn
Psych
Dance
Hist
Soc
Relig
REED
Anthro
Phys
Theater
Classcs
Music
Psych
Chem
Biol
Russn
Dance
Psych
Soc
Anthro
Music
Classcs
Phys
Theat
Music
ChemM
Theater
Biol
Dance
Classcs
Chem
Russn
Biol
Dance
Germ
Russn
Chem
Phys
Music
Biol
Theater
Classcs
Russn
Relig
Hum 210
Spanish
German
Theatr
Anthro
Phys
Biol
Music
Bl St
Classc
REED = all-college except Humanities 110,210 and P.E.

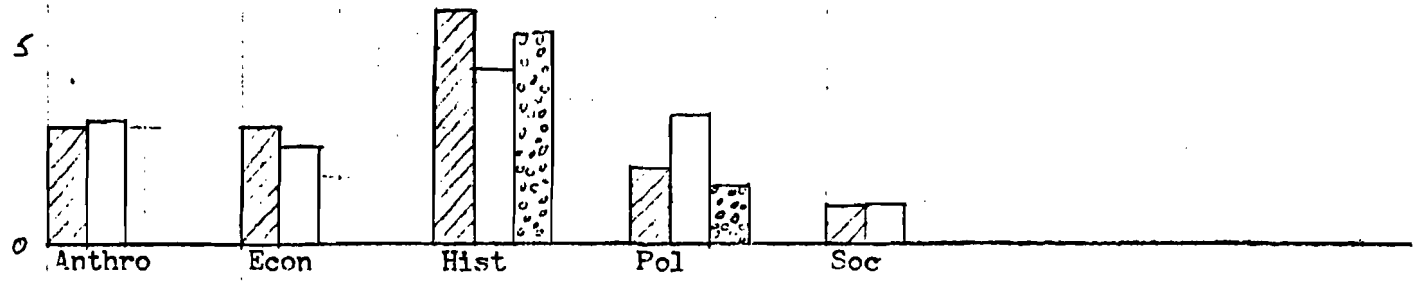
Arts

Comparison of Numbers of Tenured Faculty and F.T.E.'s of Teaching By Department

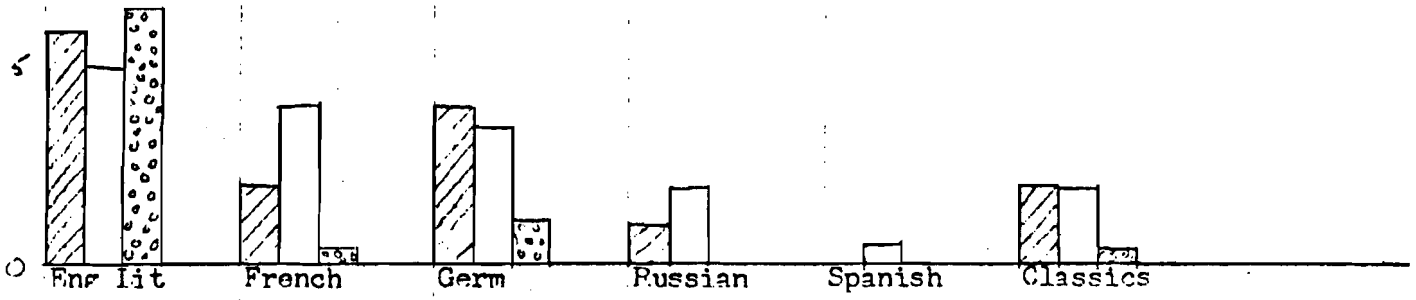
- Numbers Tenured as of 9-70
- Departmental Teaching = 3-yr. average of FTE's 1968-71
- Humanities Teaching = 2-yr average of FTE's 1969-71.



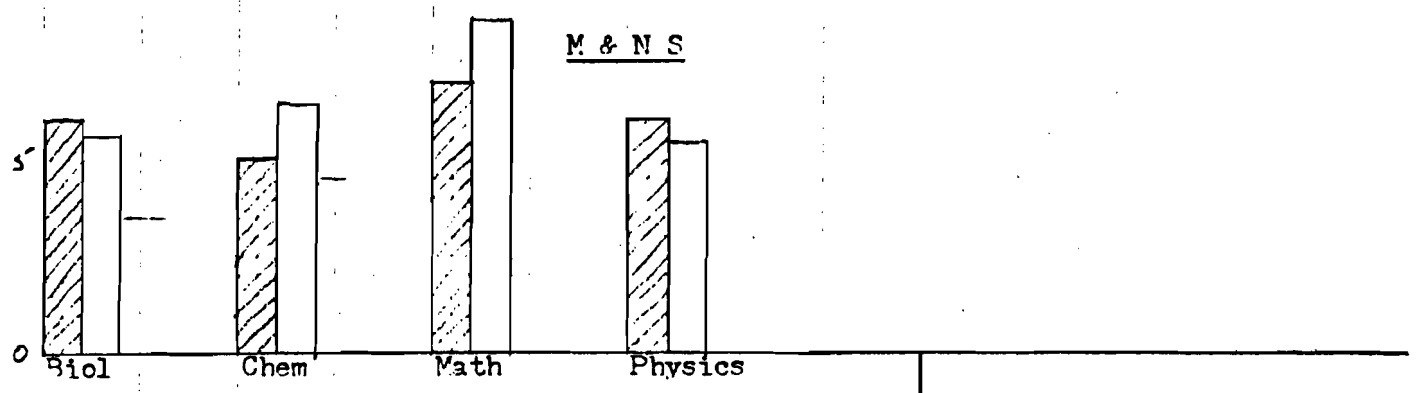
H & S S



L & L

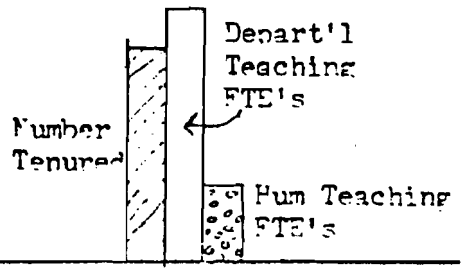


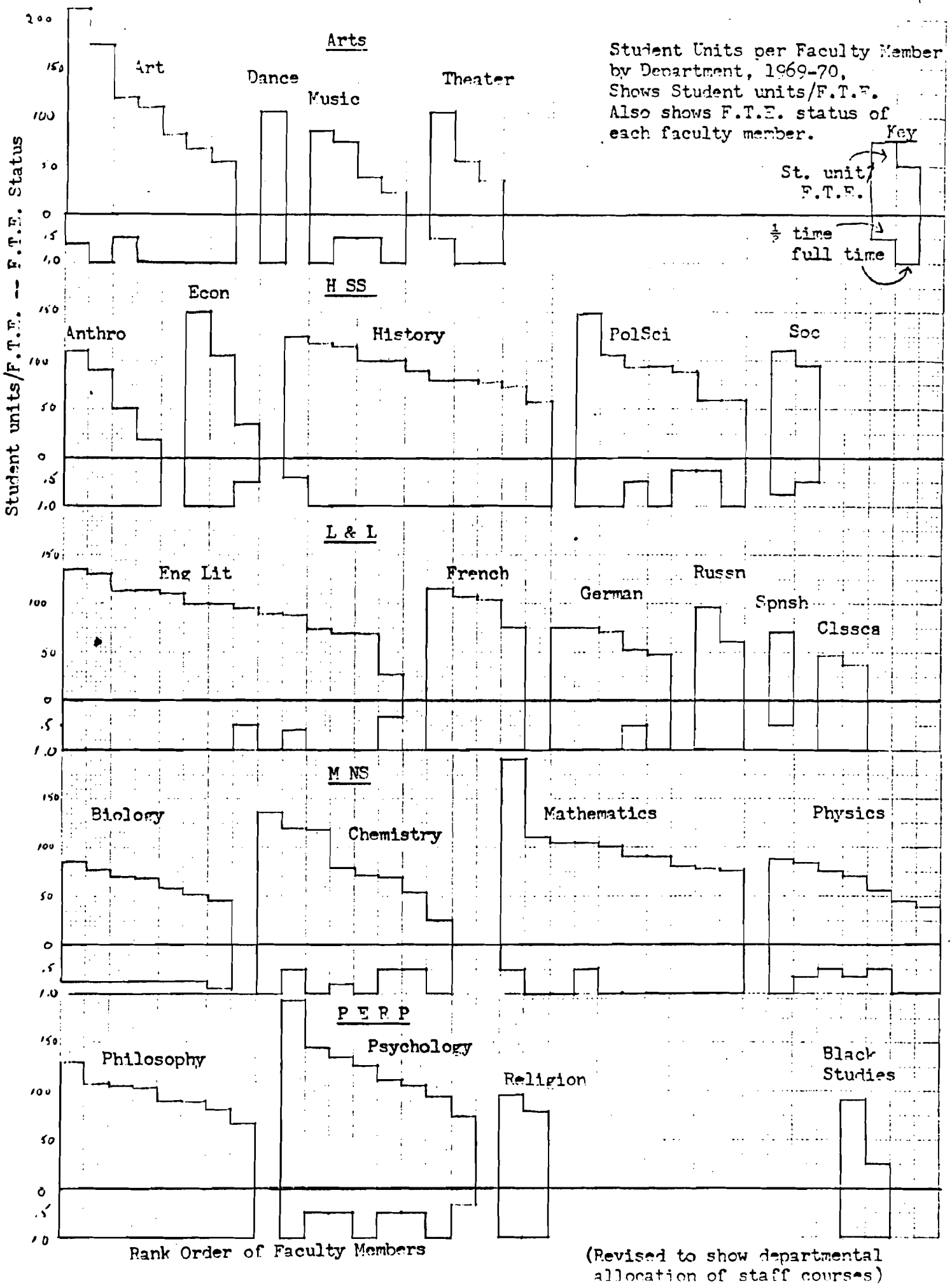
M & N S



P E P P

Key

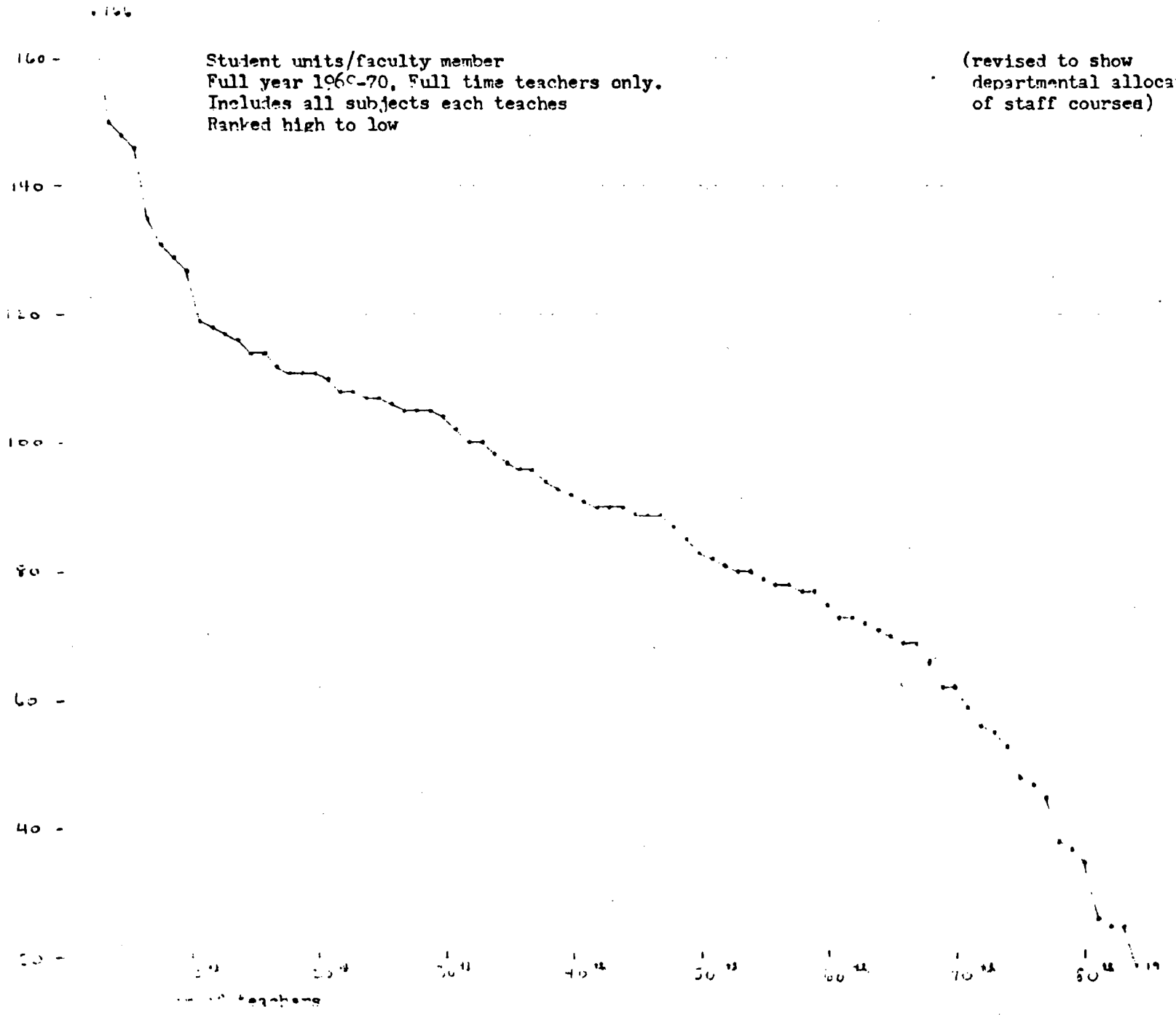




(Revised to show departmental allocation of staff courses)

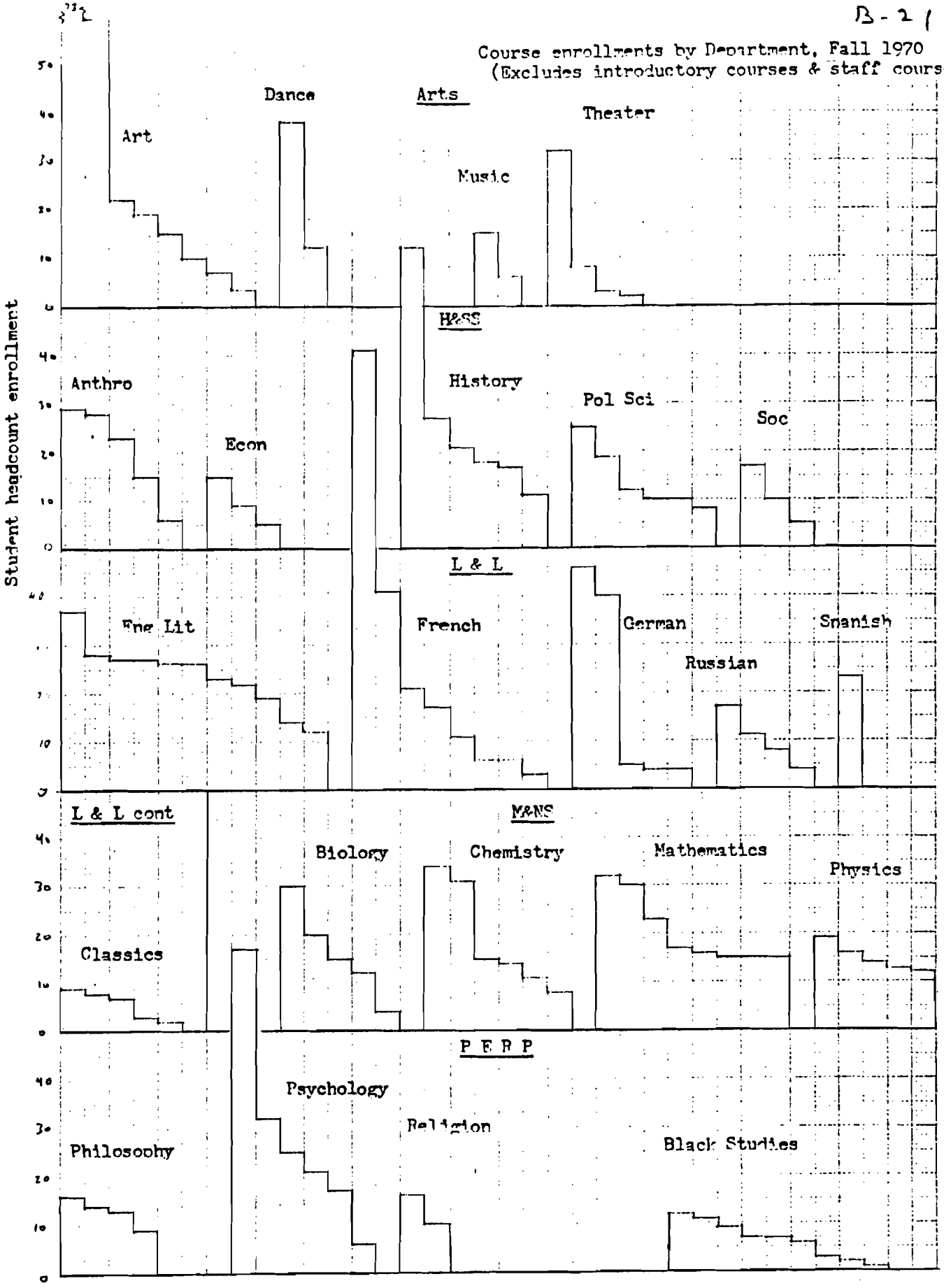
Student units/faculty member
Full year 1969-70, Full time teachers only.
Includes all subjects each teaches
Ranked high to low

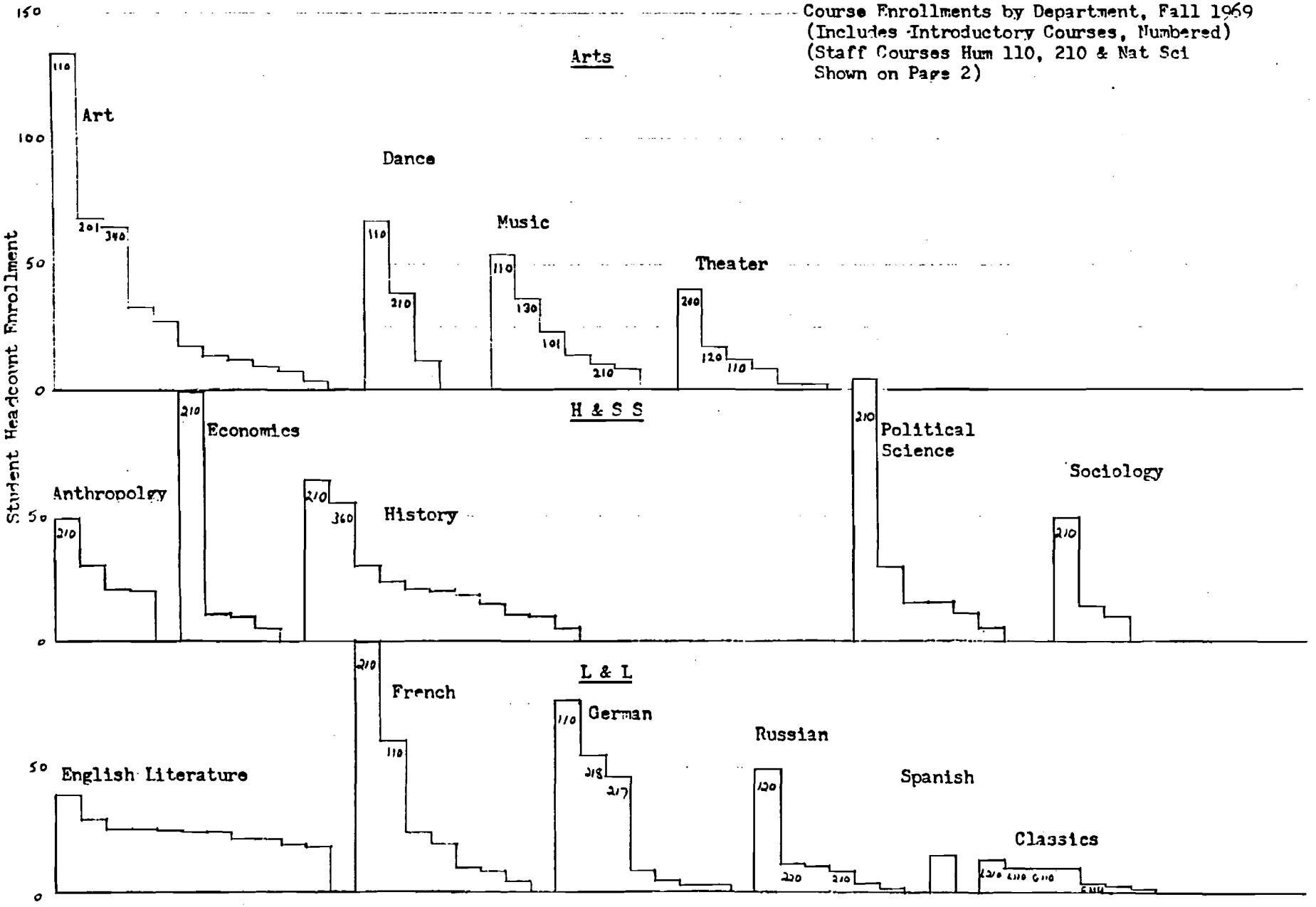
(revised to show
departmental allocation
of staff courses)

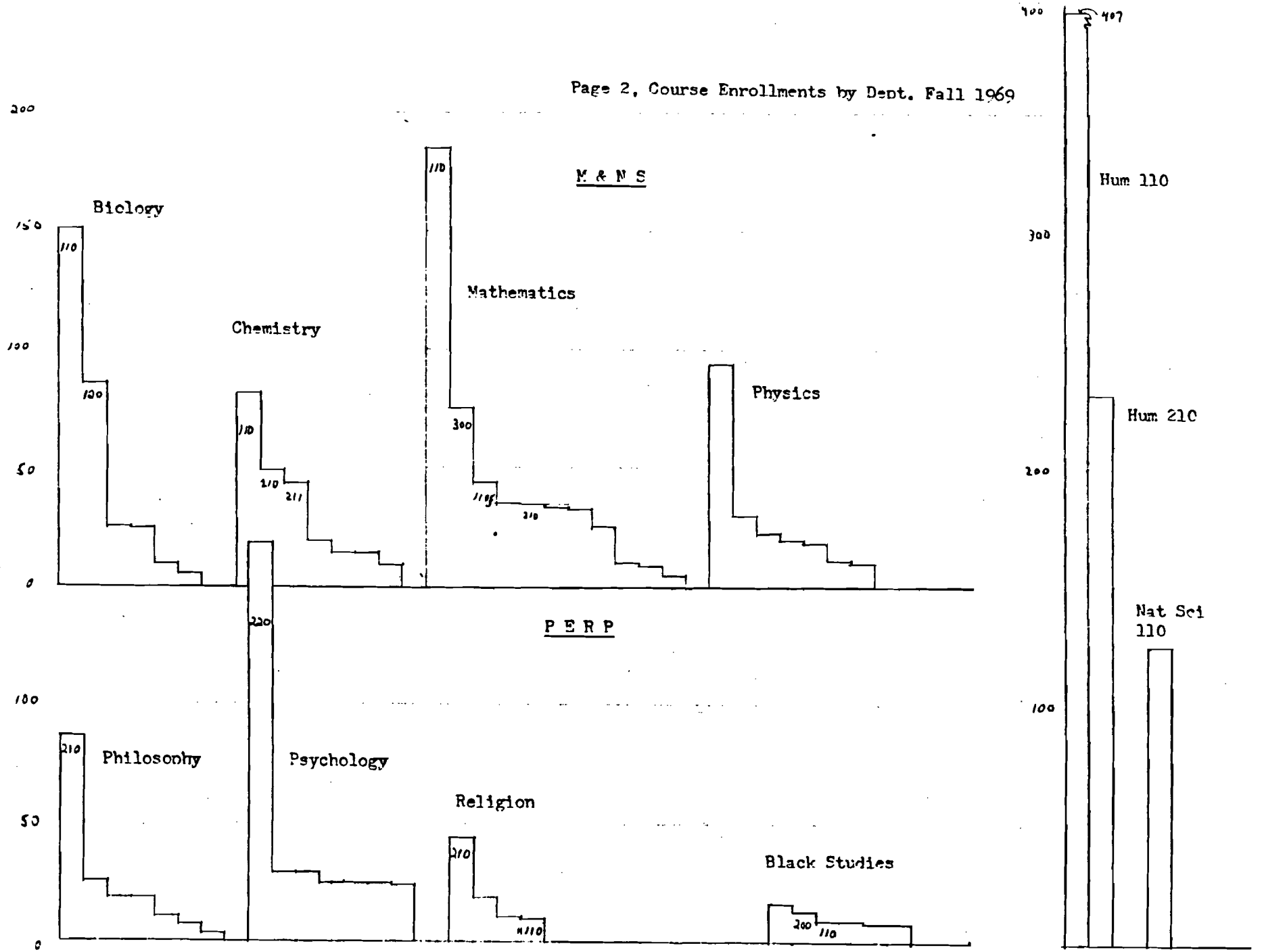


B-20

Course enrollments by Department, Fall 1970
(Excludes introductory courses & staff courses)




Course Enrollments by Department, Fall 1969
(Includes Introductory Courses, Numbered)
(Staff Courses Hum 110, 210 & Nat Sci
Shown on Page 2)
Student Headcount Enrollment
150
100
50
0
Arts
Art
110
201
340
Dance
110
210
Music
110
130
101
210
Theater
240
120
110
H & S S
Economics
210
Anthropology
210
History
210
360
Political
Science
210
Sociology
210
L & L
French
210
110
German
110
218
217
Russian
120
220
210
Spanish
Classics
English Literature


M & N S
Biology
110
100
Chemistry
110
210
211
Mathematics
110
300
110f
310
Physics
P E R P
220
Philosophy
210
Psychology
Religion
210
110
Black Studies
200
110
Hum 110
407
Hum 210
Nat Sci 110

SPECIMEN

		Fall 1969					Spring 1970						Fall 1970					Spring				
FTE		Itr	Upr	480	470	Tot	Itr	Upr	480	470	Tot		Itr	Upr	480	470	Tot	Itr	Upr	480	470	Tot
16	A .5	22	–	–	–	22	16	–	–	–	16	A 1.0	24	–	–	1	25					
23	B .65	11	21	–	–	32	7	15	–	–	22	B .75	8	13	–	1	22					
	C 1.0	–	9 10	–	1	20	–	8 9	–	1	18											
	D 1.0	4	10 10	–	1	25	3	8 9	–	1	21	D .75	–	6 8	–	2	16					
	E 1.0	25	23	1	1	50	17	19	–	1	37	E 1.0	16	14	–	2	32					
56	F .5	10	6	–	1	17	7	3	–	1	11											
71	G .65	22	–	1	2	25	15	4	–	2	21	G 1.0	15	12	–	2	29					
												H .5	12	6.5	–	1	19.5					
																(+3)						
Tot Fac	7						7					6										

	Fall 1969					Spring 1970					Fall 1970					Spring				
	Itr	Upr	480	470	Tot	Itr	Upr	480	470	Tot	Itr	Upr	480	470	Tot	Itr	Upr	480	470	Tot
Totals	94	99	2	6	191	65	75	–	6	146	75	57.5	–	12	144.5					
Year Totals	159	164	2	12	337															
[illegible]	1	4.5	x	x	5.5	1	5.5	x	x	6.5	1	4	x	x	5					

intro classes

upper class classes

thesis units

Committee prepared work sheets like this on each of the departments

B-24

Comparative Reed Library Data 1963 to 1969

REED LIBRARY	'63-'64	'64-'65	'65-'66	'66-'67	'67-'68	'68-'69	'69-'70
CIRCULATION							
PERIODICALS	1,711	2,452	2,181	1,788	1,524	1,324	1,579
FOUR-WEEK	25,413	22,778	22,459	25,828	27,427	27,814	30,042
THESIS BOOKS	2,032	2,452	2,690	2,846	2,637	3,203	3,990
FACULTY BOOKS	3,736	4,778	4,031	3,690	4,307	3,203	3,417
TOTAL	32,892	32,460	31,361	34,152	35,895	35,557	39,028
OVERNIGHT RESERVE							
-STUDENT	55,940	50,608	42,143	ma	ma	-	-
-FACULTY	717	652	368	ma	ma	-	-
3-DAY	1,142	1,286	911	1,365	ma	-	-
BOOKS PUT ON RESERVE	11,609	8,957	8,670	8,823	7,857	8,145	
STAFF	8.4	10.4	11.7	11.2	11.7	10.7	10.7
REFERENCE							
LOANS TO REED	146	379	296	204	204	166	
LOANS FRM REED	389	330	330	236	236	201	
XEROX PURCH.	95	360	233	166	166	132	
XEROX SOLD	-	-	-	55	62	76	
CAT + ACQ							
ACCESSIONED TITLES	4,491	5,450	6,174	6,150	5,898	4,563	6,509
UNACCES. TITLES	4,947	3,378	1,623	3,085	5,810	3,565	4,482
MICROFILM			36	487	108	159	248
BINDING			4,723	2,752	2,380	2,090	2,832
BOUND PER. ADDED	1,088	1,108	1,045	1,213	1,399	1,746	1,290
VOLS. IN LIB.	158,944	166,697	174,494	183,729	192,940	199,816	209,753
WITHDRAWALS	423	336	3,778	899	2,797	1,981	1,560
INDEXES							
CIRCULATION [1]	100	99	95	104	109	108	119
REFERENCE ACTIVITY [2]	100	172	138	106	107	92	ma.
CAT. + ACQ., ACTY [3]	100	103	100	110	126	91	126
STUDENT ENROLLMENT	100	107	112	118	124	136	146
SENIORS ONLY	100	118	124	146	138	137	173
FACULTY HEAD COUNT	100	109	108	111	113	118	127

1. Based on total circulation 2. Based on total Reference items 3. Based on accessioned + unaccessioned titles, the former being weighted 2x.

LIBRARY COMPARATIVE DATA 1969-70

	(1)	(2)	(3)	(4) GROWTH RATE	(5)	(6)	(7)
	ENROLL-MENT	VOLUMES (000)	VOLS. ADDED (000)	(3) ÷ (2)	PERIODICALS REC'D.	PROFESSIONAL STAFF	TOTAL STAFF
AMHERST	1,243	455	12.1	.027	1,500	12	32.3
ANTIOCH	2,328	179	11.6	.065	1,230	6	16
BOWDOIN	968	429	14.2	.033	1,577	10	25
OCCIDENTAL	1,832	269	10.1	.038	1,322	9	22
REED	1,236	295	9.9	.034	1,074	4	10.7
SMITH	2,542	773	18.1	.023	2,427	26.5	57
SWARTHMORE	1,114	373	18.4	.049	2,011	12.6	33.4
VASSAR	1,624	407	11.2	.028	2,168	14.2	37.9
WELLESLEY	1,756	452	16.6	.037	2,020	14	42
WESLEYAN	1,825	632	25.3	.040	2,500	19	58
WILLIAMS	1,307	341	12.1	.035	2,150	9	24
AVERAGE	1,616	418	14.5	.035	1,816	12.4	32.5

	(8)	(9)	(10)	(11) ENROLLMENT ÷ STAFF	(12) VOL. ADD. ÷ STAFF	(13)
	HRS. OF STUD. ASSIST. (000)	(8) ÷ 2000	ADJ. TOTAL STAFF (9)+(7)	(1) ÷ (10)	(3) ÷ (10)	HRS OPEN PER WEEK
AMHERST	4.3	2.2	34.5	36	350	98
ANTIOCH	12.3	6.2	22.2	105	523	87
BOWDOIN	12.0	6.0	31.	31	458	105
OCCIDENTAL	14.1	7.1	29.1	63	347	93
REED	10.2	5.1	15.8	78	627	108
SMITH	17.5	8.8	65.8	39	275	110
SWARTHMORE	19.0	9.5	42.9	26	428	100
VASSAR	12.4	6.2	44.1	37	254	98
WELLESLEY	6.8	3.4	45.4	39	366	105
WESLEYAN	13.0	6.5	64.5	28	392	106
WILLIAMS	8.1	4.1	28.1	47	431	93
AVERAGE	11.8	5.9	38.4	42	378	100

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	(14) Tot. $ (000) Expend.	(15) Expend. per Stud.	(16) (000) Wages & Salaries	(17) Wages + Sal. as % of Tot. Expend. (16) ÷ (14)	(18) Expend. as % of Inst'nl.
Amherst	416	334	262	.63	5.3
Antioch	217	94	131	.60	3.5
Bowdoin	286	296	175	.61	5.1
Occidental	294	161	157	.53	5.6
Reed	169	136	70	.41	4.5
Smith	611	147	417	.68	4.1
Swarthmore	447	402	250	.56	8.7
Vassar	454	275	250	.55	6.9
Wellesley	446	254	231	.52	3.8
Wesleyan	672	368	411	.61	3.8
Williams	378	282	177	.47	5.3
AVERAGE	399	250	230	.58	5.1

COMPARATIVE LIBRARY DATA

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1 / Growth Rate

	Volumes Added (000)											Professional Lib. Staff per 100 FTE Faculty
	(1) 1966-67	(2) 1967-68	(3) 1968-69	(4) 1969-70	(5) Total	(6) Avg.	(7) Avg. Tot. Vol. 1966-70 (000)	(8) Growth Rate (6) ÷ (7)	(9) Doubling Time (years)	(10) Age of Library (years)		
Amherst	12.2	12.2	12.9	12.1	49.4	12.4	430	.029	35	149		11.9
Antioch	9.1	—	10.2	11.6	30.9	10.3	164	.063	16	117		5.9
Bowdoin	14.0	18.4	16.0	14.2	62.6	15.6	398	.039	25.5	176		10.9
Occidental	10.1	9.8	10.0	10.1	40.0	10.0	249	.040	25	83		7.2
Reed	9.2	14.6	8.1	9.9	41.8	10.4	274	.038	26.5	58		2.8
Smith	13.5	13.5	24.7	18.1	69.8	17.4	756	.023	43.5	61		15.7
Swarthmore	15.6	17.7	17.9	18.4	69.6	17.4	356	.049	20.5	99		9.6
Vassar	8.1	8.9	11.6	11.2	39.8	10.0	387	.026	38	109		7.0
Wellesley	10.0	12.4	13.9	16.6	52.9	13.2	426	.031	32	95		8.4
Wesleyan	20.6	21.7	23.0	25.3	90.6	22.6	587	.038	26	139		6.7
Williams	9.5	10.6	11.7	12.1	43.9	11.0	319	.034	29	77		7.3
Average						13.7		.037	27	106		8.5

COMPARATIVE LIBRARY DATA

Percent of Total Expenditures of Library represented by wages & salaries

Average 1966–1970

	1966 – 1967			1967 – 1968			1968 – 1969			1969 – 1970			AVG.
	(1) Tot Expen. $ (000)	(2) Wages + Salaries $ (000)	$(3)_1$ % (2) ÷ (1) ×100	(1)	(2)	$(3)_2$ %	(1)	(2)	$(3)_3$	(1)	(2)	$(3)_4$	(3) % $\frac{\sum_{i=1}^{4}(3)_i}{4}$
Amherst	319	183	57%	330	200	61%	373	215	58%	416	262	×63%	60 %
Antioch	193	114	59%	—	—	—	210	109	52 %	217	131	×60%	57 %
Bowdoin	215	117	54%	273	170	62 %	278	156	56 %	286	175	×61 %	58 %
Occidental	234	121	52%	222	125	56 %	241	137	57 %	294	157	×53 %	54 %
Reed	143	67.9	47%	142	72.3	51%	146	75.2	52 %	169	70	×41 %	48 %
Smith	489	332	68%	478	319	67%	595	360	61 %	611	417	×68 %	66 %
Swarthmore	290	—	—	345	214	62 %	397	249	63 %	447	250	×56 %	60%
~~Wellesley~~													
Vassar	349	206	59%	338	209	62 %	384	241	63 %	454	250	×55%	60%
~~Wesleyan~~													
Wellesley	333	179	54%	375	198	53 %	402	244	61 %	446	231	×52%	55 %
~~Williams~~													
Wesleyan	378	202	53%	575	300	52%	545	305	56 %	672	411	×61 %	56 %
Williams	239	118	49%	263	133	51%	319	165	52 %	378	177	×47%	50%
Average			55 %			59%			57%			56%	57%

Two items folowing concern educational planning

The first concerns college-age population projections

Projected U.S. Population Growth
(% change)

Age group	1965-70	1970-75	1975-80	1980-85
5- 13 years	+3.7	-8.1	-4.4	+9.9
14-17 years	+12.0	+6.9	-5.3	-10.4
18-24 years	+21.8	+12.0	+7.5	-4.0

Source: U.S. Bureau of the Census, Current Population Reports "Summary of Demographic Projections" Series P-25, 388 March 14, 1968 quoted by Richard E. Easterlin in "Population" Ch. 6 in Neil W. Chamberlain, Contemporary Economic Issues. 1969

This projection is interesting because the first two columns can be taken with good confidence. Barring major catastrophe that population already exists. The next two columns rest on less certain assumptions which reflect recent trends. Also a nice feature is that the age brackets roughly correspond to rows representing elementary, high school, and college age students respectively.

The second is a reprinted section from Allan M. Cartter, "The Economics of Higher Education" Ch. 4 in the same book. This shows the remarkable shift in supply versus demand for Ph.D.'s. Again evidence over the next few years more reliable than for the late 70's or beyond.

panied by a weakening of market restraints, since both the new federal and the older voluntary insurance programs provide full cost recovery. The individual consumer is no longer faced with an economic choice of consuming more or less health services. Rising health insurance premium rates are not very effective in restraining demand, for the individual cannot directly affect his rate by making more or less use of medical services. While voluntary and compulsory health insurance plans may be socially desirable means of providing health care, they almost destroy the market as an allocating device. With diminishing market restraints over the last several years, nurses' salaries have risen rapidly (e.g., beginning nurses' salaries in New York City have increased more than 75 percent in 3 years), and hospital physicians' salaries or earnings, beginning from a much higher base, are rising at an increasing rate.

Thus, in the space sciences market adjustments could be made with relative ease, and the marginal adjustments in any single industry were not very great. In the health services, the cost of a more equitable distribution of medical care promises to be rapid inflation in manpower costs.

Supply and demand for teachers

The second argument against strict manpower budgeting is that we do not possess very sophisticated means of projecting the impact of a major shift in demand. The nation may have been less concerned about the cost consequences of medicare because the earlier dire predictions about the space effort did not materialize to any great extent. An even more dramatic case of poor prognostication was the gloomy predictions about the teacher shortage, which were current until very recently. Several national commissions, most college presidents and deans, and nearly all well-acquainted educational writers up until about 1965 or 1966 were predicting a crisis of major proportions for higher education today. In the words of the various studies and reports, there was impending "a disastrous shortage," a "crisis of major proportions" in which the nation was "standing virtually paralyzed" facing "a major national scandal." Only "heroic efforts," "crash programs," and new substitute degrees for the doctorate could stem the tide.[9]

Most of these conclusions were based on an inadequate biennial survey conducted by the National Education Association. In 1953, an educational census had indicated that 40.6 percent of college teachers held the doctoral degree—which was taken as a reflector, albeit an imperfect one, of the quality of college faculties. Succeeding biennial surveys seemed to

[9] For a review of studies and reports in the 1950's and early 1960's predicting a near crisis, see A. M. Cartter, "A New Look at the Supply of College Teachers," *Educational Record*, Summer, 1965, pp. 267-77; and "Future Faculty Needs and Resources" in Calvin Lee (ed.), *Improved College Teaching*.

clearly indicate that less than 30 percent of new college teachers hired possessed the doctorate. Given this factor, and a presumed 5 or 6 percent annual loss due to deaths, retirements, and resignations, a simple projection ahead a few years seemed to indicate a disastrous deterioration in educational quality. The distinguished Committee of Fifteen Graduate Deans reported in 1955: "To expect that by 1970 the proportion of college teachers having the Ph.D. degree will have declined from the present 40 percent to 20 percent is not statistical hysteria, but grass roots arithmetic."[10]

Unfortunately, the grass roots arithmetic included several omissions as well as statistical errors. The result, compounded in a 10- or 15-year projection, produced frightening results indeed. As late as 1964, one Office of Education study was predicting a cumulative deficit of 121,700 faculty members with the doctorate by 1974. A more careful manpower analysis would have indicated the following. (1) While it was true that only about 30 percent of new college teachers held the doctorate, overlooked was that more than half again as many current college teachers finally complete the doctorate and remain in teaching each year. (2) While deaths, retirements, and resignations did take some toll, most voluntary quittals at one college were canceled out by that same instructor taking a new position at another college. Actual losses to the college teaching profession were not 6 percent per year but slightly less than 2 percent (.69 percent for deaths, 1.12 percent retirements, and only .11 percent net losses to other occupations). (3) The number of new teachers needed each year is frequently projected from average student staff ratio data. For 4-year institutions, the average ratio was about 14:1 in 1960, whereas the marginal student-staff ratio has averaged 17.2:1 for the last decade. For the total universe of higher education, including 2-year colleges, the incremental ratio is about 20:1. Use of the average rather than the marginal ratio tended to overstate annual needs by 25-40 percent.

During the late 1950's and early 1960's, when so many observers thought the quality of college faculties (insofar as it can be measured by highest degree obtained) was deteriorating, it was, in fact, improving. Two sets of data support this view. Table 4-8 shows the percentage of full-time faculty with the doctorate for categories of institutions in a National Education Association Survey in 1953-54, and an Office of Education study in the spring of 1963. Another measure, by the author, included full-time and part-time faculty reviewed at 4-year intervals over a period of 16 years.[11] These two sets of data clearly indicate that qualitative improvements were made even in a period of supposed shortage. What of the future?

Figure 4-2 gives a historical supply and demand picture for new college teachers from 1950 to the present, and projects requirements and available

[10] *The Graduate School Today and Tomorrow: Reflections for the Profession's Consideration* (New York: Fund for the Advancement of Education, December, 1955), p. 7.

[11] A. M. Cartter, *op. cit.*

Table 4-8. Percentage of full-time instructional staff with doctoral degrees, 1953-54 and 1962-63

Category of Institution	1953-54 (NEA)	1962-63 (OE)
Public universities	44.0	58.4
Private universities	51.9	59.6
Public colleges	30.7	42.6
Private colleges	35.2	42.7
All institutions	40.5	50.6

Sources: 1953-54: *Teacher Supply and Demand in Degree-Granting Institutions*, 1954-55, N.E.A. Research Bulletin (Washington: National Education Association, December, 1955), p. 139. 1962-63: "Doctorates among Teaching Faculty," Paper presented at the annual meeting of the American Educational Research Association, Chicago, February 11, 1965, Table 3.

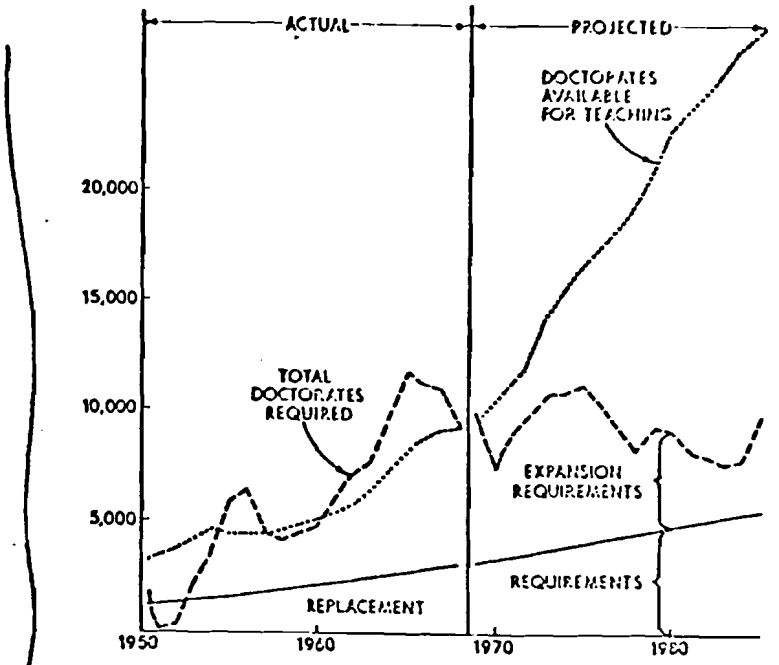
supply ahead to 1985. The historical picture shows the number of new teachers required to achieve the approximately one percentage point gain per year in faculty with the doctorate that has occurred since 1954. Doctorates available are estimated at about half of the annual number of degrees awarded. (The NEA biennial surveys indicate that about 47 percent of new doctorates entered teaching in the 1953-63 period.) The projections for the future assume a continuation of supply patterns, and a continuation of the present (approximately 50 percent) proportion of total faculty with the doctorate.

The year 1970 is seen as one when the supply and demand relationships begin to change dramatically. Between 1970 and 1975, there should be a slight surplus—more marked in some subject areas, and continuing shortages in a few scientific fields.[12] After 1975, it appears that the surplus will widen. By 1980, when it is expected that approximately 46,000 Ph.D.'s or equivalent degrees will be awarded, and when the past experience would indicate that about 23,000 would seek academic positions, only about 9,000 new teachers with the doctorate will be needed to maintain the existing quality of faculties. The total number of new teachers required to meet death and retirement needs and to handle anticipated enrollment increments averaging about 200,000 in the 1975-85 decade would be only 18,000.

No one really expects doctors of philosophy to be selling apples on street corners in 1980, but we will have to readjust our accustomed way of looking at the academic labor market. Since 1954, we have been living in a very tight labor market, and after 15 years many professors and administrators have developed a real scarcity mentality. In 1965, when the author first published a study indicating that the shortage was largely a self-

[12] The impact of the draft may postpone the increases in doctorates available in 1970-73 to the 1974-77 period, thus wiping out any surpluses in the first half of the decade. In 1965, about 40 percent of first-year graduate students and 24 percent of second-year students are draft eligible.

Figure 4-2. Doctorates available and required to maintain quality of college teaching staffs, 1950-68, and projected to 1985



reinforcing myth, and that the 1970's would see a reversal of market conditions, he was greeted with skepticism from all quarters, and outraged disbelief from some. All the evidence now seems to support the thesis, indicating once again the danger of rigid manpower planning or manpower budgeting unless one has very sophisticated tools for projecting needs.

The economist, familiar with the accelerator concept, is more sensitive to variations in the rates of change in data he is analyzing than might be a general educator or statistician. When the rate of growth in consumer demand drops from 10 percent to 5 percent—which is what is now occurring in higher education—the *absolute* level of demand for the educational equivalent of investment goods—i.e., new faculty and additional teaching facilities—can be expected to drop.

A declining demand for college faculty, concurrent with a substantial expansion in output from graduate education programs, will not result in unemployment. Several reactions can be expected. First, salaries for beginning teachers will not rise so rapidly as in the past. By the mid-1970's, it is likely that the average annual increase of 7 percent annually in teaching salaries that has occurred for the last decade will drop back to 3-4 percent

(barring externally severe inflationary pressures). The typical retirement age, which actually rose in the 1960's, is likely to drop several years. Much of what was referred to above as a surplus will be absorbed as colleges make qualitative improvements in their faculty and become more selective in their recruiting. The pressure for early tenure decisions will be eased, for most faculty rules now force a young instructor out after five to seven years if there is not near-unanimous agreement on his long-term scholarly potential. Given these changes in market conditions, it is also likely that union organization will become more attractive to the college teacher.

One can also predict that with the more plentiful supply an increasing number of teachers with the doctorate will take positions in junior colleges (currently less than 15 percent of junior college faculty were trained at the doctoral level) and in secondary schools. Many more scientists and social scientists will seek positions in industry and government than has heretofore been true. Just as undergraduate college was a sorting device through which passed 10 to 15 percent of the population in the interwar years, so today the graduate and professional schools are beginning to play a similar role for about the same proportion of the age group. Leadership roles in the nation at the end of this century will be heavily populated with those who have passed through advanced graduate programs.

The micro-economics of higher education

The typical student is less aware of the choices colleges and universities must make among alternative uses of resources than he is of his own personal choices. Nonetheless, the academic administrator is faced with many decisions which appear to be closely analogous to those facing the business entrepreneur. The college president or dean is not a profit maximizer, but he must constantly seek to maintain and improve the quality of education while keeping his costs within the limit of foreseeable resources.

The academic administrator must operate within several types of constraints, however, that are not common in the world of business. First, the accepted principle of academic employment is that after an instructor has been on the job for a period of years he receives tenure. Tenure is a guarantee of continuance in one's job, with removal sanctioned by the academic community only in gross professional incompetence or flagrant misconduct. The American Association of University Professors is the professional agency that commonly acts as a protector of tenure rights, although the United Federation of Teachers (AFL-CIO) is beginning to challenge their role on some campuses. Tenure is seen by the college teacher as the protector of academic freedom, since once he has achieved this status (which commonly goes with promotion to the rank of associate pro-

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THE NEW YORK TIMES, FRIDAY, DECEMBER 4, 1970

Report of Carnegie Commission on Higher Education Finds Colleges Facing Financial Crisis

College Financial Crisis Found in Carnegie Study

By M. A. FARBER

A "new depression" has struck American colleges and universities and their deepening financial plight can be overcome only by a massive national effort, according to a study released yesterday by the Carnegie Commission on Higher Education. Dr. Earl F. Cheit, who directed the study for the commission, said an adequate effort to assure the solvency and growth of the institutions could cost an additional several hundred million dollars more annually.

Dr. Clark Kerr, the commission chairman, warned that higher education was facing "the greatest financial crisis it has ever had" with two-thirds of the nation's colleges and universities either in grave financial difficulty or headed that way.

If the institutions are to prosper, he said, the Federal and state governments will have to contribute substantially more funds than in the past.

Continued on Page 30, Column 2

Continued From Page 1, Col. 6

At the same time, the institutions must cut their costs and raise tuition as much as is realistic.

The 250-page study, on which Dr. Kerr's estimate was based, examined 41 private and public colleges and universities of all types in 21 states and the District of Columbia and found that 70 per cent of these were either in financial difficulty or "headed for trouble." It is become increasingly evident in recent years.

The "essence" of the problem, the study said, is that costs and income are both rising on the whole but costs are rising at a steady or a slowly growing rate while income is growing at a declining rate.

"Either the schools must find more new money, or make cuts, or do both," the study said. "These are the financial facts confronting most college and university administrators."

Other key points in the study included:

¶The financial crisis arose two or three years ago after a decade of "unprecedented" expansion that "may well have made" overextended institutions more vulnerable.

¶Decisions about reforming the institutions in the next decade will be influenced more by the institutions' financial situation than by any other single factor.

¶All types of institutions are affected by the crisis, with large, private universities in the most financial difficulty and public institutions in the South and two-year community colleges in the least trouble.

¶Most institutions are at an "intermediate" level of difficulty but even institutions rated "not in trouble" can expect severe problems if present trends continued.

¶Although most institutions have become "cost conscious," many have "not yet" done enough to reduce expenditures and increase income. Still, the crisis if forcing a re-examination of educational "priorities."

¶Campus disruptions have led to "important" new costs "reasonably governable" and

¶Few, if any, college and university presidents interviewed in the study said they believe that the public understood their financial concerns.

¶To restore needed, public confidence, institutions must demonstrate that they are "reasonably governable" and efficient and that they have a "unifying set of purposes. In recent years, "the burden of proof of the value of educational financing has shifted" to the institutions.

'Illustrative' Institutions

The 41 institutions are "illustrative" of the principal types of colleges and universities, said Dr. Cheit, who was formerly executive vice chancellor of the University of California, Berkeley. Financial situation was not considered in selecting them, he added.

After conducting interviews last May and reviewing data, Dr. Cheit and his staff placed each institution in one of three categories: "Not in Trouble," "Headed for Trouble" and "In Financial Difficulties."

An institutinn was put in the "In Financial Difficulty" category if it had already made, or was about to make, cuts that "fairly judged" by the institution or Dr. Cheit "affect essential services or quality."

An institution that was able to meet current responsibilities without reducing quality, but could not guarantee that standard or plan for growth, was classified as "Headed for Trouble."

An institution that could meet its present quality and program standards, and plan ahead with some assurance, was labeled "Not in Trouble."

The study emphasized that placement in a category did not reflect the "academic or educational excellence" of any institution. Some institutions, it noted, were classified "In Financial Difficulty" precisely because "good management is making the changes necessary to remedy financial problems."

11 Schools 'In Difficulty'

Dr. Cheit put 11 colleges and universities in the "In Financial Difficulty" category, including Stanford University, the University of California, Berkeley, New York University and Tulane University.

James Hester, president of New York University, objected yesterday to this classification of his institution. He said the cuts made at New York University were designed not to diminish the quality of the institution's program.

The study itself said that N.Y.U. was a borderline case close to the "Headed for Trouble" category.

Stanford also issued a statement in Palo Alto, Calif. yesterday underscoring the steps that it was taking to retain quality while cutting back some programs and services.

The institutions in the "In Financial Difficulty" group are distinguished by the following characteristics, the study said: all nine private institutions are deficit financing and the two public institutions are on "stand-still" budgets, faculty and administrative positions are being cut back or "frozen," student-faculty ratios are increasing, instructional programs are being reduced, budgets for campus research institutes are being lowered.

Eighteen colleges and universities, including Harvard University, the University of Chicago, the University of Michigan and Syracuse University, were placed in the "Headed for Trouble" category. This category, the study said, is "typical of higher education."

In general, the study said, these institutions have undertaken "five strategies" to lessen their financial plight: postponing, belt-tightening, marginal reallocations, scrambling for funds and "planning and worrying."

"Although many administrators recognize the real possibility of severe crises ahead," the study noted, "it seems fair

"College Financial Crisis . . . "

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to say that these strategies do not yet reflect a response to either the underlying causes of the financial depression in higher education or to a re-examination of the schools' missions or long run-prospects. Nor do they purport to work major, changes in the schools' structure or character."

Some institutions, the study said, "are willing to gamble, believing that it would be a mistake to compromise heavily with the present downturn. They believe a better strategy is to avoid major concessions until they are necessary, for the ground thereby lost would be hard to recover."

Health Called 'Relative'

Of the 41 institutions in the study, 12 were rated "Not in trouble," including the University of Texas, the University of North Carolina, Hamilton College, Saint Cloud State College in Minnesota and Flint Community Junior College in Michigan.

The study cautioned that the "relative health" of the institutions in this group depended on continued support. "None," it said, "are permanently shielded from a prolonged downturn."

The "Not in Trouble" institutions include relatively more public than private institutions; among the private schools the classifications includes relative schools from the South are more heavily represented in this group, as are the two-year colleges. Among the primarily black schools, those "Not in Trouble" are the large ones, and among the liberal arts colleges in this category are the smaller ones.

There is "almost certainly not a single theory" accounting for the condition of these colleges and universities, the study said. On the expenditure side, these institutions spent less than others for student aid (a high cost factor in the "In Financial Difficulty" schools) and they spent relatively less on faculty salaries and academic departments and relatively more on supporting activities.

On the income side, these institutions receive a relatively larger share of their income from endowment, there has been less of a rise in tuition and they have relied less heavily on the Federal Government for funds in the last decade.

The study called these differences "the result of other conditions" and cited 10 factors that, together, apply "favorably " to the "Not in Trouble" schools and "by and large apply unfavorably" to the other institutions examined.

These factors were as follows:

¶ 2. They are less affected by campus disturbance. The costs of dealing with, or attempting to prevent disturbances has skyrocketed in recent years, the study said.

¶ 2. There is a "good fit" between aspirations and program.

¶ 3. There is high community regard for what the institution is doing.

¶ 4. There are smaller student aid expenditures.

¶ 5. Programs are better defined and controlled where the expansion in the nineteen-sixties was not undercapitalized.

¶ 6. The faculty receives lower compensation.

7. There is greater efficiency or, at the least, greater confidence in their own efficiency.
8. They are less affected by reduced Federal support.
9. There is room for tuition growth and confidence in attracting further gift support.
10. Luck and circumstance. The University of Texas, for example, has a growing endowment from its oil lands.

Some Early Signs

The study cautioned that there were "some early signs of trouble" financially at the institutions in this group but said "it is still more a matter of trouble appearing on the books than in operations." It will take at least another year or two to find out whether the "Not in Trouble" category should be retired, the study said.

Of the 18 public institutions in the study, seven were classified "Not in Trouble," nine were rated "Headed for Trouble" and two were put in the "In Financial Difficulty" category.

Of the 23 private institutions, five were considered to be "Not in Trouble," eight "Headed for Trouble" and nine "In Financial Difficulty."

Two of the primarily black institutions were classified "Not in Trouble" and the three others were rated "In Financial Difficulty." The two Roman Catholic institutions, Boston College and St. Louis University, were both considered to be "In Financial Difficulty." The two women's colleges in the study—Meredith and Mills—were "Not in Trouble."

Classification of Colleges

Following is the illustrative list of 41 institutons of higher learning decribed as being "In Financial Difficulty," "Headed for Trouble" and "Not in Trouble," in a study for the Carnegie Commission on Higher Education:

National Research Universities

Not in Trouble	Headed for Trouble	In Financial Difficulty
University of Texas, Austin	Harvard University Univ. of Chicago Univ. of Michigan Univ. of Minnesota	Stanford University Univ. of California, Berkeley

Leading Regional Research Universities

Not in Trouble	Headed for Trouble	In Financial Difficulty
University of North Carolina, Chapel Hill	Ohio University Syracuse University Univ. of Missouri, Columbia Univ. of Oregon	New York Univ. Saint Louis Univ. Tulane University

State and Comprehensive Colleges

Not in Trouble	Headed for Trouble	In Financial Difficulty
Saint Cloud State College	Central Michigan University Portland State Univ.	Boston College San Diego State College

Liberal Arts Colleges

Not in Trouble	Headed for Trouble	In Financial Difficulty
Hamilton College Meredith College Mills College Whitman College	Albion College Allegheny College Carleton College Cumberland College Knox College Pomona College	Beloit College

Primarily Black Colleges

Not in Trouble	Headed for Trouble	In Financial Difficulty
Howard University Morgan State Coll.		Fisk University Huston-Tillotson Coll. Tougaloo College

Two-Year Colleges

Not in Trouble	Headed for Trouble	In Financial Difficulty
College of San Mateo Flint Community Junior College Gulf Coast Junior College	City Colleges of Chicago Mesa College	

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Carnegie Study Reports 1,500 Colleges, Including

Harvard, Face Cutbacks In Services

NEW YORK (AP) — More than 1,500 colleges and universities, with 77 per cent of America's campus population, are at or near the point of having to cut back important services for lack of money, the Carnegie Commission on Higher Education reported Thursday.

Some of the country's wealthiest and most prestigious institutions—including Harvard University, Stanford and the University of Michigan—were named as representative of a "financial crisis unmatched in its impact" and fast getting worse.

Almost all higher education institutions will feel the pinch if present trends continue, said the report, released at a news conference here.

The report, compiled by Earl F. Cheit, former vice chancellor of the University of California at Berkeley, said: "The essence of the problem is that costs and income are both rising, but costs are rising at a steady or a slowly growing rate . . . whereas income is growing at a declining rate."

The squeeze is made worse by the state of the economy, with inflation both raising costs and inhibiting income, the report said. However, it asserted that the crisis is "not simply part of a general economic downturn," but involves questions of public confidence in higher education and of the future role and purpose of colleges and universities.

Disorders Have Effect

Campus disturbances, the report said, are "an important new cost factor," imposing substantial costs for security, insurance and replaced property while hampering fundraising.

The report indicated that belt-tightening and review of priorities by the colleges and universities would improve the situation but that increased private giving and government aid would be necessary to preserve educational quality.

Basing its broader conclusions on weighing of on - site studies of 41 representative institutions, the report estimated that 540 institutions, enrolling 21 per cent of American college students, are "in financial difficulty." It said that means they have been forced to curtail services they consider important.

Eleven of the 41 sample institutions—including Stanford, New York University and the University of California at Berkeley—were in that category. But the report stressed that this did not reflect on their academic quality and "could indicate that the institution is doing relatively more than others to bring income and expenditures into line."

Another 1,000 schools, with 56 per cent of the students, were termed "headed for financial trouble,"—unable to assure that they can support growth plans or go much longer without cutting important parts of their programs.

Harvard Richest School

Among those were 18 schools—ranging from Harvard, with the nation's largest endowment, close to $1 billion—to Knox College of Galesburg, Ill., a four-year school with fewer than 1,500 students.

Twelve of the 41 schools, including Howard University, Hamilton College and the Universities of Texas and North Carolina, were classified "not in financial trouble."

But as an example of how fast the situation is deteriorating, the report said the University of San Mateo, Calif., listed support since the on-site study last summer and now is "in financial difficulty."

Measures being used to ride out the storm include, for private institutions, cutting into capital reserves built up during the last decade. But this source is fast drying up. At Knox, for example, $400,000 in reserves were tapped to make up last year's deficit; this year only $250,000 is left.

Other steps include cancelling development plans, soliciting more students, holding down or reducing hiring of faculty and administrators and trimming allocations to academic departments and student activities.

Which kinds of institutions are the hardest hit?

'Hidden Deficits' Noted

Private schools are more likely to face difficulty than public ones, the report said. It said that as of last spring 25 per cent of private schools could be called "not in trouble," as opposed to about 50 per cent of public colleges and universities.

Urban schools and schools in the North were said to be in worse shape than the average, and in some cases medical schools were causing a severe drain on parent institutions.

The report said 19 per cent of universities were "not in trouble," compared to 29 per cent of liberal arts colleges.

Other points made in the report:

A boom psychology developed in the late 1950s and early 1960s, during which enrollments, income and expenditures multiplied. When the economy cooled in the late 1960s many campuses were caught with big plans and no way to fund them.

"Increases in federal support in every year since 1967 are less than the increases in the price level. In other words, in real terms, federal support is declining," the report said.

Tuition and fee charges, which have about doubled in a decade are nearing a saturation point, in the view of many administrators. Beyond that point, middle-income students will be kept out of college and only the rich and the subsidized poor will be able to attend.

Here is the way the commission's report classified some of the 41 sample institutions:

"Not in financial trouble" — Cambridge, Mass.; Ohio University, Athens, Ohio; Pomona College, Claremont, Calif.; Portland State University, Portland, Ore.; Syracuse University, Syracuse, N.Y.; University of Chicago; University of Michigan; University of Minnesota; University of Missouri; University of Oregon.

"Headed for financial trouble" — Harvard University, State College, San Diego, Calif.; Stanford University, Palo Alto, Calif.; Tulane University, New Orleans; University of California at Berkeley; University of San Mateo, Calif.; Walla Walla College, Wallalla, Wash.; Washington University, St. Louis; Whitman College, Walla Walla, Wash.

"In financial difficulty" —

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Maine, a potential rival in the Continued on Page 11, Column 5

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Ph.D.'s Job Market Hits Hard Times

NYT Jan 1, 1971

By LINDA CHARLTON

This week's array of scholarly meetings—from the historians gathered in Boston to the engineers and physicists convened in Chicago—produced at least one indisputable conclusion: The Ph.D. is no longer an honored passport to preferred employment.

The signs of hard times were various. In New York, at the meeting of the Modern Language Association, registration was down to 10,000 from the usual total of 14,000. At the annual meeting of the American Association for the Advancement of Science in Chicago, there was a Sunday session entitled: "Excess Ph.D.s."

There were lines of hopeful young historians outside the hotel rooms of department chairmen attending the annual meeting of the American Historical Association in Boston.

"It's bad—even worse than last year" said Nancy Clancy who was in charge of the association's professional register.

Miss Clancy had only 200 jobs listed this year by 120 schools as against last year's 403 jobs listed by 197 schools a number that was then considered low.

There were more than 1,700 historians listed as available for jobs — but even this was 500 fewer than last year. Miss Clancy said that this indicated a feeling of hopelessness. "They didn't even bother to come" she said.

In Detroit where the Allied Social Science Associations conheld this week, there was held this week there was a story of a Washington college with a single job opening—and 800 applicants.

"Some of these résumés really are pathetic" said John Versace, a Ford Motor Company official who wanted to hire a statistical expert with management experience. Many résumés indicated that the job seeker's present pay was only half of what he had been earning a year or so earlier, Mr. Versace said.

He found few with the qualifications he wanted. However, he was sought out by young Ph.D. candidates who did not have the needed experience. "They're really looking for lesser slots," he said.

In every area there are specialties for which the demand still meets — or exceeds —the supply. At the A.A.A.S. annual meeting, scientists surveying the generally bleak job picture said that there were still shortages of highly skilled people in astronomy, earth sciences, some areas of biology and the medical sciences.

But, they added, these are

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(Sic)

Some of the reasons for the "serious imbalance in the supply and demand of scientists were outlined by Dr. Allan M. Cartter, chancellor of New York University, in a paper on scientific trends for 1970-85.

"The cessation of growth and contract research in universities since 1968 and the reductions of research and development, defense and aerospace expenditures in the non-university sector, have brought home to us with a resounding thud what it might have taken another several years to fully comprehend," he said.

"The conclusion is the same, however: We have created a graduate education and research establishment in American universities that is about 30 to 50 per cent larger than we shall effectively use in the nineteen seventies and early nineteen eighties, and the growth process continues in many sectors. The readjustment to the real demands of the next 15 years is bound to be painful."

A Population Decline

Another reason that the manpower crisis will worsen, Dr Cartter said, is that the college-age population will be declining and thus the need for college teachers will decline.

"The 'under-5' population right now is 13 per cent below its 1965 level," he said. "The high school class of 1979 will be 25 per cent larger than the class of 1986. . . [and] by the nineteen eightys there will be an absolute decline in the number of eligible [college] students."

This does not mean, he said, that "any substantial number of persons with a doctorate will be unemployed" unless there is a national depression. It does indicate, however, that "an increasing proportion of these specialists will not be employed in jobs for which they were trained or to which they aspire."

In the field of history, too, some specialties are in demand and others over-supplied. There are, for example, too many historians specializing in modern Europe and the United States, according to Miss Clancy.

"There are lots of jobs in African and Asian history," she said. "And if you are black and teach black history, you're not here — you've got a job."

A study by the American Historical Association eight years ago predicted that 500 new Ph.D's would be needed in 1969. The number of history Ph.d's awarded in 1969 was 880, according to Prof. Robert R. Palmer of Yale University, the association's president.

One effect of this over-production, he said, is that historians with Ph.D's have been taking jobs at junior colleges and some have even sought high school teaching jobs until something better comes along.

Coal Gas Routs Tenants

Survey Finds Private Colleges Must Have 'Significant Aid' to Offset Expected Deficits

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By M. A. FARBER

A survey of 75 per cent of the country's 762 private, accredited four-year colleges and universities shows that nearly half expect operating deficits in the current fiscal year totaling about $87-million.

Private higher education, on the whole, is "not yet in desperate straits," according to a report on the survey issued yesterday by the Association of American Colleges. But, the report continued, "Private colleges and universities are apprehensive and they have reason to be. Most colleges in the red are staying in the red and many are getting redder, while colleges in the black are generally growing grayer."

The report, released here and at an association meeting in Cincinnati, said that private institutions "will not long be able to serve higher education and the nation with strength unless significant aid is soon forthcoming."

Officials of the association called the survey the "most comprehensive study" of the financial status of private colleges and universities. The institutions responding to the survey, they said, were representative of all private higher education.

Dr. Clark Kerr, chairman of the Carnegie Commission on Higher Education, said last month that two-thirds of all American colleges and universities were in grave financial difficulty or headed in that direction. He based his estimate on an intensive study for the commission of 41 private and public institutions in 21 states.

Among the key points in the report issued yesterday were the following:

¶The type of Federal aid preferred by the colleges and universities were grants directly to institutions for general use or physical facilities. However, aid in "virtually any form," including grants and loans directly to students, appeared acceptable.

¶An increasing number of institutions seem to be underestimating the deficits they will incur—fewer institutions actually expect a deficit than last year.

¶The most popular methods to reduce existing deficits were to borrow and to transfer funds from unappropriated surpluses, while the most popular way, by far, to head off deficits was to raise tuition.

¶The granting of student aid was placing "a considerable burden" on the institutions—the increase alone in the last four years was $10-million, or 904 per cent.

The report, prepared by William W. Jellema, the association's research director, analyzed "hard" data or financial projections for the fiscal years 1967-68 through 1970-71, the present year.

A "bad situation deteriorated rapidly" after 1968, it noted. "Instruction costs are higher with no increase in productivity, building costs are higher, maintenance costs are higher, security costs are higher, students and their parents are demanding 'wall-to-wall' services, while inflation has continued to blur any kind of financial datum line."

The "average" institution in the survey, the report said, finished its 1968 fiscal year with a surplus of $39,000. A year later it had a deficit of $20,000, which quintupled to $103,000 by the end of June, 1970. The expected deficit for the "average" institution in the current year is $115,000.

On the average, institutions with the largest enrollments and the most graduate programs—and those in the upper Midwest, mid-Atlantic and New England regions — have the greatest deficits.

In 1967-68, of the institutions surveyed, 187 ran deficits totaling $36-million; in 1968-69, 234 institutions had combined deficits of $57-million; and last year, 307 institutions accumulated deficits of $86-million. In 1970-71, the report said, 261 institutions expect deficits totaling $87-million.

The median deficit for the institutions incurring deficits will be 4.2 per cent of current fund expenditures in 1970-71, the report said.

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THE NEW YORK TIMES, SATURDAY, FEBRUARY 27, 1971

Private-College Applications Decrease Sharply

¶The similtaneous emergence of many new and high quality state universities where teaching, not research, is stressed.

¶A growing disenchantment with college curricula that is prompting some students to question the utility of higher education, and possibly to post-

lieves, means that each student is filing fewer applications and "placing" them better.

The trend is not consistent everywhere and the reasons for it are not fully understood. But conversations with school officials across the country suggest a convergence of several complex factors. Among them are the following:

¶A depressed economy which has forced many applicants out of the private college market to seek cheaper high quality education at public schools near home.

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By ROBERT REINHOLD
Special to The New York Times

BOSTON, Feb. 26—A widespread shift in the patterns by which young Americans apply to colleges, marked by a precipitous drop in applications to high-cost private schools and a rise in applications to lower-cost public institutions, is causing uncertainty and some apprehension this year on campuses across the country.

The number of applications received at five of the eight high-prestige Ivy League schools is down significantly, with an 18 per cent drop at Yale and 11 per cent at Harvard. And some other private schools, already badly deficit-ridden have only half as many applicants this year as last. One small liberal arts school in Georgia that prefers to remain unidentified, accustomed to 350 applicants, has only seven.

"Many college people are scared to death. They haven't heard of anything like this since the nineteen-thirties," remarked Ted Cooper, executive director of the National Association of College Admissions Counselors, which represents most major colleges and high schools.

But, like many experts, he does not expect that the total enrollment "when the dust settles" in September will be very different from past years. The decline in applications, he be-

Continued From Page 1, Col. 7

pone or drop plans to attend college.

¶A greater sophistication among students and parents, many of whom no longer think it necessary to attend prestige schools to get good educations.

¶Unhappiness about attending schools in dense urban areas.

From the standpoint of census there is no reason to believe that there will be a real decline in new college enrollment. According to projections made by the United States Office of Education, 1.94 million students will enroll in college for the first time this fall, a rise of 5 per cent over 1970.

Still, the shrunken application figure is causing much comment at the prestige schools, although most officials say there is no loss of academic quality. "It isn't a bad factor," said Yale's admissions director, John Muyskens Jr. "The quality is there though the numbers are down."

In the Ivy League, declines are expected at Brown, Princeton and Pennsylvania, in addition to Harvard and Yale. But Columbia, Cornell and Dartmouth appear to be up slightly.

To some extent, these changes are viewed as adjustments from previous fluctuations. Yale, for example, jumped 48 per cent and Princeton 33 per cent last year after going co-ed. Columbia is still recovering from a sharp drop in applications after the disturbances of 1968.

For Harvard, it is the second large decline in a row. This year about 7,100 applications are expected for its 1,200 freshman places, contrasted with 8,500 applicants in 1969.

A Theory Offered

One theory is that unqualified applicants are selecting themselves out of the Ivy League, as rising application fees make it expensive to apply to many schools just to see what happens.

"Whereas a year or two ago a person might apply to five schools for $50, those same applications now cost near $100," said Dr. Chase N. Peterson, Harvard's dean of admissions. "We suspect people are just applying to fewer schools."

"But tuition rises are another factor," he said. Fixed fees at Harvard are now $4,470 a year, excluding travel and incidentals. "We suspect parents of saying, 'Look, Sonny, we can't afford to send you to the Ivy League. You just have to go to State U.' Our scholarship fund is still capable of helping, but parents just don't seem to believe us."

But James H. Rogers, admissions director at Brown, was not so sanguine. "Each time you put up the cost of an education at Brown, Yale or at Podunk, you are effectively reducing the number of people who can attend your institution and pay full freight," he said.

"And there just isn't an institution in the United States that doesn't require at least 50 per cent of its students to be full-paying guests. It's gotten to the point now where there just aren't enough students to go around who can pay their own way."

The small colleges, too, are down. Amherst, which is known as the most selective school in the country because it normally gets about nine applications for each of its 300 freshmen places, expects to be off 6 per cent this year.

Michael Colglazier of the Amherst admissions staff, attributes this to both the economy and a sense that "high school seniors feel no immediate need to go to college."

Also affected are the big science schools, like Massachusetts Institute of Technology, where applications are down 20 per cent. "It does not look like a diminution in the quality of the class" said Roland Greeley, director of admission, "But a continuation of this trend would be serious."

Some schools are resorting to special incentives and recruiting to bolster applications. New York University, where applications are down 9 per cent, is offering to match New York State Regents grants to students entering commerce, education and engineering which are particularly hard hit.

Losses Absorbed

The large state schools meanwhile, appear to be absorbing some of the private school losses. Experts say that in-state applications are generally up and out-of-state ones down, as might be expected in the present economy.

The University of North Carolina, for example, reports a huge 33 per cent rise. Its director of admissions, Richard Cashwell, counts it as part of a national trend from private toward public education. "If there ever was difference" he said "that difference has diminished."

Rutgers, Wayne State and Michigan report the same trend, with slightly higher figures this year. But Michigan has had a 20 per cent drop in out-of-state applications.

There are a number of glaring exceptions to the pattern. Bowdoin College, a small private school in Maine, has received 50 per cent more applications than last year, propably making it more selective than Amherst. "We've never had a year like this," said Richard Moll, the admissions director.

There are several factors involved in the sharp rise in applications for admission to Bowdoin. The school is admitting women undergraduates for the first time in its history in the 1971-72 academic year. It has also made college board examinations optional and, in addition, has announced a number of curricular reforms.

Mr. Moll also points to Bowdoin's pastoral setting in the Maine woods, an attraction at a time when many students are concerned about the environment.

Drop at Kent State

Conversely, Kent State in Ohio is experiencing a 46 per cent decline. This is generally assumed to be a reaction to the National Guard shootings that left four students dead there last year.

Another exception is the University of Wisconsin, a state school where in-state applications are running 16 per cent behind last year's level. This is attributed, in part, to the opening of two new four-year colleges in the state system.

Most schools are likely to weather the vicissitudes of 1971, but some experts see darker storm clouds on the horizon. Mr. Cooper believes that, partly because of rising costs and student resistance, the scramble to get those students who can pay their own way "is going to get very rough in the next few years."