

**Bulletin of
The University of Minnesota**

**REPORT OF THE SURVEY
COMMISSION**

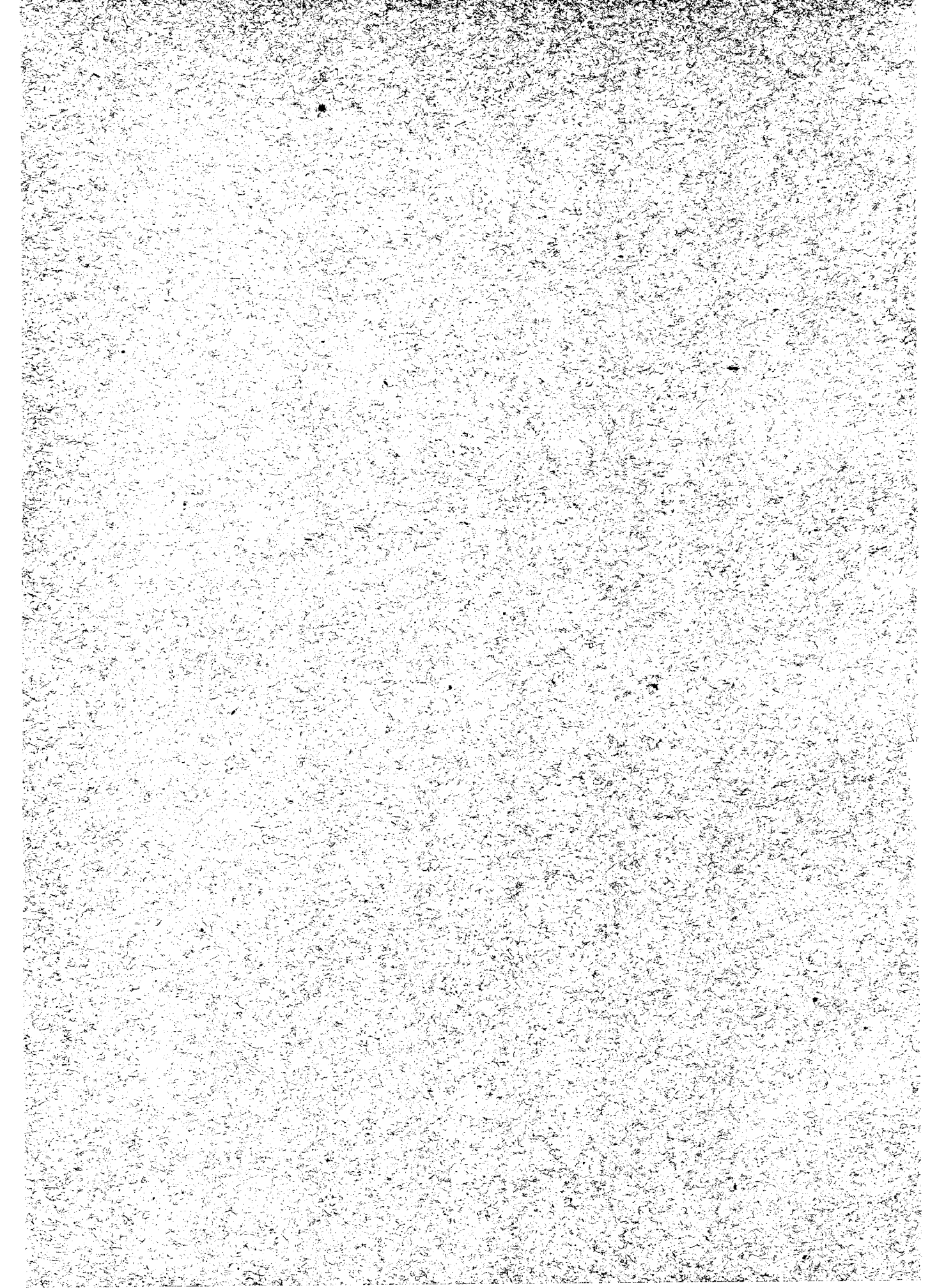
IV

THE INSTRUCTIONAL SERVICE OF THE UNIVERSITY

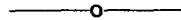


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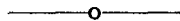


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IV



THE INSTRUCTIONAL SERVICE OF THE UNIVERSITY

THE INSTRUCTIONAL SERVICE OF THE UNIVERSITY

THE SCHOOLS AND COLLEGES; THE STUDENTS REGISTERED; THE
TEACHING STAFF

TO THE INTERIM EDUCATION COMMISSION OF THE LEGISLATURE:

In Table I has been assembled a complete list of the colleges and schools of the University, together with the number of departments in each, the size of the instructional staff and the number of students now registered.

In all there are twelve colleges, schools and the General Extension Division that are coördinate in rank, each representing one of the major units of the University's organization. In addition to these major units there are the several subcollegiate schools, administered as parts of the College of Education and the Department of Agriculture respectively. For each of these groups of enterprises, viz.: colleges, schools, General Extension Division, and subcollegiate schools, the total registration figures, as they stand at the present date, are shown with all duplications deducted.

Taking this table as a collection of totals it is possible to see, at a glance, the relative size of the various administrative divisions of the University. For instance, the College of Science, Literature, and the Arts, which is the oldest of all the colleges, contains a total of 22 separate departments. At the present time 1,978 men, and 1,454 women, or a total of 3,432 students in all are registered in this college. Other lines of this table are to be read in a similar manner.

In reading this table it will be noticed that some colleges are divided into departments, while others are not. In the University the word "department" is used in two senses. In some of the colleges it is used in referring to a division of the college budget. Again, it is used to designate certain major divisions of the curriculum. In this table it has reference to divisions of the curriculum and not to budgetary matters.

In all the twelve colleges there is a total of 94 such departments; with a total registration of 5,394 men and 2,640 women, or a grand total of 8,034 students. In the four secondary schools, which are attached to the University, there is a total enrolment of 796 boys and 325 girls, or a total of 1,121 pupils. The totals for extension courses and for correspondence courses are 3,894 and 295, respectively.

The grand totals show that the University consists of twelve colleges, divided, for purposes of administering the curriculum, into 94 different departments; four secondary schools; and an extension and correspondence division. The grand total registration in all the departments of the University, exclusive of duplicate entries, amounts to 8,007 men and 5,337 women or a total of 13,344 students.

TABLE I

THE COLLEGES; THE NUMBER OF DEPARTMENTS, OF FACULTY MEMBERS, AND OF STUDENTS, FALL QUARTER, 1921

Name of College or School	Number of Instructional Departments	Total** Staff	Number of Students Registered This Quarter		
			Men	Women	Total
1. Science, Literature, and the Arts.....	22	163.64	1,978	1,454	3,432
2. Engineering and Architecture.....	6	70.83	984	11	995
3. Agriculture, Forestry, and Home Economics	18	155.79 (36.99)†	383	364	747
4. Law School.....	0	7.00	284	13	297
5. Medical School, including School of Nursing	10	42.76	303	130	433
6. College of Dentistry, including course for dental hygienists.....	10	20.34	387	28	415
7. School of Mines.....	4	10.56	167		167
8. College of Pharmacy.....	6	5.58	106	25	131
9. School of Chemistry.....	5	19.37	101	11	112
10. College of Education.....	9	25.84*	107	552	659
11. Graduate School.....	0	.50‡	507	129	636
12. School of Business.....	0	24.23	123	25	148
Total schools and colleges.....	90	546.44	5,430	2,742	8,172
Total number duplicates.....			36	102	138
Net total schools and colleges...			5,394	2,640	8,034
1. University High School.....		14.54	103	118	221
2. Central School of Agriculture.....			478	89	567
3. Northwest School of Agriculture....		12.05	114	61	175
4. West Central School of Agriculture..		12.40	102	57	159
5. Northeast School of Agriculture....		1.00			
6. Zumbra Heights.....		1.00			
Total subcollege schools.....		40.99	797	325	1,122
Total duplicates in subcollege schools			1		1
Net total for subcollege schools..			796	325	1,121
1. Extension	4	4.85	1,673	2,221	3,894
3. Military	0	.08			
4. Physical Education.....	0	9.10			
2. Correspondence	0	‡	144	151	295
Total Extension, etc.....	4	14.03	1,817	2,372	4,189
Total number of duplicates.....					
Net total for Extension, etc....			1,817	2,372	4,189
1. Dean of women.....		1.00			
2. Dean of student affairs.....		1.00			
3. Zoological Museum.....		1.00			
4. Mines (Tax Commission).....		1.89			
Total, miscellaneous.....		4.89			
Grand totals for the University..	94	606.35	8,007	5,337	13,344

* Includes University High School Faculty of 16.

‡ Remainder included in other faculty groups; the faculty of the Graduate School is made up from other faculties. Few or none give their entire time to graduate teaching.

† In the College of Agriculture, etc., the total number of full-time members of the staff is 155.79; but of this total only 36.99 have a teaching function.

** Numbers in the Faculty are figured on the basis of full-time service; part-time services being calculated as fractional parts of the full-time unit.

THE DEPARTMENTS

With this general characterization of the University in mind, we shall now take up separately and for brief discussion, each of the several points covered by your first question, which asks for information on the "several departments" of the University.

As suggested above, the word "department" is used in two senses in this University. One to refer to the distribution of the budget within a college or school; and the other to refer to an organization of the curricula of a college or school. A budget department has reference to the finances involved in handling a curriculum department. In this sense they correspond. For budgetary purposes, but four of the colleges are departmentalized, namely: Science, Literature, and the Arts, with 24 departments; the College of Engineering and Architecture with 10 departments; the Department of Agriculture with 20 departments; and the Medical School with 10 departments; while, for curriculum purposes, not only the above colleges are departmentalized, but also the College of Education with 9 departments; the School of Chemistry with 5 departments; the College of Pharmacy with 6 departments; the School of Mines with 4 departments; and the College of Dentistry with 10 departments.

Naturally, as a college or school becomes large and departments become more and more specialized, a definite distribution of the budget with respect to departments is desirable for administrative reasons. When the departments are small and few in number, however, such distribution of funds tends to complicate rather than facilitate administration.

The number of departments in any school or college depends upon the extent to which the subject-matter of that unit has been developed. In the early years of college-building in America, medicine, agriculture, education, mining, etc., each was taught as a single course. Since then these sciences have been developed in so many directions that economy in handling the instruction within the various aspects of any one of these fields demands such an administrative organization as that represented by our departments. What was once medicine, or "physic," is now physiology, anatomy, obstetrics, pharmacology, surgery, pediatrics, medicine, pathology, bacteriology, etc. Further development and further specialization within one or another of these fields is inevitable when, by investigation and research, we shall have explored them more fully. Whether a college is departmentalized for instructional purposes or not is, therefore, a question of scientific development and educational policy; whether it is departmentalized for budgetary purposes or not is a question of economy of management.

A university that accepts the status quo of all subjects and that does not devote itself to the expansion of those subjects will almost surely accept the status quo of organization, management, and teaching method as well, in which case administrative overhead, as well as instructional costs, will be relatively low.

No state university, and only an occasional and almost unknown small college, in this country, has accepted that definition of a university or that philosophy of higher education. The alternative of this is an institution which frankly assumes the responsibility for keeping its courses of instruction, as well as its teaching methods and equipment, adjusted to the changing demands of the time. It makes itself a dynamic constructive force in its state, while at the same time it conserves

and passes on to the youth the intellectual heritage of the past. Such an institution will be departmentalized and its departments will increase in number so long as it busies itself with the solution of the unsolved problems within its fields.

When to establish a new department in a college is, then, a highly technical and scientific question, long before it reaches the stage of being a practical administrative problem. And the decision to open a new department—and the same statement applies to courses—or to continue to maintain a department which appears to increase the cost of instruction in a college must be made, not merely in the light of money costs but, as well, in the light of the scientific value of the thing purchased. A high priced department may be, from the standpoint of scientific development and educational need, the most important department in the college.

That some departments in any modern university will be dealing with relatively new and unexplored fields is not only inevitable but most desirable. Such a department helps to furnish an added stimulus to instruction as well as to research and discovery. And eventually it will make its contribution to the people and to the institutions of the country.

Throughout this report information touching the meaning and significance of “departments” as they exist in this University will be presented. The department is so constantly used as a unit in the discussion that further facts need not be presented here.

STUDENT REGISTRATION

The second point in Question One asks for information concerning the number of students in the various departments. In answering this question it should be made clear, first, that not only are the departments of a college not separate and distinct, in the sense of having distinct student bodies, but that the same is, to a very large extent, true also of colleges.¹ A student entering the University registers for work in a certain school or college and may later specialize within a certain department. An examination of his record at the end of four years, however, will show that he has studied in many departments and often in from three to a half dozen different colleges. In order to make this point clear two sets of facts will be introduced at this point. First, figures showing the number of students in one college who took courses in another college during 1920-21; and, second, the extent to which the attainment of certain college degrees requires such exchanges between colleges.

Table II shows, in Part 1, the number of students from the College of Agriculture who took courses in certain colleges and departments on the main campus last year; and, in Part 2, the number of students from the main campus who took courses in the College of Agriculture.

¹The Law School is very nearly an exception to this statement, since law students take few or no courses in other colleges and few or no students from other colleges elect courses in law.

TABLE II (Part 1)
THE REGISTRATION OF AGRICULTURAL COLLEGE STUDENTS IN CLASSES
ON THE MAIN CAMPUS IN 1920-21

Department	Number of Quarter Courses	Average Number of Students per Course	Total Number of Student Regis- trations	Total Student Credit Hours per Week	Total Student Class Hours per Week
Animal Biology.....	11	34	370	1,831	3,650
Anthropology	10	3	26	96	96
Art Education.....	5	1	7	14	45
Bacteriology	5	27	134	662	1,186
Botany	12	19	227	1,133	2,246
Chemistry	12	40	475	2,105	3,754
Economics*	25	4	105	399	443
Education‡	5	9	47	141	148
Rhetoric-English	6	1	6	21	21
Geology	11	4	40	184	201
German	5	1	6	30	30
Greek	4	3	13	26	26
History	2	1	2	10	10
Military Science and Tactics...	8	40	318	9†	963
Mathematics	2	2	3	15	15
Music	18	1	22	50	64
Physical Training (Men).....	4	26	103	¶	113
Physical Training (Women)...	15	26	397	¶	943
Physics	8	2	12	30	42
Philosophy	2	1	2	10	10
Physiology	3	35	105	525	840
Political Science.....	8	8	65	325	325
Psychology	8	18	145	429	435
Romance Languages.....	13	2	21	103	102
Scandinavian	3	1	3	11	11
Sociology	20	7	132	515	515
Totals	225 (Average)12		2,786	8,674	16,243

* Courses in agricultural economics offered on the University Farm campus are not included.

† Six of these eight courses are in basic R.O.T.C. instruction and carry no credit.

¶ Non-credit courses.

‡ Courses in agricultural education and home economics education offered on the University Farm campus are not included.

Because of the distance between the two campuses these are the most difficult intercollegiate coördinations that we could suggest. Yet, the extent to which the interchange takes place here is very marked, and one has only to think of what it would mean in cost if the College of Agriculture had been compelled to provide teachers, equipment, supplies, rooms, etc., for the 223 registrations for which the students of agriculture entered on the main campus last year, to see what this interdepartmental and intercollegiate registration and instruction of students means.

TABLE II—(Part 2)

THE MAIN CAMPUS STUDENTS REGISTERED FOR CLASSES IN THE DEPARTMENT OF AGRICULTURE, IN 1920-21

Division	Number of Quarter Courses	Average Number of Students per Course	Total Number of Student Registrations	Total Student Credit Hours per Week	Total Student Class Hours per Week
Agricultural Biochemistry.....	1	1	1	3	3
Agricultural Education.....	1	1	1	3	3
Agricultural Economics.....	7	5	34	104	104
Home Economics.....	27	7	179	596	1,131
Horticulture	5	2	8	24	31
Totals	41	5	223	730	1,272

A second illustration is shown in Table III, which summarizes similar figures for the School of Chemistry for last year. From this table it will be seen that students from other colleges studied in 75 different courses, representing 256 course credits in the School of Chemistry. In all, 4,662 student registrations, each covering one quarter's work, were handled in this school; only 731 of these were in the School of Chemistry, and 3,931 in other colleges. The distribution of the latter is shown by colleges in this table. The last line of the table shows in student credits of work what all this study amounted to in actual instruction.

TABLE III

THE REGISTRATION OF STUDENTS OF THE SEVERAL COLLEGES IN THE SCHOOL OF CHEMISTRY; AND THEIR STUDENT CREDITS IN THIS SCHOOL 1920-21

Division	No. of Courses	Course Credits per Quarter	Student Credits	Total Student Registrations	Colleges or Schools											
					Agriculture	Chemistry	Dentistry	Education	Engineering	Graduate School	Medicine	Mines	Pharmacy	Pre-medical Science, Liera- terature, and the Arts		
General Chemistry.....	19	77	13,941	3,105	559	161	215	44	842	7	118	195	236	728		
Analytical Chemistry.....	9	30	1,198	319	4	107		2	38	3	78		59	28		
Organic Chemistry.....	13	42	2,555	658		150	128	5		35	2	169	24	145		
Physical Chemistry.....	15	44	1,243	300	4	97		20		48	46		60	25		
Technological Chemistry.	6	18	348	116		84			26	6						
Chemical Engineering....	13	45	644	164		132				32						
Totals	75	256		4,662	567	731	343	71	906	131	48	196	364	379	926	
Total Student credits			19,929		2,558	2,942	1,372	333	4,453	439	193	706	1,456	1,526	3,951	

NOTE: Under each college heading, the number of student registrations in chemistry and the number of student-credits for which students registered are given

Total student-credits for which students in School of Chemistry registered..... 2,942
Total student-credits in chemistry for which other colleges registered..... 16,987

Other illustrations from other colleges, particularly from the College of Science, Literature, and the Arts could be given, all of which show that for the students these colleges are not separate institutions, but that each is a part of a larger whole—the University.

The second set of data covering this point of where students register is presented in Table IV. In this table are listed a number of different degrees which are granted by various colleges, together with a distribution to the various colleges of the credits necessary to earn each of the degrees. Not all possible cases are presented, but quite enough are shown to make clear the extent to which the whole purpose and program of a college is related to and interwoven with the purposes and programs of other colleges.

The first degree noted in the table is that of doctor of dental surgery. Reading the top line of the first section of this table we see that during the freshman year a student working for this degree must earn a total of 45 credits. Of this total, 18, or 40 per cent, must be taken in the College of Dentistry; 15, or 33.3 per cent, in the Medical School; and 12, or 26.7 per cent, in the School of Chemistry. During the four years a total of 203 credits must be earned, as shown in the fifth line of the table. Of this total 28.6 per cent is done in the Medical School; 62.6 per cent in the College of Dentistry; 1 per cent in the School of Mines; and 7.8 per cent in the School of Chemistry. The data for each of the other degrees listed in the table are to be read in a similar way.

Even a casual examination of these facts will show that while a student may be registered in one college he almost invariably takes from ten or fifteen to thirty or forty per cent of his work, and sometimes even more, in other colleges than that in which he is registered.

The figures on registration, therefore, even tho they are presented by colleges, do not give a clear indication as to the relative burden of actual instructional work borne by any given college. This burden can only be expressed accurately in terms of the number of student credits of instruction given by the college, together with certain other associated facts. Later in the report this sort of analysis of the instructional burden will be clearly set forth.

TABLE IV

THE DISTRIBUTION THROUGH THE COLLEGES OF WORK REQUIRED FOR EACH OF SEVERAL DEGREES, EXPRESSED IN STUDENT CREDITS

Degree	College Granting Degree	Year	Total Hours Required for Degree	Colleges Contributing to Work for Degrees																			
				Science, Literature, and the Arts		Engineering and Architecture		Agriculture		Medical		Dentistry		Mines		Pharmacy		Chemistry		Education		Electives	
				Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%
Doctor of Dental Surgery	Dentistry	Fr.	45						15	33.3	18	40						12	26.7				
		Soph.	50						25	50.0	21	42						4	8.0				
		Jr.	54						14	25.9	38	70.4	2	3.7									
		Sr.	54						4	7.4	50	92.6											
		Totals .	203						58	28.6	127	62.6	2	1.0				16	7.8				
Graduate in Dental Hygiene	Dentistry	1st	52	4	7.7	1	1.9		21	40.4	19	36.5						3	5.8	4	7.7		
		2nd	51	9	17.6				3	5.9	39	76.5											
		Totals .	103	13	12.6	1	1.0		24	23.3	58	56.3						3	2.9	4	3.9		
Mechanical Certificate	Dentistry	1st	39								39	100.0											
		Totals .	39								39	100.0											
Bachelor of Science in Mechanical Engineering	Engineering and Architecture	Fr.	48			33	68.75											15	31.25				
		Soph.	54	22	40.7	32	59.3																
		Jr.	55	9	16.4	46	83.6																
		Sr.	54	22	40.8	26	48.1						6	11.1									
		Totals .	211	53	25.1	137	64.9						6	2.9					15	7.1			
Mechanical Engineer	Engineering and Architecture	1-4.....	(Same as for Bachelor of Science in Mechanical Engineering)																				
		Post-Sr. .	54	6	11.1	42	77.8						6	11.1									
		Totals .	265	59	22.3	179	67.5						12	4.5					15	5.7			

TABLE IV—Continued

THE DISTRIBUTION THROUGH THE COLLEGES OF WORK REQUIRED FOR EACH OF SEVERAL DEGREES, EXPRESSED IN STUDENT CREDITS

Degree	College Granting Degree	Year	Total Hours Required for Degree	Colleges Contributing to Work for Degrees																				
				Science, Literature, and the Arts		Engineering and Architecture		Agriculture		Medical		Dentistry		Mines		Pharmacy		Chemistry		Education		Electives		
				Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	%	
Engineer of Mines (in Geology)	Mines	Fr.	63	10	16.0	13	20.8					20	32.0			20	31.2							
		Soph.	63	20	31.8	4	6.4					34	54.1			5	7.7							
		Jr.	63	54	81.7							10	15.7									2	2.6	
		Sr.	63	39	72.8							13	23.9									2	3.3	
		Totals .	252	123	48.7	17	7.5					77	31.6			25	10.8					4	1.4	
Engineer of Mines	Mines	Fr.	63	10	16.0	13	20.0					20	31.7			20	31.6							
		Soph.	63	19	30.1	4	6.4					35	55.5			5	8.0							
		Jr.	63	2	3.1	5	8.0					56	88.9											
		Sr.	63	7	11.1	5	8.0					51	80.5											
		Totals .	252	38	15.1	27	11.1					162	63.5			25	10.4							
Pharmaceutical Chemist	Pharmacy	Fr.	67											52	77.6	15	22.4							
		Jr.	64											47	73.4	17	26.6							
		Sr.	72	2	2.8					11	15.3			59	81.9									
		Totals .	203	2	1.0					11	5.4			158	77.8	32	15.8							
Bachelor of Science in Agriculture	Agriculture	Fr.	51	9	17.7			30	58.8							12	23.5							
		Soph.	52	9	17.3			38	73.1	5	9.6										12	23.5		
		Jr.	51					39	76.5															
		Sr.	50	3	6.0			30	60.0												17	34.0		
		Totals .	204	21	10.3			137	67.1	5	2.5					12	5.9				29	14.2		

Bachelor of Science in Forestry	Agricul- ture	Fr.	57	14	24.5		31	54.4		12	21.1				
		Soph.	47	14	29.8		33	70.2					51	100.0	
		Jr.	51	{ 25† (25.0) †			{ 69† (69.0) †							49	100.0
		Sr.	49	{			{								
		Totals .	204	28	13.7		64	31.4		12	5.9			100	49.0
			(53)	(26.0) †		(133)	(65.2) †								
Bachelor of Science in Home Economics	Agricul- ture	Fr.	41	9	21.9		20	48.8		12	29.3				
		Soph.	52	9	17.3		24	46.2	10	19.2			9	17.3	
		Jr.	49				35	71.4				14	28.6		
		Sr.	47				36	76.6				8	17.0	3	6.4
		Totals .	189	18	9.5		115	60.9	10	5.3	12	6.3	22	11.7	12	6.3
Bachelor of Science in Chemistry	School of Chem- istry	Fr.	51	21		15				15					
		Soph.	51	21		15				15					
		Jr.	55	6		3				46†					
		Sr.	56	6						50					
		Totals .	213	54	25.3	33	15.5				126	59.2			
Chemistry Engineering	School of Chem- istry	Fr.	51	9		27				15					
		Soph.	54	24		15				15					
		Jr.	62	9		22				31					
		Sr.	54	4		11			3	36					
		Totals .	221	46	20.8	75	33.9			3	1.4	97	43.9		

† Indicating a distribution in hours and per cents of the combined work of the junior and senior years all of which is elective.

‡ Part of the total units required are electives.

Turning now to the registration figures, attention is first called to the facts set forth in Table V. In this table is shown the number of students enrolled for each college and the total registration, annually, from 1913-14 to 1920-21 inclusive. These figures represent net enrolment and refer to the number of students doing the major portion of their work in each of the colleges. As stated above, it must not be inferred that they represent in an accurate way the relative burden that rests upon each of the several colleges and schools in the University.

For the registration figures for the earlier years of the University the reader is referred to pages 6 and 7 of the *Bulletin of the University of Minnesota*, Volume XXIII, Number 25, 1920.¹

The figures in Table V cover the war period completely and show rather clearly the influence of the war upon registration in the University. The real slump came in 1918, after which the figures have risen rapidly each year. It may be said in passing that rapid growth in the student body is characteristic, not only of the University of Minnesota, but of practically all of the universities and colleges in this country.

With these general facts before us, we will now take up a consideration of certain figures which are more suggestive of the real problem with which the University is confronted than are the bare enrolment figures themselves, important as these are.

From what has already been presented it is clear that our colleges and departments are intimately related to each other when it comes to an examination of the actual work that each is doing. The figures of Table V, therefore, suggest only the relative emphasis that is being placed upon each of the main lines of work in the University—the general goals toward which students are taking their training. That is, the registration figures for the College of Agriculture show the number of students that have chosen the field of agriculture as their major interest, those for the School of Mines indicate the number of students that have chosen mining as their major interest, and similarly with each of the other colleges.

From the standpoint of costs the particular way in which a student registers, that is, the particular combination of courses which he chooses, is more important than may at first seem. It is also important from the standpoint of building space, laboratory equipment, teaching staff, and administration. If a student enrolls in one class only, and that a lecture course conducted by a young instructor in a room just large enough to hold the class, then that student would represent about the lowest possible cost. If he were registered in six courses, some of which were small and conducted, under expensive laboratory conditions, by the highest rank of professor, he would not only be a far more expensive student but would create certain difficult problems, in the details of curriculum administration, not created by the other student.

Naturally, as the University grows large in colleges, departments and courses it makes possible a wider range of selection of work by the student. This enriched program is as much superior to the narrow course of training offered a quarter of a century ago, as is the modern electric light to the old kerosene lamp; but, like the electric light, it increases the cost of education and creates new problems in administration. To these problems "class registration" is more intimately related than is bare university or college registration.

¹ Copies of this bulletin have been filed with your Committee.

TABLE V
STUDENT REGISTRATION IN THE UNIVERSITY OF MINNESOTA
1913 TO 1921

Colleges	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21
Science, Literature, and the Arts.....	1,592	1,818	2,349	2,481	2,325	2,148	3,746	3,063
Engineering	438	475	526	530	461	957	1,213	1,084
Agriculture, etc.....	527	676	732	746	553	415	724	757
Law	176	177	171	222	134	147	267	264
Medicine	219	275	332	348	383	466	541	528
Dentistry	275	266	375	372	340	347	400	408
Mines	130	90	105	80	74	107	158	165
Pharmacy	98	101	80	107	77	113	117	115
Chemistry	82	52	66	103	99	151	176	141
Education	112	109	109	204	199	286	496	599
Business							88	128
Graduate	165	222	335	383	327	316	557	689
Totals	3,814	4,261	5,180	5,576	4,972	5,453	8,483	8,841

In Table VI is presented in full detail the class registration facts for the year 1920-1921. This table is divided into two parts. Part 1 shows the class registrations of students of each grade, in each college, for each quarter of, and in totals for the year, 1920-21; the total number of courses taught in each college in each quarter and the total number of student credit hours taken. Part 2 presents the same data departmentally, as well as by colleges or schools, for the entire year.

In this table it must be remembered that we are dealing with a student, not merely as a single member of the University, but as a member of each of the several classes to which he belongs. Consequently he is included in our figures as many times as his record shows him to have been a member of some class group in the University. For instance, if a student took three courses in the fall quarter in a given college, he would appear three times in the figures of that college for that quarter.

To read this table, then, we would proceed as follows, taking Part 1: In the College of Science, Literature, and the Arts, the numbers registered in classes as graduate, senior, junior, sophomore, freshman, and special students are shown in

each quarter of the year and are totalled for the year as 1,140 graduates, 4,014 seniors, 5,354 juniors, 13,992 sophomores, 11,990 freshmen, and 880 special students, etc., making a grand total of 38,860, entered in 939 courses and taking 148,957 student credit hours.

In Part 2, the same data will be found as in Part 1, but they are analyzed for each department for the whole year. By way of further explanation of Table VI, Parts 1 and 2, it will be noted that during the year there were 1,140 separate class registrations by graduate students. This does not mean that there were 1,140 graduates. It is possible that one graduate student may have made two or three of these registrations. Similarly there were 4,014 senior student registrations, 5,354 junior student registrations, 13,992 sophomore registrations, 11,990 freshman registrations, 880 special student registrations, and 1,490 unclassified registrations, making a total of 38,860 class registrations cared for in the College of Science, Literature, and the Arts during the last year.

In the next column of the table appears the actual number of courses taught in the college and in the last column the total number of student credit hours taken in the college. In other words, if during the last year, we add together the students in all the classes of this college we will have a total class list of 38,860 names, and these will be listed in a total of 939 separate courses.

Some of these courses grant only one unit of credit,* others grant two, three, or possibly a half-dozen credit units. So, if we take the number of students in any given class and multiply it by the number of credits for which the course provides, we will then have the number of student credits taken in that course. Similarly, if this is done for all the classes and these totals are finally added together, we will have for the year a total of 148,957 student credits of instruction actually given by the college. The data for other colleges are to be read in a similar way.

This table seems to present a large mass of data. This amount is necessary if a reasonably complete answer to the question asked is given. The arrangement of this table in two parts makes it easy to examine the facts for the University as a whole, or for any college, or for any of the various departments, and thus to make possible comparisons without an extended discussion.

It is believed that these figures show, from an important angle, the relative size of colleges and departments, and at the same time give some indication as to whether the college is doing largely elementary or largely advanced work, and the extent of its work with each grade of students. It will be seen, for instance, that no graduate work is done in the Law School or in the College of Dentistry, and that but little is done in either the School of Mines or the College of Pharmacy. Compared with the total number of class registrations for the year, the Medical School does relatively the highest per cent of graduate work, the figure, however, being only 3.7 per cent of the total number of registrations.

* One credit equals one lecture or recitation hour, or its equivalent, per week for one quarter.

TABLE VI (Part 1)

REGISTRATION OF STUDENTS, BY UNIVERSITY GRADES, IN EACH COLLEGE OR SCHOOL;
THE NUMBER OF COURSES TAUGHT; THE NUMBER OF STUDENT CREDITS TAKEN

1920-21

College or School	Quarter	Total Number of Class Registrations							Total Number of Courses	Total Student Credit Hours Taken	
		Graduate	Senior	Junior	Sophomore	Freshman	Special	Un-classed			
Science, Literature, and the Arts	1st	342	1,310	1,770	4,969	3,947	357		12,695	293	53,894
	2nd	382	1,389	1,941	4,774	4,091	254		12,831	324	48,886
	3rd	416	1,315	1,643	4,249	3,952	269	1,490	13,334	322	46,177
	Totals..	1,140	4,014	5,354	13,992	11,990	880	1,490	38,860	939	148,957
Engineering and Architecture	1st	5	138	367	887	1,380	10		2,787	95	12,498
	2nd	8	167	564	867	1,265	6		2,877	105	10,522
	3rd	7	106	462	645	1,057	16		2,293	124	9,365
	Totals..	20	411	1,393	2,399	3,702	32		7,957	324	32,385
Agriculture	1st	146							2,203	111.5	7,161.5
	2nd	165			(Distribution not obtainable)				2,141	127.5	7,340.5
	3rd	124							1,915	117	6,555
	Totals..	435							6,259	356.0	21,057
Law School	1st		59	88		110			257	15	3,131
	2nd		59	89		105			253	18	3,131
	3rd		53	86		100			239	17	3,130
	Totals..		171	263		315			749	50	9,392
Medical School	1st	102	782	1,513	349	282	43		3,071	130	9,909
	2nd	103	628	968	593	251	113		2,656	131	10,331
	3rd	98	544	411	871	390	89		2,403	114	8,643
	Totals..	303	1,954	2,892	1,813	923	245		8,130	375	28,883
Dentistry	1st		93	121	95	82			391	22	5,247
	2nd		89	118	105	73			385	22	5,049
	3rd		89	116	99	75			379	20	5,418
	Totals..		271	355	299	230			1,155	64	15,714
Mines	1st	5	45	64	286	48			448	23	1,980
	2nd	6	60	82	258	88			494	25	2,517
	3rd	6	52	203	235	44			540	25	2,756
	Totals..	17	157	349	779	180			1,482	73	7,253
Pharmacy	1st	1	19	46		52	2		120	16	2,088
	2nd	1	19	38		42	2		102	17	2,111
	3rd	1	18	40		46	2		107	20	2,104
	Totals..	3	56	124		140	6		329	53	6,303

TABLE VI (Part 1)—Continued

REGISTRATION OF STUDENTS, BY UNIVERSITY GRADES, IN EACH COLLEGE OR SCHOOL;
THE NUMBER OF COURSES TAUGHT; THE NUMBER OF STUDENT CREDITS TAKEN
1920-21

College or School	Quarter	Total Number of Class Registrations							Total	Number of Courses	Total Number of Student Credit Hours Taken
		Graduate	Senior	Junior	Sophomore	Freshman	Special	Un-classed			
Chemistry	1st	52	128	171	305	1,188	1	1,845	26	7,991	
	2nd	53	120	139	286	1,035	11	1,644	27	7,025	
	3rd	60	107	120	232	656	8	1,183	28	4,015	
	Totals..	165	355	430	823	2,879	20	4,672	81	19,031	
Education	1st	77	226	208	57	21	114	703	74	2,921	
	2nd	98	225	136	39	18	144	660	77	2,545	
	3rd	69	142	185	73	25	116	610	77	2,509	
	Totals..	244	593	529	169	64	374	1,973	228	7,975	
Business	1st	51	482	526	843	403	65	2,370	27	9,498	
	2nd	48	447	493	1,004	376	76	2,444	27	10,318	
	3rd	33	294	454	893	159	59	1,892	24	8,329	
	Totals..	132	1,223	1,473	2,740	938	200	6,706	78	28,145	
General Extension	1st sem...							4,789	219	16,442	
	2nd sem...							2,710	69	6,575	
	Totals..							7,499	288	23,017	
Military Education	1st		4	32	626	999		1,661	5	4,983	
	2nd		4	29	543	882		1,458	5	4,374	
	3rd		5	42	445	689		1,181	5	3,546	
	Totals..		13	103	1,614	2,570		4,300	15	12,903	
Physical Education (Women)	1st	6	89	156	593	1,292	10	2,146	13	5,794	
	2nd	1	83	188	488	598	8	1,376	17	3,579	
	3rd	1	74	160	442	517	5	1,199	16	3,082	
	Totals..	8	246	504	1,523	2,407	23	4,721	46	12,455	
Physical Education (Men)	1st		2	7	99	1,418		1,586	1	3,052	
	2nd		4	8	91	966		1,069	1	2,138	
	3rd		5	10	64	569		648	1	1,276	
	Totals..		11	25	254	2,953		3,303	3	6,486	

TABLE VI (Part 2)

REGISTRATION OF STUDENTS IN COLLEGES AND DEPARTMENTS; THE NUMBER OF COURSES TAUGHT; THE NUMBER OF STUDENT CREDITS TAKEN

1920-21

College or School	Departments	Total Number of Class Registrations							Total Number of Student Credits Taken		
		Graduate	Senior	Junior	Sophomore	Freshman	Special	Unclassed	Total Courses	of Student Credits Taken	
Science, Literature, and the Arts	Animal Biology....	80	42	141	608	1,202	29	21	2,123	52	9,726
	Anthropology	36	296	226	334	151	51		1,094	28	3,969
	Astronomy		29	60	141	30	8		268	26	1,178
	Botany	59	61	56	253	367	26		822	30	3,755
	Comp. Philology...	14	30	4	7				55	8	126
	English	70	411	323	290	39	49	121	1,303	34	4,681
	Geology.....	51	183	183	545	203	3		1,168	55	4,114
	German	52	117	111	557	585	31		1,453	76	6,040
	Greek	7	123	103	86	15	12	21	367	23	853
	History	130	293	400	585	836	40	1,163	3,447	46	15,775
	Journalism		33	42	54				134	9	396
	Latin	22	29	42	76	128	2	5	304	24	1,311
	Mathematics	46	64	130	388	871	21	7	1,527	36	7,377
	Music	6	279	151	324	224	7		991	96	2,273
	Philosophy	24	138	155	288	30	11	1	647	21	2,907
	Physics	119	54	272	2,829	298	55		3,627	38	7,609
	Political Science...	64	489	738	961	278	80	58	2,668	36	10,934
	Psychology	65	102	443	1,412	39	34	72	2,167	24	5,656
	Rhetoric	14	330	461	1,716	3,709	126		6,356	55	26,604
	Romance Languages	184	289	652	1,448	2,399	124		5,096	147	21,608
Scandinavian	11	46	43	77	110	5	4	296	32	1,228	
Sociology	86	576	618	1,013	476	161	17	2,947	43	10,836	
	Totals	1,140	4,014	5,354	13,992	11,990	880	1,490	38,860	939	148,957
	Totals per cent..	2.94	10.33	13.78	36.01	30.85	2.26	3.83	100.0		
Engineering and Architecture	Architecture	1	43	42	130	137	24		377	84	2,684
	Civil Engineering....		61	155	277		3		496	34	2,865
	Drawing		32	30	719	1,206			1,987	48	4,878
	Electrical Engineering.....		173	205	288		3		669	47	3,346
	Mathematics		9	847	756	1,122			2,734	45	12,503
	Mechanical Engineering.....	19	93	114	229	1,237	2		1,694	66	6,109
		Totals	20	411	1,393	2,399	3,702	32	7,957	324	32,385
	Totals per cent	.25	5.17	17.6	30.1	46.5	.4	100.0			
Agriculture	Agr. Economics....	52							221	11	811
	Agronomy	40							362	24	1,070
	Agr. Education....	7							178		
	Agr. Engineering....								403	18	1,681
	Entomology	18							95	38	368
	Rhetoric								973	18	3,617
	Home Economics..	16							1,424	79	5,402
	Dairy Husbandry...	20							258	15	1,017
	Plant Pathology....	69							111	13	321
Agr. Biochemistry...	125							392	24	1,638	

TABLE VI (Part 2)—Continued
 REGISTRATION OF STUDENTS IN COLLEGES AND DEPARTMENTS; THE NUMBER OF
 COURSES TAUGHT; THE NUMBER OF STUDENT CREDITS TAKEN
 1920-21

College or School	Departments	Total Number of Class Registrations							Total Number of Student Credits Taken	
		Gradu- ate	Senior	Junior	Sopho- more	Fresh- man	Spe- cial	Un- classified	Total Courses	Number of Credits
Agriculture— Continued	Publications							10	1	30
	Soils	7						169	7	427
	Forestry	3						368	34	1,078
	Bee Culture.....	0						146	6	438
	Animal Husbandry.	14						571	19	1,368
	Vet. Medicine.....	15						187	13	628
	Poultry							92	5	258
	Horticulture.....	49						299	31	905
	Totals	435						6,259	356	21,057
	Totals per cent....	69.56								
Law School	Totals		171	263		315		749	50	9,392
	Totals per cent...		22.83	35.11		42.06		100.0		
Medical School	Anatomy	97	8	34	442	684	62	1,327	47	7,148
	Physiology	13	3	3	316	107	42	484	25	3,718
	Pharmacology	10	57	230	483	46		826	24	2,290
	Bacteriology	28	19	7	290	86	121	551	29	2,485
	Pathology	65	70	161	214		19	529	17	2,280
	Medicine	25	621	827	68			1,541	70	4,423
	Surgery	5	302	1,007			1	1,315	48	3,484
	Obstetrics	33	296	257				586	47	1,165
	Pediatrics	15	137	365				517	44	1,225
	Ophthalmology and Oto-Laryngology..	12	441	1				454	24	656
		Totals	303	1,954	2,892	1,813	923	245	8,130	375	28,883
	Totals per cent	3.73	24.03	35.57	22.3	11.35	3.02	100.0		
Dentistry	Totals		271	355	299	230		1,155	64	15,714
	Totals per cent..		23.46	30.74	25.89	19.91		100.0		
Mines	Mining		34	60	63	3		160	10	805
	Mining Engineering..			39	181			220	5	1,366
	Mine P. and Mech..		32	58	197	132		419	19	2,545
	Metallurgy	17	91	192	338	45		683	39	2,537
	Totals	17	157	349	779	180		1,482	73	7,253
	Totals per cent..	1.17	10.59	23.54	52.56	12.14		100.0		
Pharmacy	Totals	3	56	124		140	6	329	53	6,303
	Totals per cent...	.91	17.03	37.69		42.55	1.82	100.0		

TABLE VI (Part 2)—Continued

REGISTRATION OF STUDENTS IN COLLEGES AND DEPARTMENTS; THE NUMBER OF COURSES TAUGHT; THE NUMBER OF STUDENT CREDITS TAKEN

1920-21

College or School	Departments	Total Number of Class Registrations							Number of Courses	Total Number of Student Credits Taken
		Graduate	Senior	Junior	Sophomore	Freshman	Special	Unclassed		
Chemistry	Gen. Inorganic.....	7	19	66	257	2,749	7	3,105	21	13,941
	Analytical	3	3	80	233			319	11	1,198
	Organic	61	101	177	302	17	10	668	13	2,557
	Physical	61	68	52	5	113	1	300	15	1,243
	Technological	6	56	28	26			116	6	348
	Chem. Engineering..	27	108	27				164	15	644
	Totals	165	355	430	823	2,879	20	4,672	81	19,931
Totals per cent..	3.53	7.6	9.2	17.62	61.62	.43	100.0			
Education	Art Education.....	1	40	40	71	63	36	251	47	1,447
	Ad. and Supervision..	91	75	79	12			347	38	1,264
	Educ. Psychology..	117	87	123	23		112	462	26	1,390
	Hist. Phil. of Educ..	7	47	90	25		5	174	18	832
	Th. & Prac. of Teach.		169	66	6	1	18	260	43	1,077
	Home Econ. Educ....		84	59				143	13	710
	Trade and Industry..	21	16	8			113	158	27	681
Agr. Education.....	7	75	64	32			178	16	574	
Totals	244	593	529	169	64	374	1,973	228	7,975	
Totals per cent..	12.37	30.06	26.80	8.57	3.2	18.96	100.0			
Business	Totals	132	1,223	1,473	2,740	938	200	6,706	78	28,145
	Totals per cent..	1.96	18.24	21.97	40.86	13.99	2.98	100.0		
General Extension Division	Business Courses...							2,713	40	7,382
	English Classes....							710	43	1,905
	Collegiate Classes..							3,118	57	6,143
	Corres. Courses....							958	148	7,587
Totals							7,499	288	23,017	
Totals per cent..							100.0			
Military Education	Totals		13	193	1,614	2,570		4,300	15	12,903
	Totals per cent..		.30	2.40	37.53	59.77		100.0		
Physical Education (Women)	Totals	8	246	504	1,533	2,407	23	4,721	46	12,455
	Totals per cent..	.17	5.21	10.68	32.47	50.98	.49	100.0		
Physical Education (Men)	Totals		11	25	254	2,953		3,243	3	6,486
	Totals per cent..		.34	.78	7.83	91.05		100.0		

THE TEACHING STAFF

The question is asked: "How many teachers are there in the various departments?" The term "teacher" is accepted as applying to those individuals who actually face classes. Laboratory assistants, scholars, technicians, graduate assistants, student assistants and scientific workers furnish instructional service, but none of these persons are included in the term "teachers."

In 1904 the University had 9 deans, 61 professors, 21 assistant professors, 2 lecturers, 63 instructors, and 20 assistants, or a total of 176. Five and one-tenth per cent of the staff, in 1904, consisted of deans, and 34.7 per cent were professors of the highest rank. The proportion of deans has declined with the expansion of the faculty. This, of course, would have meant a relative decline in administrative overhead were it not for the fact that with the growth of a college the administrative duties also grow and must be distributed more and more to departmental heads, who are compelled to give up a portion of their teaching time in order to do this work. In 1904, again, more than one third of the entire faculty consisted of professors of full rank. As the years have passed, however, this proportion has gradually declined until now this group constitutes but 16.2 per cent of the entire faculty. These figures, however, are not fairly comparative because the records of the earlier years numbered these professors and teachers of other ranks individually and without reference to the fraction of time or the full-time service they contributed. To-day and in recent years two half-time men are reckoned as one full-time teacher. The declining proportion is partly explained, also, by the fact that previous to 1908 the rank of associate professor did not exist. Accordingly, we may assume that those who, subsequent to 1908, have held the rank of associate professor, were, previous to this time, about equally distributed between full professors and assistant professors. This would tend to modify what appears to be a very marked decline in the high rank of teachers; yet, even with the figures for associate professors added to those of the higher title, there is still a definite decline of teachers in the upper ranks.

Corresponding to this decline there is a rough increase in the percentage of instructors. This is a tendency which is to be deplored, even though it is characteristic of practically all colleges and universities in the country. Its meaning, however, is clear. It means that a larger and larger percentage of the instruction in higher education is being shifted into the hands of young and inexperienced teachers and that now a relatively lower percentage of students than in earlier years is coming into intimate contact with the great scholars and teachers of the country during their early years at the University. While we have no figures for comparison, it is believed that Minnesota's position among universities in general is not exceptionally unfavorable, yet it is evident that this is a tendency which the University must guard against.

It is true that this relative decline in higher ranks is offset to some extent by the development of new methods in teaching and managing classes, but lack of contact with great teachers in the early years of one's college career can never be fully compensated for.

The following Table VII shows the distribution of the teaching staff of the University by colleges. There were 606.35 full-time teachers employed in 1920-21. This does not mean that the full time of these individuals was devoted to teaching. In the Department of Agriculture, at the agricultural campus, 155.79 full-time individuals of academic rank were employed. However, only 36.99 full-time persons are chargeable to instruction in the College of Agriculture. The remainder of the 155.79 (or 118.80 persons) were working for the experimental station, the School of Agriculture and the Agricultural Extension Division.

In the School of Mines the time of 1.89 persons of the 12.45 was employed in the Tax Commission work and for the Mines Experiment Station.

Table VII also shows the number of courses, the total number of course credits offered by each college, the total number of student credit hours taken in the college, the number of student credits per year, and the number of students per teacher.

Table VIII shows the same facts as Table VII, but by departments, and gives also the total number of registrations in each college.

The ratio of the number of teachers to students is found by dividing the total number of student credit hours offered in each college or department by the number of student credits taken per year by a student. This sum represents the number of full year students instructed by each college; and dividing this by the number of teachers the ratio desired was obtained.*

The student credits taken per year vary from 45 to 67, varying with the college. Each college thus receives credit for each student taught, regardless of the college he may be registered in.

The number of teachers in each department of those colleges that are divided into departments in the University budget is shown.

* The figures showing the number of teachers to students are hypothetical, because the basis of calculation, as to the number of student credit hours, is very variable; and because the actual number of students taught by the teacher in the several classes is not conditioned either upon the full-time study of the student or the full-time teaching of the instructor.

TABLE VII
THE INSTRUCTIONAL STAFF AND THE TEACHING LOAD
 1920-21

College or School	Instructional Staff						Number of Courses Taught	Total Number of Course Credits Offered	Total Number of Student Credit Hours Taken	Number of Credits per Year	Number of Students per Teacher†
	Deans and Professors	Associate Professors	Assistant Professors	Instructors	Lecturers	Totals					
Administration	2.0					2.0					
General University.....	1.08		3.0	6.1		10.18					
Science, Literature, and the Arts..	41.55	15.7	34.34	66.45	5.6	163.64	939	2,970	148,957	45.0	20.02
Engineering and Architecture....	10.55	6.4	10.0	42.73	1.15	70.83	324	910	32,385	25.0	9.0
Agriculture	27.24	18.79	44.27	65.29	.2	155.79*	356	1,365	21,057	51.0	13.8
						(36.93)					
Medical School.....	13.95	10.24	4.07	14.4	.1	42.76	375	1,570	28,883	45.0	15.4
Chemistry	4.4	3.0	4.69	7.28		19.37	81	274	19,929	53.25	19.3
Mines	4.0	3.0	2.0	3.45		12.45	73	455	7,253	63.0	7.1
						(10.56)†					
Dentistry	4.7	3.17	5.11	7.36		20.34	64	192	15,714	50.75	15.1
Law School.....	6.5				.5	7.0	50	137	9,392	40.0	33.0
Pharmacy	3.0	1.0		1.58		5.58	53	219	6,303	67.66	16.6
Education	5.53	1.5	7.84	9.97	1.0	25.84	228	635	7,975	45.0	8.2
Graduate School.....	.5					.5					
School of Business.....	2.0	3.0	6.0	12.23	1.0	24.23	78	277	28,145	45.0	29.9
Substations	2.0		7.78	16.67		26.45					
Extension Division.....		1.0	1.1	2.75		4.85					
High School.....			1.0	13.54		14.54					
Totals	129.0	66.8	131.2	269.8	9.55	606.35	2,621	9,004	325,995	530.66	17.38

* Only the 36.93 "teachers" in the College of Agriculture are included in determining the ratio of students to teachers, because the remainder do not teach.

† 1.89 persons on the instruction staff have been omitted in determining the ratio of students to teachers, because their time is devoted to the Tax Commission and mines experiment work.

‡ The figures showing the number of teachers to students are hypothetical, because the basis of calculation, as to the number of student credit hours, is very variable; and because the actual number of students taught by the individual teacher in the several classes is not conditioned either upon the full-time study of the student or the full-time teaching of the instructor. The numbers reported in each rank in the instructional staff are figured on a basis of full-time service; part-time services being calculated as fractional parts of the full-time unit.

TABLE VIII-A
THE DISTRIBUTION OF THE INSTRUCTIONAL STAFF AND THE TEACHING LOAD
1920-21

College or School by Departments	Instructional Staff					Totals	Number of Courses Taught	Total Number of Course Credits Offered	Total Number of Student Credit Hours Taken	Number of Credits per Year	Number of Students per Teacher*
	Deans and Pro- fessors	Associate Pro- fessors	Assistant Pro- fessors	In- structors	Lec- turers						
Science, Literature, and the Arts											
Administration	1.6	.6	1.69	52		4.41					
Animal Biology.....	3.33	1.0	1.49	3.0		8.82	52	193	9,726	2,123	24.48
Anthropology	1.0			1.0	1.0	3.0	28	90	3,969	1,094	29.4
Astronomy	1.0		1.0			2.0	26	102	1,178	268	13.1
Botany	3.52	1.0	2.2	1.0		7.72	30	132	3,756	822	10.8
Comparative Literature.....	Prof. Firkins on leave of absence										
Comparative Philology.....	1.0					1.0	8	17	126	55	2.8
English	2.42	2.0				4.42	34	118	4,681	1,303	23.53
Geology and Mineralogy.....	3.0			5.0		8.0	55	175	4,114	1,168	11.43
German	1.0		2.49	5.0		8.49	76	252	6,040	1,453	15.81
Greek	1.0					1.0	23	69	853	367	18.9
History	4.52	1.3	2.0	1.0		8.82	46	184	15,775	3,447	30.6
Journalism			1.0			1.0	9	25	396	134	8.8
Latin	1.0			1.0		2.0	24	82	1,311	304	14.56
Mathematics	1.52	3.3	.49	3.46		8.77	36	156	7,377	1,527	19.11
Music	1.0		1.0	6.15		8.15	96	198	2,273	991	6.2
Philosophy	2.0					2.0	21	81	2,907	647	32.3
Physics	4.0		1.0	3.0	1.0	9.0	38	66	7,609	3,627	18.66
Political Science.....	2.0	1.0	3.0		.9	6.9	36	144	10,934	2,668	35.21
Psychology		2.5	2.3	2.0	1.0	7.8	24	66	5,656	2,167	15.82
Rhetoric .....	.72	1.0	6.68	23.66		32.06	55	192	26,604	6,356	18.4
Romance Languages.....	3.0	1.0	7.0	9.0	.94	20.94	147	393	21,608	5,096	22.93
Scandinavian	1.92					1.92	32	113	1,228	296	14.2
Sociology	1.0	1.0	1.0	1.66	.76	5.42	43	122	10,836	2,947	44.42
Totals	41.55	15.7	34.34	66.45	5.60	163.64	939	2,970	148,957	38,860	20.02

* The figures showing the number of teachers to students are hypothetical, because the basis of calculation, as to the number of student credit hours, is very variable; and because the actual number of students taught by the individual teacher in the several classes is not conditioned either upon the full-time study of the student or the full-time teaching of the instructor.

TABLE VIII-B
THE DISTRIBUTION OF THE INSTRUCTIONAL STAFF AND THE TEACHING LOAD
1920-21

College or School by Departments	Instructional Staff					Totals	Number of Courses Taught	Total Number of Course Credits Offered	Total Number of Student Credit Hours Taken	Number of Credits per Year	Number of Students per Teacher*
	Deans and Pro- fessors	Associate Pro- fessors	Assistant Pro- fessors	In- structors	Lec- turers						
Engineering and Architecture											
Architecture	1.9	.64	3.0	1.08	.15	7.67	84	256	2,684	377	6.7
Civil Engineering.....	2.02	1.0	2.0	4.65		9.67	34	102	2,865	496	5.7
Drawing	1.02		1.0	11.58		14.0	48	105	4,878	1,587	6.7
Electrical Engineering.....	2.02	1.0	1.0	4.98		9.0	47	114	3,346	669	10.4
Experimental laboratories.....	.74			.98		1.72					
Mathematics	1.02	1.76	3.0	10.68		16.76	45	156	12,503	2,734	14.3
Mechanical Engineering.....	1.31	2.0		7.18	1.0	11.49	66	177	6,109	1,694	10.2
Administration .....	.52					.52					
Totals	10.55	6.4	10.0	42.73	1.15	70.83	324	910	32,385	7,557	9.0
Agriculture											
Agricultural Economics.....	.52		.53			1.05	11	39	811	221	15.1
Agronomy .....	.42	.34	1.03	.38		2.17	24	64	1,070	362	20.9
Agricultural Education.....	.08		.09			.17				178	
Administration .....	.21					.21					
Agricultural Engineering.....	.33	.87	.97	1.0		3.17	18	73	1,681	403	10.4
Entomology .....	.77		.16			.93	38	202	368	95	9.2
Rhetoric			1.41	1.5		2.91	18	66	3,617	973	24.0
Home Economics.....	.58	1.5	4.13	5.98	.09	12.28	79	301	5,402	1,424	8.2
Dairy Husbandry.....	.74		.83	.17		1.74	15	55	1,017	258	11.5
Animal Husbandry.....	1.14		.66	.13		1.93	19	73	1,368	571	12.7
Veterinary Medicine.....	.28		.14	.31		.73	13	40	628	187	16.9
Poultry .....	.3					.3	5	15	258	92	20.2
Plant Pathology.....	.62		.13	.86		1.61	13	38	321	111	3.9
Biochemistry .....	.64	.71	.91	1.15		.41	24	121	1,638	392	10.1
Publications .....	.2					.2	1	3	30	10	2.9
Soils .....	.19		.12			.31	7	21	427	169	27.0
Forestry	1.21	.43	.05	.23		1.92	34	112	1,078	368	12.0
Bee Culture.....	.46	.14				.6	6	27	438	146	17.0
Horticulture .....	.29	.66	.27	.07		1.29	31	115	905	299	14.0
Totals	8.98	4.65	11.43	11.78	.09	36.93	356	1,365	21,057	6,259	13.8

* The figures showing the number of teachers to students are hypothetical, because the basis of calculation, as to the number of student credit hours, is very variable; and because the actual number of students taught by the individual teacher in the several classes is not conditioned either upon the full-time study of the student or the full-time teaching of the instructor.

TABLE VIII-C
THE DISTRIBUTION OF THE INSTRUCTIONAL STAFF AND THE TEACHING LOAD
1920-21

College or School by Departments	Instructional Staff						Number of Courses Taught	Total Number of Course Credits Offered	Total Number of Student Credit Hours Taken	Total Number of Regis- trations	Number of Students per Teacher*
	Deans and Pro- fessors	Associate Pro- fessors	Assistant Pro- fessors	In- structor	Lec- turers	Totals					
Medical School											
Anatomy	3.0	1.49		3.25		7.74	47	178	7,148	1,327	20.5
Physiology	2.53	3.0		1.3		6.83	25	123	3,718	484	12.1
Pharmacology	1.0	.85				1.85	24	67	2,299	826	27.6
Bacteriology	1.0	1.0		2.0		4.0	29	124	2,485	551	13.8
Pathology	1.0	1.0	.09	1.51		3.6	17	46	2,280	529	14.1
Medicine	1.5	.5	1.0	2.25		5.25	70	473	4,423	1,541	18.7
Surgery	1.25	2.1	1.25	.3		4.9	48	153	3,484	1,315	15.8
Obstetrics	1.0	.3	.64	.4		2.34	47	98	1,165	586	11.0
Pediatrics	1.0		.34	1.11		2.45	44	279	1,225	517	11.1
Ophthalmology and Oto- Laryngology .....	.3		.75	.52		1.57	24	29	656	454	9.5
Embalming .....					.1	.1					
Administration .....	.37					.37					
Elliot Hospital.....				1.76		1.76					
Totals	13.95	10.24	4.07	14.4	.1	42.76	375	1,570	28,883	8,130	15.4
Education											
Art Education.....			1.0	2.0		3.0	47	86	1,447	251	10.7
Administration and Supervision	1.57	1.0	.55		.17	3.29	38	93	1,264	347	8.5
Educational Psychology.....	.59		1.82		.6	3.01	26	62	1,390	112	10.2
Administration	1.0					1.0					
History and Philosophy of Education	1.0			1.0		2.0	18	61	832	174	9.3
Theory and Practice of Teach- ing .....	.29	.1		1.57		1.96	43	141	1,077	260	12.2
Agricultural Education.....	.69		1.23			1.92	16	52	574		6.6
Home Economics Education...	.39	.4	1.24	.52		2.23	13	64	710		2.2
Trade and Industry.....			2.0	.2	.23	2.43	27	76	681	158	6.2
Totals	5.53	1.5	7.84	9.97	1.0	25.84	228	635	7,975	1,302	8.2

* The figures showing the number of teachers to students are hypothetical, because the basis of calculation, as to the number of student credit hours, is very variable; and because the actual number of students taught by the individual teacher in the several classes is not conditioned either upon the full-time study of the student or the full-time teaching of the instructor.

SABBATICAL LEAVE

The figures presented in Table IX show by colleges the number of persons on the staff who were entitled last year to sabbatical leave. It also shows the number who did not take advantage of the privilege and how those who did take the sabbatical leave used their time. These are very striking figures since they show so conclusively that the provision has thus far had virtually no influence, economic or otherwise, on the University.

These figures are shown in Table X by ranks instead of by colleges. Everywhere these figures tell the same story, viz., that, on the whole, members of the staff do not take advantage of this provision.

TABLE IX
THE FACULTY USE OF SABBATICAL LEAVE
1920-21

Colleges, Schools, and Other Major Units	Number of Faculty Who			
	Were entitled to sabbatical leave in 1920-21	Did not take sabbatical leave in 1920-21	Used sabbatical leave for :	
			Teaching elsewhere	Vacation, study, travel, etc.
Science, Literature, and the Arts.	42.0	39.0		3
Engineering and Architecture....	19.7	18.7		1
Agriculture	44.9	41.9		3
Law School.....	2.0	2.0		
Medical School.....	16.0	15.0	1	
Dentistry	0.0			
Mines	4.0	4.0		
Pharmacy	3.0	3.0		
Chemistry	3.5	3.0		.5
Education	3.0	3.0		
Business	0.0			
Military Department.....	0.0			
Physical Education for Women..	0.0			
Physical Education for Men.....	0.0			
General Extension Division.....	0.0			
Totals	138.1	129.6	1	7.5

TABLE X
THE FACULTY USE, IN EACH TEACHING RANK, OF SABBATICAL LEAVE.
1920-21

Entire University Faculty Grouped by Ranks	Number of Faculty Who			
	Were entitled to sabbatical leave in 1920-21	Did not take sabbatical leave in 1920-21	Used sabbatical leave for :	
			Teaching elsewhere	Vacation, study, travel, etc.
Professors	75.1	71.8	1.0	2.3
Associate Professors.....	32.2	29.0		3.2
Assistant Professors.....	24.8	24.8		
Instructors	4.0	2.0		2.0
Lecturers.....	2.0	2.0		
Totals	138.1	129.6	1.0	7.5

STUDENT WORK

The fourth point raised in Question One asks for information on "the number of subjects taken by students."

There are so many facts and conditions that are closely associated with, in fact inseparable from, this question that any save the most superficial reply on this point must take a number of them into consideration. For instance, the number of subjects taken by students will depend upon the number of courses available, how long the courses are, the amount of work involved, whether they are required or elective, etc., in endless ramification.

The following discussion will attempt, therefore, without too much detail, to reply to the spirit of this question, by showing in one set of tables:

1. How many courses were taught in the University last year;
2. How long those courses were, that is, how many class credits they offered; and,
3. What this meant in student registrations and student credits;

and, by a second set of tables:

1. What was actually accomplished by students in the way of credits earned; conditioned, failed, etc.;

and, by a third set of tables:

1. The number and length of courses offered in the current quarter;
2. The distribution of these as to graduates and undergraduates;
3. Their distribution as to character of instruction;
4. The distribution of all student credits among the elementary and advanced courses;

and, by a fourth set of tables:

1. The number of courses taken by students as judged by a study of over 2,000 cases; and,
2. Just what was accomplished in credits earned, etc., in these sample cases.

In presenting these facts four tables will be used. Tables XI, XII, XIII, and XIV. Table XI will be in two parts, Table XII in two parts, Table XIII in four parts, and Table XIV in eight parts. Each of these four tables will attempt to develop, as fully as seems necessary, one particular set of facts touching the point under consideration.

Some brief explanation of the word "course" has been given above. A word as to how the length of a course is determined may not be out of place, in view of the wide variety in lengths of courses which our figures are to show. Either or both of two things may enter into the determination of the length of a course: the extent and logic of the subject-matter itself, and administrative necessity. The length of the term, the length of the week and of the day, the availability of rooms

and equipment, the teaching force, the relation of a given body of subject-matter to an entire line of training running through several years, the convenience of the student, as well as the natural logical divisions of the subject-matter, all serve to determine how long a course shall be.

The desirable length of a course is that which does no violence to the logic of the subject while at the same time it meets the largest possible practical need. Because scientific teaching has in recent years found that the logic of the subject is of less importance in this connection than was formerly supposed, very much finer adjustments are being made to-day in the administration of a modern university curriculum than were thought possible a decade ago. Instructional space in buildings, as well as teaching equipment, is being used more constantly. Variety in the length of courses is permitting innumerable adjustments to the needs of bright and slow students.

The extent to which the courses of this University make possible these finer adjustments may be judged by the figures which follow. In Table XI, Parts 1 and 2, is presented a complete display of the courses given in the University during the year 1920-21. Part 1 shows the number of one-unit, two-unit, three-unit, etc., courses taught in each of the colleges during each quarter of the year, and for the summer term as well. Part 2 shows the unit courses in each college by departments for the entire year.

With this simple showing it is possible to read a full description of the work done in any college for any quarter of the year 1920-21, and in any department for the full period.

Perhaps the one outstanding impression that one gets from an examination of these figures is that of their great variety at every point, whether in comparing colleges, departments, or quarters of the school year. In order that some notion of the amount of work done in these courses might be had, while examining the whole display of courses, there was added to this set of tables, in the two right hand columns, the number of student registrations.

The first line in Part 1 of this table reads as follows: the College of Science, Literature, and the Arts gave instruction during the fall quarter of last year in 35 one-unit, 45 two-unit, 130 three-unit, 12 four-unit, and 70 five-unit courses. Together these amounted to 914 course credits. These courses were taken by enough students so that, in all, 53,894 student credits were registered for in classes totaling 13,849 in registration.

Comparisons between colleges and between the various departments within any one of the colleges are shown in Part 2. And, if one will turn to the figures of Table VI and following, dealing with the teaching staff, and study them together with these figures, it will be clear that the number of students per teacher varies greatly and that the ratio of high ranking professors to size of student groups is by no means constant.

In the management of a university such quantitative relations as these, which at first thought seem logical, are rarely maintained. Nor is it desirable to maintain them, except very roughly, since to do so would almost inevitably put instructional emphasis in the wrong place, force men into grooves for which they are not properly fitted, and in general lay stress upon orderly arrangement in study and teaching rather than upon the real educational needs of the student and upon initiative and originality in the professor.

TABLE XI (Part 1)

THE UNIVERSITY COURSES AND CREDITS OFFERED AND TAKEN IN EACH COLLEGE
1920-21

College or School	Quarter	Number of Courses Providing Credit of						Total Number of Class Credits Offered	Number of Student Credits Taken	Number of Student Class Registrations
		1 Unit	2 Units	3 Units	4 Units	5 Units	More Than 5 Units			
Science, Literature, and the Arts	1st	35.3	45	130.3	12	70		914.3	53,894	12,695
	2nd	35.3	45	152.3	14	77		1,023.3	48,886	12,831
	3rd	35.3	46	147.3	13	79	2	1,032.3	46,177	13,334
	Totals	106	136	430	39	226	2	2,970	148,957	38,860
Engineering and Architecture	1st	6	34	33	9	6	2-(No Cr.) 5	264	12,498	2,787
	2nd	9	37	37	8	9	5	296	10,522	2,787
	3rd	10	50	35	10	10	9	350	9,965	2,293
	Totals	25	121	105	27	25	19	910	32,385	7,867
Agriculture	1st	5.5	7	59	6	31	3	393.5	7,161.5	2,203
	2nd	5.5	10	69	7	32	4	444.5	7,340.5	2,141
	3rd	3	6	71	4	29	4	411	6,555	1,915
	Totals	14	23	199	17	92	11	1,249	21,057	6,259
Law School	1st		6	5	3	1		44	3,130.7	257
	2nd		9	9				45	3,130.7	253
	3rd		6	8	3			48	3,130.7	239
	Totals		21	22	6	1		137	9,392	749
Medical School	1st	44	21	23	10	13	19	556	9,909	3,071
	2nd	50	16	20	11	10	24	542	10,331	2,656
	3rd	35	19	22	11	8	19	472	8,643	2,403
	Totals	129	56	65	32	31	62	1,570	28,883	8,130
Dentistry	1st	4	8	3	2	1	4	66	5,247	391
	2nd	5	8	1	3	0	5	66	5,049	385
	3rd	3	7	2	5	1	2	60	5,418	379
	Totals	12	23	6	10	2	11	192	15,714	1,155
Mines	1st		2	5	4	3	9	63	1,980	448
	2nd			5	4	4	12	93	2,517	494
	3rd			2	5	5	13	96	2,756	540
	Totals		2	12	13	12	34	252	7,253	1,482
Pharmacy	1st			7	2	2	5	76	2,088	120
	2nd	1	1	6	5	1	3	65	2,111	102
	3rd	1	2	7	5	2	3	78.33	2,104	107
	Totals	2	3	20	12	5	11	219.33	6,303	329

TABLE XI (Part 1)—Continued

THE UNIVERSITY COURSES AND CREDITS OFFERED AND TAKEN IN EACH COLLEGE
1920-21

College or School	Quarter	Number of Courses Providing Credit of						More Than 5 Units	Total Number of Class Credits Offered	Number of Student Credits Taken	Number of Student Class Registrations
		1 Unit	2 Units	3 Units	4 Units	5 Units					
Chemistry	1st	1	5	7	7	6		90	7,991	1,845	
	2nd	1	6	10	4	6		91	7,025	1,644	
	3rd	1	8	6	5	8		93	4,915	1,183	
	Totals	3	19	23	16	20		274	19,931	4,672	
Education	1st	7	20	34	1	8	4	213	2,921	703	
	2nd	7	22	40	1	3	4	210	2,545	660	
	3rd	8	20	42	0	6	1	212	2,509	610	
	Totals	22	62	116	2	17	9	635	7,975	1,973	
Business	1st		1	18	2	6		94	9,498	2,370	
	2nd		1	16	2	8		98	10,318	2,444	
	3rd		1	15	2*	6		85	8,329	1,892	
	Totals		3	49	6	20		277	28,145	6,706	
Extension Division	1st	7-(1.5)		104	84-4.5	1-(6)	8-(No Cr.) 8-15	723	16,442	4,789	
	2nd	1-(1.5)		60		1-(6)	7-(No Cr.)	187.5	5,575	2,710	
	Totals	8-(1.5)		164	84-4.5	2-(6)	15-(No Cr.) 15	910.5	23,017	7,499	
Physical Education (Men)	1st	1-(No Cr.)							3,052	1,526	
	2nd	1-(No Cr.)							2,138	1,069	
	3rd	1-(No Cr.)							1,296	648	
	Totals	3-(No Cr.)							6,486	3,243	
Physical Education (Women)	1st	2-(1.5)					11-(No Cr.)	2.5	5,794	2,146	
	2nd	2-(1.5)	1	1	1		10-(No Cr.)	14.0	3,579	1,376	
	3rd	2-(1.5)	1	1	1		10-(No Cr.)	12.0	3,082	1,199	
	Totals	6-(1.5)	2	2	2		31-(No Cr.)	28.5	12,455	4,721	
Military Department	1st	1-(1.5)		2			2-(No Cr.)	7.5	4,983	1,661	
	2nd	1-(1.5)		2			2-(No Cr.)	7.5	4,374	1,459	
	3rd	1-(1.5)		2			2-(No Cr.)	7.5	3,546	1,181	
	Totals	3-(1.5)		6			6-(No Cr.)	22.5	12,903	4,300	
Summer Session	Quarter	1 Unit	1 to 2 Units	2 to 3 Units	3 to 4 Units	4 to 5 Units	More Than 5 Units	Total Number of Class Credits Offered	Number of Student Credits Taken	Number of Student Class Enrollments	
	1st half.....	53	78	140	33	54	30	1,161.6	18,836	7,193	
	2nd half.....	2	2	17	4	9	3	132.5	1,882.5	668	
	Totals	55	80	157	37	63	33	1,294.1	20,718.5	7,861	

TABLE XI (Part 2)
THE COURSES AND CREDITS OFFERED AND TAKEN IN EACH DEPARTMENT
1920-21

College or School	Departments	Number of Courses Providing Credit of						Number of		
		1 Unit	2 Units	3 Units	4 Units	5 Units	More Than 5 Units	Total Number of Credits Offered	Student Credits Taken	of Student Class Registrations
Science, Literature, and the Arts	Animal Biology.....			32	3	17		193	9,726	2,123
	Anthropology			25		3		90	3,969	1,094
	Astronomy			14		12		102	1,178	268
	Botany			9		21		132	3,756	822
	Comp. Philology.....		7	1				17	126	55
	English		2	14	18			118	4,681	1,303
	Geology.....	7		38	2	6	2	175	4,114	1,168
	German	8	3	43	1	21		252	6,040	1,453
	Greek		6	14		3		69	853	367
	History			20	6	20		184	15,775	3,447
	Journalism	1		8				25	396	134
	Latin	6		7		11		82	1,311	304
	Mathematics			12		24		156	7,377	1,527
	Music	12	66	18				198	2,273	991
	Philosophy			12		9		81	2,907	647
	Physics	24		14				66	7,609	3,627
	Political Science.....			14	8	14		144	10,934	2,668
	Psychology	3		21				66	5,656	2,167
	Rhetoric	1		39	1	14		192	26,604	6,356
	Romance Languages..	39	42	30		36		393	21,608	5,096
Scandinavian	2	3	15		12		113	1,228	296	
Sociology	3	7	30		3		122	10,836	2,947	
	Totals	106	136	430	39	226	2	2,970	148,957	38,860
Engineering and Architecture	Architecture	2	42	9	12	3	16	256	2,684	377
	Civil Engineering.....	1	4	25	2	2		102	2,865	496
	Drawing	3	33	12				105	4,878	1,987
	Electrical Engineering	4	20	22	1			114	3,346	669
	Mathematics	8	2	8	5	20	2-(No Cr.)	156	12,503	2,734
	Mechanical Engineering	7	20	29	7		3	177	6,109	1,694
		Totals	25	121	105	27	25	2-(No Cr.)	910	32,385	7,957
							19			
Agriculture	Agr. Economics.....			8		3		39	811	221
	Agronomy	3	2	19				64	1,070	362
	Agr. Education.....									178
	Agr. Engineering.....		2	8		9		73	1,681	403
	Entomology		2	19	1	11	5	148	368	95
	Rhetoric			12		6		66	3,617	973
	Home Economics.....		6	35	9	26	3	301	5,402	1,424
	Dairy Husbandry.....	3		3	2	7		55	1,017	258

TABLE XI (Part 2)—Continued
 THE COURSES AND CREDITS OFFERED AND TAKEN IN EACH DEPARTMENT
 1920-21

College or School	Departments	Number of Courses Providing Credit of						More Than 5 Units	Total Number of Credits Offered	Number of Student Credits Taken	Number of Class Registrations
		1 Unit	2 Units	3 Units	4 Units	5 Units	6 Units				
Agriculture— Continued	Plant Pathology.....		3	9		1		38	321	111	
	Agr. Biochemistry....	3	2	12		8	2	95	1,638	392	
	Publications			1				3	30	10	
	Soils		2	4		1		21	427	160	
	Forestry	2	1	17	5	5	1	106	1,078	368	
	Bee Culture.....			6				18	438	146	
	Animal Husbandry....			16		2		58	1,368	571	
	Vet. Medicine.....	1	1	9		2		40	628	187	
Poultry			4				12	258	92		
Horticulture	2	2	17		10		107	905	299		
	Totals	14	23	199	17	91	11	1,244	21,057	6,259	
Law School	Totals		21	22	6	1		137	9,392	749	
Medical School	Anatomy	6	8	11	7	6	9	178	7,148	1,327	
	Physiology	2	3	7	1	5	7	123	3,718	484	
	Pharmacology	6	3	6	8	1	0	67	2,299	826	
	Bacteriology	2	1	4	3	18	1	124	2,485	551	
	Pathology	8	4	2			3	46	2,280	529	
	Medicine	27	7	12	2		22	473	4,423	1,541	
	Surgery	15	13	9	5	1	5	153	3,484	1,315	
	Obstetrics	26	7	6	6		2	98	1,165	586	
	Pediatrics	18	5	8			13	279	1,225	517	
Ophthalmology and Oto-Laryngology....	19	5					29	656	454		
	Totals	129	56	65	32	31	62	1,570	28,883	8,130	
College of Dentistry	Totals	12	23	6	10	2	11	192	15,714	1,155	
Mines	Mining		1		1	6	2	60	805	160	
	Mining Engineering....			2			3	25	1,366	220	
	Mine P. and Mech....			1	2	3	13	119	2,545	419	
	Metallurgy		1	9	10	3	16	251	2,537	683	
	Totals		2	12	13	12	34	455	7,253	1,482	
Pharmacy	Totals	2	3	20	12	5	11	219	6,303	329	

TABLE XI (Part 2)—Continued

THE COURSES AND CREDITS OFFERED AND TAKEN IN EACH DEPARTMENT
1920-21

College or School	Departments	Number of Courses Providing Credit of					More Than 5 Units	Total Number of Class Credits Offered	Number of Student Credits Taken	Number of Class Registrations
		1 Unit	2 Units	3 Units	4 Units	5 Units				
Chemistry	General Inorganic.....		3	1	9	8		85	13,941	3,105
	Analytical		4	4	1	2		34	1,198	319
	Organic		4	4	3	2		42	2,557	668
	Physical	3	3	4	2	3		44	1,243	300
	Technological			6				18	348	116
	Chem. Engineering.....		5	4	1	5		51	644	164
	Totals	3	19	23	16	20		274	19,931	4,672
Education	Agr. Education.....		2	11		3		52	574	178
	Adm. and Supervision		21	17				93	1,264	347
	Art Education.....	21	13	13				86	1,447	251
	Educ. Psychology.....		16	10				62	1,390	462
	Hist. and Philosophy of Educ.		3	10		5	9	61	832	174
	Home Econ. Educ....			2		2		64	710	143
	Theory and Pract of Teaching	1	2	31	2	7		141	1,077	260
	Trade and Industry...		5	22				76	681	158
	Totals	22	62	116	2	17	9	635	7,975	1,973
Business	Totals		3	49	6	20		277	28,145	6,706
General Extension Division*	Business Courses.....	2-1½		33		1-6	4-(No Cr.)	108	7,382	2,713
	Engineering Classes..			40			3-(No Cr.)	120	1,905	710
	Collegiate Classes.....			47	2-4½		8-(No Cr.)	150	6,143	3,118
	Corres. Courses.....	6-1½		44	82-4½	1-6	(More than 6)-15	532.5	7,587	958
	Totals	8-1½		64	84-4½	2-6	15-(No Cr.) 15-(6+)	910.5	23,017	7,499
Physical Education (Men)	Totals						3-(No Cr.)		6,468	3,243
Physical Education (Women)	Totals	4	2	2	2 1½-½	30-(No Cr.)	40	10,240	3,951	
					3	1				
Military Department	Totals	3-1½		6			6-(No Cr.)	22.5	12,903	4,300
Summer Session	1st half.....	53	78	140	33	54	30	1,161.6	18,836	7,193
	2nd half.....	2	2	17	4	9	3	132.5	1,882.5	668
	Totals	55	80	157	37	63	33	1,294.1	20,718.5	7,861

* Extension Division school year consists of two semesters instead of three quarters. These figures are for the two semesters.

THE PRODUCT OF TEACHING

Thus far we have shown how many courses of the various lengths were offered by the University during last year. The other side of this picture calls for a display of what use was made of these offerings by the students. This will be fully set forth in Table XII which shows in Parts 1 and 2 the number of student registrations, the number of student credits taken, and finally a distribution of those credits as "earned," "conditioned," "incomplete," "failed," and "cancelled without grade."

If a student registers for a five-unit course and completes the work satisfactorily he has "earned" the five student credits. If he does a poor quality of work he may receive "conditioned" credit, to earn which he will have to pass a further examination. If he has done the work well, but has not finished it, he will receive "incomplete" in the course and will have "earned" the credits only after he has completed it. "Failed" means that his work was below passing grade and that he gets no credit. "Cancelled without grade" means that the student withdrew from class with the consent of the department and that his work was satisfactory when he left, but not far enough along to give him any credit.

This distribution of credits is shown both in whole numbers and in per cents in this table and furnishes a ready means for comparing colleges and departments.

Part 1 of the table shows these facts by quarters for each college. Part 2 is arranged in Sections A, B, and C for fall, winter, and spring quarters, respectively, and presents the data for each college by departments.

To read the first line of Part 1 of this table we would say that the College of Science, Literature, and the Arts, during the fall quarter of last year, had a total class roll of 12,695 students who were registered for a total of 52,467 student credits. Of these credits they "earned" a total of 42,181 or 80.4 per cent; they were "conditioned" in 2,715 or 5.2 per cent; they did "incomplete" work in 1,353 or 2.6 per cent; and "failed" in 6,218 or 11.8 per cent.

To read the total per cent "failed" in each of the colleges for the entire year we see that 9.2 per cent of all student credits registered for in the College of Science, Literature, and the Arts resulted in failure. In the College of Engineering and Architecture the failure was 8.7 per cent. In the College of Agriculture, it was 1.6 per cent; in the Law School, 2.5 per cent; in the Medical School, 2.2 per cent; in the College of Dentistry, 4.0 per cent; in the School of Mines, 0.4 per cent; in the College of Pharmacy, 3.4 per cent; in the School of Chemistry, 7.4 per cent; in the College of Education, 0.9 per cent; in the School of Business, 6.3 per cent, etc. Similar variations in per cent of credits earned will also be found by like comparisons.

A full explanation of the fact of these differences would not be possible here, but it will readily occur to one that the college with large numbers of freshmen is working with an unsorted group, while colleges working only with juniors as the lowest class will have their students well sorted before they enter the college. Different standards of marking, also, doubtless account for some part of the variation. Ideally there should be no loss by students, but in college, as in everything else, there are some who lack the energy and purpose necessary to success and these lag behind and fail in their work.

TABLE XII (Part 1)
 THE PRODUCT OF TEACHING
 STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
 1920-21

College or School	Quarter	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken		Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Science, Literature, and the Arts	1st	12,695	52,467	42,181	80.4	2,715	5.2	1,353	2.6	6,218	11.8			
	2nd	12,831	46,895	39,272	83.8	1,870	4.0	1,983	4.2	3,770	8.0			
	3rd	13,334	42,738	37,176	86.9	1,549	3.6	873	2.1	3,160	7.4			
	Totals	38,860	142,120	118,629	83.5	6,134	4.3	4,209	3.0	13,148	9.2			
Engineering and Architecture	1st	2,787	12,498	10,062	80.5	404	3.2	127	1.0	1,542	12.4	363	2.9	
	2nd	2,877	10,522	8,908	84.7	223	2.1	245	2.3	603	5.7	543	5.2	
	3rd	2,293	9,365	8,049	86.0	162	1.7	97	1.0	661	7.1	396	4.2	
	Totals	7,957	32,385	27,019	83.4	789	2.4	469	1.5	2,806	8.7	1,302	4.0	
Agriculture (College only)	1st	2,203	7,161.5	6,649.5	92.9	176	2.5	244	3.3	92	1.3	*		
	2nd	2,141	7,340.5	6,737.5	91.8	154	2.1	374	5.1	75	1.0	*		
	3rd	1,915	6,555	6,010	91.7	127	2.0	251	3.8	167	2.5	*		
	Totals	6,259	21,057	19,397	92.2	457	2.1	869	4.1	334	1.6	*		
Law School	Totals	749	9,392	7,854	83.6	1,056	11.3	40	.4	238	2.5	204	2.2	
Medical School	1st	3,071	9,909	8,888	89.7	657	6.6	120	1.2	244	2.5			
	2nd	2,656	10,331	9,212	89.2	684	6.6	272	2.6	163	1.6			
	3rd	2,403	8,643	7,904	91.4	373	4.3	154	1.8	212	2.5			
	Totals	8,130	28,883	26,004	90.0	1,714	5.9	546	1.9	619	2.2			

TABLE XII (Part I)—Continued
 THE PRODUCT OF TEACHING
 STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
 1920-21

College or School	Quarter	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken		Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Dentistry	1st	391	5,247	3,884	74.0	516	9.8	436	8.3	171	3.3	240	4.6	
	2nd	385	5,040	3,659	72.5	426	8.4	526	10.4	248	4.9	190	3.8	
	3rd	379	5,418	4,025	74.3	375	6.9	625	11.5	216	4.0	177	3.3	
	Totals	1,155	15,714	11,568	73.9	1,317	8.4	1,587	10.1	635	4.0	607	3.9	
Mines	1st	448	1,980	1,700	85.8	110	5.5	89	4.5	5	.3	76	3.8	
	2nd	494	2,517	2,135	84.9	175	6.9	112	4.4	21	.8	74	3.0	
	3rd	540	2,756	2,534	91.9	64	2.3	101	3.7	3	.1	54	2.0	
	Totals	1,482	7,253	6,369	87.8	349	4.8	302	4.2	29	.4	204	2.8	
Pharmacy	1st	120	2,088	1,686.5	80.8	172.5	8.3	100	4.8	59	2.8	70	3.3	
	2nd	102	2,111	1,703.5	80.7	139.5	6.6	170	8.1	74.5	3.5	23.5	1.1	
	3rd	107	2,104	1,840.7	87.9	104.5	5.0	24.5	1.2	80.5	3.8	45	2.1	
	Totals	329	6,303	5,230.7	83.1	416.5	6.6	294.5	4.7	214	3.4	138.5	2.2	
Chemistry	1st	1,845	7,991	6,741	84.3	393	4.9	213	2.7	644	8.1			
	2nd	1,644	7,025	5,869	83.5	296	4.2	385	5.5	475	6.8			
	3rd	1,183	4,915	4,355	88.6	99	2.0	102	2.1	359	7.3			
	Totals	4,672	19,931	16,965	85.1	788	4.0	700	3.5	1,478	7.4			
Education	1st	703	2,921	2,660	91.1	46	1.6	163	5.4	14	.5	38	1.3	
	2nd	660	2,545	2,184	85.8	15	.6	268	10.5	32	1.2	46	1.8	
	3rd	610	2,509	2,299	91.6	23	.9	95	3.8	29	1.1	63	2.5	
	Totals	1,973	7,975	7,143	89.5	84	1.0	526	6.6	75	.9	147	2.0	

Business	1st	2,370	9,498	7,547	79.1	500	5.3	241	2.5	776	8.2	434	4.6
	2nd	2,444	10,318	8,524	82.6	408	4.0	427	4.1	417	4.0	542	5.3
	3rd	1,892	8,329	6,833	82.0	322	3.9	180	2.2	586	7.0	408	4.9
	Totals	6,706	28,145	22,904	81.4	1,230	4.4	848	3.0	1,779	6.3	1,384	4.9
General Extension	1st semester.....	4,789	16,442	5,525	33.6	96	.6	5,817	35.4	351	2.1	4,653	28.3
	2nd semester.....	2,710	6,575	4,142	63.0	83	1.3	917	13.9	65	1.0	1,368	20.8
	Totals	7,499	23,017	9,667	42.0	179	.8	6,734	20.3	416	1.8	6,021	26.1
Military Department	1st	1,661	5,286	2,337	44.2			1,851	35.0	795	15.0	303	5.8
	2nd	1,458	4,374	3,231	73.9			774	17.7	360	8.4		
	3rd	1,181	3,519	3,147	89.5			204	5.8	168	4.7		
	Totals	4,300	13,179	8,715	66.1			2,829	21.5	1,322	10.1	303	2.3
Physical Education (Women)	1st	2,146	5,794	4,749	81.9	260	4.5	378	6.5	208	3.6	202	3.5
	2nd	1,376	3,579	2,801	78.3	164	4.6	208	8.3	141	3.9	175	4.9
	3rd	1,199	3,082	2,617	84.9	60	1.9	109	3.5	175	5.7	121	3.9
	Totals	4,721	12,455	10,164	81.0	484	3.9	785	6.3	524	4.2	498	4.0
Physical Education (Men)	1st	1,526	3,052	2,550	83.5	66	2.1	132	4.3	304	10.1		
	2nd	1,069	2,138	1,758	82.2	54	2.5	96	4.5	230	10.8		
	3rd	648	1,296	800	61.7	26	2.0	276	21.2	194	15.1		
	Totals	3,243	6,486	5,108	78.7	146	2.3	504	7.8	728	11.2		
Summer Session	1st half.....	7,193	18,836	17,740	94.2	199	1.1	183	1.0	386	2.0	328	1.7
	2nd half.....	668	1,882.5	1,752.5	93.1	23	1.2	16	.8	53	2.8	38	2.0
	Totals	7,861	20,718.5	19,492.5	94.1	222	1.1	199	.9	439	2.1	366	1.8
Grand totals.....		105,896	395,013.7	322,238.2	81.0	15,365.5	3.9	21,441.5	5.4	24,794	6.2	11,174.5	2.8

TABLE XII (Part 2)
 THE PRODUCT OF TEACHING
 STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
 1920-21
 SECTION A (FALL QUARTER)

College or School	Departments	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken		Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Science, Literature, and the Arts	Animal Biology.....	778	3,918	2,986	76.2	302	7.7	78	2.0	552	14.1			
	Anthropology	268	946	815	86.1	39	4.1	52	5.5	40	4.3			
	Astronomy	66	298	250	83.8	18	6.0	5	1.6	25	8.3			
	Botany	337	1,734	1,654	95.4	32	1.8	20	1.2	28	1.6			
	Comparative Literature.....		(Not offered)											
	Comparative Philology.....	18	37	30	81.1			7	18.9					
	English	547	1,974	1,695	85.9	42	2.1	163	8.3	74	3.7			
	Geology and Mineralogy.....	384	1,167	1,081	92.6	63	5.4	8	.7	15	1.3			
	German	547	2,193	1,871	85.3	122	5.6	22	1.0	178	8.1			
	Greek	104	253	209	82.6	10	3.9	27	10.7	7	2.8			
	History	1,586	6,882	5,449	79.2	559	8.1	209	3.0	665	9.7			
	Journalism	46	129	108	83.7	6	4.7	6	4.7	9	6.9			
	Latin	96	411	375	91.3			11	2.6	25	6.1			
	Mathematics	530	2,566	1,913	74.6	85	3.3	30	1.1	538	21.0			
	Music	335	710	672	94.7	4	.5	18	2.6	16	2.2			
	Philosophy	157	630	549	87.2	21	3.3	29	4.6	31	4.9			
	Physics	1,264	2,577	1,818	70.5	325	12.7	12	.4	422	16.4			
	Political Science.....	835	3,491	3,034	87.0	193	5.5	112	3.2	152	4.3			
	Psychology	947	2,495	2,168	86.9	160	6.5	45	1.8	122	4.8			
	Rhetoric	2,273	9,345	7,040	75.3	529	5.6	256	2.8	1,520	16.3			
Romance Languages.....	1,861	7,831	5,792	73.9	192	2.5	163	2.1	1,684	21.5				
Scandinavian	105	426	396	92.9	5	1.2	25	5.9						
Sociology	765	2,544	2,366	93.0	8	.3	55	2.2	115	4.5				
Totals	13,849	52,557	42,271	80.4	2,715	5.2	1,353	2.6	6,218	11.8				

Engineering and Architecture	Architecture	136	965	756	78.3	20	2.1	89	9.2	54	5.6	46	4.8
	Civil Engineering.....	176	1,151	1,025	89.0	98	8.5	3	.3	22	1.9	3	.3
	Drawing	702	1,767	1,573	89.1	51	2.9	7	.4	59	3.3	77	4.3
	Electrical Engineering.....	240	1,181	1,043	88.3	101	8.5	3	.3	14	1.2	20	1.7
	Mathematics	931	5,451	3,811	69.9	32	.6	25	.5	1,386	25.4	197	3.6
	Mechanical Engineering.....	602	1,983	1,854	93.5	102	5.1			7	.4	20	1.0
	Totals	2,787	12,498	10,062	80.5	404	3.2	127	1.0	1,542	12.4	363	2.9
Agriculture	Agricultural Economics.....	73	341	291	85.3	35	10.3	10	2.9	5	1.5		
	Agronomy	106	307.5	277.5	90.2	6	2.0	10	3.3	5	1.6		2.9
	Agricultural Education.....	46											
	Agricultural Engineering.....	103	435	402	92.5	5	1.1	23	5.3	5	1.1		
	Entomology	32	112	112	100.0								
	Rhetoric	322	1,266	1,180	93.2	43	3.4	34	2.7	9	.7		
	Home Economics.....	458	1,752	1,677	95.7	31	1.8	33	1.9	11	.6		
	Dairy Husbandry.....	88	358	330	92.2			23	6.4	5	1.4		
	Plant Pathology.....	49	167	152	91.1			15	8.9				
	Agricultural Biochemistry.....	172	737	609	82.6	25	3.4	66	9.0	37	5.0		
	Publications												
	Soils	84	168	168	100.0								
	Forestry	125	327	315	96.3	11	3.4	1	0.3				
	Bee Culture.....	13	39	39	100.0								
	Animal Husbandry.....	366	604	592	98.0	6	1.0			6	1.0		
	Veterinary Medicine.....	57	223	213	95.6	5	2.2			5	2.2		
Poultry	26	78	57	73.0	6	7.7	15	19.2					
Horticulture	83	247	235	95.2	3	1.2	9	3.6					
Totals	2,203	7,161.5	6,649.5	92.8	176	2.5	239	3.3	88	1.2	9	.2	
Law School§	Totals	740	9,392	7,854	83.6	1,056	11.3	40	.4	238	2.5	204	2.2

§ These items are totals for the entire year and can not be divided into totals for each quarter.

TABLE XII (Part 2)—Continued

THE PRODUCT OF TEACHING

STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
1920-21

SECTION A (FALL QUARTER)—Continued

College or School	Departments	Total Number of Student Class Registrations	Credits: Number and Per Cent of										
			Credits Taken	Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
				No.	No.	%	No.	%	No.	%	No.	%	No.
Medical School	Anatomy	394	2,043	1,676	82.0	229	11.2	33	1.6	105	5.2		
	Physiology	83	1,078	813	75.4	165	15.3	15	1.4	85	7.9		
	Pharmacology	161	347	302	87.0	33	9.5	8	2.3	4	1.2		
	Bacteriology	254	1,166	1,007	86.4	6	8.2	35	3.0	28	2.4		
	Pathology	191	657	567	86.3	66	10.0	6	1.0	18	2.7		
	Medicine	791	2,157	2,114	98.0	39	1.8			4	.2		
	Surgery	476	1,146	1,140	99.5	6	.5						
	Obstetrics	253	461	435	94.4	3	.6	23	5.0				
	Pediatrics	255	508	502	99.0	6	1.0						
Ophthalmology and Oto-Laryngology	213	256	242	94.5	14	5.5							
	Totals	3,071	9,909	8,888	89.7	657	6.6	120	1.2	244	2.5		
Dentistry	Totals	391	5,247	3,884	74.0	516	9.8	436	8.3	171	3.3	240	4.6
Mines	Mining	34	163	159	97.3			4	2.7				
	Mining Engineering	65	172	130	75.4	34	20.0	5	3.1			3	1.5
	Mine Plant and Mechanics	151	837	652	78.1	73	8.7	64	7.6	5	.6	43	5.0
	Metallurgy	198	808	759	93.7	3	.3	16	2.0			30	4.0
	Totals	448	1,980	1,700	85.8	110	5.5	89	4.5	5	.3	76	3.8
Pharmacy	Totals	120	2,088	1,686.5	80.8	172.5	8.3	100	4.8	59	2.8	70	3.3

Chemistry	General Inorganic.....	1,329	6,001	5,089	84.0	279	5.0	92	2.0	541	9.0		
	Analytical	108	384	270	70.0	42	11.0	39	10.0	33	9.0		
	Organic	184	748	673	91.0	33	4.0	18	2.0	24	3.0		
	Physical	133	537	438	83.0	33	5.0	20	4.0	46	8.0		
	Technological	43	129	81	63.0	6	5.0	42	32.0				
	Chemical Engineering.....	48	192	190	98.0			2	2.0				
	Totals	1,845	7,991	6,741	84.3	393	4.9	213	2.7	644	8.1		
Education	Art Education.....	89	480	452	94.2	5	1.0	17	3.5			6	1.3
	Administration and Supervision	150	503	468	93.0			20	4.0			15	3.0
	Educational Psychology.....	155	465	425	91.4	12	2.6	14	3.0	14	3.0		
	History and Philosophy.....	61	356	320	89.8			36	10.1				
	Theory and Practice.....	69	393	347	88.3	21	5.3	8	2.1			17	4.3
	Home Economics.....	90	390	355	91.0	8	2.0	27	6.0				
	Trade and Industry.....	43	192	151	78.6			41	21.4				
	Agricultural Education.....	46	142	142									
	Totals	703	2,921	2,660	91.1	46	1.6	163	5.5	14	.5	38	1.3
Business	Totals	2,370	9,498	7,547	79.4	500	5.3	241	2.5	776	8.2	434	4.6
General Extension*	Business Classes.....	1,647	4,212	2,417	57.4	51	1.2	795	18.9	96	2.3	853	20.2
	English Classes.....	446	1,155	837	72.5			150	12.0	36	3.1	132	12.4
	Collegiate Classes.....	1,738	3,488	1,440	41.3	45	1.3	210	6.0	210	6.0	1,583	45.4
	Correspondence Course†.....	958	7,587	831	10.9			4,662	61.5	9	.1	2,085	27.5
	Totals	4,789	16,442	5,525	33.6	96	.6	5,817	35.4	351	2.1	4,653	28.3
Military Department	Totals	1,661	4,983	2,337	46.9			1,851	37.1	795	16.0		
Physical Education (Women)	Totals	2,146	5,794	4,746	81.9	260	4.5	378	6.5	208	3.6	202	3.5
Physical Education (Men)	Totals	1,526	3,052	2,550	83.5	66	2.1	132	4.3	304	10.1		
Summer Session	(See Table IV, Part 1)												
	Totals	38,658	151,513.5	115,101	75.2	7,167.5	4.7	11,299	7.4	11,657	7.6	6,289	5.1

*Extension Division year consists of two semesters, these figures being for the first semester.

† These courses are on the year basis; the figures are for the year.

TABLE XII (Part 2)—Continued
 THE PRODUCT OF TEACHING
 STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
 1920-21
 SECTION B (WINTER QUARTER)

College or School	Departments	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken		Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Science, Literature, and the Arts	Animal Biology.....	784	4,208	3,566	84.7	205	4.9	184	4.4	253	6.0			
	Anthropology	304	1,957	972	92.0	6	.5	39	3.7	40	3.8			
	Astronomy	65	293	262	89.4			11	3.7	20	6.9			
	Botany	284	1,323	1,078	81.5	86	6.5	50	3.8	109	8.2			
	Comparative Philology.....	19	28	26	92.9			2	7.1					
	English	395	1,481	1,218	82.2	66	4.5	97	6.5	100	6.8			
	Geology and Mineralogy.....	427	1,538	1,384	90.0	70	4.6	8	.5	76	4.9			
	German	467	1,544	1,349	87.4	60	3.9	47	3.0	88	5.7			
	Greek	126	274	221	80.7	18	6.5	29	10.6	6	2.2			
	History	1,196	4,297	3,653	85.0	181	4.2	201	4.7	262	6.1			
	Journalism	43	129	123	95.4					6	4.6			
	Latin	105	429	408	95.1			18	4.2	3	.7			
	Mathematics	532	2,496	1,746	69.9	65	2.6	92	3.7	593	23.8			
	Music	318	641	602	94.0	3	.4	29	4.6	7	1.0			
	Philosophy	178	758	681	89.8	18	2.4	44	5.8	15	2.0			
	Physics	1,176	2,737	2,340	85.5	202	7.4	48	1.7	147	5.4			
	Political Science.....	745	2,409	2,003	83.2	133	5.5	116	4.8	157	6.5			
Psychology	878	2,229	1,967	88.2	119	5.3	86	3.9	57	2.6				
Rhetoric	2,058	8,628	7,074	82.0	403	4.8	439	5.1	712	8.2				
Romance Languages.....	1,683	6,627	5,319	80.5	205	3.1	127	1.9	956	14.5				
Scandinavian	100	425	400	94.1	5	1.1	20	4.8						
Sociology	901	3,364	2,880	85.6	25	.7	296	8.8	163	4.9				
	Totals	12,784	46,895	39,272	83.8	1,870	4.0	1,983	4.2	3,770	8.0			

Engineering and Architecture	Architecture	125	901	710	78.8	45	5.0	116	12.9	14	1.5	16	1.8
	Civil Engineering.....	172	1,089	1,020	93.8	48	4.4	15	1.3	6	.5		
	Drawing	755	1,776	1,647	92.8	22	1.2	30	1.7	27	1.5	50	2.8
	Electrical Engineering.....	211	1,103	1,008	91.4	46	4.1	16	1.5	16	1.5	17	1.5
	Mathematics	965	3,527	2,712	76.9	10	.3	66	1.9	527	14.9	212	6.0
	Mechanical Engineering.....	649	2,126	1,811	85.2	52	2.4	2	.1	13	.6	248	11.7
	Totals	2,877	10,522	8,908	84.7	223	2.1	245	2.3	603	5.7	543	5.2
Agriculture	Agricultural Economics.....	97	317	289	91.2	14	4.4	9	2.8	5	1.6		
	Agronomy	127	373.5	349.5	93.6			21	5.6	3	0.8		
	Agricultural Education.....	59											
	Agricultural Engineering.....	130	58.4	511	87.5	5	0.9	43	7.4	25	4.2		
	Entomology	24	103	100	97.1	3	2.9						
	Rhetoric	342	1,236	1,111	89.8	43	3.5	70	5.7	12	1.0		
	Home Economics.....	460	1,700	1,583	93.2	29	1.7	86	5.0	2	0.1		
	Dairy Husbandry.....	99	393	392	99.7			1	.3				
	Plant Pathology.....	37	95	92	96.8	3	3.2						
	Agricultural Biochemistry.....	161	698	621	89.0	12	1.7	55	7.9	10	1.4		
	Publications												
	Soils	40	105	98	93.3			5	4.8	2	1.9		
	Forestry	199	532	476	89.5	16	3.0	40	7.5				
	Bee Culture.....	33	99	84	84.8	6	6.1	6	6.1	3	3.0		
	Animal Husbandry.....	143	579	556	96.0	5	0.9	8	1.4	10	1.7		
	Veterinary Medicine.....	64	189	177	93.6	9	4.8	3	1.6				
Poultry	44	114	84	73.7	12	10.5	18	15.8					
Horticulture	73	223	214	96.0			6	2.7	3	1.3			
Totals	2,141	7,340.5	6,737.5	91.8	157	2.1	371	5.0	75	1.0			

TABLE XII (Part 2)—Continued
 THE PRODUCT OF TEACHING
 STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
 1920-21
 SECTION B (WINTER QUARTER)—Continued

College or School	Departments	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken		Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Medical School	Anatomy	454	2,585	2,128	82.3	331	12.8	41	1.6	85	3.3			
	Physiology	209	1,974	1,624	82.3	167	8.5	151	7.6	32	1.6			
	Pharmacology	261	744	650	87.4	55	7.4	36	4.8	3	.4			
	Bacteriology	111	404	358	88.6	20	5.0	7	1.7	19	4.7			
	Pathology	138	779	668	85.8	93	11.9			18	2.3			
	Medicine	529	1,446	1,438	99.4	8	.6							
	Surgery	481	1,396	1,377	98.6	3	.2	16	1.2					
	Obstetrics	189	502	480	95.6			17	3.4	5	1.0			
	Pediatrics	137	324	314	97.0	5	1.5	4	1.2	1	.3			
Ophthalmology and Oto-Laryngology	147	177	175	98.9	2	1.1								
	Totals	2,656	10,331	9,212	89.2	684	6.6	272	2.6	163	1.6			
Dentistry	Totals	385	5,049	3,659	72.5	426	8.4	526	10.4	248	4.9	160	3.8	
Mines	Mining	34	224	211	94.1	5	2.0	0	3.0					
	Mining Engineering.....	85	286	225	78.7	34	12.0	16	5.6			11	3.7	
	Mine Plant and Mechanics.....	141	703	543	77.3	123	17.5	24	3.4			13	1.8	
	Metallurgy	234	1,302	1,155	88.8	13	1.0	62	4.7	20	1.6	51	3.9	
	Totals	494	2,515	2,134	84.9	175	6.9	111	4.4	20	.8	75	3.0	
Pharmacy	Totals	102	2,111	1,703.5	80.7	139.5	6.6	170	8.1	74.5	3.5	23.5	1.1	

Chemistry	General Inorganic.....	1,020	4,621	3,922	83.0	131	3.0	172	4.0	396	10.0		
	Analytical	159	581	482	83.0	38	7.0	36	6.0	25	4.0		
	Organic	257	1,027	787	78.0	94	8.0	109	10.0	37	4.0		
	Physical	114	482	396	83.0	23	4.0	46	9.0	17	4.0		
	Technological	40	120	108	90.0			12	10.0				
	Chemical Engineering.....	54	194	174	90.0	10	4.0	10	6.0				
	Totals	1,644	7,025	5,869	83.5	296	4.2	385	5.5	475	6.8		
Education	Art Education.....	79	466	377	80.9	3	.6	46	9.9	9	1.9	31	6.7
	Administration and Supervision.....	103	385	354	92.0	4	1.0	21	5.5	2	.5	4	1.0
	Educational Psychology.....	149	395	342	86.6			45	11.4	6	1.5	2	.5
	History and Philosophy.....	47	178	148	83.2	5	2.8	15	8.4	10	5.6		
	Theory and Practice.....	138	511	460	90.0			43	8.4	2	.4	6	1.2
	Home Economics.....	24	172	161	93.6			11	6.4				
	Trade and Industry.....	61	255	168	65.9	3	1.2	78	30.5	3	1.2	3	1.2
	Agricultural Education.....	59	183	174	95.0			9	5.0				
	Totals	660	2,545	2,184	85.8	15	.6	268	10.5	32	1.2	46	1.8
Business	Totals	2,444	10,318	8,524	82.6	408	4.0	427	4.1	417	4.0	542	5.3
General Extension**	Business Classes.....	1,066	3,170	2,169	68.4	35	1.1	473	14.9	41	1.3	452	14.3
	English Classes.....	264	750	630	84.0			99	13.2			21	2.8
	Collegiate Classes.....	1,380	2,655	1,343	50.6	48	1.8	345	13.0	24	.9	895	33.7
	Totals	660	2,545	2,184	85.9	83	1.3	917	13.9	65	1.0	1,368	20.8
Military Department	Totals	1,458	4,374	3,231	73.9			774	17.7	369	8.4		
Physical Education (Women)	Totals	1,376	3,579	2,801	78.3	164	4.6	208	8.3	141	3.9	175	4.9
Physical Education (Men)	Totals	1,069	2,138	1,758	82.2	54	2.5	96	4.5	230	10.8		
Summer Session	(See Table IV, Part 1)												
	Grand totals.....	32,800	121,317.5	100,135	80.6	4,694.5	3.8	6,843	5.5	6,682.5	5.4	2,962.5	4.7

** Extension Division year consists of two semesters. These figures are for the second semester.

TABLE XII (Part 2)—Continued

THE PRODUCT OF TEACHING

STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT

1920-21

SECTION C (SPRING QUARTER)

College or School	Departments	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken		Earned		Conditioned		Incomplete		Failed		Cancelled Without Grade	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Science, Literature, and the Arts	Animal Biology.....	561	2,729	2,242	82.1	235	8.6	30	1.1	222	8.2			
	Anthropology	519	1,809	1,667	92.1	54	3.0	41	2.3	47	2.6			
	Astronomy	137	586	489	83.4	46	7.8	15	2.6	36	6.2			
	Botany	201	1,143	1,017	89.0	28	2.5	20	2.5	69	6.0			
	Comparative Philology.....	18	29	29	100.0									
	English	361	1,089	966	88.5	24	2.3	42	3.9	57	5.3			
	Geology and Mineralogy.....	357	1,715	1,546	90.1	83	4.9	28	1.6	58	3.4			
	German	439	1,607	1,391	86.6	42	2.6	34	2.1	140	8.7			
	Greek	137	307	249	81.1	13	4.2	45	14.6					
	History	665	2,119	1,750	82.6	119	5.7	50	2.3	200	9.4			
	Journalism	45	114	109	95.7	2	1.7			3	2.6			
	Latin	103	401	386	96.2			5	1.3	10	2.5			
	Mathematics	465	1,829	1,467	80.2	36	2.0	5	.3	321	17.5			
	Music	296	457	447	97.8	5	1.1	5	1.1					
	Philosophy	312	1,320	1,086	82.3	55	4.2	59	4.4	120	9.1			
	Physics	1,093	2,552	2,019	79.1	168	6.5	25	.9	340	13.3			
	Political Science.....	1,088	4,249	3,848	90.5	160	3.7	113	2.7	128	3.1			
	Psychology	342	763	705	92.4			15	1.9	43	5.7			
	Rhetoric	1,838	7,715	6,838	88.6	292	3.6	151	2.0	444	5.8			
	Romance Languages.....	1,505	5,467	4,541	83.1	132	2.4	79	1.5	715	13.1			
Scandinavian	91	360	348	96.6	5	1.4	7	2.0						
Sociology	1,281	4,398	4,036	91.8	60	1.4	95	2.1	207	4.7				
Totals	11,854	42,758	37,176	86.9	1,549	3.6	873	2.1	3,160	7.4				

Engineering and Architecture	Architecture	116	818	674	82.3	22	2.6	91	11.4	24	2.9	7	.8
	Civil Engineering.....	148	625	622	99.5	3	.5						
	Drawing	530	1,335	1,150	86.3	38	2.8	6	.4	44	3.3	97	7.2
	Electrical Engineering.....	218	1,062	1,006	94.7	32	3.1			9	.8	15	1.4
	Mathematics	838	3,525	2,704	76.7	23	.7			562	15.9	236	6.7
	Mechanical Engineering.....	443	2,000	1,893	94.7	44	2.2			22	1.1	41	2.0
	Totals	2,293	9,365	8,049	86.0	162	1.7	97	1.0	661	7.1	396	4.2
Agriculture	Agricultural Economics.....	51	153	144	94.1	6	3.9	3	2.0				
	Agronomy	129	389	359	92.3	12	3.1	9	2.3	9	2.3		
	Agricultural Education.....	73											
	Agricultural Engineering.....	170	662	568	85.8	18	2.7	30	4.5	46	6.9		
	Entomology	39	153	140	91.5			3	2.0	10	6.5		
	Rhetoric	309	1,115	1,014	90.9	27	2.4	48	4.3	26	2.3		
	Home Economics.....	506	1,950	1,863	95.5	30	1.5	43	2.2	14	0.7		
	Dairy Husbandry.....	71	266	248	93.2			8	3.0	10	3.8		
	Plant Pathology.....	25	59	59	100.0								
	Agricultural Biochemistry.....	59	203	188	92.6			10	4.9	5	2.5		
	Publications	10	30	30	100.0								
	Soils	36	154	136	88.3	15	9.7	3	1.9				
	Forestry	44	219	202	92.2	4	1.8	13	5.9				
	Bee Culture.....	100	300	255	85.0	3	1.0	27	9.0	15	5.0		
	Animal Husbandry.....	62	185	173	93.5			3	1.6	9	4.9		
	Veterinary Medicine.....	66	216	213	98.6			3	1.4				
Poultry	22	66	42	63.6			18	27.2	6	9.1			
Horticulture	143	435	376	86.4	12	2.8	30	6.9	17	3.9			
Totals	1,915	6,555	6,010	91.7	127	1.9	251	3.8	167	2.5			

TABLE XII (Part 2)—Continued
 THE PRODUCT OF TEACHING
 STUDENT CREDITS TAKEN, EARNED, CONDITIONED, ETC., IN EACH COLLEGE AND DEPARTMENT
 1920-21
 SECTION C (SPRING QUARTER)—Continued

College or School	Departments	Total Number of Student Class Registrations	Credits: Number and Per Cent of											
			Credits Taken	Earned			Conditioned		Incomplete		Failed		Cancelled Without Grade	
				No	No.	%	No.	%	No.	%	No.	%	No.	%
Medical School	Anatomy	479	2,520	2,281	90.5	88	3.5	91	3.6	60	2.7			
	Physiology	192	666	589	88.4	38	5.7	18	2.7	21	3.2			
	Pharmacology	404	1,208	1,121	92.8	66	5.5	17	1.4	4	.3			
	Bacteriology	186	915	725	79.2	75	8.2	10	1.1	105	11.5			
	Pathology	200	844	726	85.8	98	11.9	2	.2	18	2.1			
	Medicine	221	820	816	99.5	4	.5							
	Surgery	358	942	930	98.7			12	1.3					
	Obstetrics	144	202	202	100.0									
	Pediatrics	125	303	293	96.8	2	.6	4	1.3	4	1.3			
Ophthalmology and Oto-Laryngology	94	223	221	99.1	2	.9								
	Totals	2,403	8,643	7,904	91.4	373	4.3	154	1.8	212	2.5			
Dentistry	Totals	379	5,418	4,025	74.3	375	6.9	625	11.5	216	4.0	177	3.3	
Mines	Mining	92	430	415	96.4			7	1.6			8	2.0	
	Mining Engineering	70	404	361	89.2			43	10.8					
	Mine Plant and Mechanics	127	851	738	86.7	41	4.8	40	4.8			32	3.7	
	Metallurgy	251	1,071	1,021	95.4	24	2.2	10	.9	2	.2	14	1.3	
	Totals	540	2,756	2,535	91.9	65	2.3	100	3.7	2	.1	54	2.0	
Pharmacy	Totals	107	2,104	1,849.7	87.9	104.5	5.0	24.5	1.2	80.5	3.8	45	2.1	

Chemistry	General Inorganic.....	756	3,319	2,975	90.0	54	2.0	49	1.0	241	7.0		
	Analytical	52	233	189	81.0			19	8.0	25	11.0		
	Organic	227	782	666	80.0	40	7.0	8	1.0	68	12.0		
	Physical	53	224	179	83.0			20	8.0	25	9.0		
	Technological	33	99	93	94.0			6	6.0				
	Chemical Engineering.....	62	258	253	98.0	5	2.0						
	Totals	1,183	4,915	4,355	88.6	99	2.0	102	2.1	359	7.3		
Education	Art Education.....	83	501	466	93.0			4	.8	4	.8	27	5.4
	Administration and Supervision	194	376	335	89.1	3	.8	32	8.5	2	.5	4	1.1
	Educational Psychology.....	158	530	494	93.2			17	3.2	5	1.0	14	2.6
	History and Philosophy.....	66	298	262	88.0			15	5.0	15	5.0	6	2.0
	Theory and Practice.....	53	173	167	99.6	3	1.7			3	1.7		
	Home Economics.....	29	148	133	89.8	5	3.4	10	6.7				
	Trade and Industry.....	54	234	193	82.5	12	5.1	17	7.3			12	5.1
Agricultural Education.....	73	249	249	100.0									
Totals	610	2,509	2,299	91.6	23	.9	95	3.8	29	1.1	63	2.5	
Business	Totals	1,892	8,329	6,833	82.0	322	3.9	180	2.2	586	7.0	408	4.9
Military Department	Totals	1,181	3,546	3,174	89.5			204	5.8	168	4.7		
Physical Educa- tion (Women)	Totals	1,199	3,082	2,617	84.9	60	1.9	109	3.5	175	5.7	121	3.9
Physical Educa- tion (Men)	Totals	648	1,296	800	61.7	26	2.0	276	21.2	194	15.1		
	Totals	26,355	101,276.2	87,626.7	83.8	3,285.5	3.1	3,090.5	3.0	6,009.5	5.7	1,264	4.4
	Grand totals.....	97,813	374,107	302,863	79.3	15,147.5	4.0	21,232.5	5.6	24,349	6.4	10,515.5	4.7

THE SELECTION OF STUDIES

Our next collection of facts will describe the work of the fall quarter of the current year, 1921-22, showing the number of courses advertised in the University bulletins in comparison with the number actually taught; the length in units of credit of the courses; the number of courses extending through one or more quarters; the distribution of the courses, both graduate and undergraduate, in terms of the methods of instruction, and, finally, the total number of student credits taken during the quarter. This information is shown in Table XIII, Parts 1, 2, 3, and 4 following. Part 1 shows, for each college, the number of courses advertised in its printed bulletins, the number actually taught, the distribution of the total offering in terms of credit length of the courses and, in the last column, the number of student registrations in the college for the quarter.

The last line in this table should be read as follows: Taking all the courses announced in all the University bulletins together the total was 1,038. Of these 1,038, a total of 976 was actually taught. The remaining 62 were not taught, either because of some unexpected change in the faculty which made it impossible, or, because they were not elected by students.

Out of such a large offering a difference of 62 courses between the number announced and the number given is very small. It means that the University is carrying out its programs practically as announced. Reading this line further we see that of these 976 courses that were actually taught, 27 gave no credit; one was indefinite as to credit, which means that the credit was determined after the work was done; 11 gave half a unit of credit; 98 gave 1 unit of credit, etc.; and a total of 44,421 class registrations were entered during the quarter.

These facts can be read for each of the colleges in this table. The wide variety in each of the colleges, as well as between the colleges, as to length of courses given, is noticeable here, as it was in previous tables for last year.

In Part 2 of this table the number of courses advertised or offered and the number actually conducted or taken are presented side by side, by departments for each college, and are distributed under graduate, mixed (that is upper class and graduate), and strictly undergraduate classes. From these figures it is possible to see in brief form exactly what has been going on in the University during the quarter just closing.

At the bottom of the first page of Part 2, Table XIII, it will be seen that the College of Science, Literature, and the Arts announced a total of 45 graduate, 107 mixed, and 175 undergraduate courses, or a grand total of 327 courses, and that 44 graduate, 99 mixed, and 172 undergraduate courses, or a total of 315 of these courses, was actually given during the quarter. All but one graduate, all but eight mixed, and all but three undergraduate courses were given. Corresponding figures are given for each department of the college and for all the other colleges.

TABLE XIII (Part 1)

THE COURSES OFFERED IN EACH COLLEGE; THEIR CREDIT VALUES; AND THE COURSES AND CREDITS TAKEN.
FALL QUARTER 1921-22

College or School	Total Number of Courses		Number of Courses Giving Credit Units as Follows																			Total Number of Student Registrations						
	Offered in Printed Catalogs	Courses Taken	No. Cred- its	Value Indefi- nite	$\frac{1}{2}$	$\frac{1}{2}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	3	4	5	6	7	8	9	10	11	12		14	15	16	18	$18\frac{3}{4}$	
Science, Literature, and the Arts	327	315		2			24				33	176	12	74	3							3						14,470
Engineering and Archi- tecture	108	99	2	1		8		1		33	44	13	2	2	1				1								4,100	
Agriculture	125	120		14			4		1	6	68	4	26	2													2,252	
Law	20	19								7	13																1,472	
Medicine	156	126		47	9	36	1		10	11	18	5	3	6	1	2			1	1	1			2	1	1	3,415	
Dentistry	19	19				7				2	6	2				1	1										1,694	
Mines	27	26		1						4	5	4	3	3	2	3	1							1			616	
Pharmacy	12	12				1				2	3	1	2		1		2										540	
Chemistry	38	38		3		2				3	9	11	9	1													2,414	
Education	73	69		2		8				28	26		6			2											1,378	
Business	25	25								18	3	4															2,198	
Military Department.....	5	5	2							3																	2,059	
Phys. Education (Women)	28	28	15		1	2	7					2	1														2,461	
Phys. Education (Men)...	3	3	2							1																	1,010	
Extension Division	72	72	6				1			62	2													1			4,342	
Totals	1,038	976	27	70	1	11	98	1	1	11	213	375	57	125	17	6	8	3	2	1	4	1	1	2	1	1	44,421	

TABLE XIII (Part 2)
 COURSES OFFERED AND TAKEN BY STUDENTS OF EACH GRADE IN THE
 COLLEGES AND DEPARTMENTS
 FALL QUARTER 1921-22

College and Departments	Number of Courses							
	Offered				Taken			
	Gradu- ate	Mixed	Under- gradu- ate	Total	Gradu- ate	Mixed	Under- gradu- ate	Total
Science, Literature, and the Arts								
German	1	4	17	22	1	2	17	20
Latin	1	1	4	6	1	1	4	6
Psychology	2	4	3	9	2	4	3	9
Comparative Literature.....	1	2		3	1	2		3
Greek		1	6	7		1	6	7
Geology and Mineralogy.....	5	6	11	22	5	6	11	22
History	2	11	7	20	2	11	7	20
Journalism			3	3			3	3
Mathematics	3	2	8	13	3	2	8	13
Physics	4	4	7	15	4	4	7	15
Philosophy		5	4	9		5	4	9
Music		9	8	17		9	8	17
Comparative Philology.....	3	2		5	3	2		5
Sociology	1	3	7	11	1	3	7	11
Romance Languages.....	5	12	26	43	5	12	26	43
Political Science.....	3	5	7	15	3	5	7	15
English	3	7	22	32	2	6	21	29
Anthropology	4	11	10	25	4	10	10	24
Astronomy		2	5	7		2	5	7
Botany	2	4	7	13	2	4	7	13
Animal Biology.....	3	9	8	20	3	5	6	14
Scandinavian	2	3	5	10	2	3	5	10
Totals	45	107	175	327	44	99	172	315
Engineering and Architecture								
Mathematics and Mechanics..	2	5	5	12	2	5	5	12
Drawing and Descriptive Ge- ometry			15	15			15	15
Architecture		4	15	19		4	15	19
Civil Engineering.....	2	6	5	13	2	6	5	13
Mechanical Engineering.....	9	11	10	30	4	8	9	21
Electrical Engineering.....	2	11	6	19	2	11	6	19
Totals	15	37	56	108	10	34	55	99

TABLE XIII (Part 2)—Continued
 COURSES OFFERED AND TAKEN BY STUDENTS OF EACH GRADE IN THE
 COLLEGES AND DEPARTMENTS
 FALL QUARTER 1921-22

College and Departments	Number of Courses							
	Offered				Taken			
	Gradu- ate	Mixed	Under- gradu- ate	Total	Gradu- ate	Mixed	Under- gradu- ate	Total
College of Agriculture								
Agriculture			8	8			5	5
Agricultural Biochemistry....	5	3	3	11	5	3	3	11
Agricultural Economics.....	1	3	5	9	1	3	5	9
Agron. and Farm Management	5	3	1	9	5	3	1	9
Animal Husbandry.....	2	1	4	7	2	1	4	7
Dairy Husbandry.....	2	2	2	6	2	2	2	6
Veterinary Medicine.....		1	2	3		1	2	3
Poultry			1	1			1	1
Beekeeping			2	2			2	2
Entomology	2	3	5	10	2	2	4	8
Forestry	1	1	7	9	1	1	7	9
Home Economics.....	3	3	18	24	3	3	18	24
Horticulture	3	3	2	8	3	3	2	8
Plant Pathology.....	4	2	3	9	4	2	3	9
Rhetoric			7	7			7	7
Soils		1	1	2		1	1	2
West Central School.....			49	49			49	49
Northwestern School.....			60	60			59	59
Farm School.....			95	95			95	95
Totals	28	26	275	329	28	25	270	323
Totals, less sub-collegiate schools				204				203
Totals				125				120
School of Chemistry								
General Inorganic.....			9	9			9	9
Analytical	1	3	2	6	1	3	2	6
Organic	1	4	4	9	1	4	4	9
Physical	2	3	1	6	2	3	1	6
Technological		2	2	2		2	2	2
Chemical Engineering.....	2	4		6	2	4		6
Totals	6	16	16	38	6	16	16	38

TABLE XIII (Part 2)—Continued
COURSES OFFERED AND TAKEN BY STUDENTS OF EACH GRADE IN THE
COLLEGES AND DEPARTMENTS

FALL QUARTER 1921-22

College and Departments	Number of Courses							
	Offered				Taken			
	Gradu- ate	Mixed	Under- gradu- ate	Total	Gradu- ate	Mixed	Under- gradu- ate	Total
Medical School								
Anatomy	2	10	4	16	2	5	4	11
Physiology	3	6	2	11	1	2	4	7
Pharmacology	2	4		6	2	4		6
Pathology	1	6	2	9	1	4	2	7
Bacteriology	2	4	4	10	1	1	4	6
Medicine		23	16	39		13	16	29
Surgery		13	12	25		9	12	21
Obstetrics and Gynecology....		10	10	20		1	10	11
Pediatrics		6	9	15		3	9	12
Ophthalmology and Oto-Laryn- gology	4	8	6	18	4		6	10
Totals	14	90	65	169*	11	42	67	120
Dentistry								
Totals			19	19			19	19
School of Mines								
Metallurgy	1	6	7	14		6	7	13
Mining			5	5			5	5
Mine Plant and Mechanics....			7	7			7	7
Mining Engineering.....			1	1			1	1
Totals	1	6	20	27		6	20	26
Pharmacy								
Pharmacy			4	4			4	4
Materia Medica.....			1	1			1	1
Pharmacognosy and Botany..			4	4			4	4
Chemistry			2	2			2	2
Chemistry Inorganic.....			1	1			1	1
Totals			12	12			12	12

* Courses in the Medical School offered and not taken are electives, of which 34 are in clinical branches and represent, in most instances, required subjects, running continuously, to which additional hours may be elected. A large number of offerings are made (98) in a single quarter, so as to give free choice of electives.

TABLE XIII (Part 2)—Continued
 COURSES OFFERED AND TAKEN BY STUDENTS OF EACH GRADE IN THE
 COLLEGES AND DEPARTMENTS
 FALL QUARTER 1921-22

College and Departments	Number of Courses							
	Offered				Taken			
	Gradu- ate	Mixed	Under- gradu- ate	Total	Gradu- ate	Mixed	Under- gradu- ate	Total
Education								
Art			15	15			15	15
Agricultural Education.....	2	5	7	14	2	4	5	11
Administrative	3	7		10	3	7		10
Educational Psychology.....		9	1	10		9	1	10
Theory and Practice of Teach- ing		2	6	8		2	6	8
Trade and Industrial Educa- tion		2	5	7		2	5	7
Home Economics.....			4	4			3	3
History of Education.....	2	1	2	5	2	1	2	5
Totals	7	26	40	73	7	25	37	69
Law School.....								
			20	20			19	19
Totals			20	20			19	19
School of Business.....								
		12	13	25		12	13	25
Totals		12	13	25		12	13	25
Physical Education (Women)..								
			25	25			24	24
Totals			25	25			24	24
Physical Education (Men).....								
			3	3			3	3
Totals			3	3			3	3
Military Department.....								
			5	5			5	5
Totals			5	5			5	5
Extension Division								
Engineering			17	17			17	17
Collegiate			31	31			31	31
Business Instruction.....			24	24			24	24
Totals			72	72			72	72

The figures of this table will be more illuminating if considered with reference to the figures on class registration given in Table VI, or with the figures on the teaching staff shown in Tables VII and VIII above. From these comparisons the proportion of advanced courses needed may be judged by the size of the graduate and senior groups; and it may also be seen whether colleges and departments with a relatively large proportion of high ranking men are offering relatively large numbers of graduate courses.

Part 3 of Table XIII shows a distribution of the courses, not in credit length, but in term length, and then, for graduate and undergraduate groups separately, a distribution as to the type of instruction. To read this table we would say, of the bottom line, that of the 1,038 courses offered, 528 ran through one quarter only, 108 through two quarters, and 402 through three quarters. Further, we would read that of the graduate courses, 48 were of laboratory character, 14 of mixed laboratory and lecture type, and 50 of lecture or recitation form; and that of the undergraduate courses 189 were of laboratory character, 268 were of lecture and laboratory type, and 468 were of lecture or recitation form.

A comparison of the colleges with respect to these facts shows a wide variety, not only in the amount of advanced work offered, but in the methods by means of which the instruction is carried on. Except for a practice court one would expect to find little or no laboratory work in the Law School, while in Chemistry, Engineering, and Medicine a relatively large amount of instruction must be carried on under laboratory conditions. The full display of these facts is shown here for each of the colleges. The bearing of these figures upon cost is reasonably obvious and these tables will be referred to in another section of the report.

Part 4, Table XIII shows for each college the number of student credits taken during the quarter. The credits are first distributed as to the degree of advancement of the work, and then, under each of these divisions, they are distributed as to the form of instruction under which the credit had to be earned.

Reading the total line of the table, we would say that of the graduate credits, 386 were given in the laboratory, 240 in laboratory and lecture room mixed, and 783 in lecture and recitation rooms. The figures for mixed and undergraduate credits are to be read in a similar way. In the final column is shown the total number of class credits for which students were registered during the current quarter.

TABLE XIII (Part 3)

THE COURSES OFFERED IN EACH COLLEGE; THEIR DURATION AND CHARACTER; AND THE STUDENTS THEY SERVE
FALL QUARTER 1921-22

College or School	Total Number of Courses Offered	Number of Courses Extending Through			Number of courses Offered to					
					Graduate Students			Undergraduate Students		
		1 Quarter	2 Quarters	3 Quarters	Labo- ratory	Lecture and Labo- ratory	Lecture or Reci- tation	Labo- ratory	Lecture and Labo- ratory	Lecture or Reci- tation
Science, Literature, and the Arts.....	327	121	50	156	7	6	34	18	47	215
Engineering and Archi- tecture	108	20	8	80	3	3	2	33	34	33
Agriculture	125	85	11	29	17	3	8	7	56	34
Law	20	5	3	12						19
Medicine	156	153	3		11			78	36	31
Dentistry	19	4	3	12				7	5	7
Mines	27	9	1	17	1			3	8	15
Pharmacy	12	2	1	9					10	2
Chemistry	38	15	8	15	5	2	3	4	21	3
Education	73	27	8	36	4		3	8	25	33
Business	25	14	7	4				2	3	20
Military Department...	5		1	4					5	
Physical Education (Women)	28	3	1	24				20	7	1
Physical Education (Men)	3	2		1				2		1
Extension Division.....	72	68	3	1				7	11	54
Totals	1,038	528	108	402	48	14	50	189	268	468

TABLE XIII (Part 4)
 THE CREDITS OFFERED AND TAKEN IN THE SEVERAL COLLEGES; THEIR METHODS OF
 TEACHING AND THE STUDENTS THEY SERVE
 FALL QUARTER 1921-22

College or School	Number of Student Credits Taken								
	Graduate			Mixed			Undergraduate		
	Labo- ratory	Labo- ratory, Lecture, Quiz	Lecture and Reci- tation	Labo- ratory	Labo- ratory, Lecture, Quiz	Lecture and Reci- tation	Labo- ratory	Labo- ratory, Lecture, Quiz	Lecture and Reci- tation
Science, Literature, and the Arts	111	138	448	168	703	4,996	853	5,808	42,609
Engineering and Architecture	20	68	111	359	1,022	1,276	1,758	3,315	3,317
Agriculture	94		175	110	535	331	154	3,481	2,985
Law									3,950
Medicine				818.5	2,283	619	1,937	7,034	2,400.5
Dentistry							4,197	1,428	1,256
Mines					297		172	149	1,987
Pharmacy								2,009	232
Chemistry	88	34	43	49	387	137		8,993	
Education	73		6	115	163	720	69	860	1,585
Business				216		2,138		1,151	5,016
Military								546*	70
Physical Education (Women)							90*	123.5	
Physical Education (Men)									12*
Extension Division						26	370	1,019	6,362
Totals	386	240	783	1,835.5	5,390	10,243	9,600	35,925.5	71,781.5

* On courses starred no credits are given.

A fourth set of facts touching this point of the number of courses, or the amount of work taken by a student, will be set forth in Table XIV. By eight separate arrangements of figures this table will give a detailed analysis of the individual cases of 2,023 students, showing the number of courses they registered in during the fall quarter of 1921-22, the number of credits taken in these courses, together with the distribution of these credits as "earned," "conditioned," "incomplete," "failed," and "cancelled without grade."

Part 1 of Table XIV shows for nine colleges the number of courses that were actually entered by a given number of students. The table reads as follows: In the College of Agriculture 2 of the students entered but 2 courses each, 48 others took 3 courses each, 237 took 4 courses each, 140 entered 5 courses each, 39 entered 6 courses each, and 1 took 7 courses. In all, this includes 467 students, 173 of whom were freshmen, 179 were sophomores, and 115 were juniors. The other samples are similarly treated for each of the colleges included in the study.

The reason this study was not extended further was that the student records could not be made available at the time. This sample is large enough, so far as it covers all classes and colleges, to give a clear picture of the number of courses taken by students in this University.

Some students carry but one, while others carry as many as eight courses. From this it becomes clear that the number of courses carried by a student is no fair index either to the amount of the student's work load, or to the amount of instruction that is going on in the University.

Part 2 of this table supplements this information for each of the college groups by showing, not only the range in the number of courses taken per student, but, in addition, the number of credits for which the combined courses stand and, finally, the distribution of these credits as "earned," "conditioned," "failed," and "cancelled without grade."

To read this part of the table we would say that the sample of 467 students from the College of Agriculture took all the way from 2 to 7 courses each, registering for a total of 7,685 credits. Of these credits they "earned" 6,967 or 90.6 per cent. They received "conditions" in 452 or 2.4 per cent. They "failed" in 182 or 5.9 per cent, and "cancelled without grade" 84 or 1.1 per cent.

Part 3 of the table shows a distribution of each of these sample groups of students with respect to the number of student credits for which each group registered. From this it will be seen that of the 467 College of Agriculture students, 1 registered for only 10 student credits, 1 for 11, 3 for 12, 15 for 13, 61 for 14, and so on as high as 25 student credits for 1 student.

The variation shown in the loads of work carried is very great in practically all cases and is not easily explained. Some of the light loads are likely to be carried by part-time students, others by graduates who are putting most of their time on their theses, others still by teaching fellows who are employed to teach part time. Those carrying the very heavy loads stand out as exceptions and in a later part of this table it will be seen that they are quite worthy exceptions.

TABLE XIV (Part 1)
 COURSES TAKEN BY A SELECTED STUDENT GROUP
 FALL QUARTER 1921-22
 (2023 Students)

College or School	Number of Courses Taken								Total Number of Students	
	1	2	3	4	5	6	7	8		
Agriculture		2	48	237	140	39	1		467	(Including 173 freshmen, 170 sophomores, 115 juniors)
Chemistry		1		10	48	9			68	(Including 46 freshmen, 22 juniors)
Dentistry		6	27	41	9	1			84	(Including 84 freshmen)
Education	40	21	21	45	40	14	5	3	189	
Engineering	1	20	38	224	52	27	59	23	444	(Including 300 freshmen, 144 juniors)
Law	4	8	32	122	70	3			239	(Including 95 freshmen, 82 sophomores, 62 juniors)
Mines				41					41	(Including 41 freshmen)
Pharmacy			6	40	41				87	(Including 46 freshmen, 41 juniors)
Science, Literature, and the Arts.....		8	176	141	53	21	4	1	404	(Including 201 freshmen, 203 juniors)
Totals	45	66	348	901	453	114	69	27	2,023	

TABLE XIV (Part 2)
 THE CREDIT VALUES AND EARNINGS OF THE SELECTED STUDENT GROUP
 FALL QUARTER 1921-22

College or School	Number of Students Included	Number of Courses Taken	Total Number of Credits Taken	Number and % of Credits in Column 4							
				Earned	%	Conditioned and Incomplete	%	Failed	%	Cancelled Without Grade	%
1	2	3	4	5	6	7	8	9	10	11	12
Agriculture	467	2 to 7	7,685	6,967	90.6	452	2.4	182	5.9	84	1.1
Chemistry	68	1 to 6	1,135	857	75.5	107	14.7	167	9.4	4	4.0
Dentistry	84	2 to 6	1,004	792	78.8	156	4.4	45	15.5	11	1.0
Education	189	1 to 8	2,122	1,880	88.6	89	4.2	60	2.8	93	4.4
Engineering	444	1 to 8	6,655	5,498	82.6	257	11.9	795	4.1	105	1.4
Law	239	1 to 6	2,911	2,376	81.6	444	2.7	78	15.2	13	.5
Mines	41	4	873	718	82.2	45	12.6	110	5.1		
Pharmacy	87	3 to 5	1,746	1,467	84.0	230	2.5	44	13.2	5	.3
Science, Literature, and the Arts....	404	2 to 8	6,117	5,345	87.4	293	6.8	419	4.8	60	1.0
Totals	2,023	1 to 8	30,248	25,900	85.7	2,073	6.8	1,900	6.3	360	1.2

TABLE XIV (Part 3)
ANALYSIS OF CREDITS TAKEN BY THE SELECTED STUDENT GROUP
FALL QUARTER 1921-22

College or School	Number of Students	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Totals	Average Student Load
Agriculture	467										1	1	3	15	61	61	100	78	90	36	14	4	1	1		1	7,685	16.4
Chemistry	68								1					2	4	4	12	30	3	11	1						1,135	16.7
Dentistry	84						1	5	2	9	2	18	5	30	1	1	3	5	2								1,004	11.9
Education	189	2	14	30	4	6		1	4	4	3	7	4	10	15	19	33	24	7	1	1						2,122	11.2
Engineering	444					1				2	19	8	7	75	16	180	34	24	51	19	7						6,655	14.9
Law	239			3	1	5	2	4	11	3	16	13	26	86	63	2	3	1	1								2,911	12.2
Mines	41																1	4				3	33				873	21.3
Pharmacy	87														1	4	5	5		1	38		31	2			1,746	20.1
Science, Literature, and the Arts	404								2		8	4	9	23	30	196	62	43	26	1							6,117	15.1
Totals	2,023	2	14	33	5	12	3	10	20	18	49	51	54	241	217	467	253	214	180	69	61	7	65	3		1	30,248	14.8

TABLE XIV (Part 4)
ANALYSIS OF CREDITS EARNED BY THE SELECTED STUDENT GROUP
FALL QUARTER 1921-22

College or School	Number of Students	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total	Average
Agriculture..	467	1		1	1	1	6	2	2	10	9	15	17	15	32	63	57	75	62	64	22	10		1			1	6,967	14.91
Chemistry .	68	1		2		2		2	4	5	2	5	2	5	2	7	4	5	14	1	5							857	12.60
Dentistry . .	84	1		4		3	2	7	6	5	11	5	17	1	18	4												792	9.42
Education . .	189	20	3	11	22	3	6		2	6	5	3	12	6	8	12	16	30	19	4	1							1,880	9.96
Engineering..	444	14		8	3	3	19	6	19	4	7	62	18	11	52	4	132	18	18	31	12	3						5,498	12.38
Law	239	12		7	12	2	11	9	5	21	5	22	14	25	42	47	1	2		2								2,376	9.94
Mines	41	1			1	1	2					2	1	1				4	4				2	22			718	17.51	
Pharmacy . .	87	2			1		3	3		1	1					11	5	7	2	1	7	29		14			1,467	16.86	
Science, Literature, and the Arts..	404	2			2	3	9	2	1	8	5	44	17	17	25	29	134	48	31	16								5,345	13.23
Totals	2,023	54	3	33	42	18	58	31	39	60	45	158	98	81	179	177	349	189	150	119	47	42	2	37		1	25,900	12.80	

TABLE XIV (Part 5)
 ANALYSIS OF UNFILLED CREDITS OF THE SELECTED STUDENT GROUP
 FALL QUARTER 1921-22

College or School	Number of Students	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	Average
Agriculture	467	7	2	25	6	45	8		1	2	3			1					452	.96
Chemistry	68		6	6		11	1		2										107	1.57
Dentistry	84		8	8	2	8	5	3	1	1									156	1.85
Education	189		2	13	1	4					1		1						89	.47
Engineering	444		7	23	1	14	3	6	3	1	2								257	.57
Law	239		5	11	3	18	2	4	5	3	7	4		6					444	1.85
Mines	41					2	7				1	2	1		1				45	1.09
Pharmacy	87			11	1	1	4		8	1	3	1					1	2	230	2.64
Science, Literature, and the Arts.....	404	1	4	13	10	34	1	2	2										293	.72
Totals	2,023	8	34	110	24	137	31	15	22	8	17	7	2	7	1		1	2	2,073	1.02

TABLE XIV (Part 6)
ANALYSIS OF CREDITS FAILED OF THE SELECTED STUDENT GROUP
FALL QUARTER 1921-22

College or School	Number of Students	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total	Average
Agriculture	467	1		8	6	15	3		1	2					1			182	.38
Chemistry	68			5	1	7	5		7	3								167	2.45
Dentistry	84			2	1	6		1	1									45	.53
Education	189	1	3	3	4	4			1									60	.31
Engineering	444		9	37	3	50	12	3	14	1	13	2	1	2				795	1.79
Law	239		2	1		2	1	1	3			2						78	.32
Mines	41					2	4					1						110	2.68
Pharmacy	87					7				1								44	.50
Science, Literature, and the Arts	404	1		8	6	39	1	2	2	1	13							419	1.03
Totals	2,023	3	14	64	21	132	26	7	29	8	26	5	1	2	1			1,900	.93

The average student load for each of the groups is shown in the right hand column. Here also a wide variation is seen. This is partly explained by certain differences in the meaning of "unit of credit." Up to the present time a unit of credit has not stood for the same amount of work in the various colleges and these differences, which can not be fully explained here, have made exact comparisons between colleges quite difficult. It should be added that action has just been taken to make the "unit of credit" uniform throughout the University. Henceforth, a unit of credit will represent 3 actual hours of work by the student,—either 1 lecture with 2 hours of preparation, or 3 hours of laboratory work, or some combination or equivalent of this.

Naturally these differences affect costs very materially or at least the measurement of costs and the step to reduce this measure of student work to a uniform standard is a very important move in the direction of greater efficiency in administration.

In Part 4, Table XIV is shown a full distribution of these sample groups of students with respect to the number of credits they actually "earned" during the quarter. It is not so important that a student should register for a large number of credits as that he should earn those for which he registers.

These figures show the same wide variability as was shown in credits taken. Many of those who registered for large numbers of credits were evidently able to carry the load. A comparison of the averages in Part 4 with the averages in Part 3 show in whole numbers the extent of the failure to complete the work undertaken. It will be seen that from 1 to 3 units of work undertaken were not finished up at the end of the year.

Part 5 of Table XIV shows a similar distribution of groups with respect to the numbers of credits that were "conditioned" and "incomplete," and Part 6 shows the same for the numbers of credits on which there was complete failure. These figures explain themselves. From 0.7 to almost 3 credits represents the average number of "conditioned" and "incomplete" credits in the different groups, while an average 7.93 represents the extent of total failure.

With these actual student records before one, the question of what is the relationship between the number of credits undertaken and the number "earned" by a student naturally arises. This question is clearly answered in Parts 7 and 8 of this table.

Part 7 shows in whole numbers for 2,107 cases just what happened in every case. The top line of figures tells the number of credits a student registered for. The left hand column tells the number the student "earned." If a student is placed in this table under the figure 10 in the top line that means that he registered for 10 credits. If he is under 15, then he registered for 15 credits. If he appears at the right of the figure 6 in the left hand column, that means that he "earned" 6 credits. If he is at the right of 14 that means that he "earned" 14 credits. Of course no student will earn more than he registers for.

To read this Part 7 we say, beginning with the figure under 2 in the top line and to the right of 0 in the left column, that 3 students each registered for 2 units and no one of the 3 earned a single credit. Further, in this line we see that 8 students registered for 3 credits and earned 0, that 1 registered for 4 and earned 0, or, at the end of the line we see that a total of 54 students failed to earn a single

credit, and that 2 of these had registered for as high as 22 credits. The explanation may be one of accident, illness, or any one of the many things which nothing short of an individual study of these cases would tell.

Going down through this table it will be seen that 11 students registered for 2 credits each and all earned them, that 24 registered for 3 and earned them, that 5 registered for 4 and earned them, and so on.

Take column 15—here we see 10 students registered for 15 credits and earned none; 3 registered for 15 and earned 2; 2 others of those registering for 15 earned 3; and at the bottom of the column we see a group of 351 who registered for 15 and earned 15.

The total figures at the bottom show the distribution of the total 2,107 students, with respect to the number of credits registered for, and those in the right hand column show a distribution with respect to the number of credits earned. A little figuring shows that 62.96 per cent of these 2,107 students earned all the credits they registered for and that 37.04 per cent earned fewer than they had registered for.

The title of Part 7, Table XIV explains fully the character of the samples of students studied. In view of the rather large proportion of freshman students included it seemed wise to study the freshmen separately. Accordingly Part 8 of the table presents these special facts in the same form as those in Part 7 just discussed.

It will be seen that the loss and the scattering in the freshman group is greater than would be expected. Here only 60.33 per cent of the students earn as many credits as they register for.

The point in all the facts brought out in the 8 parts of Table XIV is that because of illness or for any one of a thousand other reasons the student load of work undertaken at the beginning of a year in the University is very much greater than the actual amount of work turned out in complete form at the close of the year. When we say here that less than 65 per cent of the attempted load is actually carried through the year we do not mean that the remaining 35 per cent is total loss. Some of it will be completed later. It does mean, tho, that the loss is heavy.

The cost to the University of a credit failed is practically the same as is the cost of a credit earned. In one sense, and a very real one too, the cost of a failure is much greater than the cost of success. Failure means another trial at the same cost as the original, and it means that the state must wait longer for the student to become an earner as well as a consumer.

From this extended presentation of figures it will be clear that the University is offering a very large number of courses; that these courses are widely varied in credit length and again in time length; that there is wide variety in registration in these courses; that the proportion of advanced as compared with elementary courses is widely variant in the several colleges and departments; and that the form of instruction which is closely related to cost varies greatly in different colleges. It will be clear too that because of the varying lengths of courses and the varying degrees of advancement and in form of instruction the number of courses taken by students must vary greatly. Finally, it will be clear also that there is a substantial loss of work going on, most of it inevitable, no doubt, but having a direct bearing upon all administrative and cost problems.

TABLE XIV (Part 7)
 CREDITS TAKEN AND CREDITS EARNED BY A SELECTED STUDENT GROUP
 FALL QUARTER 1921-22 (2107 Students)

	Number of Credits Taken																									Total
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
0....	3	8	1	1		1	2			1	3	14	2	10	4	1			1		2					54
1....			1																							1
2....	11					1		1	2		1	11	1	3	2											33
3....		24		1				2	1	1	1	7	1	2					2		1					43
4....			5			1				1	1	4	1	2			2	1			1					19
5....				10				1	4	1	1	12	3	41	2			1		6		2				83
6....					3		1	1	1	6	1	5	4	1	1	5						2				31
7....						7				6	1	2	8	2	7	2	5	1								41
8....							16			1	4		15	8	1	9	1	3	1			1				60
9....								13			2	4	2	7	5	3	3	3	2	2						46
10....									38			3	23	5	107	6	4	5	3			2				196
11....										32	2	9	11	9	25	2	4	2				1				97
12....												35	3	6	11	7	19	1								82
13....													133	2		18	3	24	3							183
14....														129	1	7	15	8	4	9		5				178
15....														351	1	3	19		7							381
16....															170	3		9	3	3	5					193
17....																145	1	3	3		1					153
18....																	117		3			1				121
19....																		40	2		5					47
20....																			23		14	2				39
21....																					2					2
22....																						23				23
23....																										0
24....																										0
25....																									1	1
26....	14	32	7	12	3	10	19	18	53	49	53	246	182	551	257	211	188	67	61	6	64	3	0	1	2,107	

These students were from colleges and classes as follows:

	College	Freshman	Sophomore	Junior	Senior	Total
Education				178		178
Law	95		82	62		239
Agriculture	173		179	115		467
Engineering	300			144		444
Science, Literature, and the Arts....	301			201		502
Chemistry	46			22		68
Dentistry	84					84
Mines	41					41
Pharmacy	44			40		84

Grand total.....

2,107

Note: 62.96 per cent earned all they registered for.

TABLE XIV (Part 8)
 CREDITS TAKEN AND EARNED BY A SELECTED STUDENT GROUP
 FALL QUARTER 1921-22
 (774 Freshman)

		Number of Credits Taken																				
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Totals		
Number of Units Earned	0...									1	4		6		1			1		13		
	2...							2		1	2	1	3							9		
	3...																			0		
	4... 1									1	1		1	1		1				6		
	5... 1							3			6	1	40	2		1				54		
	6...											1	1							2		
	7...							6		1	7		4		1					19		
	8...							1			3	4	1	4			2			15		
	9...										2	4			2	2	1			11		
	10...							18			14	1	97	1		3				134		
	11...								6	2		1	4	14						27		
	12...										6	1	3	2	4					17		
	13...											48	2	2	1	9	1			63		
	14...												92		3	3	2			103		
	15...													201	1	2			1	205		
	16...														31	1				33		
	17...															34				34		
	18...																25			25		
	19...																	3		3		
	20...																		1	1		
		1	1	0	0	0	0	30	7	12	87	108	361	61	47	48	7	3	1	774		

(This sample contains 300 students from the College of Engineering and Architecture, 73 from the College of Agriculture, and 301 from the College of Science, Literature, and the Arts.)

Note.—60.33 per cent earned all they were registered for.

THE SIZE OF CLASSES

The fifth point in Question One asks for information concerning "The number of students in the several classes."

The answer to this question will be presented in two sets of figures. The first covers a thoro study of the size of classes during the fall quarter of the year 1921-22, and the second a slightly different study of the figures covering the size of classes during the fall quarter of the year 1921-22. The former will be set forth in Table XV, Parts 1 and 2; the latter, in Table XVI, Parts 1, 2, and 3.

Part 1 of Table XV, shows for each college a distribution of all the classes taught during the fall quarter of last year. The classes are distributed, first, with respect to size and, second, with respect to the degree of advancement of the classes. The table should be read as follows: In the College of Science, Literature, and the Arts there were 18 classes in graduate work containing 1 to 15 students each.

There were 80 classes of the Senior College and graduate group, ranging also from 1 to 15 students in size. There were 127 undergraduate classes ranging from 1 to 15 in size, or a total of 225 classes, each of which contained 15 students or less.

Secondly, there was one graduate class of between 16 and 29 students in size, 20 mixed (Senior College and graduate) classes of the same size, and 208 undergraduate classes, making a total of 229 classes, ranging in size from 16 to 29 students each.

There were no graduate classes containing as many as 30 students or more. There were 9 mixed classes, however, of this size, and 142 undergraduate classes of this size, making a total of 151 classes that were conducted with at least 30 students per class. In all, there was a total of 605 classes conducted in the College of Science, Literature, and the Arts during the fall quarter of last year.

A similar distribution of the classes in each of the colleges is presented in this table. Turning to the bottom of the page, it will be seen that a total of 614 classes in the University, ranging in size from 1 to 15 students; 416 classes, ranging in size from 16 to 29 students; and 336 classes, containing 30 or more students each, making a total of 1,366 University classes, were conducted during the fall quarter of 1920-21.

Expressing these in percentages, we find that 44.99 per cent of the classes contained 15 students or less; that 30.43 per cent of the classes contained from 16 to 29 students; while 24.57 per cent of the classes each contained 30 students or more. It may also be seen by a simple combination of these percentages that only 4.24 per cent of all classes were strictly graduate classes; that 25.38 per cent were mixed, that is, were Senior College and graduate classes, while 70.38 per cent were of undergraduate students.

This furnishes us with a clear statement of the relative importance of the different grades of instruction as judged by the number of classes, and gives also a clear idea of the size of the various classes in the University.

In Part 2 of this table the same information is set forth for each college by departments, from which the figures may be examined in full detail for any department in those colleges that are departmentalized. From these tables it will be seen that the College of Dentistry and the Law School gave no strictly graduate instruction during last year and that the Colleges of Engineering, Mines, and Business gave practically none. The large number of strictly graduate courses were given in the Colleges of Science, Literature, and the Arts, Agriculture and Medicine, with Chemistry and Education worthy of mention.

It is to be understood that "mixed" courses means a mixture of upper class and graduate students. So, of course, more than a total of 4.24 per cent of the actual instruction was used by students for graduate credit last fall. Reference at this point to the figures in Table VI and following tables, will give a better idea of the actual amount of advanced work that was carried on.

TABLE XV (Part 1)
 THE NUMBER, CHARACTER AND SIZE OF CLASSES IN THE SEVERAL COLLEGES
 FALL QUARTER 1921-22

College or School	Number of Classes Containing Student as Follows:												Grand Totals
	1 to 15 inclusive				16 to 29 inclusive				30 or Over				
	Grad- uate	Mixed uate	Under- graduate	Totals	Grad- uate	Mixed uate	Under- graduate	Totals	Grad- uate	Mixed uate	Under- graduate	Totals	
Science, Literature, and the Arts	18	80	127	225	1	20	208	229	9	142	151	605	
Engineering and Architecture.	2	24	62	88		17	46	63	9	21	30	181	
Agriculture, Forestry, and Home Economics.....	13	31	53	97		3	22	25	3	23	26	148	
Law School.....							4	4		19	19	23	
Medical School.....	14	62	14	90		2	12	14	9	22	31	135	
College of Dentistry.....							1	1		11	11	12	
School of Mines.....	1	5	5	11		1	5	6		5	5	22	
College of Pharmacy.....			1	1			2	2		6	6	9	
School of Chemistry.....	4	27	18	49		4	4	8	1	17	18	75	
College of Education.....	4	13	23	40		8	11	19	2	8	10	69	
Business School.....	1	5	4	10		5	34	39	6	23	29	78	
School of Nursing.....			3	3			6	6				9	
Totals	57	247	310	614	1	60	355	416	39	297	336	1,366	
Per cent of grand totals..	4.17	18.14	22.68	44.90	0.07	4.39	25.97	30.43	2.85	21.72	24.57		

TABLE XV (Part 2)
THE NUMBER, CHARACTER AND SIZE OF CLASSES IN EACH DEPARTMENT
FALL QUARTER 1921-22

College or School	Departments	Number of Classes Containing Students as Follows :									Grand Totals Dept.		
		1 to 15 Inclusive				16 to 29 Inclusive				30 or Over			
		Grad- uate	Mixed uate	grad- uate	Totals	Grad- uate	Mixed uate	grad- uate	Totals	Grad- uate		Mixed uate	grad- uate
Science, Literature, and the Arts													
	Animal Biology.....	3	5	3	11			1	1		6	6	18
	Anthropology		4	4	8	2		1	3	2		2	13
	Astronomy			3	3			1	1		1	1	5
	Botany	1	4	8	13			1	1		4	4	18
	Comparative Philology.....	1	3		4								4
	Rhetoric, English, etc.....		5	5	10	3	89	92		1	8	9	111
	Geology and Mineralogy....	2	6	13	21	3	1	4		1	4	5	30
	German	1	3	8	12		11	11			7	7	30
	Greek	1		5	6						2	2	8
	History	1	5	1	7	4	7	11		1	15	16	34
	Journalism			2	2						1	1	3
	Latin	1	1	1	3		3	3					6
	Mathematics	1	3	3	7		15	15			4	4	26
	Music		1	20	21		11	11					32
	Philosophy		4	2	6			1	1		2	2	9
	Physics	1	6	11	18	1	1	25	27		6	6	51
	Political Science.....		3	3	6		2	3	5		7	7	18
	Psychology		6	3	9			8	8		18	18	35
	Romance Languages.....	3	13	24	40			22	22		32	32	94
	Scandinavian	1	7	3	11		4	7	11		1	15	16
	Sociology	1	1	5	7		1	1	2		3	10	13
	Totals	18	80	127	225	1	20	208	229	9	142	151	605

TABLE XV (Part 2)—Continued
 THE NUMBER, CHARACTER AND SIZE OF CLASSES IN EACH DEPARTMENT
 FALL QUARTER 1921-22

College or School	Departments	Number of Classes Containing Students as Follows :									Grand Totals Dept.			
		1 to 15 Inclusive				16 to 29 Inclusive				30 or Over				
		Grad- uate	Mixed uate	grad- uate	Totals	Grad- uate	Mixed uate	grad- uate	Totals	Grad- uate		Mixed uate	grad- uate	
Engineering and Architecture														
	Architecture		5	25	30		5	5		3	3	38		
	Civil Engineering.....	2	5	2	9		8	8		2	1	3	20	
	Drawing and Descriptive Ge- ometry			9	9		16	16			6	6	31	
	Electrical Engineering.....		9	21	30		6	6		2		2	38	
	Mathematics and Mechanics		5	5	10		11	17	28		5	11	16	54
	Totals	2	24	62	88		17	46	63		9	21	30	181
Agriculture														
	Agricultural Biochemistry...	3	8	1	12		1	1			3	3	16	
	Agronomy and Farm Man- agement		2	1	3					1		1	4	
	Agricultural Education.....		1	3	4		1	1					5	
	Animal Husbandry.....	2			2	1	2	3			2	2	7	
	Bee Culture.....			1	1								1	
	Dairy Husbandry.....	3	3	1	7					1	1	2	9	
	Economics	2	2	3	7						2	2	9	
	Entomology	2	2	4	8								8	
	Farm Engineering.....			5	5						2	2	7	
	Forestry		1	8	9		2	2			1	1	12	
	Home Economics.....		4	21	25	1	8	9			5	5	39	
	Horticulture		3	3	6	1		1		1		1	8	
	Plant Pathology.....	1	3	1	5		1	1					6	
	Poultry Husbandry.....						1	1					1	
	Rhetoric			1	1		4	4			6	6	11	
	Soils										1	1	1	
	Veterinary Medicine.....		2		2		2	2					4	
	Totals	13	31	53	97		3	22	25		3	23	26	148

TABLE XV (Part 2)—Continued
 THE NUMBER, CHARACTER AND SIZE OF CLASSES IN EACH DEPARTMENT
 FALL QUARTER 1921-22

College or School	Departments	Number of Classes Containing Students as Follows :									Grand Totals Dept.		
		1 to 15 Inclusive				16 to 29 Inclusive				30 or Over			
		Grad- uate	Mixed uate	grad- uate	Totals	Grad- uate	Mixed uate	grad- uate	Totals	Grad- uate		Mixed uate	grad- uate	Totals
Medical School													
Anatomy		4	9		13	1	1			1	2	3	17
Bacteriology		4	7	5	16	2	2			1	2	3	21
Medicine			11	1	12	1	1				6	6	19
Obstetrics and Gynecology..			2	1	3	1	1				5	5	9
Ophthalmology and Oto- Laryngology											2	2	2
Pathology		1	7		8	1	1			1	1	2	11
Pediatrics			1		1	1		1		3		3	5
Pharmacology		4	9		13					2		2	15
Surgery			6	2	8		6	6			4	4	18
Physiology		1	10	5	16		1	1		1		1	18
Totals		14	62	14	90	2	12	14		9	22	31	135
Dentistry													
Anatomy, Oral.....						1	1			1	1		2
Crown and Bridge Work....										2	2		2
Hygiene and Pathology....										1	1		1
Orthodontia										1	1		1
Prosthetic Dentistry.....										3	3		3
Surgery, Oral.....										1	1		1
Operative Dentistry.....										2	2		2
Totals						1	1			11	11		12

TABLE XV (Part 2)—Continued
 THE NUMBER, CHARACTER AND SIZE OF CLASSES IN EACH DEPARTMENT
 FALL QUARTER 1921-22

College or School		Departments		Number of Classes Containing Student as Follows :										
				1 to 15 Inclusive			16 to 29 Inclusive			30 or Over			Grand Totals Dept.	
				Grad- uate	Mixed grade	Under- grad- Totals	Grad- uate	Mixed grade	Under- grad- Totals	Grad- uate	Mixed grade	Under- grad- Totals		
School of Mines														
	Metallurgy	1	5	2	8	1	1	2			2	2	12	
	Mine Plant and Mechanics..			2	2			3	3			2	2	7
	Mining			1	1			1	1					2
	Mining Engineering.....											1	1	1
	Totals	1	5	5	11	1	5	6			5	5	22	
School of Chemistry														
	Analytical		2	1	3	1	1	2			1	1	6	
	Chemical Engineering.....		5	4	9	1		1					10	
	General Inorganic.....			10	10		1	1			14	14	25	
	Organic		7	2	9	1	2	3	1			1	13	
	Physical	4	10	1	15	1		1			1	1	17	
	Technological		3		3						1	1	4	
	Totals	4	27	18	49	4	4	8	1	17	18		75	
College of Education														
	Art Education.....			8	8		6	6			3	3	17	
	Educational Psychology....	1	5	3	9	2		2	2	2	4		15	
	Ed. Ad. and Supervision....	3	5		8	4		4					12	
	Hist. and Philos. of Educa- tion					1	3	4			2	2	6	
	Theory and Practice of Teaching			6	6		2	2			1	1	9	
	Trade and Industry Educa- tion		3	6	9	1		1					10	
	Totals	4	13	23	40	8	11	19	2	8	10		69	

As to size of classes, it will be seen that the large classes are quite largely undergraduate classes, as would be expected, and that the small classes are in advanced work. The difference is due not alone to the fact that large numbers of beginning students require such grouping, but in part also to the necessity of individualizing advanced work. In beginning work the student is busy learning things from books and lectures. In advanced work he must become something of an explorer. He must learn to walk alone, as it were, and to think critically of what he sees and hears. In the beginning stages of such work anything short of very personal instruction is to little purpose.

Similar information on the size of classes, for the first quarter of the current year, is set forth in Table XVI, Parts 1, 2, 3, and 4. In Part 1 of this table is shown, for each college, first, the number of courses now in operation; second, the total registration in these courses; third, the distribution of all courses with respect to the number of students registered in each course; and, finally, the range in the number of students per course.

It should be explained at the outset that the word "course" has reference to all the students who are registered for any given course, and not necessarily to a single class group. Where the courses are large they are usually taught in sections. A section will be regarded as a class. A course, therefore, may be composed, not of one but of several classes. This will be further explained.

Reading Part 1, of Table XVI, we find that in the College of Science, Literature, and the Arts 316 courses were taught during the quarter of this year just closing, and that in these courses there was a total of 14,470 student registrations. Of these courses, 76 contained 5 or less students; 48 contained from 6 to 10 students; 42 from 11 to 15 students; 25 from 16 to 20 students; 39 from 21 to 30 students; 9 from 31 to 40 students; etc., until at the end of the line we find 7 courses in which there were 301 or more students enrolled.

These smaller courses include all of the individual research courses which are not carried on by the usual class methods of instruction, but by an occasional conference between the individual student and the instructor who supervises the research work. Such courses are counted in this table and consequently make the number of small courses appear very large.

These figures are shown for each of the colleges and in toto at the bottom of the page, from which we see that 977 courses were conducted during the quarter and that there was a total student registration of 44,441. Further, we see that 190 of these classes were more or less individual courses, mostly pieces of research, such as graduating theses, etc.

Turning now to the way in which these courses were handled, we refer to Part 2 of this table, which shows for each college, first, the number of courses taught; second, the number and per cent of these courses which were so large that it was necessary to conduct them in sections; third, the distribution of the courses with respect to the number of separate sections which it was necessary to organize; and, finally, a distribution of these sections with respect to the type of instruction by which each was carried on.

Reading the first line of this table we find that of the 316 courses conducted in the College of Science, Literature, and the Arts during the fall quarter, 48, or a total of 15 per cent, were so large that it was necessary to divide them up into sections in order to carry on the instruction with any degree of efficiency. Of these 48 courses, 15 were divided into 2 sections each; 8 into 3 sections; 5 into 4 sections; 4 into 5 sections; 4 into 6 sections, etc., and finally, 2 into 15 or more sections. Further, one was a laboratory course; 4 were a combination of laboratory, lecture, and recitation work; while 43 were conducted by lecture and recitation methods.

This same information may be read for each of the colleges and, finally, for the entire University at the bottom of the page, where we see that 184 of the 977 courses taught were so large that they had to be handled in sections; 84 were divided into 2 sections; 33 into 3 sections; 11 into 4 sections; etc., across the page. Again, 29 of the 184 courses were laboratory courses, 56 were a combination of laboratory, lecture, and recitation, and 100 were conducted by lecture and recitation methods.

From this it will be seen that a very considerable number of the courses offered in the University have raised the question of what to do with large classes. The solution which the University has reached is indicated by this table. It will be seen that a very large proportion of these large courses are strictly in lecture and recitation form. Such courses can be handled sometimes in groups of 300 or 400 for 1 or 2 lectures a week, and may then be broken into sections for the remaining part of the week and conducted, not as lectures, but as recitations and quizzes on the lectures and on assigned reading. By these methods it has been found possible to handle a large number of students with a relatively small instructional force and still to get very good results.

The size of class groups, as they were actually handled during the quarter just closing, is indicated by Part 3 of this table, in which all class groups for the entire course or for sections of courses are distributed with respect to size.

Reading the first line of this table we see that 78 classes in the College of Science, Literature, and the Arts contained 5 or less students. As has been pointed out above, these are in many cases not real classes, but rather individual conferences between teacher and student. From the standpoint of the teaching load for the professor they do not have the weight which they seem to have in the table. In many cases such work is carried on by professors in addition to their regular teaching load. There were 53 of the classes ranging in size from 6 to 10 students; 50 from 11 to 15 students; 44 from 16 to 30; 90 from 21 to 25, etc. It will be seen by an examination of the right hand side of this part of the table that there is a considerable number of classes containing 40 or more students and not an inconsiderable number containing at least 100 students. These latter figures usually cover large lecture courses.

In Part 4 of this same table additional information has been collected touching the question of size of classes. Each instructor was asked to state, with respect to the size of the classes he was teaching, "How many more students could be handled in the class without reducing the efficiency of the instruction?" or, if the class was too large, "By how many students should the class be reduced in order to make it possible to give efficient instruction?"

TABLE XVI (Part 1)
NUMBER OF UNIVERSITY COURSES; TOTAL REGISTRATION AND NUMBER OF STUDENTS IN
EACH COURSE
FALL QUARTER 1921-22

College or School	Number of Courses now in Operation	Total Registration in these Courses	Number of Students Registered in Each Course																
			5 or less	6 to 10	11 to 15	16 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 100	101 to 150	151 to 200	201 to 250	251 to 300	301 or over	
Science, Literature, and the Arts.....	316	14,470	76	48	42	25	39	9	17	6	8	3	4	13	11	5	3	7	
Engineering and Archi- tecture	99	4,100	9	13	9	13	11	11	12	4	2	3	1	5	3	2	1		
Agriculture.....	120	2,252	32	16	17	19	16	8	6	2	3				1				
Law	19	1,472					1	1	3	1	6	2			3	2			
Medicine	126	3,415	44	14	6	6	15	16	6		4	7	5	2				1	
Dentistry	19	1,694		2						4		2	5	5				1	
Mines	26	616	5	1	1	6	3	4	6										
Pharmacy	12	540						6	2	4									
Chemistry	38	2,414	7	4	9	2	2	1	3		2		1	1	1	2	1	2	
Education	69	1,378	16	15	7	4	11	8	4		1		3						
Business	25	2,198		1	1	1	3	3	3	1	2	2	2	2			3	1	
Military Department..	5	2,059						1					1		1			2	
Physical Education (Women)	28	2,461	1	7	1	1	8	2	1	1	1		2			1		2	
Physical Education (Men)	3	1,010		1										1				1	
Extension Division...	72	4,342		2	16	14	10	5	4	6	2	3	1	3	2	1		3	
Totals	977	44,421	190	124	109	92	119	77	65	34	27	20	25	35	21	11	9	19	

TABLE XVI (Part 2)
 THE NUMBER, CHARACTER, AND DIVISION OF COURSES INTO SECTIONS
 FALL QUARTER 1921-22

College or School	Total Number of Courses now in Operation	Number and Per Cent of these Courses that Recite in Sections		Distribution of these Courses in Terms of the Number of Sections They Contain														Form of Instruction Used in these Sections (Classes)		
		Number	Per Cent	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or over	Labora- tory	Mixed: Labora- tory, Lecture, Recitation	Lecture, Recitation
Science, Literature, and the Arts.....	316	48	15.	15	8	5	4	4	3	3	1	1	1		1		2	1	4	43
Engineering and Architecture	99	44	44.	16	14	4	3			4			1	1		1		12	21	11
Agriculture	120	13	11.	9	3			1											7	5
Law	19	5	26.	5																5
Medicine	126	6	5.	5		1												2	3	1
Dentistry	19																			
Mines	26																			
Pharmacy	12																			
Chemistry	38	10	26.	6	1		1		2										10	
Education	69	9	13.	6	2				1									2	4	3
Business	25	13	52.	4	2		3		1	1							2	2	1	10
Military Department..	5	5	100.		1		1		2		1								5	
Physical Education (Women)	28	7	25.	4			1			1								6		1
Physical Education (Men)	3	2	67.	1			1											2		2
Extension Division...	72	22	31.	13	2	1	2		2	1	1							2	1	19
Total	977	184	19.	84	33	11	16	5	11	10	3	1	2	1	1	1	1	29	56	100

TABLE XVI (Part 3)
 THE UNIVERSITY COURSES IN THE SEVERAL COLLEGES; AN ANALYSIS OF
 STUDENT NUMBERS IN EACH COURSE
 FALL QUARTER 1921-22

College or School	Size of Classes or Instructional Groups																				Total Num- ber of Classes	
	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	101 to 125	126 to 150	151 to 175	176 to 200	201 to 250	251 to 300		301 or over
Science, Liter- ature, and the Arts	78	53	50	44	90	85	59	23	26	7	6	3	4	1		3	3	2			2	539
Engineering & Architecture	17	30	49	53	64	17	2	4	7	1	1											245
Agriculture...	31	20	21	26	20	9	3	6	4		1											141
Law School...				1	1		1	2	1	1	6	10	1									24
Medical School	40	14	8	7	8	7	12	6	7		6	7	5	2	1							130
Dentistry		2								4		2		5	5					1		19
Mines	9	9	10	16	6	5	2	4	11													72
Pharmacy.....							2	4	2	4												12
Chemistry.....	7	4	11	4	13	3	2	1	5	1	2	2	1	1	3	1				2		63
Education	24	17	7	8	5	7	6	3	3	1	1											82
Business	2	1	16	12	23	15	7	3	6		2	2										89
Military Dept.	1	7	3	1		1		1	1	2	4		1		3	1	2	3				31
Physical Educa- tion (Women)	1	8	5	2	8	6	4	3	4	5	5	1	1			2	3					58
Physical Educa- tion (Men) ..	1			1											1			1	2			6
Extension Divi- sion.....	1	4	20	27	16	14	21	10	10	4	2										2	131
Totals.....	212	169	200	202	254	169	121	70	87	30	36	27	13	9	13	7	8	6	5		4	1,642

TABLE XVI (Part 4)

THE UNIVERSITY COURSES IN THE SEVERAL COLLEGES; AN ANALYSIS OF CLASSES AS TO EXCESS OR DEFICIENCY IN NUMBERS

FALL QUARTER 1921-22

Number of Classes That Are Too Large or Too Small by the Following Number of Students														
College or School	Too Large by						Totals	Too Small by						
	1	6	11	16	21	41		1	6	11	16	21	41	
	to 5	to 10	to 15	to 20	to 40	or over		to 5	to 10	to 15	to 20	to 40	or over	Totals
Science, Literature, and the Arts.....	72	51	25	7	14	4	173	100	65	32	15	7	219	
Engineering and Architecture	70	17	6	2	3		98	57	31	8	4		100	
Agriculture	19	10	3	2	1		35	30	32	12	8		82	
Law School.....		1	5	2	10		18	1		2	1	2	6	
Medical School.....	2	1	1	2	4	3	13	10	5	2	1	1	19	
Dentistry	3	2	1		5		11		2	2			4	
Mines	2	1	2	2			7		3		1	1	5	
Pharmacy		3		1	4		8							
Chemistry.....			1		4	3	8	6	6	6	4	2	1	25
Education	2	5	3		3		13	10	8	11		5	1	35
Business	1		1	2	5	2	11	3	5	1				9
Military Department....		1	1	1	1	11	15	1	7	3	1		3	15
Physical Education (Women).....	10	3	5	2	2		22	8	4	5	4	12	1	34
Physical Education (Men)	1	1				3	5					1		1
Extension Division.....	18	18	8	4	7		55	27	21	11	4	1		64
Totals	200	114	62	27	63	26	492	253	189	95	43	32	6	618

These figures bring to light something of the difficulties which every university meets in trying to adjust its teaching force to the actual needs of the student body. It shows how far we are forced to work under conditions which are not ideal, but which we are unable to change without heavy increase in cost on the one hand, or by the omission of work that students have a right to expect to find available on the other.

From these figures we read that of the total of 539 classes, taught in the College of Science, Literature, and the Arts, 173 were too large and that 219 could have been larger and without reducing the efficiency of instruction. Some were too large or too small for ideal conditions only by a small number; while in other cases the excess is great. When a class is too large by as many as 10 to 40 or 50 students, we may be sure that the instruction is suffering. To break all these "too large" classes up into sections would involve a heavy increase in teaching staff.

If it were possible to increase the size of the classes which, by our figures, might take more students, without impairing instruction, that would be a simple solution. Or, if we could omit a course when less than a certain stipulated number of students register for it and shift the instructor to courses which need to be broken into sections, that would be an easy solution also. But, very obviously, neither of these solutions could be given a serious thought.

The point, then, is just this: we will always have classes, many classes, in every school and college which are not so large as they might be. This may represent a waste but, if so, it is a waste which almost exactly compares with the waste which a merchant suffers by having his store closed at night and on Sundays and holidays, and is really not so regrettable a waste as that which a university suffers by closing its doors for a long summer vacation. It has this advantage, too, viz., that it shows to those administering the University the points at which expansion may take place without added cost. The classes that are too large already, however, present a problem with which all colleges and universities, large and small, and many or most city school systems as well, are now struggling. The solution in city school systems is all too often found in part-time sessions. In colleges and universities the solution is partly found in newer methods of conducting classes involving the use of relatively large numbers of young instructors. Every university knows that the possibility of carrying this plan too far is very great. An examination of Table VIII, Part I will show the extent to which this plan has been carried in this University.

Taking the entire display shown in Tables XV and XVI we have before us a full statement regarding the size of courses and the size of classes for each of the colleges in this University. There is wide variety as one would expect. The large classes are very largely classes of junior college students while the very small classes are classes of juniors, seniors and graduates. In a very considerable number of cases, the classes are so large that they have to be taught in sections and in more than one fourth of the classes, as they now operate, further increase in size will mean a weakening of instruction.

THE WORKING LOAD OF THE STAFF

The sixth and final point on which information is asked in Question One has reference to the teaching load. It asks for information as to "The number of hours spent by the several teachers in actual teaching."

It should be said at the outset that teaching is but one of the activities of members of a university staff. This University, as is true with all large state universities, is carrying on four main lines of activities. The primary one, in all instances, is that of instruction. In addition, however, there is research and experimental work, carried on partly under regular government experiment station conditions and, in part, in the teaching and research laboratories of the University. Then there is public service work, a very considerable amount of which is being done by all of our state universities, and, finally, extension teaching.

Instruction has been commonly thought of as the essential aim of a university and sometimes as the exclusive one. The latter is far from true, as one may learn from a study of the collections of figures presented in this report. In the first place, a very considerable amount of money is received by the University from the Federal government upon condition that certain lines of experimental and research work shall be carried on. Not infrequently, also, gifts have been received for the promotion of research work. And, further, a very considerable amount of research work is essential in carrying on advanced instructional work. In fact, instruction in the technic of research is a very essential part of all advanced courses and the professor who can not use his own research work to illustrate right methods is not properly equipped for handling advanced courses.

Public service work, as carried on by the University, has been developed, as years have gone by, in the light of the needs for expert service within the state. It has been considered a proper function of the University to render technical assistance in the development of the natural resources of the state and, accordingly, when some new field of activity or some new natural resource within the state is to be exploited the University has always been looked to for help.

It is possible and, from the standpoint of the public, it is desirable that the technically trained men of the University should contribute to the general welfare of the state by giving such technical and scientific assistance when it is needed. When all the work of this character being done in a great university is brought together it represents a very considerable amount of the time and energy of the teaching staff.

Thus it is that when we are discussing the instructional load and measuring the actual amount of time that a given instructor puts into actual classroom work we are concerning ourselves with but one of the four lines of activity in which the University is engaged and, in many cases employing less than 100 per cent of the service for which any given member of the staff is paid.

In this University, as in most universities, almost every man is engaged in more than one of these four lines of activity. He is, perhaps, first, an instructor and, second, an assistant in an experiment station; or he is engaged in some special research work going on in an instructional laboratory, or, he may be employed primarily as an experiment station man and be giving most of his time to public service work.

There is yet another aspect of the situation which needs to be explained. In an institution expending nearly three million dollars annually, employing more than a thousand persons, and handling approximately ten thousand students, there is a very considerable amount of administrative work to be done. Because of the purposes of a university and because of the character of the materials with which it deals, the administrative work is especially heavy. This calls for the full time of a goodly number of persons and for part of the time of a very large percentage of the staff. Without such work, instruction itself would be seriously hindered. Finally, it must be kept in mind that the time spent in classroom is by no means all of the time involved in giving instruction. Time spent in preparation for classroom work is not infrequently as great and sometimes much greater than the time actually spent in the classroom. This varies with different methods of instruction and with different subjects, and for that reason comparison is very difficult to make except by details too extended to present here.

In order to give a reasonably clear-cut answer to this inquiry, detailed information has been assembled on this subject. In Table XVII is shown, for full-time instructors, representing all of the college faculties, three items of information. First, the number of hours per week actually spent in classroom work; second the number of hours which, on the average, each finds it necessary to spend in preparation for instruction; third, the time spent in other activities among which are included administration, research and experiment, and public service work. Each individual instructor has reported upon his own expenditure of time.

It should be said that only full-time members of the staff are included in this study for the reason that in a very large number of cases men employed in part-time instruction are employed to give a certain stated number of courses and not to spend a certain proportion of their time on University work. It must be assumed, therefore, that such men are being paid only for what they are actually doing and that their salary is determined, not by the time they spend in doing the work, but by the actual amount of instruction they deliver to the University. It would seem improper to include such cases with the figures for men who are employed on a full-time basis and who devote that full time to University work.

In this table the figures are presented in the four teaching ranks, professors, associate professors, assistant professors, and instructors. Reading the first set of figures in the table we see that, on the average, the men ranking as full professors spend 12 hours per week in actual instruction in the classroom. In arriving at this figure the actual records of practically all full-time teachers of the rank of professor are included. An average of 16.6 hours per week is devoted by these men to preparation for instruction; and on an average 26.6 hours per week is spent on administrative, research, and public service duties, making a total average week of 55.2 hours per professor. The figures for associate professors show that 12.5 hours per week are spent in the classroom, that they spend 20 hours per week in preparation for that instruction, and 23 hours per week on administrative work, research, and public service, making a total average week for the men of this rank,

TABLE XVII

WORKING LOAD OF THE UNIVERSITY STAFF EXPRESSED IN HOURS PER WEEK SPENT IN CLASS TEACHING, IN PREPARATION FOR TEACHING, AND IN OTHER ACTIVITIES

Faculty Rank	Number Reporting	Hours in Class	Number Reporting	Hours of Preparation	Number Reporting	Hours in Administration, Research, Public Service, etc.,	Total Average Hours per Week
Professors	33	9.2	4	6.5	3	9.0	
	41	12.3	40	12.1	7	19.0	
	13	14.4	38	17.3	41	23.1	
					15	27.6	
	7	18.0	12	27.7	28	35.0	
Totals and total averages.....	94	12.0	94	16.6	94	26.6	55.2
Associate Professors	9	9.8	6	8.4	7	11.2	
	27	11.5	6	14.0	6	20.9	
	9	13.8	27	21.2	27	23.6	
	4	21.1	10	26.5	9	31.8	
Totals and total averages.....	49	12.5	49	20.0	49	23.0	55.5
Assistant Professors	9	10.5	9	8.2	21	15.1	
	31	13.5	30	14.0	34	20.4	
	64	15.5	64	17.1	17	26.0	
	6	21.2	7	22.3	38	32.4	
Totals and total averages.....	110	14.8	110	15.9	110	24.4	55.1
Instructors	6	9.0	7	10.5	4	7.0	
	62	13.2	40	18.7	70	13.2	
	62	16.1	73	21.4	25	18.2	
	60	18.2	70	27.0	62	23.1	
Totals and total averages.....	190	15.6	190	22.5	161	17.5	55.6
Grand totals and total averages..	443	15.4	443	16.4	414	22.0	

of 55.5 hours. Of the assistant professors it will be seen that an average instructional load is 14.8 hours per week, with 15.9 hours spent in preparation for that instruction, and 24.4 hours devoted to other activities, making a total average of 55.1 hours per week. Similarly, the group of instructors spends, on an average of 15.6 hours a week in class-room teaching; 22.5 hours a week in preparation; and 17.5 in other activities; totalling 55.6 hours.

A comparison of any one college with another, or of one rank of instructors with another, will show certain variations in any one of the three sets of figures presented. The average number of hours spent in classroom will vary within any given college almost as much as it varies between colleges. This variation is inevitable and, in fact, could not be otherwise.

A more detailed study of the time spent on preparation for teaching than can be presented here shows that it requires much more time to prepare for a course which is being given for the first time, and far less when the instructor has an assistant to care for part of the work. It shows that laboratory instruction is, on the average, decidedly less costly in time necessary for preparation than is true of lecture courses and, further, that the time cost of preparation for recitation and quiz work is in some cases greater and in some cases less than that necessary for lecture courses. Again, preparation time necessary for a course varies with the size of the class. The amount of research work necessary in carrying on instruction is little or none in elementary courses, but in certain advanced courses it is large.

It will be seen then that an even load, as measured by time spent in the classroom, would be unjust and utterly impossible to administer.

There is yet one other factor that enters into the determination of the actual hours spent in the classroom,—and that is the wishes of the men who are doing the teaching. Some men prefer to devote their entire time to giving instruction, others are ambitious to write and to help in pushing out the boundaries of knowledge. It is not infrequently true that a man will leave one university to accept a position in another, at less salary, in order to have greater freedom to carry on his researches. It is just as true that universities, being ranked quite as much in terms of the contributions their men make to knowledge as in terms of good teaching, are very anxious to retain the services of young men who show promise of becoming great productive scholars.

When all the problems suggested are taken into account, and only then, we can see the terms in which the teaching load of university instructors must be standardized.