

KANSAS COMMUNITY COLLEGE EARTH SCIENCES:

OFFERINGS AND ENROLLMENTS, 1968-1972

by

RICHARD EVERETT JOHNSON

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Chapter 1

INTRODUCTION

The earth sciences are of vital importance in this age of increasing concern about the environment. Each day more facts are added to the story of man's disrespect and disregard for his environment.

Earth science covers a broad spectrum of subjects. It includes many interrelated scientific disciplines dealing with the earth. As course offerings, earth science includes: Geology, Geography, Geomorphology, Geophysics, Geochemistry, Meteorology, Oceanography, and others. Most of these subjects are considered observational or descriptive sciences and not ". . . laboratory or experimental sciences such as Physics, Chemistry or Biology."¹

The federal government and other organizations are giving increasing financial support to control pollution, clean up the environment and educate the public about the environment.² With this concern and support, there will be an increase in environmentally related jobs.³

Community colleges will be one of the institutions to supply the training necessary for technicians in the environmental fields. Before

¹John C. Hook, "New Programs in Earth Science," Teachers College Journal, Vol. 33, March, 1962, p. 122.

²"Support for Environmental Education," American Education, Vol. 8, January, 1972, p. 31.

³C. W. Ryan, "Let's Put Environmental Concern in the School Curriculum," American Vocational Journal, Vol. 46, December, 1971, p. 48.

the curriculum is changed to offer degrees in these technical areas, the needs of the community must be analyzed. The present status of courses offered must be determined and evaluated to see what should be added or deleted in order to satisfy the job requirements. With the current rate of change in society, revision of junior college curriculum should be a continuing process. The data presented in this study shows the participation of each community college in the state by reporting their offerings in the earth sciences and the enrollments in these courses over a five-year period.

Statement of the Problem

To determine the offerings and enrollments in the earth sciences in Kansas community colleges, the following questions were asked:

1. What earth science courses were offered in each community college of Kansas for each year of 1968-1972?
2. How many students were enrolled in each earth science course from 1968-1972?
3. How many students were enrolled in each college from 1968-1972?
4. Was there a difference in the earth science enrollments from 1968-1972?
5. Was there a relationship between the size of the college and the number of earth science courses it offered?

Significance of the Problem

Before an attempt is made to offer new courses in the curriculum, studies must be made to determine what the needs are and what is currently offered. In the review of literature it was apparent that very little

has been done in either of these areas in Kansas. This study shows what was offered in earth science and how well it was accepted as indicated by student enrollments.

Statement of the Purpose

With increased concern about the environment, trends in earth science offerings take on a new significance. The purpose of this study was to determine the enrollments and offerings in the community colleges, analyze the data and report any current trends in offerings and enrollments.

DEFINITION OF TERMS

The terms used in this thesis may not always have the same meaning to everyone. To avoid misunderstanding, the following terms must be clearly understood.

Earth Science

"A science (as Geology, Geography, Geophysics, Geomorphology, Geochemistry, Meteorology or Oceanography) that deals with the earth or one or more of its parts . . ."⁴ Also included were the courses Astronomy, Conservation, Ecology and Physical Science. The selection of these courses is explained on page 10 of this report.

Community College

A two-year public institution offering no degree higher than the Associate Degree.

⁴Philip Babcock Grove (ed.), Webster's Third New International Dictionary, (Springfield: C & C Merriam Company, 1959), p. 715.

LIMITATIONS OF STUDY

This study was limited to the nineteen public community colleges in the state of Kansas. It was limited to the data available from the State Department of Education for the years 1968-1972 for total enrollment. Data on the offerings and course enrollments were limited by the responses on the questionnaires sent to the Registrars of each school.

Chapter 2

REVIEW OF SELECTED LITERATURE

As a background for this study of the offerings and enrollments of Kansas Community college earth science courses, it was desirable to review related literature. This review of the literature included current periodical articles and various unpublished reports and theses on related studies.

Several similar studies have been conducted in other areas or at other grade levels. In surveying the literature, few studies were found which included both earth sciences and community colleges.

Advantages of the Earth Sciences

Every course offering has its own special advantages and disadvantages. The earth sciences are no exception, and depending on which author one quotes, differing opinions may be found.

Davison and Fowler indicate that students enrolled in ninth grade physical sciences learn less about the earth than those enrolled in earth science.¹ A test was developed and administered to a heterogenous sample of secondary schools in Pennsylvania that indicated ". . . earth science students have superior results when compared to the general science students."² However, the test was designed for earth and space science,

¹H. M. Davison and H. S. Fowler, "Earth Science Course Evaluation: What Do They Learn in Earth Science?" Science Education, 49:184-5, March, 1965.

²Ibid., p. 184.

which leads to the conclusion that "students in earth and space science classes learn 'more earth and space science' than students do in general science classes."³

According to Willard, "The earth sciences are environmental in scope. The student can develop greater understanding and appreciation of his natural surroundings."⁴ He also states that earth sciences will stimulate interest in other sciences such as physics and chemistry, and that it aids in "demonstrating the interdependence of science fields."⁵

Environmental Education

With the current emphasis on the environment, many authors have indicated that the schools need to take the initiative in educating the public to alleviate any environmental problems.

Ryan, in his article, "Let's Put Environmental Concern in the School Curriculum," stated that educators should ". . . utilize the school curriculum in leading the war on the problems of environmental pollution and resource depletion."⁶ It is his opinion that environmental education be put in all fields such as auto mechanics, home economics, electronics, and so forth.

³Ibid., p. 185.

⁴Gates Willard, "The Importance of Earth Science in the Curriculum," The Science Teacher, 28:22-25, April, 1961.

⁵Ibid., p. 25.

⁶C. W. Ryan, "Let's Put Environmental Concern in the School Curriculum," American Vocational Journal, 46:45+, December, 1971.

According to Pratt, environmental educators may be classified in three groups.⁷ These educators want to:

1. Put environmental education into every discipline and course area.

2. Use environmental education to make students aware of what is happening around them and what causes it to happen.

or

3. Give enough understanding to students so they can seek alternatives to environmental problems.

Writing about environmental education, O'Hearn said that there is a need to revise curricula to allow students to "extend their learning outside the confines of the schools . . ."⁸ The earth sciences are one way this can be done.

Curriculum Revision

In many states the community colleges are revising their offerings or changing course content. In 1971, Pratt determined that two colleges in Kansas were considering courses in the environmental area.⁹ Garden City was considering environmental studies, a curriculum leading to an Associate degree. Johnson County was planning an environmental technology program also for Associate degree credit.

A nationwide program to plan a general education course in environment for college freshmen was undertaken by the faculty of

⁷Arden L. Pratt, Environmental Education in the Community College, (Washington D. C.: American Association of Junior Colleges, 1971), p. 2.

⁸G. T. O'Hearn, "Environmental Education: The New Scientific Literacy," National Association of Secondary School Principals Bulletin, 56:21-7, January, 1972.

⁹Pratt, op. cit., p. 96.

twenty-two community colleges according to McCabe.¹⁰ The government has taken an interest in the program, "Man and Environment," as a way to develop ". . . technical personnel for the new environmental careers."¹¹

These courses in environmental education are growing more numerous each year. How does this affect the earth sciences? The earth sciences study the environment, thereby becoming an integral part of "Man and Environment."

Similar Studies

Several offerings and enrollment studies have been done, but very few in the community colleges and still fewer on the earth sciences.

A number of studies published by Kansas State Teachers College of Emporia list the offerings and enrollments of secondary school sciences in Kansas. The initial study was written by Breukelman and Andrews in 1954,¹² with follow-up studies in 1956,¹³ 1961,¹⁴ and 1966.¹⁵

¹⁰Robert H. McCabe, "A New Course, 'Man and Environment'," Junior College Journal, December, 1970/January, 1971, p. 16.

¹¹Ibid.

¹²John Breukelman and Ted F. Andrews, "Offerings and Enrollments in the Secondary School Sciences in Kansas in 1951-1952," Emporia State Research Studies, Vol. 1, No. 3, March, 1954.

¹³John Breukelman and Ted F. Andrews, "Offerings and Enrollments in the Secondary School Sciences in Kansas in 1954-1955," Emporia State Research Studies, Vol. 4, No. 3, March, 1954.

¹⁴John Breukelman and Ralph P. Frazier, "Offerings and Enrollments in the Secondary School Sciences in Kansas in 1960-1961," Emporia State Research Studies, Vol. 10, No. 1, September, 1961.

¹⁵John Breukelman, "Offerings and Enrollments in the Secondary School Sciences in Kansas in 1965-1966," Emporia State Research Studies, Vol. XIV, No. 4, June, 1966.

Another study, "The Offerings and Enrollments in the Secondary School Social Sciences in Kansas in 1961-1962," was written by Snyder in 1963.¹⁶

The course offerings in larger junior/community colleges were compiled by the Metropolitan Junior College in Kansas City.¹⁷ This study was based on college catalogs and was a listing of courses. From this study the college was able to determine what areas they were lacking in offerings when compared to similar size schools.

Flint, et. al., completed a study in 1968 in which they listed the total enrollment of Kansas community colleges for several previous years. They list enrollment by class, course area, and head count.¹⁸

In a survey by the American Geological Institute, Henderson reported that non-major earth science student enrollments are increasing. "In 1960, degree-granting departments also taught 53,000 non-major undergraduates. By 1966 this number had doubled, and by 1971 more than tripled."¹⁹

These studies were valuable in determining what has been done with offering and enrollment surveys. These are the only studies available at this time and it seems that further studies in this area might be valuable.

¹⁶Eldon E. Snyder, "Offerings and Enrollments in the Secondary School Social Sciences in Kansas in 1961-1962," Emporia State Research Studies, Vol. 12, No. 1, September, 1963.

¹⁷"Course Offerings in Larger Junior/Community Colleges: A Comparative Study Based on Catalogs," Kansas City: Metropolitan Junior College, ERIC (ED 022469, June, 1968).

¹⁸Jack M. Flint, F. Floyd Herr and Carl Heinrich, "The Kansas Junior College," Topeka: Kansas State Department of Public Instruction, ERIC (ED 028759, 1968).

¹⁹Bonnie C. Henderson, "Student Enrollment in Earth Science, 1970-1971," Geotimes, November, 1971, p. 18.

Chapter 3

METHOD

Within this chapter the design of the study is described. The population sampled, the questionnaire design, and the procedures used are discussed.

POPULATION

The subjects for this survey were the nineteen public community junior colleges of Kansas. Private two-year colleges were excluded. The entire population was used for the sample which increased the reliability of the survey.

QUESTIONNAIRE DESIGN

After conducting the library research and determining the questions in Chapter 1, a questionnaire (Appendix B) was designed to answer those questions.

Course Selection

The college catalog of each school was reviewed to determine the science courses which were related in some way to the earth. The course names and course descriptions varied widely.

Four different names were used for astronomy. The course was titled: Astronomy, Descriptive Astronomy, General Astronomy, and Introduction to Astronomy. All were offered for three hours credit.

Butler County described its Descriptive Astronomy course as:

"A general study of the solar, stellar, and galactic systems. This course aims to provide an appreciative familiarity with the sky and its seasonal changes."¹

The description from a General Astronomy course was: "It is a descriptive course in the study of the earth as an astronomical body, the polar system, the stellar universe, and the concepts and theories involved. Information gained from recent manned and unmanned space exploration is incorporated in the study."²

Introduction to Astronomy was described as: "A comprehensive study of the universe for the non-science major. Included are the earth, solar system, and a brief study of the galaxies."³

The Introduction to Astronomy course at Seward County appeared to differ from this quite a bit. It was described in this manner: "The course will cover the motions of the earth and the measurement of time. Included will be a study of the planets and other bodies of the solar system. Also covered is stellar characteristics, structure and evolution. Prerequisite: High school algebra and geometry or equivalent."⁴

¹1970-72 Catalog, Butler County Community Junior College, El Dorado, Kansas, p. 61.

²1970-71 General Catalogue, Cloud County Community College, Concordia, Kansas, p. 63.

³General Catalogue, 1970-72, Pratt Community Junior College, Pratt, Kansas, p. 92.

⁴General Catalog, 1972-74, Seward County Community Junior College, Liberal, Kansas, p. 97.

The descriptions seemed to indicate in this case that each one was a different course with slightly different content. The other courses in which the descriptions varied were Geology, Physical Science and Physical Geography. In order to keep the questionnaire a reasonable length, only one course in Astronomy and Physical Geography were listed. Two courses were listed for Physical Science: Physical Science and Man's Physical World.

Format

The questionnaire needed to determine: the courses actually offered by each school, the number of students in each course, and the total number of students in each college. Appendix B is a copy of the final questionnaire.

The school name was at the top of each questionnaire to assure that the data returned was identifiable. A brief statement describing how to fill out the form was deemed necessary.

Course names, with a blank for the enrollment of each semester, was provided. It was decided that in case courses were offered which were omitted from the questionnaire, a line should be left for these to be included.

To determine the total enrollment, a line was added which requested total student enrollment.

DATA COLLECTION PROCEDURE

The procedure to obtain the data required an initial mailing and one follow-up letter. The data was then tabulated and the needed calculations performed.

Initial Survey

The questionnaires were sent to the Registrar of each Kansas community junior college in March of 1973. A cover letter (Appendix A) of explanation and a self-addressed, stamped envelope were sent with the questionnaire.

Follow-up

A follow-up letter (Appendix C) was sent to those registrars who did not return the questionnaire within ten days. All the questionnaires were then returned and no other follow-up procedures were necessary.

Compilation of Data

As the questionnaires were returned, the data was coded by college and transferred to worksheets. All computations were made on a desk calculator. The computations were analyzed and the inferences made from these results.

Questionnaire Design Error

The data on total school enrollment from the questionnaire was to be compared with the enrollment given in the Two-Year College Annual Reports on file with the State Department of Education. The question was interpreted differently by the schools and some totaled the number of students enrolled in the selected subjects. This information was discarded as invalid and the total enrollment figure from the State Department was used.

Chapter 4

FINDINGS

Some of the background of the junior colleges is necessary in interpreting the findings of this survey. The responses from the survey are analyzed in this chapter.

BACKGROUND

The two-year colleges provide many opportunities to the people of Kansas. Because of this, they have become an integral part of the educational system. Distributed throughout the state, they have created accessible education for more people; they have offered working people a chance to increase their knowledge or skill by providing evening classes; and they have given students who have not decided upon a career an opportunity to explore different career areas.

Many of the students transfer to four-year colleges after attending a local two-year college. In most of the colleges the course offerings reflect this fact.

Location

Figure 1 shows the location of the nineteen community colleges in Kansas. Six colleges were concentrated in the southeast corner of the state. All of the colleges in this area were small.

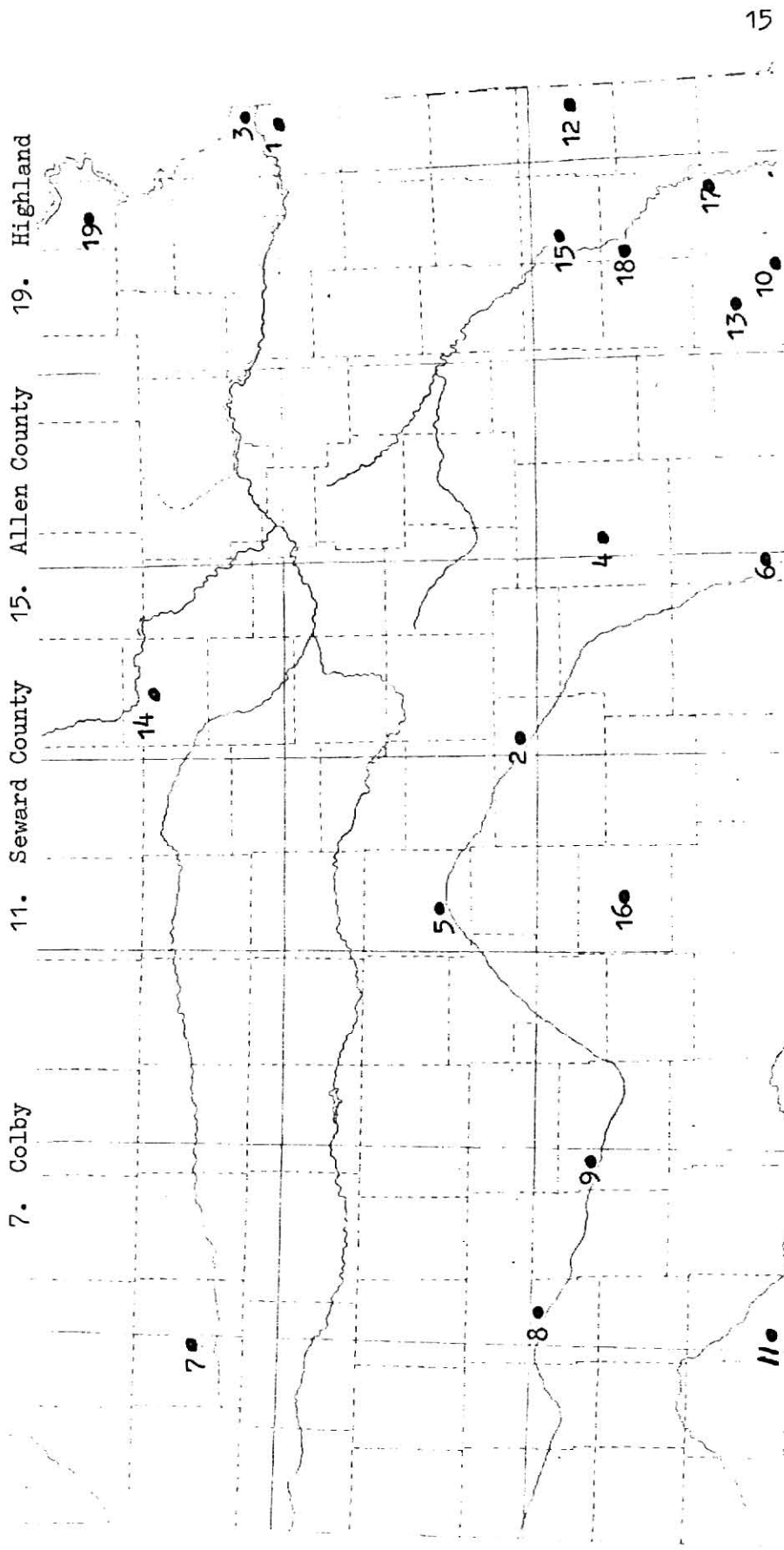
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Figure 1

LOCATION OF KANSAS JUNIOR COLLEGES

- | | | | | |
|-------------------|------------------|-------------------|------------------|--------------------|
| 1. Johnson County | 4. Butler County | 8. Garden City | 12. Fort Scott | 16. Pratt |
| 2. Hutchinson | 5. Barton County | 9. Dodge City | 13. Independence | 17. Labette County |
| 3. Kansas City | 6. Cowley County | 10. Coffeyville | 14. Cloud County | 18. Neosho County |
| | 7. Colby | 11. Seward County | 15. Allen County | 19. Highland |



The list of colleges is arranged in order of size, largest first.

Establishment

These colleges have been established over a period of years (Table I). The first was established in 1917, two in 1919 and four in 1923. The number rose until in 1938 there was a total of fourteen. The next college was not added until 1956. One more was established in 1965 and the three newest in 1969.

The date a school was established and its enrollment varied widely. Two of the newest schools were among the largest, Barton County and Johnson County. Some of the older schools are included with the smallest, Labette County and Neosho County.

The size, location, and the date of establishment should be kept in mind as the survey results are reported. They will help explain some of the questions that may be raised.

EARTH SCIENCE COURSES OFFERED

A wide variety of courses in the area of earth science were offered. Some of the schools did not list an enrollment for a course that their catalog described. These omissions may have occurred by having no demand for or enrollment in the course, an oversight in recording enrollment, or a course content which they felt did not apply to the questionnaire. Table II lists the courses, the number of colleges listing an enrollment on the questionnaire and the enrollment for 1968-69 and 1972-73. A more detailed table listing the courses and enrollments reported for each year from 1968-1973 may be found in Appendix D.

Physical Science was the course offered by most schools. The name varied from "Introduction to Physical Science" to "General Physical

Table I

DATE COLLEGES ESTABLISHED

SCHOOL NAME	DATE ESTABLISHED
Allen County	1923
Barton County	1969
Butler County	1927
Cloud County	1956
Coffeyville	1923
Colby	1965
Cowley County	1917
Dodge City	1935
Fort Scott	1919
Garden City	1919
Highland	1937
Hutchinson	1928
Independence	1925
Johnson County	1969
Kansas City, Kansas	1923
Labette County	1923
Neosho County	1936
Pratt	1938
Seward County	1969

Table II
ENROLLMENTS AND NUMBER OF COLLEGES
OFFERING EACH COURSE

Course	1968-69		1972-73		Difference
	No. of Colleges*	Enrollment	No. of Colleges*	Enrollment	
Astronomy	1	41	2	44	+ 3
Conservation	1	31	2	47	+ 16
Conservation-Ecology	-	--	2	32	+ 32
Earth Science	-	--	1	70	+ 70
Human Ecology	1	32	3	128	+ 96
Physical Geography	5	247	6	115	-132
General Geology	6	299	6	77	-222
Historic Geology	2	31	3	35	+ 4
Physical Geology	3	25	4	184	+159
Man & His Environment	1	25	2	44	+ 19
Man's Physical World	1	80	1	95	+ 15
Meteorology	2	26	3	61	+ 35
Intro. to Natural Science	1	175	2	372	+197
Oceanography	-	--	1	29	+ 29
Paleontology	-	--	1	12	+ 12
Physical Science	8	769	11	918	+149
TOTALS	32	1,781	50	2,263	+482

*Number of colleges reporting an enrollment on the questionnaire

Science," to "Physical Science." From the course descriptions, the content also varied. Eleven schools offered this course.

The courses Physical Geography and General Geology were both offered by six schools. The Physical Geography course was offered by some schools as a social science and by others as a physical science course.

Four courses were indicated as having an enrollment at only one school. Colby indicated an enrollment in Earth Science, Man's Physical World, Oceanography and Paleontology.

A total of eighteen more courses were offered in 1972 than in 1968. Three new schools were established in 1969 and they offered a total of ten earth science courses in 1972. This left an increase of only eight new courses added to the existing schools.

STUDENT ENROLLMENT IN EARTH SCIENCE

The number of students enrolled in each course varied a great deal. The more general courses had the largest enrollments and the newer or more specialized courses had the smallest enrollments.

Increases

The largest student increase was in the course Introduction to Natural Science. Johnson County first offered the course in 1969 and reported an enrollment of 245 students in 1972-73. The total increase for both schools offering the course was only 197 students. The enrollment at Kansas City, Kansas, has decreased each year and the enrollment at Johnson County has increased each year. (See Appendix D)

Physical Geology had the next largest increase with 159 more students in 1972 than in 1968. Hutchinson discontinued the course General Geology in 1971 and is now just offering the Physical Geology course. This accounted for most of the increase.

Another large increase, 149 students, was in Physical Science. Three more colleges indicated an enrollment in 1972-73. Dodge City first offered the course in 1970 and reported an enrollment of 150 students in 1972-73.

Decreases

General Geology had the largest decrease with a loss of over 220 students during the five-year period. Hutchinson's discontinuing this course accounted for most of the decrease; however, this still left a decrease of about 70 students. Cloud County had a decrease of about 40 students, but they did not report an enrollment for the Spring of 1973.

The only other course which decreased was Physical Geography. One more school offered the course in 1972-73, still leaving a decrease of about 130 students. Hutchinson had a decrease of about 70 students and Garden City had a decrease of about 60 students, which accounted for most of the loss. No course at either college showed a significant increase.

Number of Students Enrolled in Earth Science

Referring to Table II, the course with the greatest enrollment was Physical Science, with a total of 918 students enrolled in 1972-73. Introduction to Natural Science offered by two schools had an enrollment of 372. The third largest was Physical Geology with 184.

Three of these courses, Physical Science, Introduction to Natural Science and Man's Physical World are all general courses designed to meet the laboratory science requirement for non-science majors. If these three are considered together, they account for 1,385 students or about two-thirds of the students enrolled in an earth science course.

The smallest enrollments were in Conservation-Ecology, Oceanography and Paleontology. No enrollment in any of these three courses was recorded in 1968-69. Only one college reported an enrollment in Oceanography, one in Paleontology and two in Conservation-Ecology.

TOTAL COLLEGE ENROLLMENT

The enrollment for 1968-69 and 1972-73 are listed in Table III. Eight of the colleges had an enrollment of over 1,000. Two of these colleges were established in 1969. Johnson County, the largest, had an enrollment of 3,708. Barton County was the fifth largest with an enrollment of 1,197. Hutchinson, the second largest, with an enrollment of 2,231 was established in 1928. The third largest was Kansas City with an enrollment of 2,156, and it was established in 1923.

The smallest college, Highland, had an enrollment of 347 and was established in 1937. Ten of the remaining colleges had an enrollment of between 450 and 800.

These facts indicate that the size of a school is determined by more than the date of establishment. According to Figure 1, some other points might be considered:

1. The locations of other institutions of higher learning in the immediate area.

Table III

TOTAL COLLEGE ENROLLMENT

School Name	1968 Fall Enrollment	1972 Fall Enrollment	% Change
Allen County	385	576	+ 49.6
Barton County	--	1,197	--
Butler County	1,768	1,586	- 10.3
Cloud County	354	589	+ 66.4
Coffeyville	614	687	+ 11.9
Colby	489	1,030	+110.6*
Cowley County	544	1,135	+108.6*
Dodge City	845	759	- 10.2
Fort Scott	594	635	+ 7.0
Garden City	604	1,003	+ 66.1*
Highland	325	347	+ 6.8
Hutchinson	1,910	2,231	+ 16.8
Independence	503	634	+ 26.0
Johnson County	--	3,708	--
Kansas City, Kansas	1,495	2,156	+ 44.3
Labette County	412	507	+ 23.1
Neosho County	346	458	+ 32.4
Pratt	482	566	+ 17.4
Seward County	--	644	--
TOTALS	11,670	20,448	

*In 1971 there was a change in method of reporting enrollments, which included evening students.

2. The population of the area.
3. The economy of the area.
4. The age of the population.

Any of these four preceding points could account for part or all of the variations in size.

COMPARING EARTH SCIENCE ENROLLMENTS

In Chapter 1 the question was asked, "Was there a difference in the earth science enrollments from 1968-1972." The fact that there was a change is shown in Table IV.

For the five-year period there was an increase in earth science enrollments of 482 students, which was slightly more than a twenty-seven percent increase. However, this increase was not evenly distributed among the nineteen colleges.

The three schools established in 1969 had a total enrollment of 441 earth science students in 1972. Another large increase was at Colby. It offered three new courses with an enrollment of about 150 students.

The largest decrease in enrollment was at Kansas City, which indicated a drop of about 120 students. Hutchinson had a decrease of over eighty students and Garden City reported 55 less students enrolled.

COMPARING SCHOOL SIZE AND NUMBER OF COURSES OFFERED

To compare the size of a college with the number of courses offered, the schools were ranked and listed with the largest first (See Table IV). The question in Chapter 1 queried, "Was there a relationship

Table IV
TOTAL OFFERING AND ENROLLMENTS
BY SCHOOL SIZE*

School Name	Total Enroll.	1968-69		1972-73		% Change In Earth Science Enrollment
		No. of Courses	Enrollment	No. of Courses	Enrollment	
Johnson County	3,708	-	--	1	245	--
Hutchinson	2,231	7	554	7	470	- 15.2
Kansas City, Kansas	2,156	2	365	2	244	- 33.2
Butler County	1,586	-	--	-	--	--
Barton County	1,197	-	--	5	118	--
Cowley County	1,135	3	146	3	122	- 16.4
Colby	1,030	4	135	7	284	+110.4
Garden City	1,003	3	142	3	87	- 38.7
Dodge City	759	-	--	1	150	--
Coffeyville	687	-	--	-	--	--
Seward County	644	-	--	4	78	--
Fort Scott	635	-	--	-	--	--
Independence	634	-	--	-	--	--
Cloud County	589	1	73	3	116	+ 58.9
Allen County	576	2	31	2	11	- 64.5
Pratt	566	2	99	3	62	- 37.4
Labette County	507	-	--	2	20	--
Neosho County	458	1	40	1	36	- 10.0
Highland	347	5	196	5	220	+ 12.2
TOTALS	20,448	30	1,781	49	2,263	+ 27.1

*Based on response to the questionnaire, and listed as largest school first

between the size of the college and the number of earth science courses it offered."

In order to determine any relationship that existed, it was noted from the total enrollment data that a division of colleges appeared, those schools over one thousand and those less than one thousand. The average number of courses for 1972-73 was about 2.5 courses per school. The average for the larger schools was 3.5, and the average for the smaller schools was about 1.8 courses per school. This indicated that at least some positive relationship between school size and the number of courses offered existed.

SUMMARY

From the data that was compiled, tabulated and analyzed in this chapter, certain trends were revealed. These trends and their implications are discussed in Chapter 5.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

It was the purpose of this paper to determine the earth science enrollments and offerings in the public community junior colleges and report any trends that were observed. The enrollments and offerings were reported in the preceding chapter. In this chapter the trends will be reported.

CONCLUSIONS

A total of sixteen different earth science courses were offered in the nineteen colleges. Hutchinson and Colby had the largest diversity, both listing seven different courses. Listing five different courses were Barton County and Highland. Most surprising about this was the fact that Highland was the smallest college in the state, with a total enrollment of only 347 students, and of these, 220 were enrolled in an earth science course.

Earth science enrollments increased slightly over twenty-seven percent in the five years from 1968-72. The three schools established in 1969 contributed most of this increase. In addition, five other schools reported an increase in earth science enrollments. Seven schools reported a decrease and four indicated no enrollment in the earth science area.

The total enrollment in the junior colleges was increasing. Because of a change in reporting the enrollment to the State Department

of Education, this was not as large as it appeared but was still an increase. This point should be considered in future research on the total enrollment of the community colleges. Since all the figures reported in 1972-73 followed the new reporting procedure, the validity of this report was not affected.

The size of the colleges changed each year and some traded position in size-rank about as often. Comparing the size of the school and the number of earth science courses it offered resulted in the conclusion that a slight positive relationship existed. The two major exceptions were Johnson County, the largest college, which offered only one earth science course, and Highland, the smallest college, offered five courses.

Using the criteria of school size, earth science courses offered and the number of students enrolled in earth science, the author felt that Hutchinson, Colby, and Highland were presenting an outstanding earth science program.

RECOMMENDATIONS

The present day citizens are disturbed by pollution, contamination, waste and shortage of natural resources, and other problems with the earth. Most of these people know very little about the earth they live on.

Kansas junior colleges offer many courses to help prepare the student for transfer to a four-year college or for a job, but most are offering him very little opportunity to learn about the world he lives in. About eleven percent of the students enrolled in 1972-73 took a course in one of the areas of earth science. The author feels that this

percentage should be increased; therefore, the following recommendations are being made:

1. Further study should be made in determining what efforts are being made in other states to improve the education of man so that he might be able to better understand his world.

2. Junior college administrators should review their college's philosophy. The present day problems should be considered as well as the unknowns to be faced in the future.

3. Every effort should be made to assure that students have the opportunity to learn more about the earth, pollution, and conservation of natural resources.

SUMMARY

Junior colleges are taking on a larger portion of the education of all the people every year. In this age of technology people need to know more about the earth and how to use it wisely. The junior colleges are in a position to provide courses which will help individuals cope with the problems that face everyone today and with some effort, the problems of tomorrow.

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APPENDIXES

Appendix A

COVER LETTER

March 1, 1973

Dear :

I am currently a candidate for the Master's Degree in Education at Kansas State University. To complete my thesis requirement, I am conducting a study of the earth science offerings and enrollments in the public junior colleges of Kansas.

The major aims of this study are to determine:

1. The variety of courses offered.
2. The number of students enrolled in each course.
3. The trends in earth science offerings and enrollments.

As I am limiting my study to Kansas public junior colleges, your participation is essential to insure reliable findings.

It would be helpful to me if you or your staff could take a few minutes to complete this questionnaire and return it to me no later than March 23. I have enclosed a stamped, self-addressed envelope for your convenience.

I appreciate your time and effort in assisting with this study.

Sincerely,

Richard E. Johnson
Box 403
Lyons, KS 67554

Appendix B

QUESTIONNAIRE

SCHOOL:

PLEASE FILL IN THE TOTAL NUMBER OF STUDENTS ENROLLED IN EACH OF THE FOLLOWING CLASSES FOR THE FALL AND SPRING SEMESTERS OF THE YEARS 1968-1973. IF YOU DO NOT OFFER A PARTICULAR CLASS, JUST LEAVE THE SPACE BLANK.

[illegible]

Appendix C

FOLLOW-UP LETTER

March 10, 1973

Dear :

On March 1, 1973, I sent you the attached letter and questionnaire, concerning earth science offerings and enrollments in the public junior colleges of Kansas.

I know this is a busy time of the year for you, Mr. , and I thought perhaps the questionnaire might have been laid aside. It is important to me to have this information by Friday, March 23, 1973.

Please have one of your staff take a few minutes to fill out the questionnaire. If you have already done so, and it is in the mail, please disregard this letter.

I am sure you will want your school included in these statistics, and I do appreciate your help.

Sincerely,

Richard E. Johnson
Box 403
Lyons, KS 67554

Appendix D

QUESTIONNAIRE SUMMARY

College	Course	68-69	69-70	70-71	71-72	72-73
Allen County	General Geology	14	7	6	14	--
	Physical Science	17	24	50	26	11
	TOTALS	31	31	56	40	11
Barton County	Astronomy	--	--	--	24	19
	Geology (General)	--	7	11	8	10
	Physical Geography	--	8	6	5	9
	Meteorology	--	6	9	8	7
	Physical Science	--	--	--	96	73
	TOTALS	--	21	26	141	118
Butler County	*Astronomy	--	--	--	--	--
	*General Geology	--	--	--	--	--
	*Meteorology	--	--	--	--	--
	*Physical Science	--	--	--	--	--
Cloud County	*Astronomy	--	--	--	--	--
	Human Ecology	--	--	77	78	54
	Geology (General)	73	77	80	74	29
	Meteorology	--	--	--	35	33
	*Physical Science	--	--	--	--	--
	TOTALS	73	77	157	187	116

Appendix D Continued

College	Course	68-69	69-70	70-71	71-72	72-73
Coffeyville	*Physical Science	--	--	--	--	--
Colby	*Astronomy	--	--	--	--	--
	Man & Environment	25	25	30	35	30
	Earth Science	--	60	75	75	70
	Physical Geology	5	14	20	19	21
	Historic Geology	25	25	25	23	27
	Man's Physical World	80	80	80	90	95
	Oceanography	--	--	--	21	29
	Paleontology	--	--	7	14	12
	TOTALS	135	204	237	277	284
Cowley County	Geology (General)	26	21	--	17	17
	Principles of Geography	60	29	61	42	50
	Physical Science	60	54	--	73	55
	TOTALS	146	104	61	132	122
Dodge City	Physical Science	--	--	150	175	150
Fort Scott	*Physical Science	--	--	--	--	--
	*Principles of Geography	--	--	--	--	--
Garden City	Physical Geography	75	121	103	41	16
	Physical Geology	4	--	--	17	12
	Physical Science	63	102	85	72	59
	TOTALS	142	223	188	130	87

Appendix D Continued

College	Course	68-69	69-70	70-71	71-72	72-73
Highland	*Astronomy	--	--	--	--	--
	Conservation	31	28	26	33	21
	Ecology (Human)	32	50	61	61	68
	Physical Geography	26	21	28	18	22
	General Geology	18	16	14	--	21
	Physical Science	89	85	90	87	88
	TOTALS	196	200	219	199	220
Hutchinson	Astronomy	41	33	47	42	25
	Conservation-Ecology	--	--	9	7	5
	Physical Geography	86	88	32	--	18
	General Geology	168	131	153	67	--
	Historic Geology	6	6	10	5	3
	Meteorology	16	16	12	10	21
	*Petroleum Geology	--	--	--	--	--
	Physical Geology	16	27	10	65	140
	Physical Science	221	395	257	310	258
	TOTALS	554	696	530	506	470
Independence	*Physical Science	--	--	--	--	--
Johnson County	Intro. to Natural Science	--	50	175	225	245

Appendix D Continued

College	Course	68-69	69-70	70-71	71-72	72-73
Kansas City, Kansas	*Ecology	--	--	--	--	--
	Intro. to Natural Science	175	163	158	148	127
	*General Geology	--	--	--	--	--
	*Principles of Geography	--	--	--	--	--
	Physical Science	190	188	166	198	117
	TOTALS	365	351	324	346	244
Labette County	Ecology	--	--	--	--	6
	Man & His Environment	--	--	--	--	14
	TOTALS	--	--	--	--	20
Neosho County	*Principles of Geography	--	--	--	--	--
	Physical Science	40	37	47	47	36
Pratt	*Astronomy	--	--	--	--	--
	Conservation	--	17	15	35	26
	*Earth Science	--	--	--	--	--
	Meteorology	10	--	--	14	--
	Physical Science	89	94	45	43	36
	TOTALS	99	111	60	92	62

Appendix D Continued

College	Course	68-69	69-70	70-71	71-72	72-73
Seward County	*Astronomy	--	--	--	--	--
	Conservation-Ecology	--	--	--	11	27
	Historic Geology	--	--	--	--	5
	Physical Geology	--	14	--	40	11
	Physical Science	--	57	53	42	35
	TOTALS	--	71	53	93	78
TOTAL EARTH SCIENCE ENROLLMENTS		1,781	2,176	2,283	2,570	2,263

*Offered according to the school catalog listed in the Bibliography

KANSAS COMMUNITY COLLEGE EARTH SCIENCES:
OFFERINGS AND ENROLLMENTS, 1968-1972

by

RICHARD EVERETT JOHNSON

B. S., Kansas State University, 1970

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1973

The purpose of this study was to determine the earth science offerings and enrollments in the Kansas community junior colleges. A questionnaire was distributed to all the Kansas public junior colleges. All the questionnaires were returned with four indicating no enrollments in the selected earth science courses.

Total college enrollments were generally increasing. Some individual schools did indicate a slight decrease in the period from 1968-1972.

A small increase existed in the number of new courses offered. Four new courses were added to the course offerings between 1968 and 1972. The most popular course, according to enrollments, was general Physical Science.

Slightly over a twenty-seven percent increase in earth science enrollments was found. The establishment of three new junior colleges in 1969 inflated this somewhat.

It was determined that some positive relationship existed between the size of a college and the number of earth science courses it offered.

The conclusions drawn from the survey were that a few of the colleges were doing very well at providing the opportunity for a student to learn about the world he lives in.

Further research was recommended to determine what other states are offering in the earth sciences. Administrators were urged to review their college's philosophy and consider the needs for earth science education and what can be done to improve it.