

THE GENERAL EDUCATION COMPONENT OF THE CURRICULUM  
THROUGH TRANSCRIPT ANALYSIS AT THREE  
VIRGINIA COMMUNITY COLLEGES

by

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CHAPTER I  
INTRODUCTION

Introductory Statement

In an effort to discover what trends were developing in American undergraduate curriculum, Blackburn, Armstrong, Conrad, Didham, and McKune (1976) initiated a study, using as resources not only college catalogs and other pertinent college records, but also student course-taking records or transcripts. One of the major findings of that study was that general education was on the decline. The investigation revealed that the proportion of a student's undergraduate program in general education was "about twenty-two percent less today than it was in 1967, a drop of about twelve credit hours in four-year colleges and five credit hours in two-year colleges" (p. 33). The results of Blackburn's study are supported by others who believe that general education, especially the humanities, is waning (Brawer & Cohen, 1978; Friedlander, 1979). More recently, at a conference sponsored by the American Association of Community and Junior Colleges and the National Endowment for the Humanities, one participant observed that "the traditional humanities courses, which were once the mainstay of two-year colleges, are now struggling for survival in a shrinking pond" (Middleton, 1979, p. 3). The Carnegie Foundation for the Advancement of Teaching (1979) calls general education "an idea in distress" and reports that "the erosion of general education on

campuses is America's more severe than its share of curricula might indicate, for in many cases it is poorly defined and is so diluted with options it has no recognizable substance of its own" (p. 184).

According to The Carnegie Foundation (1979) both two- and four-year institutions experience trouble with general education, but the problems may be more severe for the two-year colleges. A large number of students in two-year institutions

are in non-degree vocational programs, for which general education may not be required, or are planning to enroll in four-year colleges eventually and may not feel as bound by their community college graduation requirements as they are by those of whatever institution they may transfer to. Community college students may, therefore, ignore general education. (p. 184)

#### Statement of the Problem

Levine (1979) defines general education as

the breadth component of the undergraduate curriculum defined on an institutionwide or collegewide basis. It usually involves study in several subject areas and frequently seeks to provide a common undergraduate experience for all students at a particular institution. (p. 525)

General education has become the most misunderstood curriculum concept in higher education, according to The Carnegie Foundation for the Advancement of Teaching (1979). The Foundation describes this component of the curriculum as "exasperating" and "beyond the reach of general consensus and understanding" (p. 164). After a long period of what some educational observers might describe as neglect, general

education has begun to receive increased attention and concern by the higher education community (Sullivan and Suritz, 1978).

General education presents several problems to community college academic planners and policy makers whose responsibility it is to devise effective approaches to the general education component of the curriculum for a student body with diverse needs and goals. The most severe of these problems are the following: a lack of consensus about what ought to be included in the general education component, a lack of information regarding student course-taking behavior in general education because of the dependence upon college catalogs and enrollment data to define general education, and a change in the composition of the community college student body whose selection of general education courses dictates the general education function and the manner in which it serves the student population.

Although most community colleges commit themselves to the general education function, there is a lack of agreement about what courses ought to serve this portion of the curriculum. The structure and content of general education is subject to the philosophies and the political maneuverings of faculty and administrators on the one hand, and the needs and demands of society on the other. In the two-year community colleges, the problems are compounded by the lack of time a student has to complete requirements for a degree or a certificate, the pressure on college personnel to train technicians for a degree or for specialized jobs in business and industry, the diversity of the educational goals of the students, and the transient nature of the

clientele who more often than not leave college before graduating, thereby not completing formal requirements in some part of their program.

In addition to the lack of agreement about what should be included in general education in the community college curricula, there is a lack of information regarding what courses students select or reject in general education, particularly those students who leave the college before completing a formal program. The manner in which the curriculum operates is quite different from the way it is described in college catalogs. Catalogs describe programs leading to certificates, degrees, and diplomas as though students take courses in a linear and sequential fashion, when in fact, the majority of students do not complete programs of study at the community college. The Digest of Education Statistics (Grant and Lind, 1978) indicates that higher education institutions award associate degrees to no more than 10 percent of their enrollees annually and just as few receive certificates or diplomas. The majority of students leave the community college after reaching a variety of educational goals: development of vocational skills, retraining or preparation for promotion, or personal enrichment. Those who complete all college requirements for a certificate, diploma, or degree, in most cases, exercise some choice among electives or among distribution requirements.

The Carnegie Foundation (1979) reasons that because most students do not complete the formal curriculum, their patterns of course selection in general education are, at present, unpredictable. The

Foundation states that "the real curricula are not found in college catalogs. Instead, they take shape in student transcripts ..." (p. 97). Further, with the exception of the requirements for certification or licensing students need for employment in certain fields, "the degree and certificate requirements of community colleges do not necessarily govern a student's educational choices" (p. 131). Because of the open-ended curriculum in the community college, students "may have more free choice than published degree requirements would suggest" (p. 131).

Coinciding with the reported erosion of the general education component of the higher education curriculum, the community college enrollment patterns reflect a number of changes in the composition of the student body. Friedlander (1979) notes that enrollment figures indicate

substantial increases in the percentage of community college students who fall into one or more of the following categories: over twenty-five years of age, women students returning after a prolonged absence, senior citizens, part-time, members of minority groups and academically underprepared students. (p. 298)

The extent to which these groups participate in general education is not reported in the literature. There is evidence of strong interest in occupational education, but little data to indicate how general education courses fit into the course-taking patterns of career-oriented students of the community college.

One of the most noticeable changes in the community college student population is the increase in the number of older adults whose

growing interest in learning has led them to two-year colleges to pursue their individual educational goals. The American Association of Community and Junior Colleges (AACJC, 1980a) reports that according to U.S. Census data, between 1970 and 1977 "more than 50 percent of the increased enrollment in two-year colleges. . .were older students" (p. 1). The majority of these older students attend part-time (AACJC, 1980b). According to existent research, the main reasons the adult learner takes an adult education course are to improve or advance in a job currently held or for personal or social reasons (Boaz & Kay, 1980). Most of these learners are not looking for certificates, diplomas or degrees. Of those who name such an objective, 16.1 percent indicate an interest in receiving a certificate or license in a trade or profession, and 17.6 percent want a college or university degree (Boaz & Kay, 1980). Little is known about the patterns of enrollment in general education for those adults seeking career or personal enrichment. Since many of them do not expect to receive a degree, diploma, or certificate, they will not be bound to the fulfillment of graduation requirements of college programs. Whether they are consumers of general education courses cannot be known without further investigation of their course-taking records.

Another change in the composition of the student population of community colleges is in the large number of women students enrolled. The AACJC (1980c) reports that in fall 1979

women made up 53 percent of the total headcount enrollment and 54 percent of the part-time headcount enrollment in community and junior colleges, and for

the first-time account for more than half (51 percent) of the full-time credit learners. (p. 1)

Many of these women, "dissatisfied with unidimensional lives," have flooded education as well as the labor market in "unprecedented numbers" (Cross, 1980, p. 6). A large number of these women have enrolled in community colleges to prepare for employment (Eliason, 1977). Data showing the extent to which these women enroll in general education courses are not available.

In fall 1979, part-time student enrollment made up 61 percent of the total enrollment in community colleges across the nation (AACJC, 1980c). As this group continues to grow, it demands increasing attention from community college curriculum planners, yet Cohen and Brawer (1975) note that since part-time students are seldom studied, "little information is available at this time to see what distinguishes them from full-time students" (p. 46). Most studies dealing with the characteristics of two-year college students indicate that they are pragmatic in their orientation to higher education (Cohen & Brawer, 1975). Since these students are primarily concerned with learning that is immediately applicable to their daily lives, especially in terms of their occupational goals, they may wish to devote their time only to courses that they view as preparation for new or better jobs. In order to accommodate these students, and at the same time remain committed to the general education function of the community college, curriculum planners and policy makers would benefit from information showing the course-taking patterns of part-time students in general education

courses. These data can be made available by means of analysis of student course-taking records.

Another area of growth in the community college population within the last decade has been in the enrollment of minorities. Gilbert (1979) reports that there was a 52 percent increase in minority enrollment between 1970 and 1979. She adds that "the percentage increase in numbers of minority students has been greater than for enrollments as a whole during the 1970's" (p. 11). In 1979, more than one-third of all minorities in the nation enrolled in higher education were in two-year colleges (Grant & Eiden, 1980). Godbold (1979) believes that

when consideration is given to the fact that upwards of 75 percent of the minorities who enter college for the first time as freshmen enroll in community colleges, the average age of students at this level nationally is approaching 30, and significant enrollment increases have resulted from part-time students, the positive influences of this level of education on minorities can be easily recognized (p. 24).

Even so, little research is directed toward this segment of the student population, especially in terms of their response to general education courses in the two-year curriculum.

While the composition of the student body of the community college has been changing in the last decade, so has the curriculum. The community college has seen tremendous growth in occupational courses since the early sixties. This growth signals "a new direction for the community college movement. From a predominantly baccalaureate-oriented institution the community college has become an occupational-



oriented institution" (Lombardi, 1978, p. 1). Looking at the 1970's, Cohen and Lombardi (1979) agree that during this period the community colleges were appointed agents for social change. Federal and state legislatures charged the two-year institutions with "teaching the three R's to people who had not learned them in the lower schools" (p. 25).

Further,

They [the two-year institutions] were to ease unemployment by training new and displaced workers and upgrading and certifying the skills of people to climb career ladders. They became transfer agents, not only for veterans' benefits and tuition, but for such quasi-educative programs as the Comprehensive Education and Training Act. (p. 25)

The shift in orientation and the additional missions accepted by community colleges created the demand for different kinds of instruction. The transfer function eroded and to accommodate different kinds of students--many of whom were ill-prepared for college-level work--"two-year institutions moved decidedly away from the liberal arts in the direction of remedial studies" (Cohen & Lombardi, 1979, p. 25). The enrollment in traditional courses dropped, with more students enrolling in general or business math, basic reading and writing and "except for history, Western civilization, American and state government, introductory literature, and Spanish, little in the humanities remains" (p. 25).

With the change in student populations, the added missions of the community college, and the decline of transfer education, what then remains of general education? According to a study to assess the present status of general education efforts in the community colleges,

a large majority (87 percent) of community colleges remain committed to the general education function and claim to provide a general education program or components with general education goals (Hammons, Thomas, & Ward, 1980). However, Sullivan and Suritz (1978) report from their national study that general education is not clearly defined by either the states which have a requirement in general education or by the institutions whose catalogs present only very brief and general statements about it. For the most part, general education is articulated in terms of course requirements. There is considerable variation in the number as well as the kinds of courses that can fulfill the general education requirement for associate degree programs; however, the rationale for the variation is not explained.

In light of recent enrollment trends, curricular shifts to accommodate a diverse student population, and the absence of a clear definition of general education as it operates in the community college curriculum, there is a need for research to investigate the course-selection patterns of two-year college students. A review of the literature reveals few studies in all of higher education to show the response of students to general education in terms of their course-taking.

Warren (1975) studied the transcripts of 50 history graduates from different four-year colleges to determine whether all students who had received the same degree had taken similar programs. The findings suggest that the curriculum as students experience it in their course-taking may differ from the proposed plan of studies designed for

them. Warren reports that the student course-selection patterns in history, as revealed in the transcripts of the 50 students in the study, indicated that within the discipline there were three or four history programs--not just one.

In an analysis of student transcripts undertaken by the dean of instruction and curriculum planning at the University of Pennsylvania, "it was discovered that arts and sciences students who graduated in May 1976 had selected a core of 29 courses" (The Carnegie Foundation, 1979, p. 97). However,

even this de facto core was not studied by all students, and many of the thousands of courses in the catalog that were not included in the core list were found on individual transcripts. As a result, the "real" curricula of no two students is likely to be exactly alike, and the number of course combinations that actually occur is astronomical. (The Carnegie Foundation, 1979, p. 97)

A major study by Blackburn et al. (1976) investigated curriculum trends in both two- and four-year colleges and universities; however, transcripts only from selected four-year colleges were used to indicate student course-taking behavior in general education. More recently, Friedlander (1980) examined the transcripts of two-year college students in California. However, he studied only the science component of the curriculum. In the literature no curriculum study examines the response of various segments of the community college student population to the entire program of general education. Research using student transcripts to show course selection in general education will contribute to the development of a data base needed to provide a

clearer picture of what is really happening in the general education component of the community college curriculum.

### Purpose of the Study

The purpose of this study was to identify student-course-taking patterns in general education in three selected community colleges within the Virginia Community College System (VCCS). Five questions were researched in the study. The first three questions were asked in an attempt to determine 1) the proportion of students' educational programs devoted to general education; 2) the components of general education in which students took the majority of their courses; and 3) the types of courses in which students concentrated their efforts. The following are the first three questions asked in the study:

1. What proportion of a student's program was taken in general education?

2. What was the frequency of course-taking in the following components of general education: English, mathematics, natural science, social science, humanities/fine arts, and physical education/health?

3. In which of the following categories of general education did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio?

Questions 4 and 5 were asked to determine whether the number of general education courses taken by students was dependent upon the demographic variables sex, race, or age; or the curriculum variables enrollment status (part-time or full-time) or time enrolled (day or evening). Questions 4 and 5 were the following:

4. Was there a difference in the number of general education courses taken by students based on sex, race, age, enrollment status, or time enrolled?

5. Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, or physical education/ health courses taken by students based on sex, race, age, enrollment status, or time enrolled?

#### Significance of the Study

The methodology represented in this study will provide a different way of looking at curriculum in the community college. Generally, researchers study curriculum by examining institutional offerings published in college catalogs and by gathering, tabulating, and analyzing enrollment data. While these types of investigations provide valuable information regarding curriculum trends, the data fail to show how the curriculum actually operates in student transcripts. Only by looking at student transcripts and analyzing them individually is it possible to obtain a data base that indicates which general education courses students are selecting or rejecting and whether or not there

are course-taking patterns that differ systematically for various segments of the student population.

The data base generated from this investigation will provide an additional tool for academic management that will prove useful in curriculum planning. The new information will yield a more accurate description of general education than the one that currently exists in college catalogs. These data may be used to measure the success of general education programs in light of the current needs of students who are being served by the colleges in the study. The information obtained from transcripts may be valuable as it may be used to develop new approaches to deliver general education in curricula where it is being avoided.

For future research in curriculum, the methodology used in this study may provide an appropriate way to determine how various groups respond to courses in their curricular areas. Other variables may be added or substituted to generate a data base for diagnostic purposes or for institutional self-study.

#### Need for the Study

The findings from this study are needed by academic planners involved in designing the most effective approaches for presenting general education to the diverse clientele of the community college. Very little information is now available to describe the course-taking patterns of the large number of older students returning to school or entering college for the first time. Many of these students are

enrolled part-time; many are women who wish to prepare themselves for employment. A large number of the new students are adults who attend classes for self-enrichment. An impressively large group of the student population is comprised of minority students who are the first in their families to attend college (Godbold, 1979). Existent research does not indicate the degree to which these students are concentrating their efforts in specialized or general education.

The data from this research will indicate the extent to which students in occupational-technical programs are participating in general education. Since many of these students will terminate their formal education in the community college, there is a special need for a general education program that is both relevant to their vocational goals and realistic in terms of their personal obligations to families and jobs. The data gathered in this study will indicate the degree of success three community colleges in Virginia are experiencing in delivering the general education component of the occupational-technical curricula to both part-time and full-time students. The data will indicate the control these college students exercise in shaping the present curriculum as they select or reject general education courses in their attempt to meet educational goals in a time frame that must accommodate their individual work schedules and personal commitments.

The outcomes of this study will provide new information that will be useful in looking at the community college program model for general education. In most cases, the four-year college has served as the

program model for the community college. This has resulted in a curriculum designed to accommodate students working toward a degree. The majority of community college students do not transfer to a four-year institution, and a large number of the students do not intend to complete degree or certificate requirements. It is possible, therefore, that the four-year model is inappropriate and unrealistic for the community college clientele. The data derived from this research effort will provide evidence which may be used to address this issue. The information will indicate the extent to which the colleges are presently meeting the needs of the new college population through specialized and general education courses. Using this information, curriculum planners may revise the curricula, if necessary.

#### Definitions

1. General Education: In this study general education included the disciplines and subject areas listed under the broad categories that follow:

A. English:

1. communication
2. composition
3. grammar
4. journalism
5. reading

B. Humanities and Fine Arts:

1. foreign languages



2. history
3. history or appreciation of art, music, and theater
4. interdisciplinary studies in the humanities
5. literature
6. philosophy
7. religion
8. speech and drama
9. studio courses in music, theater, and art

C. Mathematics:

1. mathematics
2. statistics

D. Natural Science:

1. biology
2. chemistry
3. geology
4. general courses which included Survey of Science, Physical Science, Health Science, Natural Sciences, Conservation of Natural Resources, Fundamental Sciences for Respiratory Therapy, and Astronomy.
5. physics

E. Physical Education and Health:

1. health
2. physical education

F. Social Science:

1. economics
2. geography

3. government
4. psychology
5. social/ethnic studies
6. sociology

The specific courses in general education included in this study are listed in Appendix A. The courses in the above disciplines and subject areas categorized as "not general education" also are listed in Appendix A. The method for determining which courses to include in the study is explained in Chapter 3.

General Education did not include:

1. developmental or remedial courses below the 100 level,
  2. orientation courses,
  3. non-credit courses,
  4. courses numbered below the 100 level, and
  5. courses associated with vocational programs and offered by vocational departments such as business, education, drafting; only courses listed in the above disciplines under the heading General Education were included in the operational definition.
2. Curricular Student: A curricular student had been formally admitted to one of the curricula or to developmental studies.
  3. Non-curricular Student: A non-curricular student had not been formally admitted to one of the curricula or to developmental studies. The student was classified according to the goal or condition as indicated on his/her transcript by VCCS code number: upgrading

employment skills for present job, developing skills for a new job, career exploration, general knowledge and personal satisfaction, transient student, non-degree transfer student, high school student, general or curricular requirements pending, restricted enrollment, or auditing a class.

4. Transfer Student: A transfer student was in a university parallel-college program leading to an Associate in Arts degree or an Associate in Science degree. The university parallel-college transfer programs include college freshmen and sophomore courses in arts and sciences and preprofessional education.

5. Non-transfer Student: A non-transfer student was in one of the occupational technical programs leading to an Associate in Applied Science degree.

6. Day Student: A day student took the majority of courses in the daytime before 6 p.m.

7. Evening Student: An evening student took the majority of courses in the evening after 6 p.m.

8. Part-time Student: A part-time student carried less than 12 course credits in one quarter. For the purposes of this study, a part-time student was one who carried less than 12 course credits during the majority of quarters of enrollment in the community college.

9. Full-time Student: A full-time student carried 12 course credits or more in one quarter. For the purposes of this study, a full-time student was one who carried 12 course credits or more during the majority of quarters of enrollment in the community college.

10. Age: The student's age as of September 1, 1976, was recorded for the study.

11. Race: The VCCS management information system codes students in the following manner: White, Negro, American Indian, Oriental, Spanish-surnamed Americans, Other. For this study there were only two classifications of student race: White and Non-white. All persons other than those classified as White were placed in the Non-white category.

12. Components of General Education: The components of general education referred to in this study were English, mathematics, natural science, social science, humanities/fine arts, and physical education/health.

13. Freshman: A freshman had completed fewer than 45 course credits.

14. Sophomore: A sophomore had completed 45 or more course credits.

#### Scope of the Study

1. This study was limited to three community colleges within the Virginia Community College System.

2. This study was limited to the analysis of the 1979 cumulative transcripts of students who were randomly selected on the basis of their enrollment either on a part-time or full-time basis in the fall of 1976. Courses recorded from the transcripts of these students were

taken prior to fall 1976 and in the period between fall 1976 and spring 1979.

3. This study was limited to the analysis of only those general education courses for which students received course credit. Courses in which students receiving failing grades and courses from which students withdrew were not recorded or indicated in the study.

#### Limitations

This study reflected a "slice of life" in the academic history of a sample of students from three community colleges in the Virginia Community College System. The results indicated the manner in which students in these institutions selected courses in general education. The manner of recording and reporting the data derived from student transcripts may be peculiar to Virginia; therefore, the methodology and definitions used for this study may not be appropriate for use in other states without adaptation.

The discussion of general education is limited to the operational definition as it was determined by the panel of experts who decided which courses in the curricula of the three colleges in the study served the general education function. It is accepted that other college personnel might define general education differently.

The categorization of students in the sample must be taken into consideration in the interpretation of the findings of this study. A preliminary observation of the transcripts used in the investigation indicated that about a quarter of the students changed their enrollment

status and their programs more than once during the period covered by the investigation. In addition, many students enrolled in the daytime for some courses and in the evening for others. The numerous changes in program and enrollment status made it necessary to establish criteria for classifying students in the sample. The criteria for classifying students are presented in the "Definitions." These definitions indicate that students were placed in categories on the basis of their program and enrollment status for the majority of quarters of attendance during the period covered by the study. For example, students who were enrolled for less than 12 course credits for the majority of quarters of enrollment were classified as part-time students for this investigation.

#### Organization of the Study

Chapter I has presented the problem, the need for, and the purpose of the study. The limitations were discussed and the terms defined. The significance of the research was also discussed. Chapter II presents a review of the literature related to the study. Chapter III contains the methodology used, including a description of the sample, data collection, and the procedures employed in the analysis of the data. Chapter IV presents a report of the findings, and Chapter V contains a summary and discussion of the findings, the conclusions, implications, recommendations, and suggestions for further research.

## CHAPTER II

### REVIEW OF THE RELATED RESEARCH

#### Introductory Statement

The purpose of this chapter is to provide a review of the related research that supports the study. The chapter is divided into the following major topics: definition of general education, significance of general education, changes in two-year colleges, changes in two-year college students, changes in two-year college curriculum, and methods of curriculum analysis.

#### Definition of General Education

General education is defined by The Carnegie Foundation for the Advancement of Teaching (1979) as the

breadth component of the undergraduate curriculum, defined on an institutionwide or collegewide basis. It usually involves study in several subject areas and frequently seeks to provide a common undergraduate experience for all students at a particular institution. (p. 525)

The major curricular areas included in general education are communication or English, arts and humanities, mathematics, natural science, health and physical education, and social science (Hammons, Thomas, & Ward, 1980).

Although general education is usually defined by each institution, a large number of states mandate some kind of general education program

for recipients of associate degrees. In their study of associate degree programs, Sullivan and Suritz (1978) found that 23 of the 46 participating states had some type of general education requirement which fell into three structural types:

specifically prescribed courses (for example, English composition, U. S. History), distribution requirements (for example, six hours in humanities with twelve to fourteen different courses from which to choose), and free choice. (p. 10)

### Significance of General Education

In higher education, general education has its roots in four-year postsecondary institutions; however, it has long been recognized as a major function of the community college as well (The Carnegie Foundation for the Advancement of Teaching, 1979; Levine, 1979; Reynolds, 1965; Thornton, 1972). The purposes served by general education are varied as evidenced by the definitions gathered from the scholarly literature written during the last thirty-five years. Reynolds (1965) believes that the junior college allows a student to complete a minimum program of general education begun in the first grade. Taken in this sense, general education

refers to the nonvocational, nonspecialized portion that applies to his life's activities as a citizen, a member of a family, a church-goer, a neighbor. It will include such matters as perfecting effective communication skills, adopting sound principles of personal and public health, developing an appreciation of the fine arts and developing at least a layman's understanding of the physical environment in which we live. (p. 28)



Hutchins (cited by Dell, 1979) says that the purpose of general education is to teach students to think independently. The Carnegie Foundation for the Advancement of Teaching (1979) states that in addition to integrating learning in such a way that students are able to deal with large and complex subjects, general education should provide learning that

builds skills for advanced studies and lifelong learning; and distributes time available for learning in such a way as to expose students to the mainstreams of thought and interpretation--humanities, science, social science, and the arts. (p. 165)

Some definitions of general education are written in terms of what general education will do for society, rather than in terms of what general education will do for the individual student. The Harvard Committee of 1945, for example, says that with respect to adult education,

general education is the sole means by which communities can protect themselves from the ill effects of over-rapid change. For its concern is with what is the same throughout all changes and with the very process of change itself and the techniques of taking account of it. (p. 266)

More recently, Boyer and Kaplan (1977), advocating a return to a core curriculum, argue that a study of history should be required of all students for the preservation of culture and tradition. They believe that "if colleges do not help keep the past alive and help every student to discover his or her own time perspective, we will not only have lost all memory but bankrupted our future as well" (p. 62). Cox (1980), lamenting the lack of interest and concern for the sciences in

general education, suggests that mankind's survival may depend upon a scientifically literate public.

Even though there is not always agreement regarding the amount of general education necessary for the student in an occupational-technical program, there is usually agreement that some general education courses should be included. If the total educational experience--both vocational and general education training--is effective, there is greater likelihood that a prospective college-educated employee will be:

appreciative of the local, national and international contexts in which his or her occupational endeavors are pursued

aware of fields of knowledge that offer data and insights relevant to his or her occupation  
capable of communicating effectively with co-workers, superiors, customers, and the general public

resourceful in adjusting personally and professionally to problems and unexpected developments and opportunities

able to learn quickly and independently

able to recognize excellence in products, performance of associates and competitors, and plans for future developments

experienced in working to meet specified standards and persevering to the conclusion of assigned tasks

able to set and meet standards of ethical behavior and morality. (The Carnegie Foundation for the Advancement of Teaching, 1979, p. 228)

When Harvard College first admitted students in 1636, general education constituted one-hundred percent of the classical curriculum. The faculty and the administration agreed upon the curriculum that

served all students in the same way, preparing all students for the same vocation. Since that time the accumulation of knowledge, especially in the natural and social science fields, the increase in the number and types of students attending college, as well as the increase in the various vocations which they may enter, and the emphasis on technology in this country have contributed to a substantial decline in the amount of general education to which students are exposed. A curriculum study by Blackburn et al. (1976) indicates that "the proportion of a student's undergraduate program in general education is about 22 percent less today than it was in 1967, a drop of about 12 credit hours in four-year colleges and 5 credit hours in two-year colleges" (p. 33). Additionally, general education requirements diminished between 1967 and 1974 from 43.1 to 33.5 percent of the average undergraduate program at four-year colleges, and from 58.7 percent to 53.8 percent at two-year colleges. This trend was evident in 72 percent of the four-year colleges and 60 percent of the two-year colleges in the study. It should be noted, however, that Blackburn's study examined only associate of arts degree programs in two-year colleges. This fact is especially important in the consideration of changes in the content of the general education programs as associate of arts degree programs concentrate more heavily on general education than do any of the other associate degree programs in two-year colleges.

With respect to the content of general education, requirements also changed between 1967 and 1974 in both two- and four-year

institutions. Blackburn et al. (1976) focused on four specific requirements within general education--three of these subjects that most faculty consider essential to a liberal education--English composition, foreign languages, and mathematics. Physical education was also reviewed. According to the catalogs published by two-year institutions, these subjects were required by fewer colleges in 1974 than in 1967:

90 percent in 1967 and 72 percent in 1974 required English composition; 72 and 53 percent required a foreign language; 33 and 20 percent required mathematics; and 86 and 55 percent required physical education. (pp. 15, 17)

In the study by Blackburn et al. (1976) public two-year colleges differed from four-year colleges in some respects. Few had a foreign language or mathematics requirement in either 1967 or 1974. They did, however, require English and physical education. In comparison with their four-year counterparts, not as many have eliminated these requirements.

Studies by both Blackburn et al. (1976) and Brawer and Friedlander (1979) indicate that students in higher education demonstrate little interest in taking courses in the natural sciences. Blackburn and his associates report that "When students elected courses outside their major division, the courses were more likely to be in the humanities or social sciences than in the natural sciences" (p. 35). Brawer and Friedlander suggest that one reason for low enrollment levels in the natural sciences in two-year colleges is the lack of courses for the students whose major is not science.

Although general education has suffered a decline, there is some hope for its survival. Hammons (1979) notes that "there have been more articles written in the last three years than in the preceding ten and general education is now appearing in conference titles with consistent regularity" (p. 63). He argues that some of the forces favoring changes in general education are the following:

current publicity being given to general education, particularly in The Chronicle of Higher Education

growing autonomy in the community colleges as the number of students increases, resulting in a decrease in articulation problems with four-year colleges  
competition for students who may be attracted by a strong general education program if it is marketed effectively

a growing need for a general education program that will be relevant to the diverse community college clientele that includes older students, housewives, mothers-turned students and minorities

the desire for changes in general education on the part of instructional deans who feel that there should be more interest in general education. (p. 63)

In spite of the fact that The Carnegie Foundation for the Advancement of Teaching (1979) describes general education as a concept that is "beyond the reach of general consensus" (p. 164), several higher education institutions have recently begun to examine their curricula, paying particular attention to the general education component. Harvard and Princeton Universities have just completed major studies of general education, and Harvard has returned to a core curriculum to ensure that all students will have a basic foundation in the liberal arts. Miami Dade Community College in 1981 put into effect the general education program which has been in the planning stages

since 1971. This program is designed "to reflect the multiple educational missions of community college education" (Lukenbill & McCabe, 1978, p. v). The renewed emphasis on general education by postsecondary institutions stems from a realization that "undergraduate general education has become too unstructured, is dealing with students unprepared in the basic skills, and is lacking in central purpose...." (Galambos, 1979, p. 1). Levine (1979) explains that the revival of interest in general education indicates

a desire to reinstitute the coherence felt to be currently lacking in undergraduate education, to create common elements in a curriculum which has grown more individualized and diverse, and to provide moral training to young people in a time when moral scandals have repeatedly rocked the nation. (p. 7)

In an effort to explain the "confused" and "fragmented" state of general education in the community college, Harrison (1973) states that "the community college has been too busy seeking its identity to systematically delineate the general education function" (p. 91). Having been occupied with providing many services to a diverse clientele during a period of growth over the past decade, the community college has remained in the shadow of the four-year college. With no tradition of its own, the two-year college has patterned its general education programs after the four-year model. For the student who intends to continue education beyond the two years in the community college, this arrangement of courses may be appropriate; for the vocationally-oriented student more concerned with short-term goals, it may be ill-fitting. By tradition, general education has been the focus of the first two years of a four-year college education, introducing

students to several disciplines to permit a thoughtful choice of a future curriculum and providing an undergirding for professional study. For the career-oriented student in a community college, these two purposes may not be served. The student must take general education courses along with professional courses, with the general education function and professional education terminating after just two years. Individual courses, especially in the humanities, tend to be "designed with transfer students in mind, are patterned after similar courses in four-year institutions, and are considered to be 'preparation' for transfer instead of valuable courses in and of themselves" (Cohen & Brawer 1975, p. 17).

Cohen, Brawer, and Lombardi (1971) support Harrison's assertion that institutions have not addressed themselves to rational curriculum planning for the institution as a whole. They question whether the community college curriculum can be organized as a set of "integrated learnings or even as a set of integrated, planned experiences when, for most of its matriculants, it is in fact not a two-year college but a place where they drop in and out, taking courses at their own whim or at the fancy of a staff advisor?" (p. 136). It appears that "classical curriculum theory does not fit the contemporary community college and must be modified if it is to explain curriculum development in this fast-growing enterprise" (p. 136). What is needed in curriculum development is "a new concept--one that acknowledges the nonlinearity of the educational experiences offered by the community college" (p. 136).

In order to understand the general education function and how it serves the students in the community college, it is necessary to look at the changes that have taken place in the two-year college in the last two decades. The first of these changes is in the educational orientation of the institutions themselves and the second is in the student population to whom colleges must respond in order to continue their healthy existence.

### Changes in Two-Year Colleges

One of the most significant and perhaps the most obvious change in the nation's community colleges has been in the orientation of these institutions toward vocationalism over the past two decades. Cohen (cited by Middleton, 1979, p. 3) says that "early two-year colleges were established as liberal arts institutions. . .with a high percentage of their students going on to four-year colleges"; however, community colleges now "are often dominated by occupational, remedial and part-time 'community' education programs." He notes that the proportion of students enrolled in occupational studies rose from 13 percent in 1965 to almost 50 percent in 1976. Lombardi (1978) states that "it is not unusual to find colleges, even entire state systems, whose occupational enrollments exceed transfer enrollments" (p. 1). Student demands for practical, relevant education and their preoccupation with the problem of getting a job upon graduation has steered them toward occupationally-oriented courses rather than toward general education. The enrollment in humanities courses has "declined



dramatically," according to a study at the Center for the Study of Community Colleges in Los Angeles (Cohen, 1978, p. 6). Galambos (1979) points out that the higher education establishment, for its part, "has contributed to careerism by promoting the general impression, 'Come to college and get a good job'" (p. 3). She adds that "it is no wonder students opt out of courses with no immediate resemblance to the 'real world'" (p. 3). Hurn (1979) offers the view that

the importance of education is increasingly justified not as the transmission of a common cultural heritage of values and accumulated knowledge that is valuable in itself, but as a means of training in a world where old skills are constantly required. And in this conception, it is hardly necessary to add, liberal education becomes, if it is mentioned at all, merely ornamental. (p. 630)

As community colleges have added courses and programs to accommodate the new wave of careerism and the large enrollment of part-time students, the commitment to general education as a function of the two-year college has remained; however, it appears to have no substance of its own. Both Reynolds (1969) and Clowes (1980) point out the pronounced overlap of general education and the other parts of the curriculum. Reynolds (1969) says that "the student who undertakes to identify the general education program or the preparatory education program on the basis of course titles only will have assumed a difficult if not impossible task" (p. 29). He adds that discovering a junior college course currently offered that is "exclusively general" or "exclusively preparatory" is "extremely unlikely" (p. 30). Clowes (1980) states that

curricular functions in the two-year college are neither clear nor discrete at the course and section levels. While there may be clear senses of direction in the catalogs and in the minds of deans of instruction and department chairpersons, for the instructor in the classroom reality is often a perception of a multitude of functions to be served by a single course section. (p. 52)

If general education has been pushed into the background, Thornton (1972) says it may be that the faculty involved in planning vocational training is under pressure to produce a student who has marketable skills and who is sufficiently prepared for employment; thus they are convinced that the courses they teach should occupy the major portion of a student's time, and that "the financially unremunerative goals of general education can be ignored, or at least deferred in planning programs of study" (p. 213). By the same token, "students also may accept this judgment in their eagerness to achieve vocational competence so that they may begin to earn" (p. 214).

The Carnegie Foundation for the Advancement of Teaching (1979) summarizes the general education dilemma and offers an explanation of the lack of cohesiveness and central purpose in general education: the Foundation asserts that general education offerings by institutions of higher education have been influenced by various forces both inside and outside of higher education--student and faculty interests, legal precedents, accrediting agency decisions, social conditions, and job market demands. Unfortunately, institutional offerings in general education have not been a result of the implementation of a sound educational philosophy.

### Changes in Two-Year College Students

Today, the community college student body "represents more segments of society than ever before" (Galambos, 1979, p. 7). The American Association of Community and Junior Colleges (AACJC, 1980c) reports that since 1979, the characteristics of students in two-year colleges have changed more than those of students in four-year colleges. The Association states that in 1979

More learners in two-year colleges were older, married, attending part-time, from less affluent homes, and with parents who have less education than students in four-year colleges and universities. Among two-year college students, 26.7 percent were married and living with their spouses, while 14.3 percent of the four-year students were married. Of the two-year college students 22 and older, 54 percent are married. (p. 1)

In the same report the AACJC says that "Women, minorities, and persons over 24 have now become the 'traditional' rather than the 'non-traditional student'" (p. 2).

### Women As New Students

In the community colleges women have become the majority group among all undergraduate learners in the traditional age group of 21 or under. Across all ages "women comprise 52.6 percent of the total headcount and 54 percent of the part-time population" (AACJC, 1980c, p. 1). Little is known about the course-taking practices of women in general education; however, data provided by Cross (1976) provides some insight into the general interests and ability of women students as entering freshmen students.

Cross (1976) describes women to be "well-qualified by traditional standards to undertake college work" (p. 135). Women are slightly superior in verbal abilities but behind men in quantitative and mechanical abilities; slightly trailing men on test scores but significantly ahead of men on grades; more interested than men in "working with ideas and abstractions in a variety of areas such as literature, art and philosophy and on esthetic appreciations" (p. 141) and less interested than men in "theoretical problems and the use of the scientific method in thinking" (p. 142). Cross also points out that women have a slightly greater interest than men in the general purposes of education; that is, "the gaining of knowledge, understanding of world problems, and appreciation of ideas" (p. 141).

In some respects women students in community colleges today show interests similar to those of women students described in Cross' 1976 report, according to the limited amount of information available. Clowes (1980), in a survey of science, social science, and science-related technical courses in the two-year colleges, notes that females tend to be underrepresented in mathematics and hard sciences at the college level although the completion rate for those who undertake these courses is rather impressive. With respect to the general education function of the community college, Clowes indicates that women tend to have a higher completion rate than that of males.

An important consideration in the discussion of the course-taking behavior of women is the increasing number of older females who have enrolled in community colleges in recent years. The AACJC (1980c)

reports that according to 1980 data, "women learners over 35 years of age increased their attendance rate by 5.9 percent between 1974 and 1976" (p. 1). Information from the U.S. Census Bureau indicates that in 1980 the biggest change in enrollment figures for higher education across the nation is in the large number of women aged 35 and over. What this data means in terms of general education practices remains to be seen. Enrollment data suggest that women may be moving away from the humanities into career-related courses, according to Cohen and Brawer (1975), who assert that women students are beginning to dictate curriculum, especially in liberal studies by their choice of curricula. They state that "women, traditionally the bastions of humanities studies, are becoming more interested in careers and less interested in liberal education" (p. 8). Their data from the American Council on Education indicate that "more full-time, first-time community college freshmen women than men planned humanities majors in 1966 and that by 1972 this difference was insignificant" (p. 8).

#### Minorities As New Students

Thirty-eight percent of minority students in the nation are enrolled in community colleges. The enrollment is 26.7 percent of the full-time student population and 19.8 percent of the part-time enrollment (Godbold, 1979). These figures indicate an impressively large group of students in community colleges, yet little research is directed toward this segment of the student population, and no information is available in the literature to indicate minorities' response to general education.

Pincus (1980) notes the large number of non-white, working class students who are enrolled in the nation's community colleges. With respect to their choice of curricula, he points out the disproportionately large number of those students who are enrolled in terminal programs. Pincus suggests that "this stratification within higher education and within community colleges tends to reproduce the class and racial inequalities existing in the larger society" (p. 334). Since occupational programs include fewer general education courses than other programs at the community college, it appears that a large number of minority students are not participating to a large degree in the curriculum component that "leads a learner to acquire a sense of social integration, an awareness of himself, and a sense of place in the matrix of society" (Cohen, 1969, p. 150).

Cohen (1980) observes that although there is no conclusive evidence that the attrition rate for minorities in community colleges is different than that of other students, there is evidence that "non-returning Blacks and Hispanics exceed their proportion of the population" (p. 1). How the general education component serves these students is not reported, yet there is some suggestion that their encounter with certain aspects of this curriculum component may contribute to their lack of success in higher education. Although he was not directing his remark to minority students alone, Lockwood (cited by Cohen & Brawer, 1975) reports that "large numbers of students, particularly those with reading and communication deficiencies, feel estranged from liberal arts general education work

which appears to threaten them at their point of weakness" (pp. 153-154). Since a large number of minority students are not well-prepared for collegiate studies (Cohen, 1980), perhaps many of them who leave the community college before completing their programs of study may choose to ignore general education courses.

Cohen and Brawer (1975) state that with no general education courses in their programs, students are "frequently faced with occupational immobility" (p. 22). Students who participate in general education in combination with occupational training are at a greater advantage in the working world than those who receive only technological training--they are more employable, receive higher wages, are more often promoted, and have more occupational mobility (Adams, 1972). Considering these observations, the general education component of the curriculum may be especially important to the minority population, especially since seventy-five percent of the minority students who enter college for the first time as freshmen, enroll in community colleges (Godbold 1979). A large number of these students offer great hope to their families in terms of upward mobility, for in many cases, they are the first in their families to go to college (Jackson, 1979).

#### The Older Adult As A New Student

Lukenbill and McCabe (1978) note that for many years college was the domain of young adults and that education was for those who had not entered a permanent career field, but enrollment data indicate that the

new college population is made up of an increasingly large number of older students. They observe that

not only have more adults returned to college for leisure time and special interest courses, they have enrolled with increased frequency for career retraining and in courses in liberal arts in which these adults had not previously had the opportunity or the inclination to enroll. (p. 75)

The AACJC (1980a) reports that "from 1970 to 1977, more than 50 percent of the increased enrollment in two-year colleges. . .were older students" (p. 1). As to the extent to which these students participate in general education courses, only a guess can be made.

While colleges tend to design programs for students who are first-time enrollees initiated to higher education, data from the AACJC (1980c) indicate that "at least 10 percent of all community college students have attended four-year colleges prior to their attendance at community colleges" (p. 1). For many of these students it seems likely that some of the introductory courses in general education would be inappropriate since some of them might have been taken already in the four-year programs. Moreover, since many of these students are returning to college to receive occupational skills training, they may view general education courses as an obstacle to their quick entry into the job market.

Cross (1980) states that adults have a pragmatic orientation to learning. Cohen and Brawer, (1975) believe that "the more practical contemporary students who populate two-year colleges want to learn subjects immediately applicable to their daily lives and future goals," and many of them view general education as irrelevant. They add that



issues important to modern students are "contemporary and local" (p. 30). Further emphasizing their practicality, the AACJC (1980a) reports that 93 percent of the part-time student population is employed, working an average of 41.5 hours per week; about 52 percent of the full-time students are employed, working an average of 33 hours per week. Because of commitment to families and jobs, many of these students may have little time for homework, and may find it difficult to complete assignments on time (Cohen & Brawer, 1975).

Motivated by their practical need to get occupational training or retraining, adult students may drop out temporarily at times and take longer to meet their educational goals. Their practical orientation may contribute to their avoidance of humanities curricula (Cohen & Brawer, 1975). With respect to their program of general education courses, Miller (1978) notes that it is a "matter of personal selection and choice by the student who takes what he or she wants" (p. 45). Consequently, "there arises a problem of how general education should be planned" (p. 45). If the thrust of general education should be directed toward thinking and communication, Miller proposes that "these skills can be negotiated in vocational classes because the skills have strong job relationships to most vocations" (p. 44).

Knowles (1978) asserts that adult students differ from younger college students by virtue of the variety of experiences they have assimilated. It seems reasonable to assume that many of them have had experiences that may cause them to be resistant to being programmed into traditional general education courses. In terms of their previous

exposure to education, Miller (1978) states that many non-traditional students are not prepared in basic skills and mathematics. The AACJC (1980a) supports this assertion, noting that 65 million adult learners lack basic competency skills (p. 2). Previous experiences with schooling coupled with lack of basic skills present a challenge to community college academic planners who must respond to the educational needs and goals of adult student populations.

Considering the short-term commitments of many adults, their diverse educational backgrounds and their obligations to families and jobs, community colleges may have an increasingly difficult time defining the general education function. Clearly, the general education component of the curriculum can become fragmented as these students select or reject general education depending upon their reasons for attending the community college. It appears that students will continue to dictate curriculum through their course-taking. As a result of the shrinking traditional enrollment during the next 20 years, institutions of higher education may direct more energy into producing courses especially to meet the desires of older students.

### Transfer Students

At least three factors that may influence course-selection patterns of community college students are the following: intent to transfer to a four-year institution before completing a transfer program, inadequate or inappropriate educational preparation in high school, and changes in curriculum after entering the community college.

With respect to student intent to transfer early, The Carnegie Foundation for the Advancement of Teaching (1979) states that:

If students intend from the beginning to transfer to a four-year institution, the degree requirements of their institution may have less influence on their course of studies than the entrance requirements of the college to which they plan to transfer. (p. 131)

Lewis (1968) reports that in some cases, students postpone taking certain subjects until they have transferred to the senior institution. He says that students who choose to take a foreign language, for instance, do so after their transfer. Svob (1969) finds that a large number of English majors delay courses in literature until they have begun their program of studies in the four-year institution from which they intend to graduate. Transfers in other majors, he notes, satisfy humanities requirements by enrolling in music appreciation and introduction to art--courses they perceive to be less rigorous than literature.

Cohen and Brawer (1975) report that transfer students tend to be more academically oriented than non-transfer students; however, The Carnegie Foundation for the Advancement of Teaching (1979) states that "about 30 percent of public community college students arrive with high school grade point averages of C or lower and 17 percent come with averages of A or A-" (p. 131). In terms of previous training, "far fewer community college students than the average at all institutions have had geometry, second-year algebra, English composition, a foreign language, or a year of a specific science (such as chemistry or biology) before coming to college" (pp. 131-132). A large number of

college students have not mastered "college-level learning skills" (p. 132). For the benefit of these students, "78 percent of the two-year institutions included in the Carnegie Council Catalog Study in 1976 offered compensatory education for credit, and 53 percent offered such instruction without credit" (p. 132). To what extent general education is affected by the students' need for compensatory education is not reported in the literature.

Concerning inadequate or inappropriate high school educational preparation, Cross (1968) reports that the Scope Study indicated that 62 percent of junior college entrants had taken a preparatory course in high school. She adds that "almost a third of the junior college group probably lacked the courses necessary for college admission; 20 percent took a 'general' course (required courses plus others they liked), and 10 percent were enrolled in a commercial or business curriculum" (p. 43). Of the "16 percent of the students [who] had planned as late as spring of their senior year in high school to go to four-year colleges," Cross concludes that "some of these students certainly entered junior college because they lacked the necessary prerequisites for senior college" (p. 43). Although Cross does not categorize these students as transfer or non-transfer, a large number may have begun as transfer students if data provided by Sheldon (1970) can be used to indicate their choice of curricula. He reports that "in most comprehensive junior colleges more than nine out of ten students, on entrance from high school, request a transfer curriculum" (p. 18). He surmises:

The entering student, regardless of his demonstrable lack of academic skills, feels he has another chance to succeed in the fancy world of the collegian. He will not voluntarily enroll in a curriculum that does not do something for his ego. In most cases, his previous academic record and the results of some battery of test scores. . .are used to counsel (force) the entering student into some general occupational curriculum. (p. 18)

Where beginning transfer students concentrate their efforts in terms of their course-taking in general education is perhaps predictable in terms of enrollment data; however, these data do not generally break down to show the course-selection patterns of subgroups, i.e., adult students versus traditional age entrants; part-time, full-time; white, non-white; etc. Furthermore, the data for students who change curricula do not reveal participation in general education courses.

#### Changes in Community College Curricula

Along with changes in the orientation of community colleges and the changes in their clientele have come changes in the curriculum, especially in the last decade. The reports of these changes are based on enrollment data and catalog analysis for the most part. The curricular changes indicate a decline in transfer education, the introduction and promotion of vocational education and the increase in basic skills offerings. These changes are not mutually exclusive nor are they discrete. They have occurred as a result of the efforts of community colleges to fulfill their primary mission which is to respond to the needs of society in general and to the public which they serve

in particular. All of the changes in curriculum appear to have contributed to the status of general education in the two-year curriculum.

Lombardi (1979) claims that the decline of transfer education began in the late sixties with the introduction and promotion of other curricular functions, and by the seventies occupational enrollments exceeded transfer enrollments. Even though the decline is most pronounced in enrollments, "there is considerable evidence that transfer education is losing its preeminence as the principle function of the college" (Lombardi, 1979, p. 1). One of the overriding reasons for the decline in transfer enrollments is the growth of the part-time student population which may exceed more than half the total enrollment if both day and evening division students are taken into account. Lombardi (1979) points out that many of these students, who are older than the traditional 18-21 year old group, enroll in transfer courses, but not for transfer purposes. Knoell (1976) notes that older students "come with their own objectives relating to educational, career, and personal growth which often are achieved outside degree and certificate programs" (p. i).

A second reason for the decline in transfer education is the number of high school students who enter two-year postsecondary institutions with inadequate preparation for college-level work. Carnevale (cited by Cohen & Brawer, 1975) finds that in a college where there is a large population of a low ability students, the course offerings in remedial education increases while the course offerings in

transfer education decreases. The offerings may be in general education courses that make up a large proportion of the transfer education function. For example, Carnevale explains that in a "normal" college the proportion of enrollment in transfer courses (e.g. English or mathematics) is 70 percent, in a college with a large remedial student population, the proportion may be less than 40 percent. Lombardi (1979) notes that one result of the additional enrollment in basic skills courses is that advanced courses in most transfer subjects cannot be offered every semester; they may be offered only once every second or third semester.

The decline in transfer enrollments directly affects general education, especially in the humanities, according to Cohen (1978) who documents the decline in the different subject areas in the humanities during the seventies. He observes that between spring 1975 and spring 1977 while total enrollment in the nation's community colleges was rising by 7 percent, the enrollment in the humanities declined by 3 percent. With respect to individual courses, he notes that the range of decline was from 3 percent in cultural geography to 13 percent in literature. The exceptions to this decline were in political science and interdisciplinary humanities which rose 4 and 6 percent respectively.

While increased enrollments in remedial and vocational programs may be in part the cause of the decline in the humanities, Cohen (1978) also points to the elimination of many requirements for transfer students. English composition and mathematics are cited by Blackburn

et al. (1976) as examples of courses that were eliminated by some two-year public institutions between 1966-67 and 1973-74. They report that 95 percent of these colleges required English composition in the associate of arts degree program in 1966-67, while only 87 percent required this course for graduation in 1973-74. The elimination of mathematics is more severe. In 1966-67 29 percent had this requirement; 18 percent still had the requirement in 1973-74.

The increase in the number of students in occupational programs as well as the growth in the older student population have given rise to the argument that there should be a different kind of general education for occupational students. Nall (1971) asserts that those who design general education programs for occupational students must keep in mind that unlike transfer students, occupational students may not have further contact with the subject, and that "priority and emphasis must continually be given to the 'here and now' so that maximum advantage may be taken of the psychological key to learning--motivation" (p. 299). He adds that

social studies courses, including history, should attempt to utilize a current issue or situation as a point of departure for increased understanding rather than beginning with a detailed study of principles and/or chronological beginnings. . . .Each course in this type of curriculum should contribute educationally as an end in itself. (pp. 299-300)

Some efforts have been made to devise courses like those described by Nall. In 1971 Johnson reported a trend toward the development of integrative courses in general education. Courses of this type used a variety of methods of presenting material to the students. One such



method is "the problem approach" which requires students to read widely about several contemporary problems and "to interpret and understand phenomena" (p. 290). A study at the Center for the Study of Community Colleges showed a significant increase in the number of students enrolled in integrated humanities courses in 1977 (Cantor, 1978). However, Mapp (1981) finds few innovations in general education offerings in occupational curricula. She notes that the subjects included in the occupational programs of the 116 colleges in her study are writing, speaking, mathematics, laboratory science and psychology--courses that have a "how to" element about them. Blackburn and his associates (1976) report in their study that community college associate in arts degree programs showed few innovations in terms of the courses offered.

#### Methods of Curriculum Analysis

Current articles appearing in newspapers and magazines attest to the serious attempt to revive general education in postsecondary institutions. However, before obsequies are pronounced over general education, it seems appropriate first to establish that the body of data describing general education practices and trends is not complete. What is missing is an account of what influence certain groups of students have in determining the definition of general education as it appears in actual course-taking records. The argument proposed by several writers in the field of curriculum analysis is that the change in the orientation of the community college toward vocationalism and

the changes in the composition of the student body have brought with them changes in curriculum and in the general education component in particular. The Carnegie Foundation for the Advancement of Teaching (1979), for example, suggests that two-year college students have the option of ignoring general education if their goal is not to complete a program in the community college. However, arguments about what is and what is not happening in curriculum are based on speculation for the most part. In most instances, the data used in describing the status of general education are derived from catalog studies and enrollment analysis. These data may not present an accurate picture of general education as it functions in students' programs.

Catalog data provide evidence of trends in offerings but ignore student behavior. Catalogs indicate which courses a student should take according to the philosophy of the college as reflected in the program requirements. However, the large and growing number of students in community colleges who do not complete program requirements lay waste to the efforts of curriculum planners; for in the students' selection of courses, they may choose to concentrate all their efforts in specialized education. By the same token, they may select all of their general education courses in one or two components of the general education curriculum. The control which community college students exercise in shaping their curriculum is well described by Cohen and Brawer (1975) who state that "today faculty and administrators alike look at the community college and its curriculum as servants of the students, without whom neither could survive" (p. 11).

White (1973) states that "college catalogs generally have little to do with academic reality," and that "the educational ideals expressed (as often noted by students) are subsequently neither perceived nor accomplished" (p. 39). The ideals expressed are important, "yet when subjected to the rigorous scrutiny of time and experience, the academic promise is often not realized" (p. 39). White suggests that all collegiate programs, including general education, should be evaluated in light of their original claims and promises.

Even though their own study was an investigation of curriculum trends using catalogs as primary sources of information, Dressel and DeLisle (1969) concede that data derived from studies like theirs must be interpreted circumspectly. They assert that "ambiguities and contradictions" arise in the use of catalogs for research of curriculum practices, because "what appears in the catalog as policy is in reality often left to interpretation of individual advisors and individual departments, and what is in reality required by an individual department is often not stated as policy in the catalog" (p. 75). They explain that

the limits described by departments tend to be more exacting and demanding than those stated in the institutional requirements listed by the college. Thus, a question arises as to whether each student actually has flexibility and innovation claimed in the general statements or whether the department control of the major serves as a limiting and inhibiting factor in this respect. (p. 78)

According to Dressel and DeLisle (1969) another type of problem related to catalog research of curriculum emerges in the attempt to determine to what extent curriculum policies and statements correspond

to course-taking practices. Because of ambiguities, inaccuracies, discrepancies, and omissions in wording in catalogs, the door is open to variability in interpretation by both students and advisors. Also, catalogs often do not present a rationale for course requirements, nor is there any way of determining how requirements were introduced. Likewise, there is no way of determining "whether claimed articulation of liberal with professional education and of breadth with depth has been successfully achieved" (p. 79).

Possibly the most serious fault of community college catalog research is that the catalogs describe programs leading to degrees, certificates, or diplomas--awards which the majority of community college students do not seek (Grant & Lind, 1978). Because so many students do not finish programs, and because those who do complete them exercise numerous options in selecting general education courses, catalog research findings are inadequate to describe the actual curriculum in terms of student course-taking.

If college catalogs are not adequate in describing curriculum practices, then neither are enrollment figures, often relied upon for evidence of what is happening in the general education component. This approach to understanding curriculum does take into account actual enrollees, thus moving a slight distance away from the ideal expressed in college catalogs; however, these investigations do not reveal the extent to which different segments of the college population respond to general education courses. Friedlander (1979) suggests that the changes in the composition of the community college student body in the

last decade have had an effect upon humanities enrollments; yet little information emerges from enrollment studies to establish whether or not the new community college students are consumers of humanities or other general education courses.

Cohen and Brawer (1975) observe that enrollment data used in curriculum studies are often representative of the behavior of full-time freshmen students. Some studies do not attempt to deal with the part-time student population, which is becoming increasingly large, and with the "unclassified" students in the community college. As a result of ignoring such groups, any assessment of curriculum patterns fails to approach reality.

Cohen and Brawer (1975) state that

the literature is filled with comments about what is happening in general education but the comments are frequently based on little data coming from only a few institutions. These statements of "should" and "ought" are useful exhortations but careful analysis that reaches beyond the obvious enrollment data would lead to increased understanding. (p. 51)

In order to describe general education as students experience it in their course-taking, researchers and curriculum planners must find additional methods of investigation. With regard to general education, Cohen and Brawer (1975) state that too little information is available on which to make judgments. They assert that data beyond enrollment figures are needed. A method of deriving that data is transcript analysis.

Transcript analysis as an approach to describing curriculum practices in higher education was used in 1975 by Warren who studied

the transcripts of 50 history graduates of different four-year colleges in an effort to determine whether the students had taken similar programs within their field. The student course-selection patterns in history, as revealed in the transcripts of the 50 undergraduates, indicated that within the discipline there were at least three or four different history programs. This finding demonstrates that although students receive similar degrees, they do not necessarily have the same educational experiences. Warren's study suggests that students shape their own curriculum as they exercise options in choosing courses to complete credit hour requirements.

Blackburn and his associates (1976) used transcript analysis in their investigation of curricular change and course-taking behavior in U.S. colleges and universities between 1967 and 1974. This study included both two and four year colleges; however, transcripts from two-year colleges were eliminated from the sample used to describe student course-taking patterns because one of the goals of the study was "to determine how students utilize elective time" (p. 20). Since some two-year transcripts did not indicate institutional requirements for both general education and the major, the researchers could not ascertain what courses were elective.

The dean of instruction and curriculum planning at the University of Pennsylvania used transcript analysis in an effort to determine which courses among the many listed in the college catalog were actually selected by arts and sciences graduates (The Carnegie Foundation, 1979). He found that 1976 graduates of arts and science

programs had selected "a core of 29 courses" (p. 97) in the curriculum. However, not all students chose the same combination of courses, and "many of the thousands of courses in the catalog that were not included in the core list were found on individual transcripts" (p. 97).

Friedlander (1980) examined student transcripts to determine the relationship between student grades in the initial science course and the enrollment in and completion of subsequent science courses. He believes that student transcripts provide valuable information that can be used for institutional self-study. He suggests that data obtained from transcripts can also be used to develop and evaluate interventions to promote student attainment in a particular subject area.

Though transcript analysis is a tedious process, it appears to provide valuable information that makes the effort worthwhile. The numerous references by the major writers in the field of curriculum analysis to the study by Blackburn and associates (1976) indicate that this method of research answers questions for which speculation had previously served as fact. Transcript analysis provides a more accurate picture of educational practices than do catalog and enrollment analyses. Goodlad (1981) believes that "the curriculum experienced by students" must be assessed to determine its adequacy. "To guide students in subsequent curricular choices requires knowledge of their present and past choices" (p. 53). In this study transcript analysis may lead the way to designing new research approaches to describing the different components of the community college curriculum. The information gained in this study will prove useful in

designing programs or types of courses that correspond to student needs.

### Summary

The purpose of Chapter II was to provide a review of the literature that supports this study. The literature search revealed numerous books, magazine articles, and ERIC documents, most of which were of a philosophical nature in their discussion of general education. Literature of this kind was included in the chapter only to illustrate the significance of general education in postsecondary curriculum and to indicate the concern for its status, which appears to be declining as other curricular functions assume a more important role in the education of community college students.

Another type of literature devoted to the discussion of general education in the community colleges, and included in this chapter, suggests that in the last decade changes in the orientation of the nations' community colleges as well as changes in the composition of their student population have brought about changes in the curriculum and may be responsible for the current state of general education in the two-year college curriculum. The authors who present this viewpoint derive their information primarily from catalog studies and enrollment analysis. These data may be of value in describing four-year college curriculum; however, they lose merit in providing an accurate picture of two-year community college curriculum for two main reasons: the majority of two-year college students do not fulfill the



requirements stated in college catalogs, and enrollment data often reflect whole populations and ignore course-taking behavior of subgroups such as part-time and non-curricular students.

The literature dealing with community college curriculum reported in this chapter indicates that colleges are becoming more vocationally oriented, for the enrollment in occupational programs verifies this movement. Publications from the AACJC and other sources also indicate that certain segments of the population are increasing their enrollment in community colleges. What is not evident is the extent to which these factors are related. Current methods of curriculum analysis do not indicate the course-taking behavior of community college students; thus there is a void in the data base to describe the general education function in the community college curriculum.

In order to assess more effectively the state of general education, several authors suggest that some data beyond catalog analysis and enrollment studies would be helpful in describing general education as students experience it in selecting or rejecting general education courses in an effort to reach their educational goals. The method which appears to be an appropriate one to provide the information for such an assessment is transcript analysis.

Transcript analysis requires that each student's record of course-taking be examined to determine what courses were taken. This method of research is reported only a few times in the literature. The major study using transcript analysis was conducted by Blackburn and his associates (1976) to describe curricular change in the nation's

postsecondary institutions between 1967 and 1974; however, in describing the student course-taking behavior of undergraduates, two-year college transcripts were not used. Patterns of course-selection described in Blackburn's study apply only to four-year college and university students. The findings of the study by Blackburn and his colleagues are cited frequently in the literature, possibly because prior to the study of student transcripts, only speculations could be made about what courses students were selecting.

From the discussion of literature in Chapter II, it is hoped that there is sufficient support for this study which proposes to describe student course-taking in general education in the community college using transcript analysis as a research method. The data generated in this research may be used to measure the success of the general education program in light of the current needs of students. Also, the information may be helpful in planning new approaches to delivering general education to the heterogenous clientele in community colleges today. The methodology employed in the study may be an appropriate beginning for future research which looks at the curriculum as students experience it in their course-selection.

## CHAPTER III

### METHODOLOGY

#### Introduction

Chapter III describes the procedures used to gather and analyze the data from the student transcripts used in the study. The chapter is divided into the following seven sections: (1) population, (2) sample, (3) general education in Virginia community college curricula, (4) panel of experts, (5) data gathering procedures, (6) coding of the data, and (7) statistical treatment.

#### Population

The purpose of this study was to identify student course-taking patterns in general education in three selected community colleges in Virginia. The three colleges from which a random sample of transcripts was selected were New River Community College, Virginia Western Community College, and Tidewater Community College. These institutions were chosen for study because together they appear to be representative of the 23 community colleges that comprise the Virginia Community College System with regard to size of the student enrollments, location, and type of programs offered. All three colleges are two-year comprehensive institutions of higher education offering programs of instruction that include occupational-technical education, university parallel-college transfer education, general education,

continuing adult education, special training for new or expanding industry, and developmental education. The specific programs offered by these colleges are listed in Appendix B.

New River Community College, situated in a fairly rural area, is located at the intersection of U.S. Routes 11 and 100 in the small town of Dublin. The college serves the counties of Floyd, Giles, Pulaski, and Montgomery, and the City of Radford. The largest population center is the town of Blacksburg with 30,237 residents; however, approximately 21,000 students at Virginia Polytechnic Institute and State University contribute to the town's population count.

Virginia Western Community College, located in the city of Roanoke serves the cities of Roanoke and Salem, the southern portion of Botetourt County and the county of Roanoke. The area covered has a population of approximately 250,000.

Tidewater Community College is a multi-campus institution serving a district which covers over a thousand square miles. The three permanent branch campuses serve the cities of Chesapeake, Norfolk, Portsmouth, Virginia Beach, a part of the city of Suffolk, and a part of Isle of Wight County. The college also operates at several off-campus locations in various military installations and in the community.

The combined 1976 fall headcount enrollment of the three community colleges was 18,956. Table 1 indicates that of this number, the majority were white students enrolled on a part-time basis for their course work. The population was split almost equally between males and

Table 1

Distribution of Student Population by Sex, Race  
Enrollment Status, and Program  
(percentages in parentheses)

POPULATION <sup>a</sup>	SEX		RACE		ENROLLMENT STATUS		PROGRAM				
	Total	Male	Female	White	Non-white	Part-time	Full-time	Transfer	Non-transfer	Non-curricular	Developmental
18,956	9,915 (52)	9,041 (48)	16,397 (86)	2,559 (14)	12,243 (65)	6,713 (35)	3,719 (20)	7,683 (40)	6,590 (35)	964 (5)	
<u>Sample (original)</u>											
Total											
1,053	567 (54)	486 (46)	925 (90)	102 (10)	744 (71)	309 (29)	251 (24)	519 (49)	257 (24)	18 (2)	
(the race of 26 students was not reported)											
(the programs of 8 students could not be identified)											
<u>Sample (altered)</u>											
Total											
907	485 (53)	422 (47)	822 (91)	85 (9)	640 (71)	267 (29)	251 (28)	399 (44)	257 (28)		

<sup>a</sup>Data taken from Student Enrollment Booklet: Fall Quarter 1976 published by the Virginia Community College System in Richmond, Virginia.

females. The largest number of students was in the non-transfer programs and a near equal number was non-curricular or unclassified. One out of five students was in a transfer program. Only five percent of the population was enrolled in developmental programs.

### Sample

Students enrolled for one or more courses in fall 1976 at the three community colleges in the study were identified, and from this population a random sample was selected. The 1,053 students in the sample were selected by a systematic sampling technique described by Arkin and Colton (1968). This technique divides the population size by the sample size in order to determine the sampling interval. With the tolerance limits set at plus or minus .05 and the confidence level at .95, the appropriate number of transcripts to be selected was determined to be 1,053.

Fall 1976 was chosen as the quarter from which to select cumulative transcripts in order to allow a three-year period (fall 1976 to spring 1979) in which a first-time enrollee might complete a program of study. Both former students and first-time enrollees were represented in the sample in order to describe the course-taking of students who were at different stages of their academic careers. Thus, the study looks both forward and backward in time with respect to student course-taking behavior.

Table 1 indicates that the overwhelming majority of the 1,053 students in the sample were enrolled on a part-time basis. The

proportion of the sample enrolled on a part-time basis was slightly larger than the proportion of the total population enrolled part-time. The difference may be attributed to the definition of "part-time" student in the study. For the purposes of this study, a part-time student was one who carried less than 12 course credits during the majority of quarters in the community college.

The sample of 1,053 students, like the 1976 fall headcount enrollment, was almost equally divided between males and females, and 90 percent were white students. One out of four students was in a transfer program, and the same proportion was unclassified or non-curricular. Very few students were in developmental programs.

The program enrollment in the sample differed from the program enrollment in the population, as Table 1 indicates. This difference probably occurred because of the manner in which students were categorized in the study with regard to their program enrollment. For the purpose of the study, a student who did not receive a degree was placed in the program category in which he/she spent the largest number of quarters.

#### Changes in the Sample

From the original sample of 1,053 students, 146 were eliminated from the study. Eight students were eliminated because their transcripts lacked sufficient information to make them useful to the study. Eighteen developmental students were not included because there were too few to allow treatment by the statistical methods used in the study. One hundred twenty students in the certificate and diploma

programs were eliminated because some of their programs permitted courses in English, mathematics, and social science courses numbered below the 100 level. Although these courses may be considered general education for certificate and diploma programs, they did not fit the operational definition of general education in this study. Thus to have included the students in the certificate and diploma programs would have resulted in an inaccurate report of their course-taking patterns in general education. Table 1, which shows the breakdown of the sample of 907 students after the 146 were dropped from the study, indicates that the proportion of males and females in the altered sample remained practically the same, while the proportion of students enrolled part-time and the proportion enrolled full-time did not change at all.

It is clear that the loss of 146 students from the sample would have some effect on the tolerance and confidence limits earlier stated; however, because the students were lost in an apparently random fashion, the generalizability of the sample to the population involved in the study will not be materially affected.

#### General Education in Virginia Community College Curriculum

The Virginia Community College System (VCCS), by its authority to establish minimum credit hour requirements for community college programs, has determined that general education shall be a significant function in all community colleges in Virginia. Any program offered in the System has a minimum requirement of quarter credit hours to be



completed by the student in general education. Accordingly, the three community colleges selected for this study designed their associate degree programs to include general education, using VCCS guidelines. These guidelines are stated in the catalogs published by the three colleges. The specific requirements in general education for associate degrees are found in Appendix C of this study.

#### Minimum General Education Requirements for Associate Degrees

The Virginia Department of Community Colleges authorizes the award of three types of degrees: associate in arts, associate in science, and associate in applied arts. Each of these degrees requires a minimum of 97 credit hours, of which a certain proportion must be devoted to general education, depending upon the type of degree. The associate in arts and the associate in science degree recipients are required to spend approximately 75 percent of the 97 or more course credits in specific components of general education (Appendix C). The associate in applied science degree recipients must devote at least 25 percent of their program to general education courses (Appendix C).

The associate in arts and the associate in science degrees generally are awarded to students who intend to transfer to four-year institutions of higher education. The associate in arts is designed as a liberal arts degree while the associate in science is designed to accommodate students who wish to major in specialized curricula such as business administration, engineering, education, and science. The associate in applied science degree is awarded to students majoring in occupational-technical curricula. This degree is not designed to be

transfer education; however, students receiving the degree may elect to transfer to selected four-year colleges or universities or to pursue immediate employment.

The specific courses that may serve the general education function for all three degree programs are not identified in the college catalogs or in the Virginia Community College System State Curriculum Guide. To determine which courses are appropriate to fulfill general education requirements, students consult the departments offering their majors, the counseling services of the colleges, or the universities to which they will transfer.

#### Panel of Experts

General education courses are not easily identifiable in college catalogs or in other college publications; thus one problem associated with this study was the identification of specific courses that could serve as general education in community college curricula. Another problem was the categorization of general education courses either as basic skills, advanced skills, breadth, integrative, or laboratory, field study, or studio courses, according to the way in which they served the students. Both problems were addressed by a panel of experts whose knowledge of curriculum and professional experience in the Virginia Community College System qualified them for the task.

The five persons who served as members of the panel of experts had each been employed in the Virginia Community College System in one or more of the following positions: assistant professor of sociology,

assistant professor of biology, instructor of math, division chairman of humanities, or division chairman of natural science and health technologies.

#### Identification of General Education Courses

The five panel members were given a list of courses from the disciplines and subject areas which are traditionally considered to contribute to the general education component of the curriculum, as reported in the literature. Only courses numbered at the 100 level or above in the community college catalogs were listed because only these courses ordinarily carry academic credit toward the associate degrees. The courses listed were credit offerings in the 1976 catalogs published by the three institutions used in the study.

#### Assignment of Courses to Categories of General Education

In the literature that deals with higher education curricula, general education is usually not discussed in terms of individual courses; instead, reference is made to types or categories of courses and the manner in which they serve the student. For example, The Carnegie Foundation for the Advancement of Teaching (1979) refers to English composition, mathematics, foreign languages, and physical education as types of "advanced skills" courses. In these courses students develop "abilities to sustain college-level study and continued learning through life" (Levine, 1979, p. 516). Following the examples of Levine and The Carnegie Foundation, this study placed courses in categories of general education. The purpose in doing this

was to determine the types of general education courses taken by students in the three community colleges in the study. A panel of experts was used to place the courses in the appropriate categories of general education.

#### Instructions to the Panel of Experts

Instructions for selecting the courses that could serve as general education were given to the five panel members along with the list of courses from which the selection was to be made. The directions given to the panel are in Appendix D. The panel was directed to examine the list of courses and to assign each course to one of the following categories: basic skills course; advanced skills course; breadth course; integrative course; laboratory, field study, or studio course. If the courses did not fall into one of these categories, the panel was instructed to designate them "not general education." The categories used in the higher education literature to describe the types of general education courses in which students enroll are defined below.

Basic Skills Courses. Basic skills courses (100 level) are those which provide the knowledge and skills a student needs "to embark upon college study" (Levine, 1979, p. 54). Although these courses may not be labeled remedial, they provide the basic general education instruction necessary to help students function at their institutions.

Advanced Skills Courses. Advanced skills courses are those which equip the student for sustained college-level study and for lifelong learning. These courses require a thorough knowledge of the "3 R's" (Levine, 1979). The most common advanced skills subjects are English

composition, mathematics, foreign language and physical education (The Carnegie Foundation for the Advancement of Teaching, 1979).

Breadth Courses. Breadth courses expose the student to the content, traditions, and methods of the main subject fields (The Carnegie Foundation for the Advancement of Teaching, 1979). These courses are introductory and survey courses, designed to give students some sampling of the major streams of human thought and to help them in selecting their major emphasis for study. Examples of courses in this category are Introductory Sociology and General Art.

Integrative Courses. Integrative courses are designed to help the student to "understand mankind's changing environment and the place of the individual within it, and, at the least, to think of some broad series of problems beyond the confines of the major or of individual elective courses" (The Carnegie Foundation for the Advancement of Teaching, 1979, p. 9). The focus is on the concerns of modern society rather than on the classical themes of some of the more traditional courses, although the instructional methodology may draw upon that of the traditional courses. Examples of courses in this category are Religion and Society, and Women in History.

Laboratory, Field Study or Studio Courses. In laboratory, field study, or studio courses, the student spends a large amount of time working in a laboratory, studio, or field setting under the supervision of one or more instructors. These are not traditional lecture-type courses; the focus is upon students working on projects in an individualized style. Some subjects included in this category are art,

applied music, science, and social studies. This category was not mentioned either by Levine or The Carnegie Foundation; however, it was necessary to add this category which includes courses taken by a fairly large number of adults in the community colleges.

The panel was directed to examine the list of courses (Appendix D) and to assign each course to one of the categories defined above, or to "not general education," if the course could not be considered general education. Consensus was necessary to determine (1) which courses belonged to the general education component and (2) which category the general education courses most appropriately fit. By assigning a course to any category other than "not general education," the panel identified that course as general education and, at the same time, distinguished the course as a certain type of general education--basic skills course; advanced skills course; integrative course; or laboratory, field study, or studio course.

#### Results of the Panel

The five panel members assigned the majority of the courses to the general education function; however, they were unable to agree on the assignment of courses to the categories of general education. Because of the need to have consensus on the assignment of a large number of courses to categories of general education, the decision was made to expand the panel of experts, adding four members to the original five. The purpose in adding members was to obtain consensus on the categories that general education courses most appropriately fit, thus arriving at an operational definition of general education.

The four additional panel members were acquainted with the curricular functions in the community colleges and had been employed in the Virginia Community College System. Each of the panel members had served in one of the following positions in Virginia community colleges: coordinator of student activities and assistant to the dean of the college, division chairman of developmental studies, division chairman of occupational technical education, and student services counselor.

The new panel members were given the same materials as those provided the original five. When the combined responses of the nine panel members were tallied, there was little disagreement regarding the identification of courses that could serve the general education function in the community colleges in the study or the categories of general education to which the courses belonged.

#### Criteria for Identifying General Education Courses

A course was identified as general education course if at least six of the nine panel members placed it in any one of the categories other than "not general education." Based on this requirement, only ten courses were identified as "not general education." The remaining 435 courses considered were identified as general education (Appendix A).

#### Criteria for Categorizing General Education Courses

The 435 courses identified by the panel of experts as general education were assigned to categories of general education courses

based on the criteria established in this study. Once a course was assigned to general education by at least six of nine panel members, it was then assigned to a category of general education (basic skills course; advanced skills course; breadth course; integrative course; laboratory, field study, or studio course; or advanced skills/laboratory, field study, or studio course) when at least four of the six respondents placed the course in a common category. This requirement made it possible to assign 80 percent of the courses to the five categories of general education. The remaining 20 percent of the courses were placed in a newly created sixth category. Courses assigned to this category were those on which the panel could not reach consensus. The majority of the panel assigned them either to the advanced skills or laboratory categories. Therefore, the new category created to incorporate the courses was called "advanced skills/laboratory, field study, or studio courses." Two examples of courses assigned to this category were Color Photography and Supervised Study in French. The entire list of general education courses in the categories to which they were assigned for this study is found in Appendix A.

#### Data Gathering Procedures

The random sample of cumulative transcripts used in the study was selected according to standard statistical techniques to determine sample size and selection procedures (Arkin & Colton, 1968). The selection was made by college personnel under the direction of the



coordinator of student records at each institution. Permission to conduct the study was given by the president of each college and the Virginia Community College System Research Committee (Appendix E).

At each college, students enrolled for one or more courses in fall 1976 were identified, and from this population a random sample of students was selected. Each college was given a random number with which to begin the selection of students from the list of fall 1976 enrollees and the appropriate interval to obtain the desired subsample size. The spring 1979 cumulative transcript for each student selected was taken from the student's permanent record and a copy of the transcript was made. The sex and race of the student, information not shown on the transcript, was written on the copy of the transcript because this additional information was needed for the study. All personal information that could identify individual students was removed from the copies of the transcripts prior to the release of the transcripts from the colleges.

#### Coding of the Data

The following data, taken from student transcripts, were coded for each student in the sample:

sex

race

age

campus

enrollment status (part-time or full-time)

time enrolled (daytime or evening)  
 whether student completed program  
 curriculum  
 number of quarters of enrollment  
 number of course credit hours taken in general education  
 number of course credit hours taken in courses other than general  
 education  
 courses taken in general education

#### Recording General Education Courses

The plan for recording general education courses taken permitted the coding of a maximum of 39 courses for each student. The maximum number of courses recorded for each component of general education was as follows:

English:	6 courses
Mathematics:	6 courses
Natural Science:	6 courses
Social Science:	9 courses
Humanities/Fine Arts:	9 courses
Physical Education/Health:	3 courses
Total:	39 courses

The distribution of courses in English, mathematics, and natural science permitted a student to fulfill the minimum program requirements for transfer or non-transfer curricula and to take additional courses as electives (Appendix C). If a student took more than six courses in

any one of the components, the additional courses were not recorded for this study.

The plan for recording courses permitted the coding of more courses in social science and humanities/fine arts than in English, mathematics, and natural science for two reasons. First, students in transfer programs take more courses in social science and humanities/fine arts than in any of the other components of general education to fulfill minimum requirements for associate degrees (Appendix C). Second, social science and humanities/fine arts include more subject areas and disciplines than any of the other components of general education. Thus, students might reasonably be expected to take more general education courses in social science and humanities/fine arts than in any of the other components to fulfill degree requirements. If a student took more than nine courses in social science or in humanities/fine arts, the additional courses were not recorded for this study.

No more than three courses in physical education/health were recorded for each student, as the minimum requirement for associates degree programs is one to three courses in physical education and/or health.

#### Coding of General Education Courses

Each general education course was given a five digit code number for two reasons. First, the code number identified the course. The first digit of the number represented the general education component to which the course belonged--English, mathematics, natural science,

social science, humanities/fine arts, or physical education/health. The second and third digits combined represented the discipline or subject area to which the course belonged--art, music, English, biology, etc. The fourth digit represented the category of general education in which the course was placed by the panel of experts: basic skills course; advanced skills course; breadth course; integrative course; laboratory, field study, or studio course; or advanced skills/laboratory, field study, or studio course. The fifth digit identified the course as freshman or sophomore level. The system for coding general education courses is found in Appendix F.

In addition to providing the identification number of a general education course, the five-digit code number permitted some flexibility in manipulating the data for analysis. For example, it was possible to combine the first digit, which identified the component of general education to which a course belonged (i.e., English) and the fourth digit, which identified the category of education to which the course was assigned by the panel of experts (i.e., basic skills). Such a combination of numbers was used to produce the frequency of basic skills courses taken in English by a subgroup in the study (i.e., non-transfer students).

#### Statistical Treatment

A random sample of student transcripts from the three community colleges in the study was analyzed to determine student course-taking patterns in general education. The random sample was divided into

subgroups for the statistical analysis of course-taking patterns. Students were assigned to subgroups based on the types of programs in which they were enrolled. The following are the subgroups treated in the study:

1. Transfer Students: Completers of Programs
2. Transfer Students: Non-completers of Programs
3. Non-transfer Students: Completers of Programs
4. Non-transfer Students: Non-completers of Programs
5. Non-curricular Students

The five research questions were answered for each of the five subgroups in the sample. Each research question required a different statistical analysis. The statistical analyses were performed using procedures from the Statistical Package for the Social Sciences (SPSS). The following is an explanation of the specific technique used in answering each of the five questions.

#### Question 1

What proportion of a student's program was taken in general education?

To answer question 1, the number of course credits taken in general education was divided by the total number of course credits taken in the total educational program. One proportion is presented for each subgroup.

The purpose in answering question 1 was to determine the percentage of the students' educational programs devoted to general education at the community colleges in the study.

Question 2

What was the frequency of course-taking in each of the following components of general education: English, mathematics, natural science, social science, humanities/fine arts, and physical education/health?

Question 2 was answered by tabulating the frequency of course-taking in each component of general education. The intent of this question was to identify the general education components in which the students took the largest numbers of courses and to compare the course-taking of completers with that of non-completers in both the transfer and the non-transfer programs.

Question 3

In which of the following categories of general education did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study or studio?

Question 3 was answered by tabulating the frequency of course-taking in each of the categories of general education. The purpose in answering question 3 was to determine the types of courses taken in each component of general education.

Question 4

Was there a difference in the number of general education courses taken by students based on sex, race, age, enrollment status (part-time or full-time), or time enrolled (daytime or evening)?

To answer question 4, the Chi Square Test of Independence was used. The intent of the statistical analysis was to determine whether the discrepancies between the observed and expected frequencies of course-taking in general education were statistically significant. Using the SPSS computer program Crosstabs, each independent variable (sex, race, age, enrollment status, and time enrolled) was crosstabulated with the dependent variable (number of courses taken in general education). The statistical significance of the  $\chi^2$  value for each crosstabulation was determined by comparing the computed  $\chi^2$  value with the critical value for the appropriate degrees of freedom required for statistical significance at the predetermined level which was .05 in the study.

The purpose in answering question 4 was to determine if a statistically significant relationship existed between the total number of courses taken in general education and the students' sex, race, age, enrollment status, or time enrolled.

Question 5

Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, or physical education/ health courses taken based on sex, race, age, enrollment status, or time enrolled?

To answer question 5, the Chi Square Test of Independence was used, as in question 4. However, in answering question 5, each independent variable was crosstabulated with the dependent variable which was, in this question, the number of courses taken in each component of general education: English, mathematics, natural science, social science, humanities/fine arts, and physical education/health.

The purpose in answering question 5 was to determine if a statistically significant relationship existed between the number of courses taken in each of the components of general education and the students' sex, race, age, enrollment status, or time enrolled.



## CHAPTER IV

### FINDINGS OF THE STUDY

#### Introduction

This study identified course-taking patterns in general education at three selected community colleges in Virginia. A random sample of transcripts was analyzed to determine the frequency of course-taking in English, mathematics, natural science, social science, humanities and fine arts, and physical education and health; and to determine whether the number of courses taken in general education was significantly related to the independent variables selected for this study: sex, race, age, enrollment status, and time enrolled. The study answered the following questions:

1. What proportion of a student's program was taken in general education?

2. What was the frequency of course-taking in each of the following components of general education: English, mathematics, natural science, social science, humanities and fine arts, and physical education and health?

3. In which of the following categories of general education did students take the majority of their English, mathematics, natural science, social science, humanities and fine arts, and physical education and health courses: basic skills; advanced skills;

integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio?

4. Was there a difference in the number of general education courses taken by students based on sex, race, age, enrollment status, or time enrolled?

5. Was there a difference in the number of English, mathematics, natural science, social science, humanities and fine arts, and physical education and health courses taken based on sex, race, age, enrollment status, or time enrolled?

The students in the sample were assigned to subgroups according to their curricular goals. These goals were reflected in the types of programs in which the students were enrolled: transfer, non-transfer (occupational-technical), and non-curricular. Students who completed programs were treated separately from students who did not complete programs. The division of Chapter IV into the following five sections corresponds to the assignment of students to subgroups in the sample:

1. Course-taking of Transfer Students: Completers of Programs
2. Course-taking of Transfer Students: Non-completers of Programs
3. Course-taking of Non-transfer Students: Completers of Programs
4. Course-taking of Non-transfer Students: Non-completers of Programs
5. Course-taking of Non-curricular Students

The majority of the tables that display the data for the five questions in the study are in this chapter; the remainder are in the appendices. The tables in this chapter which display the findings for Question 3 for each of the subgroups provide summaries of information gathered in the research. The tables that provide complete sets of data for Question 3 are in Appendix G. The Chi Square tables that indicate statistically significant relationships between the dependent and independent variables in the study are in this chapter; those that indicate relationships found not to be statistically significant are in Appendix H.

Course-taking of Transfer Students: Completers of Programs

(N=57)

Characteristics of the Students

Nine hundred seven students were in the sample for this study, of whom 251 were transfer students. Twenty-three percent of the students who were classified as transfer students actually completed their programs in the period covered by this study.

Table 2 indicates that the majority of the transfer students who completed were male, white, and 25 years old or younger. Three out of four students were enrolled on a full-time basis, and 88 percent took the majority of their courses in the daytime.

The number of students graduated from each of the transfer programs is shown in Table 3. Over half the males received associate degrees in business administration or science, while approximately two-thirds of the females received associate degrees in education or

Table 2

Transfer Students: Completers of Programs  
Distribution of Students by Demographic and Curriculum Variables

(N=57)

<u>Demographic Variable</u>	<u>No. and Percentage of Students</u>	
	<u>#</u>	<u>%</u>
Sex		
Male	34	59
Female	23	41
Race		
White	54	95
Non-white	3	5
Age		
25 or younger	36	63
26 or older	21	37
<u>Curriculum Variable</u>		
Enrollment Status		
Part-time	14	25
Full-time	43	75
Time Enrolled		
Daytime	50	88
Evening	7	12

Table 3

Transfer Students: Completers of Programs  
Distribution of Students in Programs by Sex

(N=57)

Program	No. Females in Program (N=23)		No. Males in Program (N=34)	
	#	%	#	%
Business Administration	5	(22)	11	(32)
Education	10	(43)	6	(18)
Engineering	0	( 0)	1	( 3)
General Studies	0	( 0)	4	(12)
Liberal Arts	3	(13)	4	(12)
Music	3	(13)	0	( 0)
Science	2	( 9)	8	(24)
Total	23	(100)	34	(101) <sup>a</sup>

<sup>a</sup>Because of rounding, percentage does not equal 100.

business. There were few differences in the types of programs selected by males and females who received associate degrees. The most obvious difference was that business administration and science attracted more males than females.

#### Findings About Transfer Students Who Completed Programs

Question 1. What proportion of a student's program was taken in general education?

The 57 transfer students who completed programs devoted 86.5 percent of their educational programs to general education courses. The mode for this group was 99 percent. The standard deviation was 15.7.

Question 2. What was the frequency of course-taking in each of the following components of general education: English, mathematics, natural science, social science, humanities/fine arts, and physical education/health?

Table 4, which displays the findings for Question 2, indicates the greatest frequency of course-taking by transfer completers was in the social sciences. In social science almost three out of four students took six or more courses. Nearly the same pattern held for English.

The humanities were also heavily enrolled; however, only about half the students took six or more courses.

In two general education components--mathematics and natural science--the largest number of students took three courses. However, in mathematics, about 40 percent of the students took more than three courses.

Table 4  
 Transfer Students: Completers of Programs  
 Distribution of Student Course-Taking by Components of General Education  
 (N=57)

Components of General Education	Number and Percentage of Students Taking Various Numbers of Courses										Total Students Taking Courses
	0	1	2	3	4	5	6	7	8	9	
English	0 ( 0)	0 ( 0)	1 ( 2)	4 ( 7)	6 (11)	5 ( 9)	41 (72)	a	a	a	57 (101) <sup>b</sup>
Mathematics	0 ( 0)	0 ( 0)	9 (16)	26 (46)	9 (16)	4 ( 7)	9 (16)	a	a	a	57 (101) <sup>b</sup>
Natural Science	5 ( 9)	0 ( 0)	3 ( 5)	33 (58)	4 ( 7)	1 ( 2)	11 (19)	a	a	a	57 (100)
Social Science	0 ( 0)	1 ( 2)	0 ( 0)	7 (12)	2 ( 3)	6 (11)	14 (25)	3 (5)	3 (5)	21 (37)	57 (100)
Humanities/ Fine Arts	2 ( 3)	1 ( 2)	0 ( 0)	8 (14)	10 (18)	9 (16)	11 (19)	5 (9)	0 (0)	11 (19)	57 (100)
Physical Education/ Health	6 (11)	21 (37)	8 (14)	22 (39)	c	c	c	c	c	c	57 (101) <sup>b</sup>

<sup>a</sup>6 was the maximum number of courses recorded for each student

<sup>b</sup>Because of rounding, percentage does not equal 100.

<sup>c</sup>3 was the maximum number of courses recorded for each student

In physical education approximately 75 percent of the students took either one or three courses.

The components in which approximately 10 percent of the students took no courses were natural science and physical education/health. Every student took at least two courses in mathematics, two courses in English, and one course in social science.

Although there was some variation in the course-taking of transfer students who completed programs, the course-enrollment patterns, for the most part, reflected the distribution requirements of the community colleges in the sample (Appendix C).

Question 3. In which of the following categories of general education did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; breadth; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio?

Table 5 indicates that with the exception of mathematics, transfer completers took the majority of their courses in each general education component in one category. For example, in English and physical education/health the majority took advanced skills courses. English advanced skills courses were composition and literature (Appendix A). Advanced skills courses in physical education and health were, for the most part, recreation type courses such as tennis and golf.

In natural science, social science, and humanities, transfer completers took breadth courses which were survey or introductory



Table 5  
 Transfer Students: Completers of Programs  
 Number of Courses Taken in Categories of General Education Courses  
 (N=57)

Component of General Education	Categories of General Education Courses						Total Number Courses Taken in Component
	Number of Basic Skills Courses Taken	Number of Advanced Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Laboratory, Field Study, or Studio Courses Taken	Number of Advanced Skills/Laboratory, Field Study, or Studio Courses Taken	
	(row percentage within parentheses)	(row percentage within parentheses)	(row percentage within parentheses)	(row percentage within parentheses)	(row percentage within parentheses)	(row percentage within parentheses)	
English	18 (6)	238 (77)	0 (0)	0 (0)	7 (2)	46 (15)	309 (100)
Mathematics	75 (37)	32 (16)	0 (0)	0 (0)	0 (0)	94 (47)	201 (100)
Natural Science	0 (0)	3 (2)	154 (81)	0 (0)	5 (3)	28 (15)	190 (101) <sup>a</sup>
Social Science	92 (24)	0 (0)	266 (71)	7 (2)	3 (1)	8 (2)	376 (100)
Humanities/ Fine Arts	29 (9)	31 (10)	203 (66)	0 (0)	15 (5)	31 (10)	309 (100)
Physical Education/ Health	8 (8)	65 (63)	24 (23)	0 (0)	3 (3)	3 (3)	103 (100)

<sup>a</sup>Because of rounding, percentage does not equal 100.

courses. Examples of breadth courses in natural science were typical college parallel courses such as General Biology and General Chemistry (Appendix A). Typical breadth courses in social science were U.S. Government, Introductory Sociology, and General Psychology (Appendix A). Representative breadth courses in humanities and fine arts were Survey of Western Culture, History of Western Civilization, and Music Appreciation (Appendix A).

In the mathematics component the largest number of students took advanced skills/laboratory, field study, or studio courses of which Engineering or Technical Math and College Math were representative (Appendix A).

A large number of students (more than one-third) took basic skills math courses of which General College Math and Business Math were examples.

No students took integrative courses except in the social sciences. In this component two percent of the courses taken were in the integrative category.

Question 4. Was there a difference in the number of general education courses taken based on sex, race, age, enrollment status, or time enrolled?

The Chi Square analysis was used to determine differences in the number of general education courses taken based on the independent variables in the study. No statistically significant differences were found in the number of general education courses taken by transfer

completers based on sex, race, age, enrollment status, or time enrolled (Appendix H).

Question 5. Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, or physical education/health courses taken based on sex, race, age, enrollment status, or time enrolled?

The Chi Square analysis failed to show any statistically significant relationships between the number of courses taken by transfer completers in the components of general education and the independent variables race, enrollment status, and time enrolled (Appendix H). However, the Chi Square analysis indicated a statistically significant relationship between the number of courses taken in mathematics and the independent variable sex. As shown in Table 6, males took more mathematics courses than did females. The Chi Square analysis also indicated a statistically significant relationship between the number of courses taken in physical education and the independent variable age. Table 7 indicates that students 25 years of age or younger took more physical education courses than did students 26 years of age or older.

Course-taking of Transfer Students: Non-completers of Programs

(N=194)

Characteristics of the Students

Of the 907 students in the sample for this study, 251 were transfer students. Seventy-seven percent of those students who were

Table 6

Transfer Students: Completers of Programs  
Student Course-Taking in Mathematics by Sex

No. Courses Taken in Mathematics	Sex		Total
	Male	Female	
0-3	16 (44.4) <sup>a</sup> (47.1) <sup>b</sup>	20 (55.6) (87.0)	36 (63.2)
4-6 (or more)	18 (85.7) (52.9)	3 (14.3) (13.0)	21 (36.8)
Column Total	34 (59.6)	23 (40.4)	57 (100.0)

$$\chi^2 = 7.75$$

$$df = 1$$

$$\text{Significance} = .0054$$

<sup>a</sup>row percentage

<sup>b</sup>column percentage

Table 7

Transfer Students: Completers of Programs  
Student Course-taking in Physical Education/Health by Age

(N=57)

No. Courses Taken in Physical Edu- cation/Health	Age		Total
	25 years or less	26 years or less	
0 - 1	12 (44.4) <sup>a</sup> (33.3) <sup>b</sup>	15 (55.6) (71.4)	27 (47.4)
2 or more	24 (80.0) (66.7)	6 (20.0) (28.6)	30 (52.6)
Column Total	36 (63.2)	21 (36.8)	57 (100.0)

$\chi^2 = 6.27$

Significance = .0123

df = 1

<sup>a</sup>row percentage<sup>b</sup>column percentage

classified as transfer students did not complete their programs in the period covered by the study.

Table 8 shows that the characteristics of the non-completers of transfer programs were similar to those of the 57 transfer students who completed programs. The majority of transfer non-completers were male, white, and 25 or younger. However, unlike the completers, the majority of the non-completers were enrolled on a part-time basis and one out of three students was enrolled in the evening for the majority of course work.

Table 9 demonstrates that there were some differences in the curricular enrollment patterns of male and female non-completers of transfer programs. While the numbers of freshmen and sophomore males were almost equal, the number of females in the freshmen group was much larger than the number of females in the sophomore group. With respect to the types of curricula in which the non-completers were enrolled, the data showed that nearly one-third of the females was enrolled in education. Almost equal numbers of males and females were in science, but only one female was in engineering.

#### Findings About Transfer Students Who Did Not Complete Programs

Question 1. What proportion of a student's program was taken in general education?

The 194 transfer students who did not complete programs during the period of this study devoted 74 percent of their educational programs to general education. The mode for the group was 83.3 percent. The standard deviation was 28.7.

Table 8

Transfer Students: Non-Completers of Programs  
Distribution of Students by Demographic and Curriculum Variables

(N=194)

<u>Demographic Variable</u>	<u>No. and Percentage of Students</u>	
	<u>#</u>	<u>%</u>
Sex		
Male	115	59
Female	79	41
Race		
White	178	92
Non-white	16	8
Age		
25 or younger	119	61
26 or older	75	39
<u>Curriculum Variable</u>		
Enrollment Status		
Part-time	143	74
Full-time	51	26
Time Enrolled		
Daytime	130	67
Evening	64	33

Table 9

Transfer Students: Non-Completers of Programs  
Distribution of Students in Programs by Sex

(N=194)

Program	No. Females in Program (N=79)		No. Males in Program (N=115)	
	#	%	#	%
Freshmen				
Business Administration	7	( 9)	16	(14)
Education	14	(18)	9	( 8)
Engineering	1	( 1)	5	( 5)
Fine Arts	1	( 1)	0	( 0)
General Studies	10	(13)	8	( 7)
Liberal Arts	12	(15)	7	( 6)
Music	0	( 0)	1	( 1)
Science	9	(11)	8	( 7)
Total	54	(68)	54	(48)
Sophomores				
Business Administration	2	( 3)	22	(19)
Education	7	( 9)	10	( 9)
Engineering	0	( 0)	6	( 5)
General Studies	7	( 9)	12	(10)
Liberal Arts	4	( 5)	4	( 3)
Science	5	( 6)	7	( 6)
Total	25	(32)	61	(52)
Column Total	79	(100)	115	(100)



Question 2. What was the frequency of course-taking in each of the following components of general education: English, mathematics, natural science, social science, humanities/fine arts, and physical education/health?

As indicated in Table 10, mathematics, natural science, and physical education were the general education components in which approximately 50 percent of the transfer non-completers took no courses. However, the largest number of those who took mathematics and natural science took three courses. The largest number of those who took physical education and health took one course.

Transfer non-completers took the largest numbers of courses in humanities/fine arts and social science. In humanities and fine arts approximately 50 percent took three or more courses. In social science the distribution was practically the same, but in this component a larger number of students took no courses.

The enrollment was relatively heavy in English. More than 50 percent of the group took three or more courses. However, about one-fourth of the transfer non-completers group took no courses in the English component.

Question 3. In which of the following categories of general education did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; breadth; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio?

**Table 10**  
**Transfer Students: Non-Completers of Programs**  
**Distribution of Student Course-taking by Components of General Education**  
(N=194)

Components of General Education	Number and Percentage of Students Taking Various Numbers of Courses										Total Students Taking Courses
	0	1	2	3	4	5	6	7	8	9	
English	44 (23)	25 (13)	21 (11)	45 (23)	18 ( 9)	11 ( 6)	30 (15)	a	a	a	194 (100)
Mathematics	95 (49)	23 (12)	23 (12)	38 (20)	9 ( 5)	3 ( 2)	3 ( 2)	a	a	a	194 (102) <sup>b</sup>
Natural Science	105 (54)	20 (10)	16 ( 8)	31 (16)	7 ( 4)	5 ( 3)	10 ( 5)	a	a	a	194 (100)
Social Science	62 (32)	20 (10)	23 (12)	27 (14)	13 ( 7)	12 ( 6)	16 ( 8)	8 (4)	2 (1)	11 ( 6)	194 (100)
Humanities/ Fine Arts	51 (26)	23 (12)	20 (10)	39 (20)	10 ( 5)	17 ( 9)	10 ( 5)	7 (4)	2 (1)	15 ( 8)	194 (100)
Physical Education/ Health	99 (51)	43 (22)	26 (13)	26 (13)	c	c	c	c	c	c	194 ( 99) <sup>b</sup>

<sup>a</sup>6 was the maximum number of courses recorded for each student

<sup>b</sup>Because of rounding row percentages do not equal 100.

<sup>c</sup>3 was the maximum number of courses recorded for each student

Table 11 indicates that the course-selection patterns of non-completers of transfer programs were almost identical with those of transfer completers. The two groups chose the majority of their courses in the same categories of English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses.

Question 4. Was there a difference in the number of general education courses taken based on sex, race, age, enrollment status, or time enrolled?

The Chi Square analysis failed to show any significant difference in the number of general education courses taken by transfer non-completers and the independent variables sex, race, and time enrolled (Appendix H). As demonstrated in Tables 12 and 13, the Chi Square analysis indicated statistically significant relationships between the number of courses taken in general education and the variables age and enrollment status. In this study students who were 25 years of age or younger took more general education courses than did students who were 26 years of age or older. Full-time students took more courses than did part-time students.

Question 5. Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses taken based on sex, race, age, enrollment status or time enrolled?

The Chi Square analysis indicated statistically significant relationships between the number of courses taken by transfer

Table 11  
 Transfer Students: Non-Completers of Programs  
 Number of Courses Taken in Categories of General Education Courses  
 (N=194)

Component of General Education	Categories of General Education Courses						Total Number Courses Taken in Component
	Number of Basic Skills Courses Taken (row percentage within parentheses)	Number of Advanced Skills Courses Taken (row percentage within parentheses)	Number of Breadth Courses Taken (row percentage within parentheses)	Number of Integrative Courses Taken (row percentage within parentheses)	Number of Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	Number of Advanced Skills/Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	
English	54 (11)	408 (80)	0 (0)	1 (0)	4 (1)	42 (8)	509 (100)
Mathematics	97 (39)	41 (16)	0 (0)	0 (0)	0 (0)	112 (45)	250 (100)
Natural Science	7 (3)	9 (3)	187 (73)	0 (0)	4 (2)	50 (19)	257 (100)
Social Science	125 (24)	14 (3)	355 (67)	12 (2)	3 (1)	22 (4)	531 (101) <sup>a</sup>
Humanities/ Fine Arts	59 (10)	45 (8)	392 (69)	2 (1)	20 (4)	47 (8)	565 (100)
Physical Education/ Health	8 (5)	99 (57)	52 (30)	0 (0)	6 (3)	8 (5)	173 (100)

<sup>a</sup>Because of rounding, percentage does not equal 100.

Table 12

Transfer Students: Non-Completers of Programs  
Student Course-taking in General Education by Age

(N=194)

No. of General Education Courses Taken	Age		Total
	25 years or younger	26 years or older	
0 - 6	33 (51.6) <sup>a</sup> (27.7) <sup>b</sup>	31 (48.4) (41.3)	64 (33.0)
7 - 15	38 (57.6) (31.9)	28 (42.4) (37.3)	66 (34.0)
16 - 33	48 (75.0) (40.3)	16 (25.0) (21.3)	64 (33.0)
Column Total	119 (61.3)	75 (38.7)	194 (100.0)

$$\chi^2 = 8.01$$

Significance = .0182

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 13

Transfer Students: Non-Completers of Programs  
Student Course-taking in General Education by Enrollment Status

(N=194)

No. of General Education Courses Taken	Enrollment Status		
	Part-time	Full-time	Total
0 - 6	56 (87.5) <sup>a</sup> (39.2) <sup>b</sup>	8 (12.5) (15.7)	64 (33.0)
7 - 15	51 (77.3) (35.7)	15 (22.7) (29.4)	66 (34.0)
16 - 33	36 (56.3) (25.2)	28 (43.8) (54.9)	64 (33.0)
Column Total	143 (73.7)	51 (26.3)	194 (100.0)

$$\chi^2 = 16.78$$

Significance = .0002

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

non-completers in several components of general education and the independent variables in the study. Tables 14 to 17 show the statistically significant relationships between the independent variable enrollment status and the number of courses taken in mathematics, natural science, humanities/fine arts, and physical education/health. In these components of general education full-time students took more courses than did part-time students.

Tables 18 to 20 indicate that the independent variable age was significantly related to the number of courses taken in physical education/health, natural science, and mathematics. In these components, younger students took more courses than did older students.

Table 21 demonstrates that the independent variable sex was significantly related to the number of courses taken in mathematics. In this component males took more courses than did females.

Table 22 indicates that the independent variable time enrolled was significantly related to the number of courses taken in natural science. In this study daytime students took more natural science courses than did evening students.

#### Summary

The data showed more similarities than differences between the completers and non-completers of transfer programs with respect to the number of courses they took in general education. The largest number

Table 14

Transfer Students: Non-Completers of Programs  
Student Course-taking in Mathematics by Enrollment Status

(N=194)

No. of Courses Taken in Math	Enrollment Status		
	Part-time	Full-time	Total
0	78 (82.1) <sup>a</sup> (54.5) <sup>b</sup>	17 (17.9) (33.3)	95 (49.0)
1	20 (87.0) (14.0)	3 (13.0) ( 5.9)	23 (11.9)
2	16 (69.6) (11.2)	7 (30.4) (13.7)	23 (11.9)
3 or more	29 (54.7) (20.3)	24 (45.3) (47.1)	53 (27.3)
Column Total	143 (73.7)	51 (26.4)	194 (100.0)

$$\chi^2 = 15.61$$

Significance = .0014

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage



Table 15

Transfer Students: Non-Completers of Programs  
Student Course-taking in Natural Science by Enrollment Status

(N=194)

No. of Courses Taken in Natural Science	Enrollment Status		
	Part-time	Full-time	Total
0	89 (84.8) <sup>a</sup> (62.2) <sup>b</sup>	16 (15.2) (31.4)	105 (54.1)
1	16 (80.0) (11.2)	4 (20.0) ( 7.8)	20 (10.3)
2	7 (43.8) ( 4.9)	9 (56.3) (17.6)	16 ( 8.2)
3 or more	14 (45.2) ( 9.8)	17 (54.8) (33.3)	31 (16.0)
Column Total	143 (73.7)	51 (26.3)	194 (100.0)

$\chi^2 = 27.62$

Significance = .0000

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 16  
 Transfer Students: Non-Completers of Programs  
 Student Course-taking in Humanities/Fine Arts by Enrollment Status  
 (N=194)

No. of Courses Taken in Humanities & Fine Arts	Enrollment Status		
	Part-time	Full-time	Total
0	43 (84.3) <sup>a</sup> (30.1) <sup>b</sup>	8 (15.7) (15.7)	51 (26.3)
1	19 (82.6) (13.3)	4 (17.4) ( 7.8)	23 (11.9)
2	16 (80.0) (11.2)	4 (20.0) ( 7.8)	20 (10.3)
3	30 (76.9) (21.0)	9 (23.1) (17.6)	39 (20.1)
4	6 (60.0) ( 4.2)	4 (40.0) ( 7.8)	10 ( 5.2)
5	11 (64.7) ( 7.7)	6 (35.3) (11.8)	17 ( 8.8)
6 or more	18 (52.9) (12.6)	16 (47.1) (31.4)	34 (17.5)
Column Total	143 (73.7)	51 (26.3)	194 (100.0)

$$\chi^2 = 13.76$$

$$\text{Significance} = .0324$$

$$df = 6$$

<sup>a</sup>row percentage

<sup>b</sup>column percentage

Table 17

Transfer Students: Non-Completers of Programs  
Student Course-taking in Physical Education/Health  
by Enrollment Status

(N=194)

No. of Courses Taken in Physical Edu- cation/Health	Enrollment Status		
	Part-time	Full-time	Total
0	83 (83.8) <sup>a</sup> (58.0) <sup>b</sup>	16 (16.2) (31.4)	99 (51.0)
1	28 (65.1) (19.6)	15 (34.9) (29.4)	43 (22.2)
2	16 (61.5) (11.2)	10 (38.5) (19.6)	26 (13.4)
3	16 (61.5) (11.2)	10 (38.5) (19.6)	26 (13.4)
Column Total	143 (73.7)	51 (26.3)	194 (100.0)

$$\chi^2 = 10.86$$

Significance = .0125

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 18

Transfer Students: Non-Completers of Programs  
Student Course-taking in Physical Education/Health  
by Age

(N=194)

No. of Courses Taken in Physical Edu- cation/Health	Age		Total
	25 years or younger	26 years or older	
0	49 (49.5) <sup>a</sup> (41.2) <sup>b</sup>	50 (50.5) (66.7)	99 (51.0)
1	28 (65.1) (23.5)	15 (34.5) (20.0)	43 (22.2)
2	21 (80.8) (17.6)	5 (19.2) ( 6.7)	26 (13.4)
3 or more	21 (80.8) (17.6)	5 (19.2) ( 6.7)	26 (13.4)
Column Total	119 (61.3)	75 (38.7)	194 (100.0)

$$\chi^2 = 14.39$$

Significance = .0024

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 19

Transfer Students: Non-Completers of Programs  
Student Course-taking in Natural Science  
by Age

(N=194)

No. of Courses Taken in Natural Science	Age		Total
	25 years or younger	26 years or older	
0	54 (51.4) <sup>a</sup> (45.4) <sup>b</sup>	51 (48.6) (68.0)	105 (54.1)
1	11 (55.0) ( 9.2)	9 (45.0) (12.0)	20 (10.3)
2	15 (93.8) (12.6)	1 ( 6.3) ( 1.3)	16 ( 8.2)
3	21 (67.7) (17.6)	10 (32.3) (13.3)	31 (16.0)
4 or more	18 (81.8) (15.1)	4 (18.2) ( 5.3)	22 (11.3)
Column Total	119 (61.3)	75 (38.7)	194 (100.0)

$$\chi^2 = 16.20$$

Significance = .0028

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 20

Transfer Students: Non-Completers of Programs  
Student Course-taking in Mathematics by Age

(N=194)

No. of Courses Taken in Math	Age		Total
	25 years or less	26 years or more	
0	49 (51.6) <sup>a</sup> (41.2) <sup>b</sup>	46 (48.4) (61.3)	95 (49.0)
1	13 (56.5) (10.9)	10 (43.5) (13.3)	23 (11.9)
2	16 (69.6) (13.4)	7 (30.4) ( 9.3)	23 (11.9)
3 or more	41 (77.4) (34.5)	12 (22.6) (16.0)	53 (27.3)
Column Total	119 (61.3)	75 (38.7)	194 (100.0)

$$\chi^2 = 10.43$$

Significance = .0152

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 21

Transfer Students: Non-Completers of Programs  
Student Course-taking in Mathematics by Sex

(N=194)

No. of Courses Taken in Math	Sex		
	Male	Female	Total
0	41 (43.2) <sup>a</sup> (35.7) <sup>b</sup>	54 (56.8) (68.4)	95 (49.0)
1	18 (78.3) (15.7)	5 (21.7) ( 6.3)	23 (11.9)
2	16 (69.6) (13.9)	7 (30.4) ( 8.9)	23 (11.9)
3 or more	40 (75.5) (34.8)	13 (24.5) (16.5)	53 (27.3)
Column Total	115 (59.3)	79 (40.7)	194 (100.0)

$$\chi^2 = 20.43$$

Significance = .0001

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 22

Transfer Students: Non-Completers of Programs  
Student Course-taking in Natural Science  
by Time Enrolled

(N=194)

No. of Courses Taken in Natural Science	Time Enrolled		
	Daytime	Evening	Total
0	57 (54.3) <sup>a</sup> (43.8) <sup>b</sup>	48 (45.7) (75.0)	105 (54.1)
1	14 (70.0) (10.8)	6 (30.0) ( 9.4)	20 (10.3)
2	15 (93.8) (11.5)	1 ( 6.3) ( 1.6)	16 ( 8.2)
3	26 (83.9) (20.0)	5 (16.1) ( 7.8)	31 (16.0)
4	18 (81.8) (13.8)	4 (18.2) ( 6.3)	22 (11.3)
Column Total	130 (67.0)	64 (33.0)	194 (100.0)

$$\chi^2 = 19.12$$

Significance = .0007

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage



of students in both groups of transfer students devoted 80 to 90 percent of their educational programs to general education courses. In addition, Table 23 indicates that the two groups selected almost identical types of courses within the components of general education.

The types of general education courses selected by transfer students revealed no surprises. The education program selected by the majority of students--both completers and non-completers--was a typical college parallel program acceptable to most of the four-year colleges and universities to which the students in the sample might transfer. According to the students' course selection, a typical completed transfer program might have included such subjects as English (six courses), mathematics (three courses), natural science (three courses), social science (six or more courses), humanities and fine arts (four or more courses), and physical education and health (three courses). Non-completers of transfer programs took fewer general education courses than did completers; however, the proportion of courses taken in each of the general education components by the two groups was nearly the same. The similarities in course-taking suggest that had the non-completers stayed at the communities colleges to receive a degree or had the study continued long enough for them to complete, they might have taken a program of general education similar to that of the completers.

Neither completers nor non-completers revealed any unusual course-taking patterns in general education with respect to the proportion of their programs spent in general education, the number of

Table 23

Transfer Students: Completers & Non-Completers of Programs  
 Categories of General Education Courses Taken by Majority of Students

(N=251)

Component of General Education	Categories of General Education in Which Majority Took Courses	
	Completers (N=57)	Non-completers (N=194)
English	Advanced Skills (77%)	Advanced Skills (80%)
Mathematics	Advanced Skills (47%)	Advanced Skills/Laboratory field study, or studio (45%)
	Basic Skills (37%)	Basic Skills (39%)
Natural Science	Breadth (81%)	Breadth (73%)
Social Science	Breadth (71%)	Breadth (67%)
Humanities/ Fine Arts	Breadth (66%)	Breadth (69%)
Physical Educa- tion/Health	Advanced Skills (63%)	Advanced Skills (57%)

courses taken in each general education component, and the types of courses selected; however, among the non-completers the number of courses taken in mathematics, natural science, humanities/fine arts, and physical education/health was found to be related to one or more of the independent variables in the study, as shown in the summary of findings displayed in Table 24.

Course-taking of Non-transfer Students: Completers of Programs

(N=135)

Characteristics of the Students

Nine hundred seven students were in the sample, of whom 399 were non-transfer students. Thirty-four percent of the students who were classified as non-transfer actually completed their programs in the period covered by the study.

Table 25 indicates that the majority of non-transfer completers were white, male, and enrolled on a full-time basis in the daytime for the majority of their courses. Approximately 50 percent of the students were 25 years old or younger.

The number of students who completed each of the non-transfer programs is shown in Table 26. About one out of five males received associate degrees in business management, while one out of five females received their associate degrees in secretarial science. The number of males who received degrees was fairly evenly distributed in the various programs. Besides business management, the programs from which the largest numbers of males were graduated were electrical/electronics technology and police science. The number of females who received

Table 24

Transfer Students: Completers and Non-Completers of Programs  
 Significant Relationships Between Number of Courses Taken in  
 Components of General Education and Independent Variables

(N=251)

Variable	Significant Relationship with Component	Component of General Education
<u>Completers</u> (N=57)		
Age	Younger students took more courses.	Physical Education/ Health
Sex	Male students took more courses	Mathematics
<u>Non-completers</u> (N=194)		
Age	Younger students took more courses	Physical Education/ Health  Natural Science  Mathematics
Enrollment Status	Full-time students took more courses	Physical Education/ Health  Natural Science  Mathematics  Humanities/Fine Arts
Sex	Males took more courses	Mathematics
Time Enrolled	Daytime students took more courses	Natural Science

Table 25

Non-Transfer Students: Completers of Programs  
Distribution of Students by Demographic and Curriculum Variables

(N=135)

Variable	No. and Percentage of Students	
	#	%
<u>Demographic Variable</u>		
Sex		
Male	85	63
Female	50	37
Race		
White	124	92
Non-white	11	8
Age		
25 or younger	71	53
26 or older	64	47
<u>Curriculum Variable</u>		
Enrollment Status		
Part-time	48	36
Full-time	87	64
Time Enrolled		
Daytime	102	76
Evening	33	24

Table 26

Non-Transfer Students: Completers of Programs  
Distribution of Students in Programs by Sex

(N=135)

Program	No. Females in Program (N=50)		No. Males in Program (N=85)	
	#	%	#	%
Accounting	2	( 4)	4	( 5)
Architectural Technology	2	( 4)	8	( 9)
Automotive Technology	0	( 0)	4	( 5)
Business Management	7	(14)	17	(20)
Civil Engineering	0	( 0)	5	( 6)
Commercial Art	2	( 4)	1	( 1)
Community/Social Service	8	(16)	0	( 0)
Data Processing	4	( 8)	1	( 1)
Dental Hygiene	3	( 6)	0	( 0)
Electrical/Electronics Technology	0	( 0)	11	(13)
Fire Science	0	( 0)	4	( 5)
Industrial Technology	0	( 0)	3	( 4)
Machine Technology	0	( 0)	5	( 6)
Mechanical Design	0	( 0)	3	( 4)
Media Advertising Arts	0	( 0)	2	( 2)
Mental Health	2	( 4)	1	( 1)
Merchandising	1	( 2)	0	( 0)
Nursing	6	(12)	1	( 1)
Police Science	0	( 0)	12	(14)
Radiology	3	( 6)	0	( 0)
Real Estate	0	( 0)	1	( 1)
Secretarial Science	10	(20)	0	( 0)
Traffic/Transportation Management	0	( 0)	2	( 2)
Total	50	(100)	85	(100)

degrees was concentrated to a large extent in just a few programs. Forty-two percent of the females completed programs in nursing, community and social service, and business management.

#### Findings About Non-transfer Students Who Completed Programs

Question 1. What proportion of a student's program was taken in general education?

The 135 non-transfer students who completed programs devoted 40.5 percent of their educational programs to general educational courses. The mode for the group was 29.7. The standard deviation was 14.2.

Question 2. What was the frequency of course-taking in each of the following components of general education: English, mathematics, natural science, social science, humanities/fine arts, physical education/health?

Table 27, which displays the findings for Question 2, demonstrates that of all the components of general education, social science was the most heavily enrolled by non-transfer completers. The total number of courses taken in social science accounted for about one-third of all the general education courses taken by non-transfer completers. Forty-five percent of the students took at least three courses. Only one student failed to enroll in a social science course.

In English, which was the second most heavily enrolled general education component, three out of four of the 135 non-transfer completers took two or three courses. Only five students took no course. In mathematics, as in English, most of the students took two

Table 27  
 Non-Transfer Students: Completers of Programs  
 Distribution of Student Course-Taking by Components of General Education  
 (N=135)

Components of General Education	Number and Percentage of Students Taking Various Numbers of Courses										Total Students Taking Courses
	0	1	2	3	4	5	6	7	8	9	
English	5 (4)	5 (4)	41 (30)	60 (44)	16 (12)	2 (1)	6 (4)	a	a	a	135 (99) <sup>b</sup>
Mathematics	22 (16)	7 (5)	24 (18)	55 (41)	20 (15)	4 (3)	3 (2)	a	a	a	135 (100)
Natural Science	79 (59)	10 (7)	9 (7)	26 (19)	3 (2)	1 (0)	7 (5)	a	a	a	135 (99) <sup>b</sup>
Social Science	1 (0)	1 (0)	13 (10)	61 (45)	18 (13)	4 (3)	9 (7)	8 (6)	4 (3)	16 (12)	135 (99) <sup>b</sup>
Humanities/ Fine Arts	38 (28)	61 (45)	12 (9)	11 (8)	4 (3)	3 (2)	0 (0)	0 (0)	0 (0)	6 (4)	135 (99) <sup>b</sup>
Physical Education/ Health	23 (17)	55 (41)	28 (21)	29 (21)	c	c	c	c	c	c	135 (100)

<sup>a</sup>6 was the maximum number of courses recorded for each student  
<sup>b</sup>Because of rounding, row percentages do not equal 100.  
<sup>c</sup>3 was the maximum number of courses recorded for each student



or three courses. Mathematics was almost as heavily enrolled as English. However, twenty-two students took no mathematics course.

The natural sciences, the humanities/fine arts, and physical education/health were the least enrolled general education components. Among the 135 non-transfer completers the majority took no course in natural science. Of those who took courses, the largest number took three. In the humanities almost one-third of the students took no course. Of those who chose to enroll in the humanities or fine arts, the largest number took one course. In the physical education/health component almost one out of five students took no course.

The course-enrollment patterns of non-transfer completers corresponded to the distribution requirements of the community colleges in the sample. Most of the students took the appropriate number of required courses in English or speech, in the social sciences, and in physical education/health (Appendix A). To meet their other program requirements and to fulfill electives, they took the largest number of courses from the mathematics and social science components. Natural science, humanities/fine arts, and physical education/health were the components of general education in which the fewest courses were chosen by students who received associate in applied science degrees.

Question 3. In which of the following categories did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; breadth; integrative;

laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio?

Table 28 which presents the findings for Question 3 demonstrates that the 135 non-transfer completers took the majority of their English courses in the basic skills category. Examples of basic skills courses were Communications Skills and Technical Report Writing. Almost all of the remaining courses taken in English (41 percent) were in the advanced skills category which included composition and literature courses (Appendix A).

Three out of four non-transfer completers took basic skills mathematics courses, of which the following were representative:

Mathematical Calculations,  
Fundamentals of Math, and  
Technical Math (Appendix A).

The course enrollment in the humanities was similar to that of English and mathematics in that the majority of courses were taken in the basic skills category. Representative of the basic skills humanities courses were the following:

Fundamentals of Art,  
Conversation in Spanish,  
Principles of Public Speaking, and  
Oral Communication (Appendix A).

The course enrollment in the humanities was different from that of English and mathematics in that a rather larger number of courses were

Table 28  
 Non-Transfer Students: Completers of Programs  
 Number of Courses Taken in Categories of General Education Courses  
 (N=135)

Component of General Education	Categories of General Education Courses						Total Number Courses Taken in Component
	Number of Basic Skills Courses Taken (row percentage within parentheses)	Number of Advanced Skills Courses Taken (row percentage within parentheses)	Number of Breadth Courses Taken (row percentage within parentheses)	Number of Integrative Courses Taken (row percentage within parentheses)	Number of Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	Number of Advanced Skills/Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	
English	211 (56)	155 (41)	0 (0)	0 (0)	0 (0)	11 (3)	377 (100)
Mathematics	255 (75)	17 (5)	0 (0)	0 (0)	0 (0)	67 (20)	339 (100)
Natural Science	15 (9)	7 (4)	45 (27)	0 (0)	0 (0)	98 (59)	165 (99) <sup>a</sup>
Social Science	143 (24)	13 (2)	384 (65)	27 (5)	1 (1)	19 (3)	587 (100)
Humanities/ Fine Arts	112 (55)	11 (5)	63 (31)	0 (0)	7 (3)	10 (5)	203 (99) <sup>a</sup>
Physical Education/ Health	38 (19)	65 (33)	88 (44)	0 (0)	5 (3)	5 (3)	198 (102) <sup>a</sup>

<sup>a</sup>Because of rounding, percentage does not equal 100.

taken in the breadth category. Some of the courses in this category were

Music Appreciation,  
History of Western Civilization,  
American History, and  
Introduction to Philosophy (Appendix A).

In social science the course selection among the categories of general education was the reverse of that in the humanities. In the social sciences the largest number of courses was taken in the breadth category, and the second largest number of courses was taken in the basic skills category. Representative of social science courses in the breadth category were

Human Relations,  
U.S. Government, and  
Contemporary American Civilization (Appendix A).

Examples of social science courses in the basic skills category were

Orientation to State Government,  
Survey of American Economics, and  
Child-Parent-Community Relations (Appendix A).

In the natural sciences the course enrollment pattern was different from that of the other general education components. In the natural sciences the majority of courses were taken in the advanced skills/laboratory, field study, or studio category, of which the following are representative:

Technical Physics,  
Health Science Chemistry,  
Human Anatomy and Physiology, and  
Survey of Science (Appendix A).

No general education courses were taken in the integrative category, except in social science. Five percent of the social sciences courses taken by non-transfer completers were in the integrative category, of which Problems of Man in the Modern World, and Marriage and the Family were representative.

Question 4. Was there a difference in the number of general education courses taken based on sex, race, age, enrollment status, and time enrolled?

The Chi Square analysis failed to show any significant differences in the number of general education courses taken by non-transfer completers and the independent variables sex, race, age, and enrollment status (Appendix H). The only statistically significant relationship was between the number of general education courses taken by non-transfer completers and time enrolled. Table 29 indicates that daytime students took more general education courses than did evening students.

Question 5. Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses taken based on sex, race, age, enrollment status, or time enrolled?

Table 29

Non-Transfer Students: Completers of Programs  
Student Course-taking in General Education  
by Time Enrolled

(N=135)

No. of Courses Taken in General Education	Time Enrolled		
	Daytime	Evening	Total
0 - 1	9 (52.9) <sup>a</sup> ( 8.8) <sup>b</sup>	8 (47.1) (24.2)	17 (12.6)
2	54 (81.8) (52.9)	12 (18.2) (36.4)	66 (48.9)
3 or more	39 (75.0) (38.2)	13 (25.0) (39.4)	52 (38.5)
Column Total	102 (75.6)	33 (24.4)	135 (100.0)

$$\chi^2 = 6.1175$$

Significance = .0469

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

The Chi Square analysis failed to show statistically significant relationships between the number of courses taken by the non-transfer completers and the variables race and enrollment status (Appendix H). However, as Tables 30 to 35 demonstrate, the Chi Square analysis indicated statistically significant relationships between the number of courses taken in the components of general education and the independent variables sex, age, and time enrolled.

In this study the variable sex was related to course-taking by non-transfer completers in three components of general education. In mathematics, and English males took more courses than did females. In physical education/health the reverse was true: females took more courses in this component than did males.

The variable age was found to be significantly related to course-taking in humanities/fine arts and physical education/health. In the humanities and fine arts, older students took more courses than did younger students. In physical education and health, younger students took more courses than did their older counterparts.

The variable time enrolled was significantly related only to course-taking in physical education and health. Daytime students took more courses in physical education and health than did evening students.

Table 30

Non-Transfer Students: Completers of Programs  
Student Course-taking in Math by Sex

(N=135)

No. of Courses Taken in Math	Sex		
	Male	Female	Total
0 - 1	10 (34.5) <sup>a</sup> (11.8) <sup>b</sup>	19 (65.5) (38.0)	29 (21.5)
2	16 (66.7) (18.8)	8 (33.3) (16.0)	24 (17.8)
3	37 (67.3) (43.5)	18 (32.7) (36.0)	55 (40.7)
4 or more	22 (81.5) (25.9)	5 (18.5) (10.0)	27 (20.0)
Column Total	85 (63.0)	50 (37.0)	135 (100.0)

$$\chi^2 = 14.64$$

Significance = .0022

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage



Table 31

Non-Transfer Students: Completers of Programs  
Student Course-taking in Physical Education by Sex

(N=135)

No. of Courses Taken in Physical Education	Sex		
	Male	Female	Total
0	17 (73.9) <sup>a</sup> (20.0) <sup>b</sup>	6 (26.1) (12.0)	23 (17.0)
1	40 (72.7) (47.1)	15 (27.3) (30.0)	55 (40.7)
2	13 (46.4) (15.3)	15 (53.6) (30.0)	28 (20.7)
3 or more	15 (51.7) (17.6)	14 (48.3) (28.0)	29 (21.5)
Column Total	85 (63.0)	50 (37.0)	135 (100.0)

$$\chi^2 = 8.28$$

Significance = .0405

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 32

Non-Transfer Students: Completers of Programs  
Student Course-taking in English by Sex

(N=135)

No. of Courses Taken in English	Sex		
	Male	Female	Total
0 - 1	2 (20.0) <sup>a</sup> ( 2.4) <sup>b</sup>	8 (80.0) (16.0)	10 ( 7.4)
2	33 (80.5) (38.8)	8 (19.5) (16.0)	41 (30.4)
3	39 (65.0) (45.9)	21 (35.0) (42.0)	60 (44.4)
4 or more	11 (45.8) (12.9)	13 (54.9) (26.0)	24 (17.8)
Column Total	85 (63.0)	50 (37.0)	135 (100.0)

$$\chi^2 = 16.44$$

Significance = .0009

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 33

Non-Transfer Students: Completers of Programs  
Student Course-taking in Humanities/Fine Arts  
by Age

(N=135)

No. of Courses Taken in Humanities	Age		Total
	25 years or younger	26 years or older	
0	27 (71.1) <sup>a</sup> (38.0) <sup>b</sup>	11 (28.9) (17.2)	38 (28.1)
1	32 (52.5) (45.1)	29 (47.5) (45.3)	61 (45.2)
2	4 (33.3) ( 5.6)	8 (66.7) (12.5)	12 ( 8.9)
3 or more	8 (33.3) (11.3)	16 (66.7) (25.0)	24 (17.8)
Column Total	71 (52.6)	64 (47.4)	135 (100.0)

$$\chi^2 = 10.55$$

Significance = .0144

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 34

Non-Transfer Students: Completers of Programs  
Student Course-taking in Physical Education  
by Age

(N=135)

No. of Courses Taken in Physical Education	Age		Total
	25 years or younger	26 years or older	
0	4 (17.4) <sup>a</sup> ( 5.6) <sup>b</sup>	19 (82.6) (29.7)	23 (17.0)
1	32 (58.2) (45.1)	23 (41.8) (35.9)	55 (40.7)
2	17 (60.7) (23.9)	11 (39.3) (17.2)	28 (20.7)
3 or more	18 (62.1) (25.4)	11 (37.9) (17.2)	29 (21.5)
Column Total	71 (52.6)	64 (47.4)	135 (100.0)

$$\chi^2 = 13.91$$

Significance = .0030

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 35

Non-Transfer Students: Completers of Programs  
Student Course-taking in Physical Education/Health  
by Time Enrolled

(N=135)

No. of Courses Taken in Physical Education	Time Enrolled		
	Daytime	Evening	Total
0	12 (52.2) <sup>a</sup> (11.8) <sup>b</sup>	11 (47.8) (33.3)	23 (17.0)
1	42 (76.4) (41.2)	13 (23.6) (39.4)	55 (40.7)
2	22 (78.6) (21.6)	6 (21.4) (18.2)	28 (20.7)
3 or more	26 (89.7) (25.5)	3 (10.3) ( 9.1)	29 (21.5)
Column Total	102 (75.6)	33 (24.4)	135 (100.0)

$$\chi^2 = 10.09$$

Significance = .0178

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Course-taking of Non-transfer Students: Non-completers of Programs

(N=264)

Characteristics of the Students

Of the 907 students in the sample, 399 were non-transfer students. Sixty-six percent of those students classified as non-transfer did not complete their programs in the period covered by the study.

As shown in Table 36, the majority of the 264 non-transfer students who did not complete programs were white, part-time enrollees. Approximately 60 percent of the non-completers were enrolled in the daytime for their courses; about 60 percent were males.

Table 37, which shows the distribution of students in programs, indicates that in the group of non-completers, most of the males were enrolled in business management, electronicity/electronics technology or police science, while most of the females were enrolled in secretarial science, business management, or accounting.

Findings About Non-Transfer Students Who Did Not Complete Programs

Question 1. What proportion of a student's program was taken in general education?

The 264 non-transfer students who did not complete programs devoted 41.8 percent of their educational programs to general education courses. The mode for the group was 0. The standard deviation was 29.7.

Question 2. What was the frequency of course-taking in each of the following components of general education: English, mathematics,

Table 36

Non-Transfer Students: Non-Completers of Programs  
Distribution of Students by Demographic and Curriculum Variables

(N=264)

Variable	No. and Percentage of Students	
	#	%
<u>Demographic Variable</u>		
Sex		
Male	153	58
Female	111	42
Race		
White	231	88
Non-white	33	12
Age		
25 or younger	137	52
26 or older	127	48
<u>Curriculum Variable</u>		
Enrollment Status		
Part-time	192	73
Full-time	72	27
Time Enrolled		
Daytime	158	60
Evening	106	40

Table 37

Non-Transfer Students: Non-Completers of Programs  
Distribution of Students in Programs by Sex

(N=264)

Program	No. Males in Program (N=68)		No. Females in Program (N=72)	
	#	%	#	%
Freshmen				
Accounting	3	( 4)	11	(15)
Architecture	4	( 6)	1	( 1)
Automotive Technology	1	(1)	0	( 0)
Banking/Finance	1	( 1)	10	(14)
Business Management	15	(22)	10	(14)
Civil Engineering	1	( 1)	0	( 0)
Commercial Art	1	( 1)	2	( 3)
Community/Social Services	1	( 1)	3	( 4)
Data Processing	3	( 4)	8	(11)
Electricity/Electronics Technology	12	(18)	0	( 0)
Fire Science	2	( 3)	0	( 0)
Hotel/Restaurant Institution Management	0	( 0)	2	( 3)
Instrumentation Technology	2	( 3)	0	( 0)
Media Advertising Arts	0	( 0)	2	( 3)
Mental Health	0	( 0)	1	( 1)
Merchandising	2	( 3)	1	( 1)
Police Science	11	(16)	1	( 1)
Radio/TV Production	5	( 7)	0	( 0)
Real Estate	0	( 0)	3	( 4)
Secretarial Science	1	( 1)	17	(24)
Traffic Transportation Management	3	( 4)	0	( 0)
Total	68	(96) <sup>a</sup>	72	(99) <sup>a</sup>

<sup>a</sup>Because of rounding, percentage does not equal 100.



Table 37 (Continued)

Program	No. Males in Program (N=85)		No. Females in Program (N=39)	
	#	%	#	%
Sophomores				
Accounting	4	( 5)	7	(18)
Architecture	6	( 7)	1	( 3)
Automotive Technology	1	( 1)	0	( 0)
Banking/Finance	0	( 0)	2	( 5)
Business Management	22	(26)	8	(21)
Commercial Art	4	( 5)	3	( 8)
Community/Social Science	4	( 5)	4	(10)
Data Processing	1	( 1)	2	( 5)
Electricity/Electronic Technology	11	(13)	0	( 0)
Fire Science	1	( 1)	0	( 0)
Hotel/Restaurant Institution Management	2	( 2)	1	( 3)
Instrumentation Technology	1	( 1)	0	( 0)
Machine Technology	2	( 2)	0	( 0)
Mental Health	1	( 1)	1	( 3)
Merchandising	1	( 1)	0	( 0)
Nursing	2	( 2)	4	(10)
Police Science	17	(20)	1	( 3)
Recreational Leadership	1	( 1)	0	( 0)
Real Estate	3	( 4)	0	( 0)
Secretarial Science	0	( 0)	5	(13)
Traffic Transportation Management	1	( 1)	0	( 0)
Total	85	(99) <sup>a</sup>	39	(102) <sup>a</sup>

<sup>a</sup>Because of rounding, percentage does not equal 100.

natural science, social science, humanities/fine arts, and physical education/health?

Table 38, which shows the findings for Question 2, indicates that about one out of three non-transfer students who did not complete programs took no social science course. Of those who did enroll in the social sciences, about 50 percent took between one and three courses. In English as in social science, almost one out of three students took no course. The majority of students took no more than two English courses.

In mathematics, the non-completers took fewer courses than in English and social science. Over 50 percent of the students took no mathematics course, but of those who did enroll in mathematics, 24 percent took three or more courses.

In humanities/fine arts, physical education/health, and natural science, students took fewer courses than in the other three components of general education. In humanities/fine arts more than 60% took no course, and the largest number who enrolled in this component took only one course. In natural science, an even larger proportion (84 percent) of the students than in the humanities/fine arts took no course, and less than 10 percent took more than one course.

In physical education/health more than half the students took no course, and in this component as in the humanities/fine arts, the largest number of students took one course.

Perhaps the most outstanding finding that emerged in the course-taking of non-transfer students who did not complete programs was the

Table 38  
 Non-Transfer Students: Non-Completers of Programs  
 Distribution of Student Course-Taking by Components of General Education  
 (N=264)

Components of General Education	Number and Percentage of Students Taking Various Numbers of Courses										Total Students Taking Courses
	0	1	2	3	4	5	6	7	8	9	
English	82 (31)	56 (21)	57 (22)	46 (17)	16 (6)	4 (2)	3 (1)	a	a	a	264 (100)
Mathematics	137 (52)	38 (14)	26 (10)	52 (20)	8 (3)	3 (1)	0 (0)	a	a	a	264 (100)
Natural Science	222 (84)	18 (7)	8 (3)	12 (5)	0 (0)	2 (1)	2 (1)	a	a	a	264 (100)
Social Science	77 (29)	43 (16)	39 (15)	55 (21)	13 (5)	9 (3)	5 (2)	6 (2)	4 (2)	13 (5)	264 (100)
Humanities/ Fine Arts	163 (62)	58 (22)	13 (5)	5 (2)	6 (2)	7 (3)	4 (2)	0	0	8 (3)	264 (101) <sup>b</sup>
Physical Education/ Health	151 (57)	63 (24)	23 (9)	27 (10)	c	c	c	c	c	c	264 (100)

<sup>a</sup>6 was the maximum number of courses recorded for each student

<sup>b</sup>Because of rounding, percentage does not equal 100.

<sup>c</sup>3 was the maximum number of courses recorded for each student

large number of students who took no natural science or humanities and fine arts courses. As a group, only 16 percent of the students enrolled in natural science courses, and only 38 percent enrolled in humanities and fine arts courses. The non-completers selected the largest numbers of their general education courses from the social sciences and English, most likely to fulfill distribution requirements for non-transfer programs (Appendix C).

Question 3. In which of the following categories did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; breadth; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio?

Table 39, which presents the findings for Question 3, indicates that with few exceptions non-transfer students who did not complete their programs took the majority of their courses in the same categories of general education as did non-transfer completers. This similarity in course-taking behavior is further demonstrated in Table 52 at the end of this section.

One exception to the similarity in course-taking of completers and non-completers was the course-taking in the natural sciences. In this component, non-completers split their course selection between the breadth and the advanced skills/laboratory, field study, or studio categories, unlike the completers who took more natural science courses in the advanced skills/laboratory, field study, or studio category.

Table 39

Non-Transfer Students: Non-Completers of Programs  
Number of Courses Taken in Categories of General Education Courses

(N=264)

Component of General Education	Categories of General Education Courses						Total Number Courses Taken in Component
	Number of Basic Skills Courses Taken (row percentage within parentheses)	Number of Advanced Skills Courses Taken (row percentage within parentheses)	Number of Breadth Courses Taken (row percentage within parentheses)	Number of Integrative Courses Taken (row percentage within parentheses)	Number of Lab- oratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	Number of Advanced Skills/Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	
English	201 (49)	192 (47)	0 (0)	0 (0)	0 (0)	17 (4)	410 (100)
Mathematics	219 (74)	4 (1)	0 (0)	0 (0)	0 (0)	71 (24)	294 (99) <sup>a</sup>
Natural Science	6 (6)	5 (5)	44 (47)	0 (0)	0 (0)	39 (41)	94 (99) <sup>a</sup>
Social Science	154 (26)	11 (2)	399 (66)	22 (4)	2 (1)	15 (2)	603 (101) <sup>a</sup>
Humanities/ Fine Arts	107 (42)	21 (8)	91 (36)	3 (1)	7 (3)	25 (10)	254 (100)
Physical Education/ Health	17 (9)	105 (55)	59 (31)	0 (0)	4 (2)	6 (3)	191 (100)

<sup>a</sup>Because of rounding, percentage does not equal 100.

Representative courses in the breadth category of natural science in which almost 50 percent of the non-completers took their courses were the following:

Introductory Physics,  
General Chemistry,  
General Biology, and  
General Geology (Appendix A).

Representative of courses in the advanced skills/laboratory, field study, or studio category were the following:

Technical Physics,  
Health Science Chemistry,  
Human Anatomy and Physiology, and  
Survey of Science (Appendix A).

Question 4. Was there a difference in the number of general education courses taken based on sex, race, age, enrollment status, and time enrolled?

The Chi Square analysis failed to show any significant differences in the number of courses taken by non-transfer students who did not complete programs and the independent variables sex, race, and age (Appendix G). However, the crosstabulations of the number of general education courses taken and the variables time enrolled and enrollment status indicated statistically significant relationships, as shown in Tables 40 and 41. Daytime students in this study took more general education courses than did evening students, and full-time students took more courses than did part-time students.

Table 40

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in General Education  
by Time Enrolled

(N=264)

No. of Courses Taken in General Education	Time Enrolled		
	Daytime	Evening	Total
0 - 1	101 (53.7) <sup>a</sup> (63.9) <sup>b</sup>	87 (46.3) (82.1)	188 (71.2)
2	30 (75.0) (19.0)	10 (25.0) ( 9.4)	40 (15.2)
3 or more	27 (75.0) (17.1)	9 (25.0) ( 8.5)	36 (13.6)
Column Total	158 (59.8)	106 (40.2)	264 (100.0)

$$\chi^2 = 10.20$$

Significance = .0061

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 41

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in General Education  
by Enrollment Status

(N=264)

No. of Courses Taken in General Education	Enrollment Status		
	Part-time	Full-time	Total
0 - 1	148 (78.7) <sup>a</sup> (77.1) <sup>b</sup>	40 (21.3) (55.6)	188 (71.2)
2	24 (60.0) (12.5)	16 (40.0) (22.2)	40 (15.2)
3 or more	20 (55.6) (10.4)	16 (44.4) (22.2)	36 (13.6)
Column Total	192 (72.7)	72 (27.3)	264 (100.0)

$$\chi^2 = 12.03$$

Significance = .0024

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage



Question 5. Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses taken based on sex, race, age, enrollment status, or time enrolled?

The Chi Square Analysis indicated statistically significant relationships between the number of courses taken in English, mathematics, natural science, social science, and physical education/health and the variables in the study. These relationships are shown in Tables 42 to 51. The Chi Square analysis indicated no statistically significant relationships between the number of courses taken in humanities/fine arts and the independent variables in the study, as indicated in Appendix G.

The variable enrollment status was found to be significantly related to course-taking in English, mathematics, natural science, and physical education/health (Tables 42 to 45). In these four components, full-time students took more courses than did part-time students.

The variable sex was also related to course-taking in three components of general education. In English, mathematics, and social science, males took more courses than did females (Tables 46 to 48).

In addition to enrollment status and sex, the variable time enrolled was found to be significantly related to course-taking in general education. In English, physical education, and natural science, day-time students took more courses than did their evening counterparts (Tables 49 to 51).

Table 42

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in English  
by Enrollment Status

(N=264)

No. of Courses Taken in English	Enrollment Status		
	Part-time	Full-time	Total
0	69 (84.1) <sup>a</sup> (35.9) <sup>b</sup>	13 (15.9) (18.1)	82 (31.1)
1	43 (76.8) (22.4)	13 (23.2) (18.1)	56 (21.2)
2	45 (78.9) (23.4)	12 (21.1) (16.7)	57 (21.6)
3	23 (50.0) (12.0)	23 (50.0) (31.9)	46 (17.4)
4 or more	12 (52.2) ( 6.3)	11 (47.8) (15.3)	23 ( 8.7)
Column Total	192 (72.7)	72 (27.3)	264 (100.0)

$$\chi^2 = 23.85$$

Significance = .0001

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 43

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in Mathematics  
by Enrollment Status

(N=264)

No. of Courses Taken in Mathematics	Enrollment Status		
	Part-time	Full-time	Total
0	110 (80.3) <sup>a</sup> (57.3) <sup>b</sup>	27 (19.7) (37.5)	137 (51.9)
1	26 (68.4) (13.5)	12 (31.6) (16.7)	38 (14.4)
2	15 (57.7) ( 7.8)	11 (42.3) (15.3)	26 ( 9.8)
3 or more	41 (65.1) (21.4)	22 (34.9) (30.6)	63 (23.9)
Column Total	192 (72.7)	72 (27.3)	264 (100.0)

$$\chi^2 = 9.13$$

Significance = .0276

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 44

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in Natural Science  
by Enrollment Status

(N=264)

No. of Courses Taken in Natural Science	Enrollment Status		
	Part-time	Full-time	Total
0	170 (76.6) <sup>a</sup> (88.5) <sup>b</sup>	52 (23.4) (72.2)	222 (84.1)
1	11 (61.1) ( 5.7)	7 (38.9) ( 9.7)	18 ( 6.8)
2 or more	11 (45.8) ( 5.7)	13 (54.2) (18.1)	24 ( 9.1)
Column Total	192 (72.7)	72 (27.3)	264 (100.0)

$$\chi^2 = 11.63$$

Significance = .0030

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 45

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in Physical Education/Health  
by Enrollment Status

(N=264)

No. of Courses Taken in Physical Edu- cation Health	Enrollment Status		
	Part-time	Full-time	Total
0	122 (80.8) <sup>a</sup> (63.5) <sup>b</sup>	29 (19.2) (40.3)	151 (57.2)
1	41 (65.1) (21.4)	22 (34.9) (30.6)	63 (23.9)
2	17 (73.9) ( 8.9)	6 (26.1) ( 8.3)	23 (8.7)
3 or more	12 (44.4) ( 6.3)	15 (55.6) (20.8)	27 (10.2)
Column Total	192 (72.7)	72 (27.3)	264 (100.0)

$$\chi^2 = 17.72$$

Significance = .0005

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 46

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in English by Sex

(N=264)

No. of Courses Taken in English	Sex		
	Male	Female	Total
0	36 (43.9) <sup>a</sup> (23.5) <sup>b</sup>	46 (56.1) (41.4)	82 (31.1)
1	36 (64.3) (23.5)	20 (35.7) (18.0)	56 (21.2)
2	41 (71.9) (26.8)	16 (28.1) (14.4)	57 (21.6)
3	26 (56.5) (17.0)	20 (43.5) (18.0)	46 (17.4)
4 or more	14 (60.9) ( 9.2)	9 (39.1) ( 8.1)	23 ( 8.7)
Column Total	153 (58.0)	111 (42.0)	264 (100.0)

$$\chi^2 = 12.25$$

Significance = .0156

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 47

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in Mathematics by Sex

(N=264)

No. of Courses Taken in Mathematics	Sex		
	Male	Female	Total
0	68 (49.6) <sup>a</sup> (44.4) <sup>b</sup>	69 (50.4) (62.2)	137 (51.9)
1	20 (52.6) (13.1)	18 (47.4) (16.2)	38 (14.4)
2	19 (73.1) (12.4)	7 (26.9) ( 6.3)	26 ( 9.8)
3 or more	46 (73.0) (30.1)	17 (27.0) (15.3)	63 (23.9)
Column Total	153 (58.0)	111 (42.0)	264 (100.0)

$$\chi^2 = 12.64$$

Significance = .0055

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 48

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in Social Science by Sex

(N=264)

No. of Courses Taken in Social Science	Sex		
	Male	Female	Total
0	33 (42.9) <sup>a</sup> (21.6) <sup>b</sup>	44 (57.1) (39.6)	77 (29.2)
1	22 (51.2) (14.4)	21 (48.8) (18.9)	43 (16.3)
2	22 (56.4) (14.4)	17 (43.6) (15.3)	39 (14.8)
3	43 (78.2) (28.1)	12 (21.8) (10.8)	55 (20.8)
4 or more	33 (66.0) (21.6)	17 (34.0) (15.3)	50 (18.9)
Column Total	153 (58.0)	111 (42.0)	264 (100.0)

$$\chi^2 = 18.62$$

Significance = .0009

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage



Table 49

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in English  
by Time Enrolled

(N=264)

No. of Courses Taken in English	Time Enrolled		
	Daytime	Evening	Total
0	36 (43.9) <sup>a</sup> (22.8) <sup>b</sup>	46 (56.1) (43.4)	82 (31.1)
1	39 (69.6) (24.7)	17 (30.4) (16.0)	56 (21.2)
2	32 (56.1) (20.3)	25 (43.9) (23.6)	57 (21.6)
3	33 (71.7) (20.9)	13 (28.3) (12.3)	46 (17.4)
4 or more	18 (78.3) (11.4)	5 (21.7) ( 4.7)	23 ( 8.7)
Column Total	158 (59.8)	106 (40.2)	264 (100.0)

$$\chi^2 = 17.19$$

Significance = .0018

df = 4

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 50

Non-Transfer Students: Non-Completers of Programs  
 Student Course-taking in Physical Education/Health  
 by Time Enrolled

(N=264)

No. of Courses Taken in Physical Edu- cation/Health	Time Enrolled		
	Daytime	Evening	Total
0	78 (51.7) <sup>a</sup> (49.4) <sup>b</sup>	73 (48.3) (68.9)	151 (57.2)
1	44 (69.8) (27.8)	19 (30.2) (17.9)	63 (23.9)
2	11 (47.8) ( 7.0)	12 (52.2) (11.3)	23 ( 8.7)
3 or more	25 (92.6) (15.8)	2 ( 7.4) ( 1.9)	27 (10.2)
Column Total	158 (59.8)	106 (40.2)	264 (100.0)

$$\chi^2 = 20.27$$

Significance = .0001

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 51

Non-Transfer Students: Non-Completers of Programs  
Student Course-taking in Natural Science  
by Time Enrolled

(N=264)

No. of Courses Taken in Natural Science	Time Enrolled		
	Daytime	Evening	Total
0	121 (54.5) <sup>a</sup> (76.6) <sup>b</sup>	101 (45.5) (95.3)	222 (84.1)
1	16 (88.9) (10.1)	2 (11.1) ( 1.9)	18 ( 6.8)
2 or more	21 (87.5) (13.3)	3 (12.5) ( 2.8)	24 ( 9.1)
Column Total	158 (59.8)	106 (40.2)	264 (100.0)

$\chi^2 = 16.59$

Significance = .0002

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

Summary

With respect to course-taking in general education, there were more similarities than differences between the completers and the non-completers of non-transfer programs. The variable time enrolled was significantly related to the total number of general education courses taken by both completers and non-completers. Daytime students in both groups enrolled in more general education courses than did evening students. Also the proportions of courses taken by the two groups in the general education components English, mathematics, natural science, social science, humanities/fine arts, and physical education/health were almost the same. Among these general education components, both completers and non-completers took the largest number of general education courses in the social sciences and the smallest number of courses in the natural sciences.

Table 52 demonstrates that completers and non-completers of non-transfer programs selected the same kinds of courses among the categories of general education, with only two exceptions. In the natural sciences, completers took the majority of courses in the advanced skills/laboratory, field study, or studio category of which Technical Physics, General Inorganic Chemistry, and Survey of Science were representative courses. A large number of non-completers took courses in the same category; however, an almost equal number took breadth courses, of which the following were representative: General Biology and General Chemistry. In physical education, completers and non-completers selected the majority of courses in two categories.

Table 52

Non-Transfer Students: Completers & Non-Completers of Programs  
Categories of General Education Courses in Which Majority  
of Courses Were Taken

(N=399)

Component of General Education	Categories of General Education in Which Majority of Courses Were Taken	
	Completers (N=135)	Non-completers (N=264)
English	Basic Skills (56%)	Basic Skills (49%)
	Advanced Skills (41%)	Advanced Skills (47%)
Mathematics	Basic Skills (75%)	Math (75%)
Natural Science	Advanced Skills/Lab., Field Study, or Studio (60%)	Breadth (47%) Advanced Skills/Lab., Field Study, or Studio (42%)
	Breadth (65%)	Breadth (66%)
Humanities/ Fine Arts	Basic Skills (55%)	Basic Skills (42%)
	Breadth (31%)	Breadth (36%)
Physical Educa- tion/Health	Breadth (44%)	Breadth (31%)
	Advanced Skills (33%)	Advanced Skills (55%)

However, completers took more breadth courses (health) than advanced skills courses (physical education) while non-completers reversed the pattern (see Appendix A).

As Table 53 indicates, in both the completers and non-completers groups, there were statistically significant relationships between the independent variables sex and time enrolled and the number of courses taken in certain general education components. Males took more mathematics and English courses than did females, and daytime students took more physical education and health courses than did evening students.

#### Course-taking of Non-curricular Students

(N=257)

#### Characteristics of the Students

In the sample of 907 students, 257 were classified as non-curricular. These students, for the majority of quarters of enrollment, were not committed to either transfer or non-transfer programs of the community colleges in the study. As Table 54 demonstrates, the majority of the non-curricular students were white, female, and part-time enrollees. About two out of three students in the sub-group were 26 years old or older. Slightly more than half of the students were enrolled in the evening for their courses.

As shown in Table 55, the largest number of non-curricular students took courses for personal satisfaction. One out of four students took courses to upgrade employment skills.

Table 53

Non-Transfer Students: Completers and Non-Completers of Programs  
 Significant Relationships Between Number of Courses Taken in  
 Components of General Education and Independent Variables

(N=399)

Variable	Significant Relationship with Component	Component of General Education
<u>Completers (N=135)</u>		
Sex	Males took more courses	English
	Males took more courses	Mathematics
	Females took more courses	Physical Education/ Health
Time Enrolled	Daytime students took more courses	Physical Education/ Health
Age	Older students took more courses	Humanities/ Fine Arts
	Younger students took more courses	Physical Education/ Health
<u>Non-completers (N=264)</u>		
Sex	Males took more courses	English
	Males took more courses	Mathematics
	Males took more courses	Social Science
Time Enrolled	Daytime students took more courses	English
	Daytime students took more courses	Physical Education/ Health
	Daytime students took more courses	Natural Science
Enrollment Status	Full-time students took more courses	English
	Full-time students took more courses	Mathematics
	Full-time students took more courses	Natural Science
	Full-time students took more courses	Physical Education/ Health

Table 54

Non-Curricular Students  
Distribution of Students by Demographic and Curriculum Variables

(N=257)

Variable	No. and Percentage of Students	
	#	%
<u>Demographic Variable</u>		
Sex		
Male	98	38
Female	159	62
Race		
White	235	91
Non-white	22	9
Age		
25 or younger	94	37
26 or older	163	63
<u>Curriculum Variable</u>		
Enrollment Status		
Part-time	243	95
Full-time	14	5
Time Enrolled		
Daytime	120	47
Evening	137	53



Table 55  
 Non-Curricular Students  
 Distribution of Students by Educational Goals<sup>a</sup> by Sex  
 (N=257)

Educational Goal	No. Females in Program (N=159)		No. Males in Program (N=98)	
	#	%	#	%
Audit	2	( 1)	0	( 0)
Career Exploration	18	(11)	17	(17)
Developing Job Skills	16	(10)	5	( 5)
High School Student	3	( 2)	1	( 1)
Non-Degree Transfer	4	( 3)	2	( 2)
Pending Curriculum Approval	2	( 1)		
Personal Satisfaction	73	(46)	44	(45)
Restricted Enrollment	1	( 1)	0	( 0)
Transient Student	2	( 1)	2	( 2)
Upgrading Employment Skills	38	(24)	27	(28)
Total	159	(100)	98	(100)

<sup>a</sup>The classification of students was indicated on student transcripts by VCCS code numbers.

Findings About Non-curricular Students

Question 1. What proportion of the a student's program was taken in general education?

The 257 non-curricular students devoted 37.8 percent of their educational programs to general education courses. The mode for the group was 0. The standard deviation was 42.3.

Question 2. What was the frequency of course-taking in each of the following components of general education: English, mathematics natural science, social science, humanities/fine arts, and physical education/ health?

Table 56, which displays the findings for Question 2, demonstrates that non-curricular students took the largest number of their general education courses in social science. In this component of the curriculum, 26 percent of the group took one or more courses, with the largest number taking only one course. Only seven students enrolled for more than three courses.

In humanities/fine arts and in English, students took fewer courses than in social science. Only about one out of six students enrolled either in humanities/fine arts or in English, and in both of these components the largest number of students took just one course. However, non-curricular students took larger numbers of courses in humanities/fine arts and in English than in mathematics, natural science, and physical education/health.

Non-curricular students took the smallest number of general education courses in mathematics. In this component only six percent

**Table 56**  
**Non-Curricular Students**  
**Distribution of Student Course-Taking by Components of General Education**  
**(N=257)**

Components of General Education	Number and Percentage of Students Taking Various Numbers of Courses										Total Students Taking Courses
	0	1	2	3	4	5	6	7	8	9	
English	209 (81)	19 ( 7)	15 ( 6)	10 ( 4)	2 ( 1)	2 ( 1)	0 ( 0)	a	a	a	257 (100)
Mathematics	241 (94)	9 ( 3)	4 ( 2)	2 ( 1)	1 ( 1)	0 ( 0)	0 ( 0)	a	a	a	257 (100)
Natural Science	241 (94)	7 ( 3)	5 ( 2)	2 ( 1)	0 ( 0)	0 ( 0)	2 ( 1)	a	a	a	257 (101) <sup>b</sup>
Social Science	190 (74)	34 (13)	16 ( 6)	10 ( 4)	3 ( 1)	0 ( 0)	4 ( 2)	0 (0)	0 (0)	0 ( 0)	257 (100)
Humanities/ Fine Arts	218 (85)	16 ( 6)	2 ( 1)	11 ( 4)	0 ( 0)	2 ( 1)	4 ( 2)	2 (1)	2 (1)	0 ( 0)	257 (101) <sup>b</sup>
Physical Education/ Health	229 (89)	19 ( 7)	5 ( 2)	4 ( 2)	c	c	c	c	c	c	257 (100)

<sup>a</sup>6 was the maximum number of courses recorded for each student

<sup>b</sup>Because of rounding, percentage does not equal 100.

<sup>c</sup>3 was the maximum number of courses recorded for each student

took a course. In natural science the course enrollment was slightly higher, but as in mathematics, only six percent took a natural science course. In physical education and health the course enrollment was almost the same as that in mathematics and natural science. However, 11 percent of the non-curricular students took a course in the physical education/health component.

Question 3. In which of the following categories of general education did students take the majority of their English, mathematics, natural science, social science, humanities/fine arts, and physical education/health courses: basic skills; advanced skills; breadth; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field studio, or studio?

Table 57, which presents the findings for Question 3, demonstrates that in English, non-curricular students in this study took approximately two-thirds of their courses in advanced skills. Advanced skills English courses were composition and literature (Appendix A). In physical education/health, students also took the majority of their courses in advanced skills which were physical education, not health, courses (Appendix A).

In natural science and social science non-curricular students took about two out of three courses in the breadth category. Representative of breadth courses in natural science were the following:

Introductory Physics,  
General Chemistry,

Table 57  
 Non-curricular Students  
 Number of Courses Taken in Categories of General Education Courses  
 (N=257)

Component of General Education	Categories of General Education Courses						Total Number Courses Taken in Component
	Number of Basic Skills Courses Taken (row percentage within parentheses)	Number of Advanced Skills Courses Taken (row percentage within parentheses)	Number of Breadth Courses Taken (row percentage within parentheses)	Number of Integrative Courses Taken (row percentage within parentheses)	Number of Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	Number of Advanced Skills/Laboratory, Field Study, or Studio Courses Taken (row percentage within parentheses)	
English	34 (35)	61 (63)	0 (0)	0 (0)	0 (0)	2 (2)	97 (100)
Mathematics	17 (61)	2 (7)	0 (0)	0 (0)	0 (0)	9 (32)	28 (100)
Natural Science	5 (13)	3 (8)	25 (63)	0 (0)	1 (3)	6 (15)	40 (102) <sup>a</sup>
Social Science	31 (23)	6 (4)	83 (61)	5 (4)	4 (3)	6 (4)	135 (99) <sup>a</sup>
Humanities/ Fine Arts	17 (15)	17 (15)	39 (34)	0 (0)	16 (14)	26 (23)	115 (101) <sup>a</sup>
Physical Education/ Health	2 (5)	25 (61)	5 (12)	0 (0)	6 (15)	3 (7)	41 (100)

<sup>a</sup>Because of rounding, percentage does not equal 100.

General Biology, and  
General Geology (Appendix A).

Examples of breadth courses in social science were

Principles of Applied Psychology,  
Human Relations,  
American Government, and  
Contemporary American Civilization (Appendix A).

In humanities, the course-selection of non-curricular students differed from that in the other components of general education in that students took the largest numbers of courses in two categories rather than in just one. Of the two categories, the larger number of courses was taken in the breadth category, of which the following are representative courses:

General Art,  
Music Appreciation,  
History of Western Civilization, and  
Introduction to Philosophy (Appendix A).

The smaller number of courses was taken in the advanced skills/laboratory, field study, or studio category. Representative courses in this category were

Theory and Practice of Painting,  
Applied Music,  
Supervised Study in French,  
Theatre Workshop,

Conversational German, and

Life and Teachings of Jesus (Appendix A).

In mathematics, the course selection of non-curricular students was different from that in the other components of general education. Only in the mathematics component did students select the majority of their courses in basic skills. Mathematics courses representative of the basic skills category were the following:

Mathematical Calculations,

Slide Rule,

Introduction to College Math, and

General College Math (Appendix A).

Question 4: Was there a difference in the number of general education courses taken based on sex, race, age, enrollment status, or time enrolled?

The Chi Square analysis failed to show any statistically significant relationships between the number of general education courses taken by non-curricular students and the independent variables sex, race, age, and enrollment status (Appendix H). The only independent variable in the study found to be significantly related to the number of general education courses taken was time enrolled. Table 58 indicates that daytime students took more courses in general education than did evening students.

Question 5. Was there a difference in the number of English, mathematics, natural science, social science, humanities/fine arts, and

Table 58  
 Non-Curricular Students  
 Student Course-taking in General Education  
 by Time Enrolled

(N=257)

No. of Courses Taken in General Education	Time Enrolled		
	Daytime	Evening	Total
0 - 1	76 (43.9) <sup>a</sup> (63.3) <sup>b</sup>	97 (56.1) (70.8)	173 (67.3)
2 - 4	21 (41.2) (17.5)	30 (58.8) (21.9)	51 (19.8)
5 or more	23 (69.7) (19.2)	10 (30.3) ( 7.3)	33 (12.8)
Column Total	120 (46.7)	137 (53.3)	257 (100.0)

$$\chi^2 = 8.17$$

Significance = .0168

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage



physical education/health courses taken based on sex, race, age, enrollment status, or time enrolled?

The Chi Square analysis indicated statistically significant relationships between the number of courses taken by non-curricular students in certain components of general education and the independent variables time enrolled and age. These relationships are displayed in Tables 59 to 61. The Chi Square analysis failed to show statistically significant relationships between the number of courses taken in any of the components of general education by non-curricular students and the independent variables sex, race, and enrollment status (Appendix H).

The independent variable time enrolled was significantly related to the number of courses taken in English and humanities/fine arts. Daytime students took more courses in English and humanities/fine arts than did evening students.

The independent variable age was significantly related to the number of courses taken in social science. In this component of general education, students who were 25 or younger took more courses than did students who were 26 or older.

### Summary

Most of the non-curricular students in the sample were women who were enrolled in community college courses for "personal satisfaction" or "to upgrade employment skills." On the average, non-curricular students took one out of three courses in general education during the period covered by the study. Social science was the component in which these students enrolled for the largest number of their general

Table 59

Non-Curricular Students  
Student Course-taking in English  
by Time Enrolled

(N=257)

No. of Courses Taken in English	Time Enrolled		
	Daytime	Evening	Total
0	100 (47.8) <sup>a</sup> (83.3) <sup>b</sup>	109 (52.2) (79.6)	209 (81.3)
1	3 (15.8) ( 2.5)	16 (84.2) (11.7)	19 ( 7.4)
2 or more	17 (58.6) (14.2)	12 (41.4) ( 8.8)	29 (11.3)
Column Total	120 (46.7)	137 (53.3)	257 (100.0)

$$\chi^2 = 9.06$$

Significance = .0108

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 60  
 Non-Curricular Students  
 Student Course-taking in Humanities/Fine Arts  
 by Time Enrolled

(N=257)

No. of Courses Taken in Humanities/ Fine Arts	Time Enrolled		
	Daytime	Evening	Total
0	95 (43.6) <sup>a</sup> (79.2) <sup>b</sup>	123 (56.4) (89.8)	218 (84.8)
1	9 (56.3) ( 7.5)	7 (43.8) ( 5.1)	16 ( 6.2)
2 or more	16 (69.6) (13.3)	7 (30.4) ( 5.1)	23 ( 8.9)
Column Total	120 (46.7)	137 (53.3)	257 (100.0)

$$\chi^2 = 6.27$$

Significance = .0435

df = 2

<sup>a</sup>row percentage<sup>b</sup>column percentage

Table 61  
 Non-Curricular Students  
 Student Course-taking in Social Science  
 by Age

(N=257)

No. of Courses Taken in Social Science	Age		Total
	25 years or younger	26 years or older	
0	61 (32.1) <sup>a</sup> (64.9) <sup>b</sup>	129 (67.9) (79.1)	190 (73.9)
1	14 (41.2) (14.9)	20 (58.8) (12.3)	34 (13.2)
2	8 (50.0) ( 8.5)	8 (50.0) ( 4.9)	16 ( 6.2)
3 or more	11 (64.7) (11.7)	6 (35.3) ( 3.7)	17 ( 6.6)
Column Total	94 (36.6)	163 (63.4)	257 (100.0)

$$\chi^2 = 8.99$$

Significance = .0294

df = 3

<sup>a</sup>row percentage<sup>b</sup>column percentage

education courses. In this component students took two out of three courses in the breadth category. Representative of courses in the breadth category were Human Relations and American Government. The number of courses taken in social science was found to be significantly related to the age of the students, as indicated in Table 62. Younger students in this sample took more social science courses than did older students.

Non-curricular students took a fairly large number of courses in humanities and fine arts in comparison to the number of courses they took in the other general education components. However, these courses were taken by only about 15 percent of the students. Of these students, approximately one out of five took a course in the advanced skills/laboratory, field study, or studio category, of which Theory and Practice of Painting, Applied Music, and Life and Teaching of Jesus were representative courses (Appendix A). In this study the number of courses taken in humanities/fine arts was significantly related to the independent variable time enrolled. Table 62 indicates that daytime students took more English and humanities and fine arts courses than did evening students.

Non-curricular students took the smallest number of general education courses in mathematics. In this component only 16 out of the 257 students took one or more courses.

In at least two ways, the course-taking of non-curricular students was similar to that of non-transfer students who did not complete programs. First, both non-curricular students and non-completers of

Table 62

Non-Curricular Students  
 Significant Relationships Between Number of Courses Taken in  
 Components of General Education and Independent Variables

(N=257)

Variable	Significant Relationship with Component of General Education	Component of General Education
Age	Younger students took more Courses	Social Science
Time Enrolled	Daytime students took more courses	English
	Daytime students took more courses	Humanities/ Fine Arts

transfer programs took the largest number of their general education courses in social science. Second both groups of students took the majority of their mathematics courses in the basic skills category.

The most outstanding difference in the course-taking of non-curricular students and non-transfer students who did not complete programs was in the number of general education courses they took. Non-curricular students took only one-fourth as many courses in general education as did non-completers of non-transfer programs.

## CHAPTER V

### SUMMARY, CONCLUSIONS, IMPLICATIONS FOR PRACTICE, AND RECOMMENDATIONS

#### Introductory Statement

Numerous articles in journals and newspapers have expressed a concern for the state of general education in postsecondary curriculum. The most frequent claims in these articles is that students are not taking as much general education today as they used to and that certain areas of the curriculum, especially the humanities, are being neglected by both two- and four-year college students. In two-year colleges the decline in the amount of general education in students' programs is most often blamed on the new wave of vocationalism that has swept across higher education causing curricular changes as colleges have attempted to meet the educational needs of student bodies composed of large numbers of women, older students, and part-time enrollees. The assumptions about the diminished state of general education generally are based on enrollment data generated by studies of various components of the curriculum or on studies of the offerings of colleges as indicated in college catalogs. Few studies have investigated the general education curriculum as it is reflected in student transcripts. Because it seems justifiable to look at curriculum as students experience it in their course-taking, it has been the purpose of this study to establish a data base derived from student transcripts to determine how much general education students really take in their



educational programs and to determine how they distribute their course-taking among the various components of general education. A further purpose of the study has been to determine whether the number of courses taken in general education is a function of student sex, race, age, enrollment status (part-time or full-time), or primary time of enrollment (daytime or evening).

### Summary and Discussion of Findings

Question 1: What proportion of a student's program was taken in general education?

In this study students in associate degree programs exceeded the general education course credit requirements established by their colleges under the Virginia Community System guidelines (see Appendix C). Table 63 indicates that on the average three-fourths or more of the credit hours taken by transfer students were in general education. This means that transfer students generally took from 25 to 29 courses in general education. The minimum general education requirements for associate in science and associate in arts degree programs were 16 and 20 courses respectively. The ratio of general education to specialized education in the programs of transfer students in this study reflected the design of the transfer program; the focus of that program is on general education in arts and science courses that can be transferred to four-year colleges and universities.

Non-transfer students also either met or exceeded the minimum general education course requirements established by the Virginia

Table 63

Summary: Proportion of Educational Program  
Taken in General Education

Subgroup	Proportion <sup>a</sup> of Total Program Taken in General Education	Mode	Standard Deviation
Transfer completers	86.5	99.0	15.7
Transfer non-completers	74.0	83.3	28.7
Non-transfer completers	40.5	29.7	14.2
Non-transfer non-completers	41.8	0.0	29.7
Non-curricular	37.8	0.0	42.3

<sup>a</sup>The proportion of the total program taken in general education is equal to the mean for each subgroup.

Community College System. Both completers and non-completers of programs took an average of 13 or 14 courses in general education even though the minimum general education requirement is about eight courses for associate in applied science degree programs (25 percent of the 97 credit hours taken in the complete program). The majority of the extra courses above those required in general education were most likely taken to fulfill specialized course requirements in non-transfer programs. The basis for this assumption is that in this study many of the courses categorized as general education could have fulfilled specialized degree requirements in occupational-technical programs (Appendix A). For example, 60 percent of the courses in the Community and Social Service program would have been counted as general education in this study.

General education was functioning well in the curricula of non-transfer students in terms of the average number of courses taken; however, in the case of the students who did not complete programs, the mode and the standard deviation must be examined to describe more accurately the course-taking behavior of the group. Among the non-completers the most frequent number of general education courses taken was zero and the standard deviation was 29.7. These statistics together indicate a wide variance in the number of general education courses taken by non-completers of occupational-technical programs and suggest that the course-taking of these students was more erratic than that of the non-completers of transfer programs.

Of the five groups in the study, non-curricular students took the smallest proportion of general education in their programs. The

variation within the non-curricular group was greater than that within the completers or non-completers in either the transfer or non-transfer groups. The most frequent number of courses taken by the non-curricular students was zero and the standard deviation was 42.3.

Question 2: What was the frequency of course-taking in the following components of general education: English, mathematics, natural science, social science, humanities and fine arts, and physical education and health?

Course-taking in the various components of general education suggests that students in associate degree programs in this study adhered to program distribution requirements established by the Virginia Community College System. Non-completers of programs behaved very much like completers of programs with respect to the proportion of courses they took in each of the six components of general education, as indicated in Table 63. However, some differences in course-taking between completers and non-completers of both transfer and non-transfer programs deserve attention.

Table 64 demonstrates that a majority of students in both transfer and non-transfer programs took a general education program that consisted primarily of English, social science, and humanities and fine arts. This program did not include many courses in natural science and physical education and health. The absence of natural science in the education program of these students is not surprising. For students in the non-transfer programs, natural science is not a general education requirement, although some students had specialized course requirements

Table 64

Summary: Proportion of Courses Taken in Components of General Education

Component of General Education	Transfer Students		Non-transfer Students		Non-curricular Students
	Total of Courses Taken by Completers	Total of Courses Taken by Non-completers	Total of Courses Taken by Completers	Total of Courses Taken by Non-completers	Total of Courses Taken
	N=57 (Percentage in Parentheses)	N=194 (Percentage in Parentheses)	N=135 (Percentage in Parentheses)	N=264 (Percentage in Parentheses)	N=257 (Percentage in Parentheses)
English	309 (21)	509 (22)	377 (20)	410 (22)	97 <sup>b</sup> (21)
Mathematics	201 (13)	250 <sup>a</sup> (11)	339 (18)	294 <sup>a</sup> (16)	28 <sup>b</sup> (6)
Natural Science	190 (13)	257 <sup>b</sup> (11)	165 <sup>b</sup> (9)	94 <sup>b</sup> (5)	40 <sup>b</sup> (9)
Social Science	376 (25)	531 (23)	587 (31)	603 (33)	135 <sup>b</sup> (30)
Humanities/ Fine Arts	309 (21)	565 (25)	203 (11)	254 (14)	115 <sup>b</sup> (25)
Physical Education/ Health	103 (7)	173 <sup>b</sup> (8)	198 (11)	191 <sup>b</sup> (10)	41 <sup>b</sup> (9)
Column Total	1488	2285	1869	1846	456

<sup>a</sup>Approximately 50% of the students in the group took no courses in the component.<sup>b</sup>More than 50% of the students in the group took no courses in the component.

in natural science which would have shown up as general education in this study. However, the majority of non-completers were in programs that required no natural science courses. The latter were in business related curricula. Since it has already been noted in this discussion that students in this study tended to follow the general education program designed for them, it is reasonable to assume that the majority of students had no compelling reason to take courses in the natural science component.

In the case of the transfer students, there was a general education requirement in the natural sciences; thus since non-completers of transfer curricula did not take courses in this component, the reasons must be attributed to something other than program design. Some observers of student course-taking behavior believe that students have no interest in taking courses in the sciences. Brawer and Friedlander (1979) observe a trend away from taking science courses. Blackburn and his associates (1976) note in their transcript study that when given a choice of electives outside their major field, students usually do not choose courses in the natural sciences; they choose courses in the social sciences or humanities. In addition to noting lack of student interest in science, Cox (1980) asserts that little creativity is exercised in designing courses that attract non-majors into the natural sciences.

Most likely, several factors contributed to the neglect of the natural sciences by non-completers of transfer and non-transfer programs. For some of these students, it is possible that the study

did not last long enough for them to fulfill course requirements or to take electives in the natural science component. For whatever the reasons, the avoidance of natural science by such a large number of students in this study deserves further examination by administrators and faculty, especially those faculty who teach natural science courses.

In addition to the difference in course-taking by completers and non-completers within groups, there were differences in course-taking between the students of transfer programs and the students in non-transfer programs. For instance, Table 64 demonstrates that students in non-transfer programs took a larger proportion of courses in mathematics, social science, and physical education or health courses than did transfer students. Perhaps course-taking in these curricular areas can be explained by program requirements. The programs of non-transfer students often include mathematics, social science, and health as part of their specialized course requirements. In this study these specialized courses were counted as general education; thus the figures showing the proportion of courses taken by non-transfer students in the mathematics, social science, and physical education and health components may be misleading. The high percentage of courses taken in these components gives the impression that students took large numbers of courses intended as general education when most probably they were fulfilling specialized course requirements for the associate in applied science degree.

Table 64 indicates another difference in course-taking between transfer and non-transfer students that deserves attention.

Non-transfer students took a smaller proportion of general education courses in humanities/fine arts and natural science than did transfer students. The difference in the course-taking may be explained by program requirements. Unlike transfer programs, non-transfer programs had no general education requirement in humanities and fine arts or in natural science; therefore, the students in the non-transfer programs might have been expected to take fewer courses in these components than did transfer students.

Question 3: In which of the following categories of general education did students take the majority of their general education courses: basic skills; advanced skills; breadth; integrative; laboratory, field study, or studio; or advanced skills/laboratory, field study, or studio courses?

A comparison across groups (Table 65) indicates that transfer students and non-transfer students did not take the same categories of courses in general education, which seems to indicate that they did not take the same kinds of programs. Non-transfer students took more basic skills courses in English, mathematics, and humanities and fine arts, and more advanced skills/laboratory, field study, or studio courses in natural science than did transfer students. This finding indicates that even in their general education program non-transfer students took a large number of specialized courses. Their English, mathematics, and humanities and fine arts courses contributed to a general education program that was oriented toward their occupational fields. In this study, for example, English basic skills were courses such as



Table 65

Summary: Categories of General Education in Which Majority<sup>a</sup> of Students Took Courses

Component of General Education	Transfer Students:		Non-transfer Students:		Non-curricular
	Completers	Non-completers	Completers	Non-completers	
English	Advanced Skills (77%)	Advanced Skills (80%)	Basic Skills (56%) Advanced Skills (41%)	Basic Skills (49%) Advanced Skills (47%)	Advanced Skills (63%)
Mathematics	Advanced Skills (47%) Basic Skills (37%)	Advanced Skills (45%) Basic Skills (39%)	Basic Skills (75%)	Basic Skills (75%)	Basic Skills (61%)
Natural Science	Breadth (81%)	Breadth (73%)	Advanced Skills/Lab., Field Study, or Studio (60%)	Breadth (47%) Advanced Skills/Lab., Field Study, or Studio (42%)	Breadth (63%)
Social Science	Breadth (71%)	Breadth (67%)	Breadth (65%)	Breadth (66%)	Breadth (62%)
Humanities/ Fine Arts	Breadth (66%)	Breadth (69%)	Basic Skills (55%) Breadth (31%)	Basic Skills (42%) Breadth (36%)	Breadth (34%) Advanced Skills/Lab., Field Study, or Studio (22%)
Physical Edu- cation/Health	Advanced Skills (63%)	Advanced Skills (57%)	Breadth (44%) Advanced Skills (33%)	Breadth (31%) Advanced Skills (55%)	Advanced Skills (61%)

<sup>a</sup>60% or more.

Communications Skills and Technical Writing (Appendix A). Mathematics basic skills were courses such as Slide Rule and Mathematics for Human Services. Basic skills humanities and fine arts were courses such as Public Speaking and Fundamentals of Design (Appendix A). Advanced skills, laboratory, field study, or studio courses in natural science were courses such as Applied Physics and Health Science Chemistry. Since there were no general education requirements in mathematics, humanities and fine arts, and natural science, it is safe to say that the courses taken in these components were courses that fulfilled specialized degree requirements.

Non-curricular students resembled the transfer students who did not complete programs with respect to the types of courses they selected within the components of general education. Both non-curricular students and students who did not complete transfer programs took the majority of their general education courses in the advanced skills and breadth categories. Both groups selected composition and literature in English, survey and introductory courses in humanities and natural science, and recreation or sports-related courses in physical education and health. The two groups differed in their selection of mathematics courses: non-curricular students took the majority of courses in basic skills whereas non-completers of transfer programs took the majority of courses in advanced skills.

Question 4: Was there a difference in the number of courses taken in general education based on sex, race, age, enrollment status, or time enrolled?

In this study the number of courses taken in general education was independent of sex and race, but the Chi Square analysis indicated statistically significant relationships between the number of courses taken in general education and the variables age, enrollment status, and time of enrollment. The relationships, however, did not occur across all groups.

Table 66 indicates that the total number of courses taken in general education by transfer students who did not complete programs was not independent of age. The factors that contribute to this relationship are not clear in the absence of further study; however, it may be that the transfer students in this study were the older part-time students who Lombardi (1979) says "enroll in transfer courses, but not for transfer purposes" (p. 21). These older students may enroll in transfer courses to fulfill educational goals which are not related to getting a degree or transferring to a four-year college. They seem to take only the number of general education courses that enable them to achieve their personal educational goals, whereas younger students take general education courses in an effort to complete associate degree requirements.

Data provided by the AACJC (1980d) may provide a different reason why older students in this study took more general education than did younger students. The Association reports that "at least 10% of all community college students have attended four-year colleges prior to their attendance at community colleges" (p. 1). Most likely these students already would have fulfilled general education requirements

Table 66

Summary: Significant Relationships Between General Education Courses Taken and Independent Variables

Subgroup	Cross-tabulation		Significant Relationship between Variables
	Dependent Variable	Independent Variable	
Transfer Students: Non-completers	Number of Courses Taken in General Education	Age	Younger students took more courses
Transfer Students: Non-completers and Non-transfer Students: Non-completers	Number of Courses Taken in General Education	Enrollment Status	Full-time students took more courses
Non-transfer Students: Completers and Non-completers and Non-curricular Students	Number of Courses Taken in General Education	Time Enrolled	Daytime students took more courses

and thus would be likely to take fewer general education courses than would younger students who had not previously been enrolled in postsecondary education. Since causal relationships cannot be determined by the data generated by this study, a further investigation of course-taking among older students is suggested.

A statistically significant relationship between the total number of general education courses taken and enrollment status was found among the non-completers of both the transfer and non-transfer groups as shown in Table 66. Full-time students took more general education courses than did part time students. A possible explanation of this relationship is that for the non-completers the study did not last long enough for part-time students to complete general education requirements of their programs. A much more likely reason for neglect of general education by part-time students is that these students had little interest in general education. Cohen and Brawer (1975) state that insufficient data is available to distinguish part-time students from full-time students, but suggest that part-time students are older than full-time students, that they are probably employed, and that their interest is in course-taking more narrowly focused on vocational goals. Students who fit this description are most likely to view general education as a barrier to overcome in meeting their educational goals. They are likely to be those community college students who believe that completing a program of general education is not as remuneratively rewarding as completing a program in specialized education. Reynolds (1969) explains that students tend to believe that

the concrete prospects of mastering a technical area and obtaining immediately the financial rewards of full-time employment have a decided advantage over the abstract prospects of learning to be a better citizen. (p. 194)

The belief that part-time students in the study were attending for reasons not related to completing programs or to completing general education requirements is further supported by the finding that the variable time enrolled was found to be associated with the number of courses taken in general education. Daytime students took more courses than did evening students in three groups in the sample: non-transfer students who did complete programs, non-transfer students who did not complete programs, and non-curricular students. Many of the evening students are part-time enrollees and thus fit Reynolds and Cohen's description of students who are more interested in vocational education than in general education.

The scheduling of courses for part-time evening students also may have contributed to the association between the curricular variables and the number of courses taken in general education. Part-time evening students probably did not have available to them the broad array of courses available to daytime students. How much difference the availability of courses might have made is as difficult to answer as the old chicken and egg question: which came first the scheduling of fewer general education courses or the lack of student response to general education?

Question 5: Was there a difference in the number of courses taken in English, mathematics, natural science, social science, humanities/fine

arts, or physical education/health based on sex, race, age, enrollment status, or time enrolled?

Several statistically significant relationships between the number of courses taken in the components of general education and the variables in this study were found within the groups studied. The summary of relationships in Table 67 indicates that some of the relationships existed across groups as well as within groups. For example, in all but the non-curricular group, males took more courses in mathematics than did females. The relationship between course-taking in mathematics and sex, however, can probably be attributed to student choice of programs. In this study the majority of females were in programs that required one or no mathematics courses. For example, in the non-transfer completers group, 36 percent of the women were enrolled in secretarial science, nursing, and community and social service. Only the latter requires a course in mathematics. In comparison, approximately the same number of men in non-transfer programs were enrolled in business management, electricity/electrical technology, or police science. All of these curricula require mathematics.

Another statistically significant relationship between the number of courses taken in one of the general education components and a variable in the study that existed across three groups in associate degree programs was that between age and course-taking in physical education and health. Younger students in associate degree programs took more physical education and health courses than did older students. There are at least three possible explanations for this

Table 67

Summary: Significant Relationships Between Variables  
Occurring Across Subgroups

Subgroup	Cross-tabulation		Significant Relationship between Variables
	Dependent Variable	Independent Variable	
Transfer Students Completers Non-completers	Number of Courses Taken in Physical Education/ Health	Age	Younger students took more courses
Non-transfer Students Completers			
Transfer Students Non-completers	Number of Courses Taken in Physical Education/ Health	Enrollment Status	Full-time students took more courses
Non-transfer Students Non-completers	Number of Courses Taken in Mathematics	Enrollment Status	Full-time students took more courses
	Number of Courses Taken in Natural Science	Enrollment Status	Full-time students took more courses
Transfer Students Non-completers	Number of Courses Taken in Natural Science	Time Enrolled	Daytime students took more courses
Non-transfer Students Non-completers			
Transfer Students Completers Non-completers	Number of Courses Taken Mathematics	Sex	Males took more courses
Non-transfer Students Completers Non-completers			
Non-transfer Students Non-completers	Number of Courses Taken in English	Time Enrolled	Daytime students took more courses
Non-curricular Students			



relationship between age and course-taking in physical education and health. One is that the requirement may have been waived for a large number of older students in the study. During the period of the study, a large number of armed services veterans were enrolled in the community college under the G.I. Bill. These older students were exempt from physical education in their program at the community college.

A second possible explanation of heavier enrollment in physical education and health by younger students is that courses were unavailable to a large number of older students who were enrolled in the evening for the majority of their educational programs. A third possible explanation is that given a choice of taking physical education courses or specialized training courses, older students opted for the specialized courses, which moved them closer to a more immediate educational objective--training for employment.

### Conclusions

The Carnegie Foundation for the Advancement of Teaching (1979) describes general education as a "disaster area" (p. 11) and as that part of the curriculum "where nobody is in charge" (p. 16). The findings of this study do not support those assumptions. The student transcripts examined in this investigation indicated that the general education program in the three colleges in the study was alive in the curriculum and that students--both completers and non-completers of programs--responded to the minimum general education requirement

established by the Virginia Community College System (VCCS). Completers of associate degree programs met or exceeded the minimum general education requirement established by the VCCS and non-completers, on the average, devoted a generous proportion of their programs to general education.

Within each of the transfer and non-transfer groups in this study, students who completed programs and students who did not complete programs took almost identical proportions of courses among the different curricular areas. Completers and non-completers in transfer curricula chose the same types of courses in the various components of general education; the same pattern held for students in non-transfer curricula. This similarity of course-taking in general education between completers and non-completers of programs reflects the influence of the minimum general education requirement established by the VCCS and suggests that in an educational system where the general education program is a mandated one, students make an effort to meet the expectations of the system.

Although community colleges in this investigation are in control of curricular functions as a result of state mandated course requirements, the general education program seems to have been weakened by the increasing emphasis placed on vocational-technical education. The evidence provided by this study indicates that possibly because of the colleges' reinterpretation of general education, there are at least two types of general education programs in operation in the curriculum. Data derived from student course-taking records indicates that students

in non-transfer programs followed a general education program that consisted largely of basic skills courses in English and mathematics, and specialized or occupational-related courses in humanities and natural science. On the other hand, students in transfer curricula participated in a general education program that included advanced skills courses in English and mathematics, and breadth courses in humanities and natural science. It appears that the general education of non-transfer students was oriented toward professional training, whereas the general education of transfer students was oriented toward the higher cognitive processes.

The program of general education taken by non-transfer students indicates a shift away from the traditional role of general education which tends to provide students exposure to areas that diverge from professional training. General education has been recast in non-transfer curricula as basic skills education in preparation for specific occupations. This promotion of specialized training for occupational readiness and the move toward basic skills education reflects the demand by vocationally oriented students for more practical education and the acquiescence of the colleges to that demand.

The Carnegie Foundation for the Advancement of Teaching (1979) implies that two-year colleges lack the power to implement a satisfactory general education component in the curriculum because of the large number of students who do not complete programs and are therefore not bound to the degree programs of the colleges. To a

certain extent, the present study supports these assumptions. The data indicated that students who did not complete programs showed a great deal of variation in their course-taking in general education in terms of the number of courses they took. More important, however, is the consistency of course-taking behavior of students across all groups. With the exception of the transfer completers, the majority of all subgroups avoided natural science. Non-completers of both transfer and occupational technical programs also tended to ignore mathematics and physical education. The systematic neglect of natural science, mathematics, and physical education points out the unbalanced program being taken by community college students who develop their own general education program. In this respect, the findings of this study support the notion that community colleges, given their present methods of organizing curriculum, are permitting students some control over the content of general education.

On the other hand, the present investigation of curriculum does not indicate that community colleges lack the power to implement a satisfactory general education program. Though there is serious neglect of certain curricular components in the programs of non-completers, the research demonstrates that there is a core of general education courses operating in the curricula of students whether they are completers or non-completers. This core consists of English, social science, and humanities. The response to these areas of the curriculum shows that students in this study did attempt to participate in education that transcends vocational training. The

consistency of course-taking behavior across all groups makes a strong statement about the unbalanced program of general education in the community colleges, but suggests that there is a potential base from which the three colleges can work if they wish to revamp the curriculum to make a stronger commitment to the general education function.

#### Implications for Practice

The most important issue revealed in this study of the community college curriculum is the long-range effect of the program now in operation. It appears that the only students who are presently involving themselves in general education in the traditional sense are transfer students, and of this group, only those who receive degrees take a balanced program--a program which includes all of the curricular components traditionally associated with general education. A large number of community college students, especially those in non-transfer programs, receive instruction in a skills-oriented program that may subvert the purpose of general education. Continuing their present course, the colleges may find themselves in the position of becoming merely training institutions--turning out students whose claim to higher education is the development of job skills, a smattering of practical English, and a brief introduction to sociology. Further, as community colleges accommodate the public's demands for basic skills, and make skills courses the focus of their general education program, they put themselves in the position of extending secondary school for those individuals whose past educational training was not satisfactory.

If colleges are comfortable with extending a narrow bridge from the high school to the job market, they should continue their current practices. If, however, colleges care to wrestle with the complex problems associated with designing broad new approaches to providing general education to a heterogeneous population, they might begin by looking for examples of two-year institutions that have taken experimental approaches to strengthen the role of general education in the overall curriculum. There are examples of approaches that address the two major weaknesses observed in the general education curriculum of the three colleges in the study: an unbalanced program that lacks mathematics, natural science, and physical education; and a program that for non-transfer students is heavily skewed toward occupational preparation.

An example of the most extensive move to ensure the integrity of general education is provided by Miami Dade Community College. Having reviewed the college's general education program and found elements of that program unacceptable, Miami Dade began in 1971 to devise ways to fortify general education to support the overall mission of the college. Ultimately, the college created a core of five interrelated courses required of all degree-seeking students. These courses, which directly address the general education goals established for the college, represent all of the curricular components generally associated with general education and thus provide a balanced program of general education to degree-seeking students both in the transfer and non-transfer curricula.

One of the most important features of Miami Dade's general education program is the separation of basic skills education from its core curriculum. A screening process allows the college to recommend appropriate supportive services to alleviate academic deficiencies so that students can function effectively in college courses. This screening process relieves the general education curriculum from the responsibility of remediation. Consequently, students that take general education courses are more adequately prepared for the academic challenge involved.

An equally important feature of the program is that once students are academically prepared, they encounter the core courses at the beginning of their degree program. The logic underlying the program is that all students, whether they complete a program or not, will have participated in general education courses that can make a significant contribution to their lives and to their future academic endeavors.

If the colleges in this study were inclined to move toward a core curriculum, they would have to consider first whether they have the available resources required to plan and implement such a curricular change. Second, they would have to consider whether the climate of their organizations is amenable to alteration of the educational process. It should be noted that the extent to which Miami Dade successfully implemented a core curriculum may have depended upon the pre-implementation preparation conducted by the college.

While a few colleges look to the core curriculum as one possible solution to the problem of revitalizing general education, other

colleges are directing their efforts toward integrating the humanities throughout the occupational-technical curricula. The general education module is an example of one instructional mode that has been tried. This unit of instruction may be seen as a compromise between vocational faculty and administrators and those individuals who wish to get more general education courses into the curriculum. Though vocational personnel tend to agree on the importance of general education courses, they resist the addition of general education courses to their tightly scheduled programs. Thus some colleges have chosen to design general education modules that fit into the vocational curricula.

Modules, for their effective presentation, require innovative thinking and cooperation on the part of both vocational faculty and faculty from the discipline or disciplines involved. While cooperation is not difficult to acquire, apparently the innovative thinking presents a problem. As is often the case, the traditional pattern of thinking on the part of faculty members teaching in the disciplines is an obstacle to the success of non-traditional instruction. Colleges that have tried the module approach have reported that their faculty members have trouble shifting their thinking away from the usual method of presenting their subjects. However, in all fairness, general education modules have not been often attempted in community colleges, and therefore, a judgment about their effectiveness may be premature.

Seemingly, modules that incorporate general education into occupational-technical curricula are a means of strengthening the overall curriculum. Even though the exposure to academic disciplines



is limited, an introduction to the subject matter may inspire further study somewhere in the students' academic career, which does not have to be limited to the two-year curriculum or to the formal classroom.

Another curriculum approach is the interdisciplinary course which elicits more support from community college faculties than does the modular approach. Funds to support the development of interdisciplinary studies have come from the National Foundation for the Humanities and the Andrew W. Mellon Foundation. Colleges aided by such organizations have the advantage of on-site assistance from the National Humanities Faculty (NHF), a non-profit organization whose aim is to improve teaching and learning in the humanities. The NHF helps faculties to develop courses such as the introductory humanities course at Atlantic Community College in New Jersey which integrates history, philosophy, music, art, and literature. A similar course at Shelby State Community College in Tennessee integrates anthropology, philosophy, music, art, literature, and history. Interdisciplinary courses such as these are unified by modern themes such as the common elements of culture of which food, death, kinship, work, play, and nature are examples.

Including interdisciplinary general education courses in the community college curriculum increases the possibility of broadening the students' education, if such courses are well-placed within the programs of students. An added advantage of interdisciplinary courses, which may appeal to community college administrators, is that the

extent of curricular change required to implement these courses is not so great as that needed to install a core curriculum. The curriculum does not necessarily have to be expanded, because interdisciplinary courses may replace general education courses that the colleges finds inappropriate or not in support of the college's mission. Few staff members may be required in the overall planning of an interdisciplinary course. Some funding is required, but there is the possibility of outside resources from an organization such as the National Foundation for the Humanities.

Some colleges are moving toward a competency-based general education curriculum and exploring ways to make general education goals relative to the demands of the vocational world. Whatcom Community College in Bellingham, Washington, for example, has engaged the business community in determining the liberal arts competencies needed by employees. If carefully designed, a competency-based model can be a powerful step toward reducing the imbalance in the general education curriculum. Such a curricular model requires that general education competencies be arranged in a taxonomy that ensures a balance between skills courses and courses intended to encourage critical and analytical thinking.

The numerous ways suggested for enhancing the vitality of the general education component of the curriculum indicate that community college personnel can and do aspire to improve the curriculum. However, it remains the prerogative of each community college to determine the importance it assigns general education and to find ways

to strengthen the curriculum. It is hoped that the data derived from this study will be useful to college deans and curriculum planners, that they will employ the methodology for further study, and that they will work carefully to assess the type and extent of general education in their curriculum.

### Recommendations

#### Recommendations for Research

As a result of this study, the following recommendations for further research are made:

1. A study is needed to indicate student and faculty perceptions of general education. Such a study could lead to a better understanding of student response to curriculum offerings and perhaps a reevaluation of advising approaches. The present study indicates that general education is perceived as having different functions in the curricula of community college students, depending upon the students' programs of study. Because of the similarity of course-taking among students of similar curriculum goals, there is reason to believe that barriers exist limiting students' ability to cross the boundary between vocational curricula and transfer curricula even though occupational-technical students could benefit from exposure to certain areas of the college parallel curriculum, and transfer students might be better prepared for further study as a result of contact with occupational-technical faculty and students. Knowledge about the beliefs of faculty and students regarding who is entitled to take what courses might help

us to understand student course-taking behavior in community colleges and would provide some insight into a rationale for curriculum design.

2. Research on the part-time student in the community college is needed to enable curriculum planners to develop appropriate courses and appropriate time schedules for these students who account for the bulk of enrollment in the two year colleges. Data from this investigation indicate that there is a significant relationship between student enrollment status and student course-taking in general education. Part-time students who were non-completers took fewer general education courses than did full-time students who were non-completers, and they avoided mathematics, natural science, and physical education. Other data in this study indicate that evening students were less responsive to general education than were daytime students. Many part-time students participate in the evening program which may not provide the array of courses available to daytime students. Consequently, there is reason to suspect that the scheduling of courses may contribute to student neglect of certain curricular areas. If general education courses were simply not available to part-time students, then a concerted effort toward planning the curriculum for non-traditional students might be a means to strengthen the general education program. If however, there were other reasons why part-time students took fewer general education courses, these reasons need to be known so that if enhanced participation in general education is a goal, measures can be taken to plan the curriculum to increase enrollment by the part-time population.

3. The present study included only general education courses for which students received credit. The research did not account for failures and withdrawals of students from general education courses. Further study is needed to determine the influence of failure, or fear of failure (which may have been the cause for some withdrawals), on successive attempts to take general education courses. Friedlander's transcript study (1980) of student success in the initial science course and the enrollment in and completion of subsequent science courses provides a methodology for conducting such a study. Knowing the extent to which student failure in general education courses contributes to student avoidance of certain areas of the curriculum, especially in mathematics and natural science, could lead to new approaches in developmental education and in advising techniques.

4. A study of the motivation of females in their selection of curricula is needed. The data in the present study indicated that females across all associate groups took fewer mathematics courses than did males, and it is believed that the reason for the difference in course-taking between the two sexes was that females chose curricula with fewer required courses in mathematics. The choice of such curricula raises questions that could lead to further studies of the course-taking behavior among the female population in community colleges. The following questions need to be answered: Do females select curricula on the basis of requirements in mathematics? Does lack of preparation in mathematics contribute to female avoidance of male-dominated curricula such as science and engineering? Is the

environment of the community college conducive to the success of females in non-traditional curricula? To what extent does developmental education alleviate the problems associated with course-taking in mathematics by females? Are women as capable as men to succeed in mathematics courses and in mathematics-oriented curricula? These questions may provide the basis for further research related to course-taking by females in community colleges. Research of this nature should be especially important to mathematics and science faculties because of the influence women will exert on curriculum as they increase their enrollment in the two-year colleges. Their influence on curriculum is already being felt in the humanities, according to some researchers who see women choosing new careers and moving away from the liberal studies which have been their traditional area of concentration.

5. A study is needed to determine the relationship between student involvement in developmental education and future course-taking in general education. This investigation did not record developmental courses taken by the students in the study. Data showing the effect of developmental studies on subsequent course-taking could be helpful to curriculum planners in creating supportive services to enhance student success in the community colleges.

6. A study is needed to determine the effect on general education by part-time faculty. As two-year college budgets shrink, an increasingly large number of part-time faculty are being employed. Often these part-time faculty are assigned to teach general education

courses. Although part-time faculty may do an effective job of teaching, they may not be willing to go beyond the classroom to promote the welfare of the general education program as a whole. The lack of contact with the rest of the college faculty, staff, and students may restrict the part-time faculty members's view of the overall mission of the community college. The limited participation in curriculum planning on the part of faculty who are not regularly employed by the community college may prohibit the successful operation of the community college general education program.

Since part-time faculty are becoming more important to the college as a means of coping with restricted budgets, their influence on curriculum must be understood. It is important to know 1) whether part-time faculty influence curriculum choices by students, 2) whether part-time faculty influence the process by which decisions are made regarding curriculum offerings, 3) whether attitudes of part-time faculty preclude the development of non-traditional approaches to general education.

7. Of interest in this study was the response of non-curricular students to general education. The data showed that in comparison to other subgroups in the study, non-curricular students most resembled transfer students who did not complete associate degree programs. Non-curricular students took advanced skills studies and breadth courses in the same subject areas as did transfer students who did not receive degrees. This finding supports Lombardi's (1979) statement that many adults enroll part-time to take transfer courses but not for

transfer purposes. These students are interested in courses that contribute to their personal growth; however, they may not wish to involve themselves in a degree program.

With the exception of classes offered as non-credit in the continuing education program, not much attention has been given to developing special general education courses for older, part-time adults. The data in this study provide the basis for further study of non-curricular students who are probably the most unpredictable group in the community college in terms of their course-taking behavior. The interest shown in general education by non-curricular students in this study warrants further investigation of the potential market for courses in English, especially in composition and literature, and courses in social science and humanities. The non-curricular population can provide a challenge to academicians to develop innovative approaches to disciplines and subject areas suffering from lack of attention by more traditional-minded students who adhere to a set of courses acceptable to the four-year colleges to which they expect to transfer. Courses in music, art, philosophy, religion, and foreign language might be appealing to older part-time students whose earlier educational experiences did not include such disciplines either because of their particular course of studies or because of the lack of interest in the subject matter at an earlier age.

#### Recommendations for Practice

As a result of this study, the following recommendations for practical application are made:



1. It is recommended that community colleges accept a leading role in generating interest in the natural sciences. A first step might be to encourage cooperation with secondary feeder schools in developing units of study that would interest students who do not ordinarily take more than the one required unit of study in science.

Materials that combine media and natural science could create new interest in science for individuals in community colleges whose secondary school preparation may not have been sufficient for the rigors of laboratory investigation which is expected of the science major. New materials might be tested in continuing education courses through which community support for the sciences might be developed.

2. It is recommended that college administrators be selective in hiring personnel whose educational backgrounds are sufficiently broad to enable them to plan and implement a strong general education program and whose interest in community college education goes beyond vocational training. Data show that community college faculty are less likely to move to four-year colleges or to administrative positions than they were a few years ago. Thus once hired, a college faculty member may exert influence on the curriculum for a long period of time. The education, attitudes, and experiences of faculty members may be important to the success of a general education program, especially if experimental approaches are required to develop non-traditional models. A cramped view on the part of a few faculty members could severely damage the most creative and well-planned general education curriculum.

3. It is recommended that the community colleges in the study examine further the general education program in their institutions, using transcript analysis to determine actual course-taking practices of students. Each institution ought to provide its own operational definition of general education based on the philosophy of its administration and staff. The very process of deciding what general education is at the institution and the rationale on which it is founded may provoke some serious thought that could lead to the development of a more coherent curriculum.

At each institution, course-taking in transfer and non-transfer groups should be examined in terms of individual programs, i.e., secretarial science, police science. From such an investigation profiles of students may be developed to reveal distinct course-taking behavior among students based on cognitive and non-cognitive factors. Information of this type may be used in advising, program planning, scheduling, and in developing student support services.

4. Curriculum planners should examine the reasons for requiring so many hours in basic skills English courses that are generally oriented toward technical writing. Are the communications skills needed by vocational students so different from those needed by transfer students that there must be more than one course devoted to this type of general education? Is the urgency to communicate with fellow workers in technical language so great that it requires the sacrifice of other curricular areas in the general education of community college students?

Since many community college students do not complete curricula, academic planners ought to consider whether it would be wise to replace at least one English communications skills course with an interdisciplinary course in the humanities to increase the possibility of students receiving a broader education.

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APPENDIX A

COURSES CATEGORIZED AS "GENERAL EDUCATION" AND COURSES  
CATEGORIZED AS "NOT GENERAL EDUCATION"  
BY PANEL OF EXPERTS

## General Education Courses:

## ENGLISH

1. Basic Skills Courses

101-102-102 Communications Skills  
 106 Manual Communication Skills  
 107 Manual Communication Skills  
 110 English Grammar: Its Logic and Function  
 117 Advanced Reading  
 118 Advanced Reading and Study Development  
 119 Critical Reading and Study Skills  
 131-132-133 Communication for Employment  
 134-135 Technical Report Writing  
 137 Technical Writing  
 140 Reading Development  
 166 College Reading  
 167 College Grammar  
 180 Fundamentals of Business English

2. Advanced Skills Courses

111-112-113 English Composition  
 114-115 English Composition  
 228 Creative Writing  
 230 Creative Poetry Writing  
 234-235 Creative Writing  
 249 Modern Poetry  
 250 Major American Writers  
 251-252-253 Survey of American Literature  
 260 Major English Writers

3. Breadth Courses

(none)

4. Intergrative Courses

128 Survey of Mass Media  
 259 Afro American Literature  
 278 Women in Modern Literature

5. Laboratory, Field Study, or Studio Courses

199 Supervised Study in English  
 298 Seminar and Project in English  
 299 Supervised Study in English

6. Advanced Skills/Laboratory, Field Study or Studio Courses

126 Introduction to Journalism  
 244 Literature of Science Fiction  
 261-262-263 Survey of English Literature  
 271-272-273 Survey of World Literature  
 276 Literature of the Occult

## HUMANITIES/FINE ARTS

Arts1. Basic Skills Courses

107-108-109 Fundamentals of Art  
 121-122-123 Theory and Practice of Drawing  
 131-132-133 Theory and Practice of Ceramics  
 151-152 Fundamentals of Design  
 154-155 Design  
 156 Design  
 166-167 Fundamentals of Lettering  
 180 Introduction to Photography  
 183 Introduction to Photography

2. Advanced Skills Courses

234-235 Theory and Practice of Watercolor Painting  
 236-237 Theory and practice of Oil Painting  
 261-262-263 Advertising Design  
 291-292-293 Advanced Photography

3. Breadth Courses

101-102-103 General Art  
 104-105-106 Introduction to the Arts  
 110 Art Appreciation  
 111-112-113 History and Appreciation of Art  
 200 Introduction to Primitive Arts  
 208 History of Modern Art  
 209 Development of Architecture  
 224-225-226 History of Art

4. Integrative Courses

115 Art in World Culture  
 206 The Growth of American Art

5. Laboratory, Field Study or Studio Courses

118 Museum Survey  
 199 Supervised Study in Ceramics  
 201-202-203 Sculpture  
 227-228-229 Drawing  
 251-252-253 Advanced Design  
 264-265 Silk Screen Design and Production  
 226-267-268 Illustration  
 275-276 Art Printmaking Workshop  
 278 Printmaking: Silk Screen  
 279 Print: Relief Printing  
 298 Seminar and Project in Art  
 299 Supervised Study in Art

6. Advanced Skills/Laboratory, Field Study or Studio Courses

164-165 Theory and Practice of Ceramics  
 187 Color Photography  
 197 Cooperative Education in Art  
 210 Seminar in Christian Art  
 230 Painting Materials and Techniques  
 231-232-233 Theory and Practice of Painting  
 238 Portrait Painting  
 241-242-243 Theory and Practice of Sculpture  
 271-272-273 Graphic Techniques  
 274 Introduction to Art Print Making  
 297 Cooperative Education in Art

French

1. Basic Skills Courses

(none)

2. Advanced Skills Courses

101-102-103 Introductory French  
 201-202-203 Intermediate French  
 206-207-208 Intermediate French

3. Breadth Courses

231-232-233 Introduction to French Civilization and Literature

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

198 Seminar and Project in French  
199 Supervised Study in French

6. Advanced Skills/Laboratory, Field Study or Studio Courses

107 Conversation in French  
199 Supervised Study in French  
298 Seminar and Project in French  
299 Supervised Study in French

German1. Basic Skills Courses

(none)

2. Advanced Skills Courses

101-102-103 Introductory German  
201-202-203 Intermediate German

3. Breadth Courses

231-232-233 Introduction to German Literature

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

199 Supervised Study in German  
299 Supervised Study in German

6. Advanced Skills/Laboratory, Field Study or Studio Courses

107-108-109 Conversational German

History1. Basic Skills Courses

(none)

2. Advanced Skills Courses

206 American History Since World War II  
 215 American Revolution  
 216 The American Civil War  
 221-222-223 American Economic History  
 259 Russia and The Soviet Union Since 1885

3. Breadth Courses

101-102-103 History of Western Civilization  
 111-112-113 American History  
 114-115 U.S. History  
 116 Major Themes in American History  
 251-252-253 History of Modern Europe  
 256-257-258 Survey of Russian History  
 260 Survey of the History of England  
 261-262-263 History of England  
 271-272-273 The History of Virginia

4. Integrative Courses

160 Women in History  
 164-165 Women in World History  
 187-188-189 Black History

5. Laboratory, Field Study or Studio Courses

198 Seminar in History  
 199 Supervised Study in History  
 298 Seminar and Project in History  
 299 Supervised Study in History

6. Advanced Skills/Laboratory, Field Study or Studio Courses

276 Life in Colonial Virginia

Humanities1. Basic Skills Courses

(none)

2. Advanced Skills Courses

(none)

3. Breadth Courses

201-202-203 Survey of Western Culture

4. Integrative Courses

206 Creative Thinking

5. Laboratory, Field Study or Studio Courses

(none)

6. Advanced Skills, Laboratory, Field Study or Studio Courses

198 Seminar in Humanities

Italian1. Basic Skills Courses

114-115 Conversation in Italian

116 Conversation in Italian

2. Advanced Skills Courses

211-212-213 Advanced Italian

3. Breadth Courses

(none)

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

(none)

6. Advanced Skills/Laboratory, Field Study or Studio Courses

(none)

Music1. Basic Skills Courses

(none)

2. Advanced Skills Courses

211-212-213 Advanced Music Theory

214-215 Composition



3. Breadth Courses

121-122-123 Music Appreciation  
224-225 The History of Opera

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

131-132-133 Class Voice  
138 Chorus  
139 Small Vocal Ensemble  
141-142-143 Class Piano  
148 Orchestra  
149 Band  
238 Chorus  
249 Band

6. Advanced Laboratory, Field Study or Studio Courses

109 Music for Children  
111-112-113 Music Theory  
117-118 Choral Directing  
137 Applied Music - Voice  
147 Applied Music - Keyboard  
157 Applied Music - Woodwinds  
167 Applied Music - Strings  
177 Applied Music - Brass  
187 Applied Music - Percussion  
206-207-208 Music for the Classroom Teacher  
237 Advanced Applied Music - Voice  
247 Advanced Applied Music - Keyboard  
257 Advanced Applied Music - Woodwinds  
267 Advanced Applied Music - Strings  
277 Advanced Applied Music - Brass  
287 Advanced Applied Music - Percussion

Philosophy and Religion

1. Basic Skills Courses

(none)

2. Advanced Skills Courses

254 Logic I  
255 Logic II

3. Breadth Courses

101-102-103 Introduction to Philosophy  
 104-105 Introduction to Philosophy

4. Integrative Courses

227 Comparative Religion

5. Laboratory, Field Study or Studio Courses

(none)

6. Advanced Laboratory, Field Study or Studio Courses

116 Logic  
 210 Ethics  
 217 Life and Teachings of Jesus  
 219 Ethics  
 221 Literature of the Bible  
 222 Literature of the Bible  
 226 Comparative Religion  
 246 Christianity

Spanish1. Basic Skills Courses

107 Conversation in Spanish  
 108-109 Conversation in Spanish

2. Advanced Skills Courses

101-102-103 Introductory Spanish  
 201-202-203 Intermediate Spanish  
 206-207-208 Intermediate Spanish  
 231-232-233 Survey of Spanish Literature

3. Breadth Courses

(none)

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

199 Supervised Study in Spanish  
 299 Supervised Study in Spanish

6. Advanced Laboratory, Field Study or Studio Courses

(none)

Speech and Drama1. Basic Skills Courses

111-112-113 Acting  
 130 Principles of Public Speaking  
 131-132-133 Fundamentals of Public Speaking  
 136 Oral Communication  
 137 Public Speaking  
 141-142-143 Voice and Diction

2. Advanced Skills Courses

157 Debate  
 218 Directing  
 230 Advanced Public Speaking  
 248 Persuasion  
 276 Oral Interpretation

3. Breadth Courses

106-107 Introduction to Theatre  
 201-202-203 Theory of Theatre  
 206 Modern Drama  
 207 Contemporary American Drama  
 261-262-263 Film Appreciation  
 266 The Art of the Film

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

156 Speech Workshop  
 198 Seminar in Speech and Drama  
 215-216 Rehearsal and Performance  
 298 Seminar and Project in Speech and Drama  
 299 Supervised Study in Speech and Drama

6. Advanced Laboratory, Field Study or Studio Courses

119 Theatre Workshop

## MATHEMATICS

1. Basic Skills Courses

100 Mathematical Calculations  
101-102-103 Fundamentals of Math  
104-105 Fundamentals of Math  
106 Slide Rule  
107 Introduction to Engineering Technical Math  
110 Introduction to the Metric System  
111-112-113 Technical Math  
114-115 Technical Math  
117 Mathematics for Allied Health Students  
118-119 Introduction to Technical Math  
130 Mathematics for Community and Social Services  
151-152-153 Business Math  
160 Introduction to College Math  
181-182-183 General College Math  
184-185 General College Math

2. Advanced Skills Courses

141-142-143 Introductory Mathematical Analysis  
164-165 College Math  
171-172-173 Mathematics of Finance  
187-188 Introduction to Elementary Probability  
202 Introduction to Matrix Algebra  
211 Advanced Technical Math  
221-222 Advanced Engineering Technical Math  
241-242-243 Advanced Mathematical Analysis  
261-262-263 Advanced College Math  
271-272-273 Calculus  
281-282-283 Statistics

3. Breadth Courses

(none)

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

199 Supervised Study in Math  
298 Seminar and Project in Math  
299 Supervised Study in Math

6. Advanced Skills/Laboratory, Field Study or Studio Courses

121-122-123 Engineering Technical Math  
 161-162-163 College Math  
 198 Seminar in Math

## NATURAL SCIENCE

Biology1. Basic Skills Courses

(none)

2. Advanced Skills Courses

176 Microbiology  
 177 Microbiology for Respiratory Therapy Technicians  
 251-252 Human Anatomy and Physiology  
 256 Introductory Genetics  
 258 Comparative Anatomy of Vertebrates  
 267 General Ecology

3. Breadth Courses

101-102-103 General Biology  
 104-105 General Biology  
 207 Biological Evolution

4. Integrative Courses

206 Biological Problems in Contemporary Society

5. Laboratory, Field Study or Studio Courses

198 Seminar in Biology  
 199 Supervised Study in Biology  
 298 Seminar and Project in Biology  
 299 Supervised Study in Biology

6. Advanced Skills/Laboratory, Field Study or Studio Courses

114-115 General Botany  
 124-125 General Zoology  
 130 Introduction to Zoo Biology  
 154-155 Human Anatomy and Physiology  
 176 Regional Flora

Chemistry1. Basic Skills Courses

(none)

2. Advanced Skills Courses

114-115 General Inorganic Chemistry  
131 Qualitative Analysis  
241-242-243 Organic Chemistry  
246-247-248 Organic Chemistry

3. Breadth Courses

101-102-103 General Chemistry

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

198 Seminar in Chemistry  
199 Supervised Study in Chemistry  
298 Seminar and Project in Chemistry  
299 Supervised study in Chemistry

6. Advanced Skills/Laboratory, Field Study or Studio Courses

111-112-113 General Inorganic Chemistry  
151-152-153 Health Science Chemistry  
297 Cooperative Education in Chemistry

Geology1. Basic Skills Courses

(none)

2. Advanced Skills Courses

(none)

3. Breadth Courses

101-102-103 General Geology  
104-105 General Geology  
207 Introduction to Environmental Science  
226 Minerals

227 Rocks  
228 Fossils

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

198 Seminar in Geology  
199 Supervised Study in Geology  
298 Seminar and Project in Geology

6. Advanced Skills/Laboratory, Field Study or Studio Courses

128 Fossils

Natural Science

1. Basic Skills Courses

101-102-103 Physical Science  
111-112-113 Health Science  
121-122-123 Natural Sciences  
141-142-143 Fundamental Sciences for Respiratory Therapy  
154-155 Astronomy

2. Advanced Skills Courses

(none)

3. Breadth Courses

(none)

4. Integrative Courses

125 Conservation of Natural Resources

5. Laboratory, Field study or Studio Courses

(none)

6. Advanced Laboratory, Field Study or Studio Courses

100 Survey of Science

Physics

1. Basic Skills Courses

(none)

2. Advanced Skills Courses

201-202-203 General College Physics

221-222-223-224 General University Physics

3. Breadth Courses

101-102-103 Introductory Physics

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

198 Seminar in Physics

199 Supervised Study in Physics

298 Seminar and Project in Physics

299 Supervised Study in Physics

6. Advanced Skills/Laboratory, Field Study or Studio Courses

111-112-113 Technical Physics

114-115 Technical Physics

121-122-123 Principles of Physics

131-132-133 Applied Physics

134 Applied Physics

## SOCIAL SCIENCE

Economics1. Basic Skills Courses

160 Survey of American Economics

211-212-213 Principles of Economics

214-215 Principles of Economics

2. Advanced Skills Courses

241-242-243 Money and Banking

246 Money and Banking

3. Breadth Courses

(none)



4. Integrative Courses

247 Consumer Economics  
256 Contemporary Economic Problems

5. Laboratory, Field Study or Studio Courses

298 Seminar and Project in Economics  
299 Supervised Study in Economics

6. Advanced Skills/Laboratory, Field Study or Studio Courses

226 Industrial Economics

Geography

1. Basic Skills Courses

(none)

2. Advanced Skills Courses

240 Physical Geography  
260 Economic Geography

3. Breadth Courses

(none)

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

(none)

6. Advanced Skills/Laboratory, Field Study or Studio Courses

120 Political Geography  
250 Cultural Geography

Government

1. Basic Skills Courses

100 Orientation to State Government

2. Advanced Skills Courses

(none)

3. Breadth Courses

176 Problems of State and Local Government  
 180 American Constitutional Government  
 185 American Constitutional Government  
 256 Introduction to International Politics  
 281-282-283 U.S. Government  
 284-285 U.S. Government

4. Laboratory, Field Study or Studio Courses

257 Contemporary International Problems  
 258 Contemporary National Problems

5. Laboratory, Field Study or Studio Courses

298 Seminar in Public Affairs  
 299 Supervised Study in Government

6. Advanced Skills/Laboratory, Field Study or Studio Courses

211 International Relations I  
 212 International Relations II  
 213 International Relations III

Psychology1. Basic Skills Courses

(none)

2. Advanced Skills Courses

206 Personal Conflict and Crisis Management  
 210 Social Psychology  
 226 Psychological Aspects of Management  
 231-232-233 Human Growth and Development  
 236 Psychology of Adolescence  
 246 Educational Psychology  
 257 Law Enforcement Psychology  
 258 Psychology for Correctional Personnel  
 260 Introduction to Behavior Modification

3. Breadth Courses

110 Principles of Applied Psychology  
128 Human Relations  
129 Human Relations  
201-202-203 General Psychology  
204-205 General Psychology

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

198 Seminar in Psychology  
199 Supervised Study in Psychology  
298 Seminar and Project in Psychology  
299 Supervised Study in Psychology

6. Advanced Skills/Laboratory, Field Study or Studio Courses

116 The Psychology of Personal Adjustment  
119 Psychology of Personality  
120 Experiences in Personal Growth  
130 Child Growth and Development  
136 Human Development  
137 Psychology of Aging  
146 Assertiveness Training  
167 Psychology of Human Sexuality  
207 Extrasensory Perception  
266 Introduction to Counseling Relationships

Social Science

1. Basic Skills Courses

(none)

2. Advanced Skills Courses

(none)

3. Breadth Courses

101-102-103 Contemporary American Civilization

4. Integrative Courses

116 Cultural and Social Study of Women  
 121-122-123 Current American Social Problems  
 180 Problems of Man in the Modern World

5. Laboratory, Field Study or Studio Courses

(none)

6. Advanced Laboratory, Field Study or Studio Courses

100 The Individual and His World

Sociology

1. Basic Skills Courses

116 Child-Parent-Community Relations

2. Advanced Skills Courses

(none)

3. Breadth Courses

101-102-103 Introductory Sociology  
 104-105 Introductory Sociology  
 106 General Sociology  
 170 Introduction to Black American Culture  
 240 Introductory Anthropology

4. Integrative Courses

167 Public Opinion and Propaganda  
 177 Religion and Society  
 186-187 Social Problems  
 236 Marriage and the Family  
 237 Marriage and the Family  
 250 Appalachian Folk Culture  
 256 Appalachian Problems and Institutions  
 266 Death and Society  
 276 Social Problems

5. Laboratory, Field Study or Studio Courses

198 Seminar in Sociology  
 199 Supervised Study in Sociology

6. Advanced Laboratory, Field Study or Studio Courses

140 Introduction to Transactional Analysis  
 147 Parent-Child Interaction  
 166 School and Community Relations  
 246 Cultural Anthropology

## PHYSICAL EDUCATION/HEALTH

Health1. Basic Skills Courses

100 Orientation to Allied Health Careers  
 101 Cardiopulmonary Resuscitation Modular System  
 103 Multi-Media First Aid  
 104 First Aid I  
 105 First Aid II  
 106 First Aid and Safety  
 108 First Aid and Medical Self-Help  
 124 Medical Terminology I

2. Advanced Skills Courses

(none)

3. Breadth Courses

109 Introduction to School First Aid, Health and Safety  
 110 Concepts and Personal and Community Health  
 116 Health and Physical Fitness  
 136 Human Sexuality  
 140 Introduction to Drug Use and Abuse  
 148 Introduction to Alcohol Use and Abuse

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

(none)

6. Advanced Skills/Laboratory, Field Study or Studio Courses

125 Medical Terminology II  
 130 Health Education  
 156 Child Health and Nutrition

Physical Education1. Basic Skills Courses

100 Fundamentals of Physical Activity

2. Advanced Skills Courses

101-102-103 Physical Education I, II, III

110 Angling and Casting

111 Archery

112 Camping

113 Boating

114 Equitation

115 Ice Skating

116 Sailing

117 Shooting and Firearm Safety

118 Snow Skiing

119 Water Skiing

123 Whitewater Canoeing

128-129 Hiking and Backpacking

130 Badminton

131 Bowling

133 Golf

134 Handball

135 Tennis

136 Fundamentals of Roller Skating

138 Self Defense

139 Intermediate Tennis

141 Weight Training

146 Cycling

147 Basketball Rules and Officiating

148 Paddleball

151 Senior Life Saving

152 Skin and Scuba Diving

153 Swimming

162 Gymnastics

164 Square Dancing

167-168 Dance and Movement

170 Basketball

172 Soccer

173 Softball

174 Volleyball

201 Body Dynamics

204 Officiating at Game

207 Beginning Tennis

241 Karate I

242 Karate II

243 Karate III

3. Breadth Courses

200 An Introduction to Health, Phy. Ed. and Recreation  
203 Sports Appreciation

4. Integrative Courses

(none)

5. Laboratory, Field Study or Studio Courses

199 Supervised Study in Physical Education  
298 Seminar and Project in Phy. Ed.  
299 Supervised Study in Phy. Ed.

6. Advanced Skills/Laboratory, Field Study or Studio Courses

108 Physical Activities for Children  
132 Family Recreational Activities

## NOT GENERAL EDUCATION COURSES

English

121-122-123 Journalism

HumanitiesArt

127 Creative Activities for Children

Natural ScienceBiology

214 Introduction to Non-vascular Plants  
215 Introduction to Vascular Plants  
220 Introduction to Vertebrate Zoology  
221-222-223 Introduction to Invertebrate and Vertebrate Zoology  
226 Introduction to Vertebrate Zoology  
259 Embryology of Vertebrates  
268 Microbiology

Chemistry

197 Cooperative Education in Chemistry

APPENDIX B

PROGRAMS OFFERED BY COMMUNITY COLLEGES  
IN THE STUDY



PROGRAMS OFFERED BY THE THREE COMMUNITY COLLEGES  
IN THE STUDY

	<u>Colleges</u>		
	New River	Virginia Western	Tidewater
ASSOCIATE IN ARTS (AA)			
Fine Arts		X	X
Liberal Arts	X	X	X
Music - Specialization	X		X
ASSOCIATE IN SCIENCE (AS)			
Business Administration	X	X	X
Education	X	X	X
Engineering		X	X
General Studies	X	X	X
Science	X	X	X
ASSOCIATE IN APPLIED SCIENCE (AAS)			
<u>Agricultural and Natural Resources Technology</u>			
Horticulture			
<u>Arts and Design Technology</u>			
Commercial Art		X	
Media Advertising Arts			X
<u>Business Technology</u>			
Accounting	X	X	X
Banking and Finance	X	X	X
Data Processing		X	X
Hotel-Restaurant-Institutional Management		X	X

	<u>Colleges</u>		
	New River	Virginia Western	Tidewater
Management	X	X	X
Merchandising Management Specialization	X	X	X
Real Estate		X	X
Secretarial Science	X	X	X
Traffic and Transportation Management		X	X
<u>Engineering and Industrial Technology</u>			
Architecture		X	
Automotive	X	X	
Civil		X	
Drafting and Design	X		X
Electrical/Electronics	X	X	X
Industrial Technology	X		
Instrumentation	X		
Machine	X		
Mechanical		X	
<u>Health Technology</u>			
Dental Hygiene		X	
Mental Health		X	
Nursing		X	X
Radiologic Technology		X	
Respiratory Therapy			X

	Colleges		
	New River	Virginia Western	Tidewater
<u>Public Service Technology</u>			
Administration of Justice		X	
Child Care Specialization	X		
Community and Social Service	X		X
Fire Science			X
Police Science	X		X
Radio and Television Production		X	
Recreation Leadership			X

## DEVELOPMENTAL PROGRAMS

(Developmental programs are designed to help students develop the basic skills and understanding necessary to succeed in other programs of the community college.)

## UNCLASSIFIED STUDENTS

(Students Not Working Toward a Degree)

Auditing a course

Career Exploration

Curricular Goals

Developing Skills for New Job

General Knowledge and Personal Satisfaction

General or Curricular Requirements Pending  
(with college approval)

High School Student  
(with college approval)

Non-degree Transfer Student

Restricted Enrollment

Transient Student

Upgrading Employment Skills for Present Job

APPENDIX C

GENERAL EDUCATION REQUIREMENTS FOR ASSOCIATES DEGREES  
IN THE VIRGINIA COMMUNITY COLLEGE SYSTEM AS OUTLINED  
IN THE CATALOGS OF THE THREE COLLEGES  
IN THE STUDY

MINIMUM REQUIREMENTS for ASSOCIATE DEGREES

Associate in Arts (AA)  
Associate in Science (AS)  
Associate in Applied Science (AAS)

	Number of Credits (Quarter Hours)		
	<u>AA</u>	<u>AS</u>	<u>AAS</u>
<u>Humanities</u>			
English Composition	9	9	0
Communication Skills	0	0	6-9
Literature (English, American, or World)	6-9	0-3	-
English or Speech	0-3	0-3	0-3
Art, Drama, Music, Humanities and/or Philosophy	0-6	0-3	-
Foreign Language	12-24 <sup>b</sup>		
<u>Social Sciences</u>			
History (American or Western Civilization)	9	3-9	-
Economics	0-9	0-9	3
Government	0-9	0-9	3
Psychology or Human Relations	0-9	0-9	3
Sociology	0-9	0-9	-
<u>Natural Sciences and Mathematics</u>			
Natural Sciences (Laboratory) (Biology, Chemistry, Geology, Physics)	12-15	12-24	-
Mathematics	9	9	-
Health, Physical Education or Recreation	3-6	3-6	3-6
Orientation	1	1	1
Electives and Other Major Field Requirements	<u>3-21<sup>a</sup></u>	<u>48</u>	<u>75<sup>e</sup></u>
MINIMUM TOTAL NUMBER of CREDITS for DEGREE	97	97	97

<sup>a</sup>Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and further to consult with the Counseling Department of the community college in planning their program and selecting electives.

<sup>b</sup>Students who have successfully completed two years of a foreign language in high school may petition for advance placement to the sophomore course of this foreign language.

<sup>c</sup>In addition to the history requirements, the student shall complete a total of nine quarter-hours credit in the social sciences which may include economics, government, sociology and/or psychology.

<sup>d</sup>SOSC 101-102-103 may be substituted for ECON, GOVT, and PSYC.

<sup>e</sup>The Associate in Applied Science degree programs should be organized approximately as follows:

Specialized and degree related courses	50%
General education courses	25%
College electives	25%

APPENDIX D

DIRECTIONS GIVEN TO THE PANEL OF EXPERTS

302 U.C.O.B.  
Virginia Tech  
Blacksburg, Virginia 24061

I am in the process of preparing my dissertation which deals with identifying patterns of student course-taking in general education at three community colleges in Virginia. I would like to enlist your help as a doctoral candidate who has both studied community college curriculum and worked in a community college. Hopefully, your experience in the Community College Education Program at Virginia Tech has provided you with a broad knowledge of curriculum, and your experience in the community college has provided you with a special knowledge of the structure and content of general education in the various programs of the community college; it is this knowledge that I would like to tap.

One crucial step in my dissertation is to determine which courses among the many in the various disciplines and subject areas are general education courses. I need your help in assigning these courses to categories of general education.

Thank you for your cooperation. The enclosed materials will explain the manner in which I would like you to assign courses to categories. Although I know that you are quite busy with your own dissertation, it will be a great help to me if you will return these materials by August 20. I have provided a stamped, self-addressed envelope for your convenience.

If you need more information, call me at 382-9537 (home) or 961-6009 (office). Again, thanks.

Sincerely,

Lois A. Beeken



## INSTRUCTIONS FOR CATEGORIZING GENERAL EDUCATION COURSES

The purpose of this dissertation is to identify student course-taking patterns in general education at three community colleges in Virginia. The methodology is transcript analysis. In order to record the general education courses taken by students, it is necessary first to ask your help in assigning these courses to five broad categories of general education: Basic Skills; Advanced Skills; Integrative; Laboratory, Studio, or Field Study. These categories are defined on pages 2 and 3.

A list of courses in various disciplines and subject areas appears on pp. 4-30. You are asked to assign these courses to categories according to the directions below.

## Directions:

To the right of the title of each course, check ONE category to which you feel the course belongs. The courses will thus be designated by you to be BASIC SKILLS COURSE; ADVANCED SKILLS COURSE; BREADTH COURSE; INTEGRATIVE COURSE; LABORATORY, STUDIO, OR FIELD STUDY COURSE; OR NOT GENERAL EDUCATION COURSE. Use the definitions on pages 2 and 3 to understand the general meaning attached to each category. Although you may be tempted to check more than one category for a course in some instances, please remember that I am looking for consensus regarding the placement of courses. Check only one category for any one course.

## DEFINITIONS OF CATEGORIES

BASIC SKILLS COURSES: Basic Skills courses (100 level) are those in which emphasis is placed upon the building of new strengths and the enhancement of skills and knowledge (Cross, 1976, pp. 30-31). They are not remedial and are not necessarily prerequisites for the more advanced courses (200 level).

ADVANCED SKILLS COURSES: Advanced Skills courses are those which equip the student for sustained college-level study and for lifelong learning (Levine, 1979, p. 517). The most common advanced skills subjects are English composition, mathematics, foreign language and physical education (The Carnegie Foundation for the Advancement of Teaching, 1979, p. 167).

BREADTH COURSES: These courses expose the student to the content, traditions and methods of the main subject fields (The Carnegie Foundation for the Advancement of Teaching, 1979, p. 169). These are introductory and survey courses, designed to give students some sampling of the major streams of human thought and to help them in selecting their major emphasis for study. Examples of courses in this category are Introductory Sociology and General Art.

INTEGRATIVE COURSES: These courses are designed to help the student to "understand mankind's changing environment and the place of the individual within it, and, at the least, to think of some broad series of problems beyond the confines of the major or of individual elective courses" (The Carnegie Foundation for the Advancement of Teaching, 1979, p. 9). The focus is on the concerns of modern society rather than on the classical themes of some of the more traditional courses, although the instructional methodology may draw upon that of the traditional courses. Examples of courses in this category are Religion and Society and Women in History.

LABORATORY, STUDIO, OR FIELD STUDY COURSES: In these courses the student spends a large amount of time working in a laboratory, studio, or field setting under the supervision of one or more instructors. These are not traditional lecture-type courses; the focus is upon students working on projects in an individualized style. Some subjects included in this category are art, music, science, and social studies.

PLEASE CHECK ONE CATEGORY FOR EACH COURSE:<sup>a</sup>

-----courses-----categories-----  
 check only one category for any one course

NO. AND TITLE OF COURSE	TYPE OF COURSE:				LABORATORY, STUDIO, OR FIELD STUDY COURSE	NOT GENERAL EDUCATION
	BASIC SKILLS COURSE	ADVANCED SKILLS COURSE	BREADTH COURSE	INTEGRATIVE COURSE		
ARTS						
101-102-103 General Art	---	---	---	---	---	---
104-105-106 Introduction to the arts	---	---	---	---	---	---
107-108-109 Fundamentals of Art	---	---	---	---	---	---
110 Art Appreciation	---	---	---	---	---	---
111-112-113 History & Appreciation of Art	---	---	---	---	---	---
115 Art in World Culture	---	---	---	---	---	---
118 Museum Survey	---	---	---	---	---	---
121-122-123 Theory & Practice of Drawing	---	---	---	---	---	---
127 Creative Activities for Children	---	---	---	---	---	---
131-132-133 Theory and Practice of Ceramics	---	---	---	---	---	---
151-152 Fundamentals of Design	---	---	---	---	---	---

<sup>a</sup>The format of this page and that of the other 26 pages of courses were the same.

APPENDIX E

LETTER FROM VIRGINIA COMMUNITY COLLEGE SYSTEM  
GIVING PERMISSION TO CONDUCT STUDY



**VIRGINIA COMMUNITY COLLEGE SYSTEM**  
7 NORTH 8TH STREET, P.O. BOX 1558, RICHMOND, VIRGINIA 23212, AREA CODE 804/786-2231

March 21, 1980

Ms. Lois Beeken  
302 U. C. O. B.  
Blacksburg, VA 24061

Dear Ms. Beeken:

We have received your proposal for "A Study of the General Education Component of the Community College Curriculum through Transcript Analysis at Selected Virginia Colleges."

We found the study's research design to be well organized, and the study results should be meaningful to everyone interested in community college academic planning and program development. The study is acceptable to the Research and Information Committee, Advisory Council of Presidents (VCCS). You should proceed to contact, formally, the presidents of New River Community College, Tidewater Community College, and Virginia Western Community College to request their cooperation in the study.

Please keep us informed about your progress with this doctoral study.

Sincerely yours,

Elmo Roesler, Director  
Institutional Studies &  
Reports

ER/sr

cc: Dr. Perry Adams, Vice Chancellor  
Academic Affairs and Planning

Dr. William McCoy, President, Lord Fairfax Community College  
Chairman, Research and Information Committee

APPENDIX F  
CODING SYSTEM  
FOR  
GENERAL EDUCATION COURSES

## Coding System for General Education Courses

Each general education course was assigned a 5-digit number prior to the coding of courses for computer analysis. The first digit represented the general area of curriculum, i.e., humanities; the second and third digits represented the discipline, i.e., arts; the fourth digit represented the category of the course (as assigned by the panel of experts), i.e., laboratory, field study, or studio course; the fifth digit represented the level of the course, i.e., first or second level. The following is an example of a course number:

10151 This course is a humanities course (1); arts (01); laboratory, field study, or studio course (5); first level (1).

## Key to Coding System

First Digit of Course Code Number

<u>Component of General Education:</u>	<u>Number Assigned:</u>
Humanities and Fine Arts	1
English	2
Mathematics	3
Natural Science	4
Social Science	5
Physical Education and Health	6

Second and Third Digits of Course Code Number

<u>Discipline or Subject Area:</u>	<u>Number Assigned:</u>
Arts	01
Biology	02
Chemistry	03



<u>Discipline or Subject Area:</u>	<u>Number Assigned:</u>
Economics	04
English	05
French	06
Geography	07
Geology	08
German	09
Government	10
Health	11
History	12
Humanities	13
Italian	14
Mathematics	15
Music	16
Natural Science	17
Philosophy/Religion	18
Physical Education/Recreation	19
Physics	20
Psychology	21
Social Science	22
Sociology	23
Spanish	24
Speech and Drama	25

Fourth Digit of Course Code Number

<u>Categories of General Education Courses:</u>	<u>Number Assigned:</u>
Basic Skills Course	1
Advanced Skills Course	2
Breadth Course	3
Integrative Course	4
Laboratory, Field Study, or Studio Course	5
Advanced Skills/Laboratory, Field Study, or Studio Course	6

Fifth Digit of Course Code Number

<u>Level of Course:</u>	<u>Number Assigned:</u>
First	1
Second	2

APPENDIX G

MULTI-RESPONSE TABLES SHOWING STUDENT COURSE-TAKING IN THE SIX  
COMPONENTS OF GENERAL EDUCATION BY CATEGORIES  
OF GENERAL EDUCATION COURSES

Table 1  
 Transfer Students: Completers of Programs  
 Student Course-taking in English by Categories of English Courses  
 (N=57)

Number of English Courses Taken	Categories of English Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	0 (0)
1	0	0	0	0	0	0	0 (0)
2	2	0	0	0	0	0	1 (2)
3	0	12	0	0	0	0	4 (7)
4	4	17	0	0	0	3	6 (11)
5	1	24	0	0	0	1	5 (9)
6 or more	11	185	0	0	7	42	41 (72)
Column Total	18 (6)	238 (77)	0 (0)	0 (0)	7 (2)	46 (15)	57 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 2  
 Transfer Students: Completers of Programs  
 Student Course-taking in Mathematics by Categories of Mathematics Courses  
 (N=57)

Number of Mathematics Courses Taken	Categories of Mathematics Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	0 (0)
1	0	0	0	0	0	0	0 (0)
2	13	0	0	0	0	5	9 (16)
3	45	7	0	0	0	26	26 (46)
4	5	6	0	0	0	25	9 (16)
5	2	6	0	0	0	12	4 (7)
6 or more	10	13	0	0	0	25	9 (16)
Column Total	75 (38)	32 (16)	0 (0)	0 (0)	0 (0)	93 (47)	57 (101) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 3  
 Transfer Students: Completers of Programs  
 Student Course-taking in Natural Science by Categories of Natural Science Courses  
 (N=57)

Number of Natural Science Courses Taken	Categories of Natural Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	5 (9)
1	0	0	0	0	0	0	0 (0)
2	0	0	6	0	0	0	3 (5)
3	0	0	99	0	0	0	33 (58)
4	0	0	12	0	2	1	4 (7)
5	0	1	4	0	0	0	1 (2)
6 or more	0	2	33	0	3	27	11 (19)
Column Total	0 (0)	3 (2)	154 (81)	0 (0)	5 (3)	28 (15)	57 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 4  
 Transfer Students: Completers of Programs  
 Student Course-taking in Social Science by Categories of Social Science Courses  
 (N=57)

Number of Social Science Courses Taken	Categories of Social Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	0 (0)
1	0	0	1	0	0	0	1 (2)
2	0	0	0	0	0	0	0 (0)
3	4	0	17	0	0	0	7 (12)
4	0	0	7	0	0	1	2 (4)
5	11	0	18	1	0	0	6 (11)
6	23	0	58	2	0	1	14 (25)
7	3	0	16	0	0	2	3 (5)
8	9	0	13	0	0	0	3 (5)
9 or more	42	0	136	4	3	4	21 (37)
Column Total	92 (24)	0 (0)	266 (71)	7 (2)	3 (0)	8 (2)	57 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 5

Transfer Students: Completers of Programs  
 Student Course-taking in Humanities/Fine Arts by Categories of Humanities/Fine Arts Courses  
 (N=57)

Number of Humanities/ Fine Arts Courses Taken	Categories of Humanities/Fine Arts Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	2 (4)
1	0	1	0	0	0	0	1 (2)
2	0	0	0	0	0	0	0 (0)
3	0	0	24	0	0	0	8 (14)
4	7	0	34	0	0	0	10 (18)
5	8	1	31	0	0	4	9 (16)
6	5	6	52	0	1	2	11 (19)
7	5	5	24	0	0	0	5 (9)
8	0	0	0	0	0	0	0 (0)
9 or more	4	18	38	0	13	25	11 (19)
Column Total	29 (9)	31 (10)	23 (66)	0 (0)	14 (5)	31 (10)	57 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.



Table 6

Transfer Students: Completers of Programs

Student Course-taking in Physical Education/Health by Categories of Physical Education/Health Courses

(N=57)

Number of Physical Education/Health Courses Taken	Categories of Physical Education/Health Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	6 (10)
1	2	6	13	0	0	0	21 (37)
2	2	8	5	0	1	0	8 (14)
3 or more	4	51	6	0	2	3	22 (39)
Column Total	8 (8)	65 (63)	24 (23)	0 (0)	3 (3)	3 (3)	57 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 7  
 Transfer Students: Non-Completers of Programs  
 Student Course-taking in English by Categories of English Courses  
 (N=194)

Number of English Courses Taken	Categories of English Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	44 (23)
1	5	20	0	0	0	0	25 (13)
2	13	29	0	0	0	0	21 (11)
3	18	117	0	0	0	0	45 (23)
4	5	59	0	0	0	8	18 (9)
5	3	43	0	0	0	9	11 (6)
6	10	140	0	1	4	25	30 (15)
Column Total	54 (11)	408 (80)	0 (0)	1 (0)	4 (0)	42 (8)	194 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 8

Transfer Students: Non-Completers of Programs

Student Course-taking in Mathematics by Categories of Mathematics Courses

(N=194)

Number of Mathe- matics Courses Taken	Categories of Mathematics Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	95 (49)
1	9	3	0	0	0	11	23 (12)
2	26	2	0	0	0	18	23 (12)
3	45	9	0	0	0	58	38 (20)
4	8	8	0	0	0	20	9 (5)
5	3	7	0	0	0	5	3 (2)
6	6	12	0	0	0	0	3 (2)
Column Total	97 (39)	41 (16)	0 (0)	0 (0)	0 (0)	112 (45)	194 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 9

## Transfer Students: Non-Completers of Programs

## Student Course-taking in Natural Science by Categories of Natural Science Courses

(N=194)

Number of Natural Science Courses Taken	Categories of Natural Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	105 (54)
1	0	0	16	0	0	4	20 (10)
2	0	0	30	0	0	2	16 (8)
3	0	1	75	0	0	16	31 (16)
4	1	0	23	0	2	2	7 (4)
5	0	2	17	0	2	4	5 (3)
6	6	6	26	0	0	22	10 (5)
Column Total	7 (3)	9 (4)	187 (73)	0 (0)	4 (2)	50 (19)	194 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 10

Transfer Students: Non-Completers of Programs  
 Student Course-taking in Social Science by Categories of Social Science Courses  
 (N=194)

Number of Social Science Courses Taken	Categories of Social Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	62 (32)
1	4	0	15	0	0	1	20 (10)
2	11	0	31	0	0	4	23 (12)
3	31	6	45	2	0	2	27 (14)
4	11	1	36	1	0	3	13 (7)
5	7	2	47	0	1	3	12 (6)
6	19	3	66	6	0	2	16 (8)
7	15	1	36	1	1	2	8 (4)
8	5	0	10	0	0	1	2 (1)
9 or more	22	1	69	2	1	4	11 (6)
Column Total	125 (24)	14 (3)	355 (67)	12 (2)	3 (1)	22 (4)	194 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 11

Transfer Students: Non-Completers of Programs  
 Student Course-taking in Humanities/Fine Arts by Categories of Humanities/Fine Art Courses  
 (N=194)

Number of Humanities/ Fine Arts Courses Taken	Categories of Humanities/Fine Arts Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	51 (26)
1	4	1	15	0	0	3	23 (12)
2	1	0	36	0	2	1	20 (10)
3	4	5	105	0	1	2	39 (20)
4	2	0	36	0	1	1	10 (5)
5	9	7	61	1	0	7	17 (9)
6	7	8	42	1	0	2	10 (5)
7	8	3	36	0	0	2	7 (4)
8	2	0	7	0	2	5	2 (1)
9 or more	22	21	54	0	14	24	15 (8)
Column Total	59 (10)	45 (8)	392 (69)	2 (0)	20 (4)	47 (8)	194 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 12

Transfer Students: Non-Completers of Programs

Student Course-taking in Physical Education/Health by Categories of Physical Education/Health Courses

(N=194)

Number of Physical Education/Health Courses Taken	Categories of Physical Education/Health Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	99 (51)
1	3	13	24	0	1	2	43 (22)
2	1	30	14	0	2	5	26 (13)
3 or more	4	56	14	0	3	1	26 (13)
Column Total	8 (5)	99 (57)	52 (30)	0 (0)	6 (3)	8 (5)	194 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 13  
 Non-Transfer Students: Completers of Programs  
 Student Course-taking in English by Categories of English Courses  
 (N=135)

Number of English Courses Taken	Categories of English Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	5 (4)
1	3	2	0	0	0	0	5 (4)
2	71	11	0	0	0	0	41 (30)
3	95	84	0	0	0	1	60 (44)
4	28	35	0	0	0	1	16 (12)
5	4	6	0	0	0	0	2 (2)
6 or more	10	17	0	0	0	9	6 (4)
Column Total	211 (56)	155 (41)	0 (0)	0 (0)	0 (0)	11 (3)	135 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.



Table 14  
 Non-Transfer Students: Completers of Programs  
 Student Course-taking in Mathematics by Categories of Mathematics Courses  
 (N=135)

Number of Mathematics Courses Taken	Categories of Mathematics Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	22 (16)
1	6	0	0	0	0	1	7 (5)
2	47	1	0	0	0	1	24 (18)
3	133	0	0	0	0	32	55 (41)
4	60	4	0	0	0	16	20 (15)
5	3	6	0	0	0	11	4 (3)
6 or more	6	6	0	0	0	6	3 (2)
Column Total	255 (75)	17 (5)	0 (0)	0 (0)	0 (0)	67 (20)	135 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 15

Non-Transfer Students: Completers of Programs

Student Course-taking in Natural Science by Categories of Natural Science Courses

(N=135)

Number of Natural Science Courses Taken	Categories of Natural Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	79 (59)
1	1	0	0	0	0	10	10 (7)
2	0	0	0	0	0	18	9 (7)
3	11	4	19	0	0	44	26 (19)
4	3	0	7	0	0	2	3 (2)
5	0	0	3	0	0	2	1 (0)
6 or more	0	3	16	0	0	22	7 (5)
Column Total	15 (9)	7 (4)	45 (27)	0 (0)	0 (0)	98 (59)	135 (99) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row and column percentage do not equal 100.

Table 16

Non-Transfer Students: Completers of Programs  
 Student Course-taking in Social Science by Categories of Social Science Courses  
 (N=135)

Number of Social Science Courses Taken	Categories of Social Science Courses							Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken		
0	0	0	0	0	0	0	0	1 (0)
1	1	0	0	0	0	0	0	1 (0)
2	12	0	12	0	0	2	2	13 (10)
3	59	0	121	2	0	1	1	61 (45)
4	18	3	44	6	1	0	0	18 (13)
5	4	1	15	0	0	0	0	4 (3)
6	16	0	34	0	0	3	3	9 (7)
7	6	3	42	3	0	2	2	8 (6)
8	6	1	22	1	0	2	2	4 (3)
9 or more	21	5	94	15	0	9	9	16 (12)
Column Total	143 (24)	13 (2)	384 (65)	27 (5)	1 (0)	19 (3)	19 (3)	135 (99) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row and column percentage do not equal 100.

Table 17

Non-Transfer Students: Completers of Programs  
Student Course-taking in Humanities/Fine Arts by Categories of Humanities/Fine Arts Courses  
(N=135)

Number of Humanities/ Fine Arts Courses Taken	Categories of Humanities/Fine Arts Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	38 (28)
1	58	0	2	0	0	1	61 (45)
2	9	2	10	0	0	3	12 (9)
3	11	1	17	0	4	0	11 (8)
4	4	1	8	0	0	3	4 (3)
5	2	2	9	0	2	0	3 (2)
6	0	0	0	0	0	0	0 (0)
7	0	0	0	0	0	0	0 (0)
8	0	0	0	0	0	0	0 (0)
9 or more	28	5	17	0	1	3	6 (4)
Column Total	112 (55)	11 (5)	63 (31)	0 (0)	7 (4)	10 (3)	135 (99) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row and column percentage do not equal 100.

Table 18

Non-Transfer Students: Completers of Programs

Student Course-taking in Physical Education/Health by Categories of Physical Education/Health Courses

(N=135)

Number of Physical Education/Health Courses Taken	Categories of Physical Education/Health Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	23 (17)
1	3	0	51	0	0	1	55 (41)
2	17	16	22	0	1	0	28 (21)
3 or more	15	49	15	0	4	4	29 (21)
Column Total	38 (19)	65 (32)	88 (44)	0 (0)	5 (2)	5 (2)	135 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 19  
 Non-Transfer Students: Non-Completers of Programs  
 Student Course-taking in English by Categories of English Courses  
 (N=264)

Number of English Courses Taken	Categories of English Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	82 (31)
1	33	22	0	0	0	1	56 (21)
2	70	45	0	0	0	0	57 (22)
3	62	69	0	0	0	7	46 (17)
4	31	29	0	0	0	3	16 (6)
5	5	12	0	0	0	3	4 (2)
6 or more	0	15	0	0	0	3	3 (1)
Column Total	201 (49)	192 (47)	0 (0)	0 (0)	0 (0)	17 (4)	264 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 21

## Non-Transfer Students: Non-Completers of Programs

## Student Course-taking in Natural Science by Categories of Natural Science Courses

(N=264)

Number of Natural Science Courses Taken	Categories of Natural Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	222 (84)
1	3	0	10	0	0	5	18 (7)
2	0	0	6	0	0	8	7 (3)
3	3	2	21	0	0	10	12 (5)
4	0	1	0	0	0	3	1 (0)
5	0	0	0	0	0	10	2 (0)
6 or more	0	2	7	0	0	3	2 (0)
Column Total	6 (6)	5 (5)	44 (47)	0 (0)	0 (0)	39 (41)	264 (99) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row and column percentage do not equal 100.

Table 20

Non-Transfer Students: Non-Completers of Programs

Student Course-taking in Mathematics by Categories of Mathematics Courses

(N=264)

Number of Mathematics Courses Taken	Categories of Mathematics Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	137 (52)
1	35	0	0	0	0	2	38 (14)
2	45	0	0	0	0	9	26 (10)
3	117	0	0	0	0	38	52 (20)
4	15	4	0	0	0	14	8 (3)
5	7	0	0	0	0	8	3 (0)
6 or more	0	0	0	0	0	0	0 (0)
Column Total	219 (74)	4 (1)	0 (0)	0 (0)	0 (0)	71 (24)	264 (99) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row and column percentage do not equal 100.



Table 22

## Non-Transfer Students: Non-Completers of Programs

## Student Course-taking in Social Science by Categories of Social Science Courses

(N=264)

Number of Social Science Courses Taken	Categories of Social Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	77 (29)
1	19	2	19	1	0	2	43 (16)
2	32	2	39	1	0	4	39 (15)
3	50	2	108	1	2	2	55 (21)
4	17	2	32	1	0	0	13 (5)
5	5	0	38	0	0	2	9 (3)
6	12	0	15	1	0	0	5 (2)
7	4	1	38	0	0	0	6 (2)
8	4	0	27	0	0	1	4 (2)
9 or more	11	2	83	17	0	4	13 (5)
Column Total	154 (26)	11 (2)	399 (66)	22 (4)	2 (0)	15 (2)	264 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 23

Non-Transfer Students: Non-Completers of Programs  
 Student Course-taking in Humanities/Fine Arts by Categories of Humanities/Fine Arts Courses  
 (N=264)

Number of Humanities/ Fine Arts Courses Taken	Categories of Humanities/Fine Arts Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	163 (62)
1	48	0	7	0	0	3	58 (22)
2	5	3	14	2	0	2	13 (5)
3	2	0	7	0	0	6	5 (2)
4	5	0	15	0	1	3	6 (2)
5	9	1	17	1	2	5	7 (3)
6	1	6	15	0	2	0	4 (2)
7	0	0	0	0	0	0	0 (0)
8	0	0	0	0	0	0	0 (0)
9 or more	37	11	16	0	2	6	8 (3)
Column Total	107 (42)	21 (8)	91 (36)	3 (1)	7 (3)	25 (10)	264 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, column percentage does not equal 100.

Table 24

Non-Transfer Students: Non-Completers of Programs

Student Course-taking in Physical Education/Health by Categories of Physical Education/Health Courses

(N=264)

Number of Physical Education/Health Courses Taken	Categories of Physical Education/Health Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	151 (57)
1	9	19	32	0	2	2	63 (24)
2	5	23	16	0	2	0	23 (9)
3 or more	3	63	11	0	0	4	27 (10)
Column Total	17 (9)	105 (55)	59 (31)	0 (0)	4 (2)	6 (3)	264 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 25  
 Non-Curricular Students  
 Student Course-taking in English by Categories of English Courses  
 (N=257)

Number of English Courses Taken	Categories of English Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	209 (81)
1	8	11	0	0	0	0	19 (7)
2	16	14	0	0	0	0	15 (6)
3	6	24	0	0	0	0	10 (4)
4	2	6	0	0	0	0	2 (1)
5	2	6	0	0	0	2	2 (1)
6 or more	0	0	0	0	0	0	0 (0)
Column Total	34 (35)	61 (63)	0 (0)	0 (0)	0 (0)	2 (2)	257 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 26  
 Non-Curricular Students  
 Student Course-taking in Mathematics by Categories of Mathematics Courses  
 (N=257)

Number of Mathematics Courses Taken	Categories of Mathematics Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	241 (94)
1	6	0	0	0	0	3	9 (4)
2	8	1	0	0	0	0	4 (2)
3	3	0	0	0	0	3	2 (0)
4	0	1	0	0	0	3	1 (0)
5	0	0	0	0	0	0	0 (0)
6 or more	0	0	0	0	0	0	0 (0)
Column Total	17 (61)	2 (7)	0 (0)	0 (0)	0 (0)	9 (32)	257 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

Table 27

## Non-Curricular Students

## Student Course-taking in Natural Science by Categories of Natural Science Courses

(N=257)

Number of Natural Science Courses Taken	Categories of Natural Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	241 (94)
1	5	1	3	0	1	2	7 (3)
2	0	0	10	0	0	0	5 (2)
3	0	0	6	0	0	0	2 (0)
4	0	0	0	0	0	0	0 (0)
5	0	0	0	0	0	0	0 (0)
6 or more	0	2	6	0	0	4	2 (0)
Column Total	5 (13)	3 (8)	25 (63)	0 (0)	1 (3)	6 (15)	257 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 28

Non-Curricular Students  
Student Course-taking in Social Science by Categories of Social Science Courses  
(N=257)

Number of Social Science Courses Taken	Categories of Social Science Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	190 (74)
1	9	0	19	0	4	2	34 (13)
2	9	2	20	1	0	0	16 (6)
3	7	1	21	1	0	0	10 (4)
4	2	1	9	0	0	0	3 (1)
5	0	0	0	0	0	0	0 (0)
6	3	1	10	1	0	3	4 (2)
7	0	0	0	0	0	0	0 (0)
8	0	0	0	0	0	0	0 (0)
9 or more	1	1	4	2	0	1	0 (0)
Column Total	31 (23)	6 (4)	83 (61)	5 (4)	4 (3)	6 (4)	257 (100) <sup>b</sup>

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row percentage does not equal 100.

Table 29

Non-Curricular Students  
Student Course-taking in Humanities/Fine Arts by Categories of Humanities/Fine Arts Courses  
(N=257)

Number of Humanities Courses Taken	Categories of Humanities Courses						Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken		
0	0	0	0	0	0	0	218 (85)	
1	4	1	4	0	4	3	16 (6)	
2	0	0	4	0	0	0	2 (0)	
3	4	1	14	0	2	12	11 (4)	
4	0	0	3	0	0	1	0 (0)	
5	1	0	7	0	0	2	2 (0)	
6	4	6	1	0	3	4	4 (2)	
7	3	0	0	0	7	4	2 (0)	
8	1	9	6	0	0	0	2 (0)	
9 or more	0	0	0	0	0	0	0 (0)	
Column Total	17 (15)	17 (15)	39 (34)	0 (0)	16 (14)	26 (23)	257 (100) <sup>b</sup>	

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

<sup>b</sup>Because of rounding, row and column percentage do not equal 100.



Table 30

## Non-Curricular Students

## Student Course-taking in Physical Education/Health by Categories of Physical Education/Health Courses

(N=257)

Number of Physical Education/ Health Courses Taken	Categories of Physical Education/Health Courses						Total Students Taking Courses <sup>a</sup>
	Number of Basic Skills Courses Taken	Number of Adv. Skills Courses Taken	Number of Breadth Courses Taken	Number of Integrative Courses Taken	Number of Lab., Field Study, or Studio Courses Taken	Number of Adv. Skills/Lab., Field Study, or Studio Courses Taken	
0	0	0	0	0	0	0	229 (89)
1	1	9	3	0	4	2	19 (7)
2	1	6	0	0	2	1	5 (2)
3 or more	0	10	2	0	0	0	4 (2)
Column Total	2 (5)	25 (61)	5 (12)	0 (0)	6 (15)	3 (7)	257 (100)

<sup>a</sup>The numbers in this column are not intended to show the totals of the rows. This multi-response table aggregates two sets of data: 1) the various numbers of courses taken in the component and 2) the number of courses taken in the various categories of general education courses.

APPENDIX H  
RESULTS OF CHI SQUARE TESTS NOT REPORTED  
IN MAJOR DISCUSSION

Table 1

Results of Chi Square Tests not Reported in Major Discussion

Subgroup	Crosstabulation		Results of Chi Square Test		
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance
Transfer Students: Completers of Programs (N=57)	No. Courses Taken in General Education	Sex	0.42	2	0.8096
	"	Race	0.00	1	1.0000
	"	Age	0.13	2	0.9359
	"	Enrollment Status	0.05	1	0.8272
	"	Time Enrolled	1.55	1	0.2128
Transfer Students: Non-Completers of Programs (N=194)	No. Courses Taken in General Education	Sex	3.31	2	0.1914
	"	Race	0.16	2	0.9218
	"	Time Enrolled	3.94	2	0.1392
Non-Transfer Students: Completers of Programs (N=135)	No. Courses Taken in General Education	Sex	1.97	2	0.3742
	"	Race	0.00	1	1.0000
	"	Age	2.39	2	0.3025
	"	Enrollment Status	4.61	2	0.1000
Non-Transfer Students: Non- Completers of Programs (N=264)	No. Courses Taken in General Education	Sex	3.67	2	0.1594
	"	Race	0.68	1	0.4111
	"	Age	1.33	2	0.5132
Non-Curricular Students (N=257)	No. Courses Taken in General Education	Sex	1.47	2	0.4805
	"	Race	3.08	1	0.0794
	"	Age	3.67	2	0.1599
	"	Enrollment Status	5.27	1	0.0216 <sup>a</sup>

<sup>a</sup>25% of the valid cells have expected cell frequency less than 5.0.

Table 2

## Results of Chi Square Tests not Reported in Major Discussion

Subgroup	Crosstabulation		Results of Chi Square Test		
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance
Transfer Students: Completers (N=57)	No. Courses Taken in English	Sex	3.34	1	0.0674
	"	Race	0.75	1	0.3851
	"	Age	0.00	1	1.0000
	"	Enrollment Status	0.00	1	1.0000
	"	Time Enrolled	0.17	1	0.6763
	No. Courses Taken in Mathematics	Race	0.55	1	0.4567
	"	Age	0.01	1	0.8928
	"	Enrollment Status	0.18	1	0.6747
	"	Time Enrolled	0.00	1	0.9473
	No. Courses Taken in Natural Science	Sex	3.15	1	0.0757
	"	Race	0.20	1	0.6516
	"	Age	0.00	1	1.0000
	"	Enrollment Status	5.97	1	0.0145 <sup>a</sup>
	"	Time Enrolled	0.23	1	0.6308
	No. Courses Taken in Social Science	Sex	0.05	1	0.8310
	"	Race	0.00	1	0.9253
	"	Age	0.72	1	0.3932
	"	Enrollment Status	0.49	1	0.4856
	"	Time Enrolled	0.00	1	1.0000

<sup>a</sup>25% of the valid cells have expected cell frequency less than 5.0.

Table 2 (Continued)

Subgroup	Crosstabulation		Results of Chi Square Test			
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance	
Transfer Students: Completers (N=57) (Continued)	No. Courses Taken in Humanities/ Fine Arts					
	"	Sex	3.80	1	0.0512	
	"	Race	0.00	1	0.9253	
	"	Age	0.06	1	0.8057	
	"	Enrollment Status	0.00	1	1.0000	
	"	Time Enrolled	0.43	1	0.5097	
	No. Courses Taken in Physical Education/Health					
	"	Sex	0.00	1	1.0000	
	"	Race	0.00	1	0.9253	
	"	Enrollment Status	0.49	1	0.4856	
	"	Time Enrolled	0.02	1	0.8816	
	Transfer Students: Non-Completers of Programs (N=194)	No. Courses Taken in English				
		"	Sex	5.87	6	0.4385
		"	Race	0.00	1	1.0000
"		Age	7.56	6	0.2718	
"		Enrollment Status	5.88	6	0.4362	
"		Time Enrolled	12.17	6	0.0582	

Table 2 (Continued)

Subgroup	Crosstabulation		Results of Chi Square Test		
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance
Transfer Students: Non-Completers (continued)	No. Courses Taken in Mathematics	Race	0.76	1	0.3847
	"	Time Enrolled	4.45	3	0.2167
	No. Courses Taken in Natural Science	Sex	2.71	4	0.6082
	"	Race	0.00	1	0.9333
	No. Courses Taken in Social Science	Sex	2.09	6	0.9112
	"	Race	0.00	1	1.0000
	"	Age	4.40	6	0.6222
	"	Enrollment Status	7.07	6	0.3144
	"	Time Enrolled	8.71	6	0.1908
	No. Courses Taken in Humanities/ Fine Arts	Sex	4.75	6	0.5764
	"	Race	0.03	1	0.8617
	"	Age	5.94	6	0.4305
	"	Time Enrolled	8.52	6	0.2023
	No. Courses Taken in Physical Education/Health	Sex	0.33	3	0.9547
	"	Race	0.03	1	0.8611
	"	Time Enrolled	5.99	3	0.1120

Table 2 (Continued)

Subgroup	Crosstabulation		Results of Chi Square Test		
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance
Non-Transfer Students: Completers of Programs (N=135)	No. Courses Taken in English	Race	0.00	1	1.0000
		Age	4.44	3	0.2177
	"	Enrollment Status	1.66	3	0.6457
		Time Enrolled	3.63	3	0.3045
	No. Courses Taken in Mathematics	Race	1.79	1	0.1812
		Age	3.00	3	0.3906
		Enrollment Status	7.40	3	0.0601
		Time Enrolled	5.41	3	0.1442
	No. Courses Taken in Natural Science	Sex	3.75	2	0.1537
		Race	0.21	1	0.6486
		Age	1.89	2	0.3895
		Enrollment Status	3.06	2	0.2161
		Time Enrolled	4.10	2	0.1289
	No. Courses Taken in Social Science	Sex	1.68	2	0.4308
		Race	0.19	1	0.6605
		Age	3.06	2	0.2166
		Enrollment Status	0.14	2	0.9307
Time Enrolled		0.59	2	0.7435	

Table 2 (Continued)

Subgroup	Crosstabulation		Results of Chi Square Test			
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance	
Non-Transfer: Completers (continued)	No. Courses Taken in Humanities/ Fine Arts	Sex	3.80	3	0.2838	
		Race	0.22	1	0.6383	
		Enrollment Status	1.95	3	0.5828	
		Time Enrolled	3.71	3	0.2950	
	No. Courses Taken in Physical Education/Health	Race	1.40	1	0.2372	
		Enrollment Status	6.26	3	0.0997	
	Non-Transfer Students: Non-Completers of Programs (N=264)	No. Courses Taken in English	Race	0.00	1	1.0000
			Age	6.20	4	0.1847
		No. Courses Taken in Mathematics	Race	0.66	1	0.4151
Age			0.46	3	0.9275	
Time Enrolled			2.51	3	0.4728	
No. Courses Taken in Natural Science		Sex	0.61	2	0.7360	
		Race	0.03	1	0.8645	
		Age	3.79	2	0.1501	
No. Courses Taken in Social Science		Race	2.38	1	0.1227	
		Age	1.42	4	0.8400	
		Enrollment Status	2.06	4	0.7253	
		Time Enrolled	5.85	4	0.2104	



Table 2 (Continued)

Subgroup	Crosstabulation		Results of Chi Square Test			
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance	
Non-Transfer Non-completers (continued)	No. Courses Taken in Humanities/ Fine Arts					
	"	Sex	5.37	3	0.1469	
	"	Race	0.00	1	1.0000	
	"	Age	5.32	3	0.1499	
	"	Enrollment Status	6.77	3	0.0796	
	"	Time Enrolled	2.43	3	0.4887	
	No. Courses Taken in Physical Education/Health					
	"	Sex	0.84	3	0.8405	
	"	Race	2.38	1	0.1227	
	"	Age	1.07	3	0.7854	
	Non-Curricular Students (N=257)	No. Courses Taken in English				
		"	Sex	1.52	2	0.4688
		"	Race	0.00	1	1.0000
		"	Age	3.28	2	0.1943
"		Enrollment Status	0.39	1	0.5324	
No. Courses Taken in Mathematics						
"		Sex	0.55	1	0.4572	
"		Race	0.00	1	1.0000	
"		Age	0.12	1	0.7284	
"		Enrollment Status	3.43	1	0.0640	
"		Time Enrolled	0.00	1	0.9880	
No. Courses Taken in Natural Science						
"		Sex	1.91	1	0.1668	
"		Race	0.00	1	1.0000	
"	Age	3.82	1	0.0505		
"	Enrollment Status	8.94	1	0.0028a		
"	Time Enrolled	0.00	1	0.9880		

<sup>a</sup>25% of the valid cells have expected cell frequency less than 5.0.

Table 2 (Continued)

Subgroup	Crosstabulation		Results of Chi Square Test		
	Independent Variable	Dependent Variable	Chi Square Value	Degrees of Freedom	Significance
Non-Curricular (continued)	No. Courses Taken in Social Science	Sex	1.39	3	0.7083
	"	Race	0.73	1	0.3915
	"	Enrollment Status	3.18	1	0.0744
	"	Time Enrolled	5.42	3	0.1434
	No. Courses Taken in Humanities/ Fine Arts	Sex	4.89	2	0.0865
	"	Race	1.12	1	0.2909
	"	Age	0.41	2	0.8141
	"	Enrollment Status	0.08	1	0.7736
	No. Courses Taken in Physical Education/Health	Sex	3.44	2	0.1793
	"	Race	0.11	1	0.7429
	"	Age	0.25	2	0.8818
	"	Enrollment Status	0.00	1	0.9822
	"	Time Enrolled	1.89	1	0.1692

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THE GENERAL EDUCATION COMPONENT OF THE CURRICULUM  
THROUGH TRANSCRIPT ANALYSIS AT THREE  
VIRGINIA COMMUNITY COLLEGES

by

Lois A. Beeken

(ABSTRACT)

Using transcript analysis as a research methodology, this study investigated student course-taking patterns in general education at three community colleges in Virginia. The sample included three groups: completers and non-completers of associate degree programs and non-curricular students. A panel of experts determined which courses in the curriculum could serve as general education.

One purpose of the study was to discover the number and kind of general education courses actually taken by community college students. This was accomplished by identifying the proportion of students' programs taken in general education; the curricular areas of general education in which students concentrated their course-taking; and the types of general education courses taken (basic skills, advanced skills, breadth, integrative, and laboratory or field study). Another purpose was to determine whether course-taking in general education was independent of sex, race, age, and enrollment status (part-time or full-time; daytime or evening).

The data indicated that general education was not the "disaster area" described by The Carnegie Foundation for the Advancement of Teaching in 1979 in terms of the number of courses taken by students in the sample. However, the programs of many students were out of balance,

specifically lacking in mathematics and science. Two types of general education were evident in student transcripts: one kind of general education course was taken by the occupational-technical student; another, by the transfer student. The number of courses taken in different curricular areas of general education was generally related to enrollment status, age, and sex; comparisons across types of students were drawn and recommendations were made.